

National, regional, and worldwide estimates of low birthweight in 2015, with trends from 2000: a systematic analysis

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Summary

Background Low birthweight (LBW) of less than 2500 g is an important marker of maternal and fetal health, predicting mortality, stunting, and adult-onset chronic conditions. Global nutrition targets set at the World Health Assembly in 2012 include an ambitious 30% reduction in LBW prevalence between 2012 and 2025. Estimates to track progress towards this target are lacking; with this analysis, we aim to assist in setting a baseline against which to assess progress towards the achievement of the World Health Assembly targets.

Methods We sought to identify all available LBW input data for livebirths for the years 2000–16. We considered population-based national or nationally representative datasets for inclusion if they contained information on birthweight or LBW prevalence for livebirths. A new method for survey adjustment was developed and used. For 57 countries with higher quality time-series data, we smoothed country-reported trends in birthweight data by use of B-spline regression. For all other countries, we estimated LBW prevalence and trends by use of a restricted maximum likelihood approach with country-level random effects. Uncertainty ranges were obtained through bootstrapping. Results were summed at the regional and worldwide level.

Findings We collated 1447 country-years of birthweight data (281 million births) for 148 countries of 195 UN member states (47 countries had no data meeting inclusion criteria). The estimated worldwide LBW prevalence in 2015 was 14·6% (uncertainty range [UR] 12·4–17·1) compared with 17·5% (14·1–21·3) in 2000 (average annual reduction rate [AARR] 1·23%). In 2015, an estimated 20·5 million (UR 17·4–24·0 million) livebirths were LBW, 91% from low-and-middle income countries, mainly southern Asia (48%) and sub-Saharan Africa (24%).

Interpretation Although these estimates suggest some progress in reducing LBW between 2000 and 2015, achieving the 2·74% AARR required between 2012 and 2025 to meet the global nutrition target will require more than doubling progress, involving both improved measurement and programme investments to address the causes of LBW throughout the lifecycle.

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Introduction

Low birthweight (LBW) is defined as a birthweight below 2500 g regardless of gestational age¹ and is usually applied to livebirths only. LBW includes both appropriately grown preterm neonates (<37 completed weeks of gestation) and term and preterm growth-restricted neonates (<10th centile of weight for gestational age and sex) but remains an important public health indicator, especially in settings where accurate gestational age assessment is not possible.² LBW is a substantial public health problem in every country, associated with a range of both short-term and long-term consequences affecting human capital.³ More than 80% of neonatal deaths are in LBW newborns, of which two thirds are preterm and one third are term small-for-gestational-age.^{3–6} LBW newborns also have a higher risk of morbidity, stunting in childhood,

and long-term developmental and physical ill health including adult-onset chronic conditions such as cardiovascular disease.^{7–10} Factors influencing LBW include extremes of maternal age (especially younger than 16 years of age or older than 40 years), multiple pregnancy, obstetric complications, chronic maternal conditions (eg, hypertensive disorders of pregnancy), infections (eg, malaria), and nutritional status.^{11–14} Other contributors include exposure to environmental factors, such as indoor air pollution, and tobacco and drug use.¹⁵

In 2012, the World Health Assembly (WHA) endorsed a Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition, which specified six global nutrition targets, including a 30% reduction in the number of LBW livebirths between 2012 and 2025.¹⁶ LBW is thus a key indicator of progress towards the achievement

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Research in context**Evidence before this study**

Low birthweight (LBW; <2500 g), a composite measure of fetal growth and gestational length, is an important indicator of maternal and perinatal health and a predictor of adverse short-term and long-term health outcomes. LBW is a key outcome in global nutrition targets. However, LBW data from administrative data sources have not been systematically collated, existing methods for adjusting survey LBW data are recognised to have several limitations, and no standardised, systematic estimates for LBW prevalence have been produced.

Added value of this study

Through systematic searches (eg, of national statistical offices, ministry of health websites, and websites of the major household survey programmes of Multiple Indicator Cluster Surveys and Demographic and Health surveys), we compiled a global LBW dataset (1447 datapoints from 148 countries). New methods to adjust survey data were developed with UNICEF. We estimate that 20·5 million (uncertainty range 17·4–24·0) livebirths had a birthweight of less than 2500 g in 2015. Most (91%) were in low-income and middle-income countries, with nearly three-quarters in sub-Saharan Africa and southern Asia. Reported data from 57 mostly high-income countries with relatively low baseline suggests almost no change in LBW prevalence. For the

remaining countries, we estimate a 17% reduction in LBW prevalence over the years 2000–15, most notably in the countries with the highest LBW prevalence in 2000. Globally, the annual rate of reduction in LBW from 2000 to 2015 was 1·23%.

Implications of all the available evidence

Data meeting inclusion criteria were available for three quarters of all UN member states, with survey data remaining the primary source in low-income and middle-income countries and administrative data the major source in high-income countries. Data adhering to the inclusion criteria were not available for 47 countries. Closing this data gap is an important priority. Data quality remains a concern, with evidence of missing birthweights and heaping. Our methods attempt to correct for heaping in survey data, but correction was not possible for administrative data. To increase data quality and availability, every newborn, whether live or stillborn, must be weighed, and data systems improved to capture the birthweight of every newborn, including those at home or in private facilities. Rates of LBW reduction worldwide will need to more than double to reach the annual rate of reduction of 2·74% required to meet the ambitious global nutrition target of 30% reduction of LBW by 2025. Action is required both to tackle the underlying causes of LBW and to improve the data.

of the global nutrition targets and monitoring LBW trends is an essential component of the Global Nutrition Monitoring Framework approved by member states at the WHA in May, 2015.¹⁷ These targets are reiterated in the Sustainable Development Goals (SDGs).

Previously, it was estimated that there were 20·6 million LBW livebirths in the year 2000;¹⁸ however, there are no contemporary standardised worldwide, regional, and national estimates or systematic trend estimates for LBW, which are essential for tracking progress towards the global nutrition target. The LBW prevalence and trends presented here aim to fill this gap and assist in setting the baseline against which to assess progress towards the achievement of the WHA targets.

Methods**Overview**

Our study was a systematic analysis of livebirth LBW input data from national administrative sources and nationally representative surveys. We sought to identify all available LBW input data for livebirths. We accessed data that met preset inclusion criteria, and implemented data preprocessing steps, including adjustments to raw data where applicable, to calculate an LBW prevalence from each datapoint—ie, the number of livebirths (regardless of the gestational age) with a birthweight of less than 2500 g divided by the total number of liveborn babies who are weighed or for whom a birthweight could be imputed. Finally, we estimated the LBW prevalence for 195 countries for the years 2000–15 and summed the

results to obtain regional and global estimates. We report national-level estimates for 148 countries with data meeting our inclusion criteria. We present our methods in a manner that follows the Guidelines for Accurate and Transparent Health Estimates Reporting (GATHER) checklist, which promotes transparency, including the sharing of input data and modelling code (appendix).¹⁶

Input data

Figure 1 summarises the administrative and survey data inputs and estimation methods. We considered population-based national or nationally representative datasets for inclusion if they contained information on birthweight or LBW prevalence for livebirths (appendix). Nationally representative estimates of LBW prevalence can be derived from a range of sources, broadly defined as administrative data or representative household surveys. National administrative data are defined as data from national systems including Civil Registration and Vital Statistics (CRVS) systems, national Health Management Information Systems (HMISs), and birth registries. Nationally representative household surveys include Demographic and Health Surveys (DHSs), Multiple Indicator Cluster Surveys (MICSs), and other national surveys.

The optimal data source is a CRVS system that records details on all births, including their birthweight, on a continuous basis.¹⁹ Where all newborns are weighed accurately at birth, birthweight is recorded, registration is complete, and the system functions efficiently, the

See Online for appendix

resulting LBW prevalence will be accurate and timely. However, existing administrative data systems might not cover all births, or might not collect birthweight data at all. In these settings, household surveys, such as the UNICEF-supported MICS and the USAID-supported DHS are important data sources for estimates of child health, including LBW, but are recognised to have biases. These data systems rely on accurate birthweight measurement, but despite increasing prevalence of facility births, many newborns are not weighed, and when weighed, so-called heaping at specific birthweights (eg, multiples of 100 g or 500 g) is common. We excluded subnational or other non-population-based data such as those from demographic surveillance sites and individual hospital data from the LBW data searches as they are rarely nationally representative.

To identify national administrative data, we searched the websites of the national statistical offices (NSOs) and ministries of health of all countries. Data from years 2000–16 were included. For countries with more than one source of national administrative data available for a given year, we gave preference to NSO website data where available. Where NSO data were unavailable, we used data obtained from the Ministry of Health website. We used WHO regional databases and a UNICEF database (TRANSOMNEE)²⁰ to identify countries with national administrative data not retrieved through initial searches. These data were only included if they contained a reference to their source or could be verified as national administrative data from the NSO or Ministry of Health. Where necessary we contacted WHO and UNICEF regional and country offices to request further details of data sources.

We obtained datasets for all DHSs and MICSs with a midpoint of data collection of 1998 or later, and for which raw datasets were publicly available and contained birthweight data.^{21–23} A national team from the China Health Information and Statistics Center of the National Health Commission reanalysed data from the Chinese National Health Services Surveys. If data were available from both national administrative or nationally representative surveys for a given country, all data meeting the inclusion criteria were included in the database and subsequent modelling process.

Where no national administrative or nationally representative survey data were readily available through web-based searches, we contacted UNICEF and WHO regional and country offices in September–December, 2014, and again in autumn 2015 and invited them to provide details of any available national LBW data.

From October, 2017, to January, 2018, we did a joint WHO–UNICEF country consultation process to enable each country to provide feedback on the LBW input data used, modelling methods, and preliminary estimates for their country. We received further data from 55 countries through the consultation process, resulting in 341 new or updated country-year observations.

Exclusions based on population representativeness at a national level

We excluded national administrative data covering less than 80% of the population, or from countries with less than 80% facility births in the data source year or less than 80% of the UN estimated livebirths in a given year. We also excluded survey data that were not nationally representative, as well as those with less than 30% weighed at birth. We applied a lower threshold for coverage of livebirths weighed to surveys ($\geq 30\%$) compared with administrative data sources ($\geq 80\%$) because raw data are available for surveys, allowing multiple imputation of missing birthweights by use of other covariates from the survey. This was not possible for data from administrative sources.

Data quality assessment

We identified several potential sources of bias in LBW data sources (table 1). These include errors in birthweight measurement and recording (including heaping of recorded birthweights on 2500 g), misclassification between livebirths and stillbirths, missing birthweight data, and, for administrative data, non-representativeness at national level of births captured in the data system. Overall, these biases are likely to result in an underestimate of LBW prevalence. We took a two-step approach to seek to adjust for possible biases. First, we

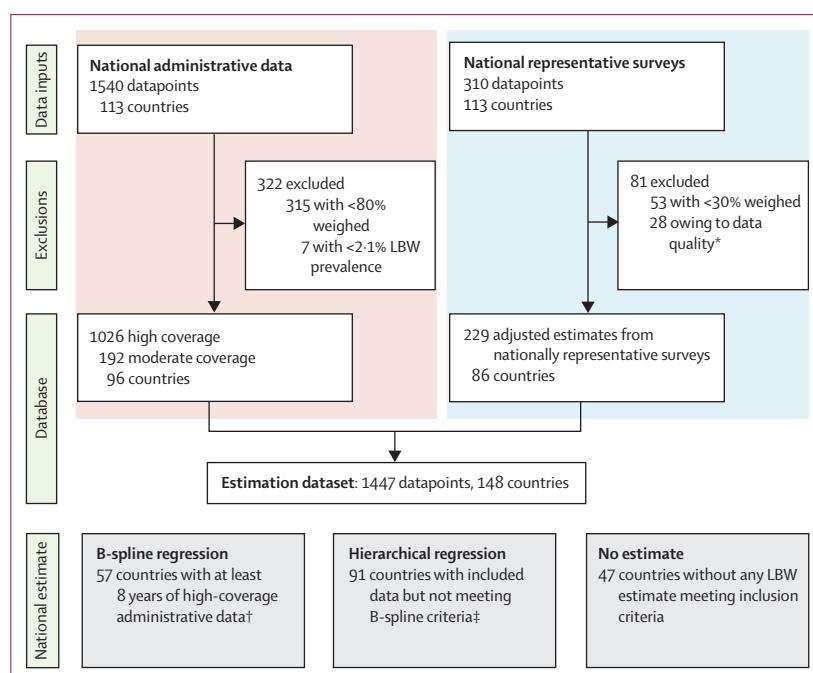


Figure 1: Administrative and survey data inputs and estimation methods

LBW=low birthweight. *28 survey datasets were excluded on quality criteria: seven datasets were excluded because of extreme heaping around three values, nine because more than 10% of births weighed at least 4500 g, one because of excessive heaping on the tail end of the birthweight distribution, seven because of an inability to obtain results from adjustment procedures, and four because very low numbers of livebirths were weighed. †8 years of data between 2000 and 2015, with at least one datapoint before 2005 and one after 2010. ‡The estimate for India was based on partial data for the most recent survey; therefore, modelled estimates are not shown for individual country.

	Likely effect on LBW prevalence estimates*
Coverage of weighing: bias in newborns weighed at birth	
Many newborns in LMICs are not weighed at birth, especially if born at home. These are more likely to be socioeconomically disadvantaged and at higher risk of LBW.	↓
Extremely preterm or sick babies, those stillborn or dying soon after birth and those born around threshold of viability are the most likely to not be weighed. These babies are at high risk of being LBW.	↓
Coverage of data system: bias in newborns included in data source	
Low coverage of administrative data systems in many LMICs (eg, lower coverage of birth registration for those who die shortly after birth, missing home births, and births in private facilities even if weighed). Births in private facilities are more likely to be socioeconomically advantaged and at lower biological risk of LBW; however, high prevalence of medical interventions (eg, caesarean sections both indicated and elective before 37 weeks, may increase risk of LBW).	↓ or ↑
Loss of birthweight data: biases in missing birthweight data†	
In surveys, biases in card retention (eg, birthweight not available for babies who died who are more likely to have been LBW).	↓
Missing administrative birthweight data on sickest babies (frequently LBW) who are transferred immediately to (and weighed in) a newborn ward.	↓
Measurement errors: individual measurement or recording error	
Heaping of recording of birthweight on 2500 g. As definition excludes babies with birthweight exactly 2500 g, those LBW newborns with birthweight near the threshold frequently heaped at 2500 g.	↓
Errors in birthweight measurement (eg, poorly calibrated scales, inappropriate devices), suboptimal weighing practices (eg, clothed or delayed weighing until days after birth).	↓ or ↑
Extremely preterm or sick babies and those born around threshold of viability who die soon after birth are more likely to be misclassified as stillbirth. These babies are at high risk of being LBW.	↓
Measurement units error	
Confusion in surveys collecting data in both lbs and grams (eg, LBW baby weighing 4.0 lb recorded as 4.0 kg).	↓
Denominator calculation errors in LBW prevalence calculation	
LBW prevalence calculated as: number with birthweight <2500 per all livebirths (whether weighed or not).	↓

LBW=low birthweight. *↓=the potential bias is likely to lead to a decreased LBW prevalence. ↑=the potential bias is likely to lead to an increased LBW prevalence. †For newborns who are both included in the data source and weighed at birth.

Table 1: Potential sources of bias in low birthweight data

did a quality assessment of all the available data. Second, where possible, we adjusted included data.

Raw individual-level data were available from household surveys as the datasets are in the public domain, allowing analysis of data quality and recording errors. We excluded surveys with inadequate data quality in three areas as follows. First, implausible birthweight distribution defined as extreme heaping whereby more than 55% of all birthweights in the dataset fall on only three values (eg, >55% of birthweights in the dataset were 2500 g, 3000 g, or 3500 g); more than 10% of births weighed at least 4500 g; or excessive heaping on the tail end of the birthweight distribution with more than 5% of birthweights at 250–500 g and 5500 g. Second, inability to obtain from adjustment procedures of multiple imputation or fitting of a mixture of two normal curves, or both. Third, data from surveys with very low numbers of livebirths weighed (<200) and hence high stochastic variation.

We made no further categorisation of data quality among included surveys. We made adjustments to the data from nationally representative household surveys by use of a revised methodology to seek to overcome the limitations of the previously used approach to address missing birthweights and heaping. We implemented a modelling approach that comprised multiple imputation with individually linked variables for all surveys (appendix). We replicated multiple imputations five times per survey and used several variables related to birthweight available in the survey datasets, including maternal factors (height, body-mass index [BMI], and parity), and newborn factors (sex, singleton–multiple status, and perceived size at birth).

To address heaping, we fitted a mixture of two normal distributions to each survey dataset. Whereas previous studies have found that, under ideal conditions such as low-risk full-term singleton livebirths included in the WHO child growth standards, birthweight is approximately normally distributed,²⁴ this assumption might not apply to all national populations. We tested this assumption in an analysis of high-quality administrative data from the USA.²⁵ Fitting a single normal distribution to this data from which the proportion of LBW could be estimated resulted in an overestimate of the proportion of livebirths with LBW compared with the raw data. This might indicate that the population of all births comprises two or more subpopulations with different distributions. Fitting a mixture of two normal distributions resulted in an estimated proportion of LBW very close to that seen in the raw data. We also investigated fitting a mixture of three normal distributions. However, this did not substantially improve the estimate of the proportion of LBW.

In summary, we estimated the proportion of LBW livebirths from each survey by the use of five steps. First, we developed five datasets that had a birthweight for each livebirth (reported where available or imputed). Second, we fitted two normal distributions to the datasets. Third, we calculated the LBW Z score for each of the two normal distributions:

$$Z_{2500} = \frac{2500 \text{ g} - \text{mean birthweight}}{\text{SD}_{\text{birthweight}}}$$

Fourth, we estimated the percentage of LBW (LBW[%]) for each of the two distribution curves:

$$\text{LBW}(\%) = P(x < Z_{2500})$$

(ie, the percentage of the area under the curve < Z_{2500}). Finally, we estimated the overall LBW prevalence by calculating the LBW(%) of the full dataset, which was a weighted average of the LBW(%) from both curves. The weights used were based on the proportion of the population estimated to belong to each subpopulation.

Since data from administrative data sources in the public domain usually only provide an aggregate number

of LBW livebirths—ie, total livebirths or the reported LBW prevalence without individual-level data, or both—it was not possible to adjust LBW estimates to account for missing data and heaping in these data. To our knowledge, there are no previously used markers of data quality specifically for reported aggregated LBW prevalence. To assess and categorise the quality of available national level routine data, we reviewed previously used data quality criteria from other related maternal and perinatal global estimation exercises.^{6,26,27} Of these, only population representativeness, assessed by completeness of birthweight data, was feasible to apply (appendix). Datapoints from countries with less than 80% facility births or reporting a birthweight for less than 80% of the UN estimated livebirths in a given year were excluded. We further categorised included data into higher quality administrative data (data from countries with a facility birth prevalence $\geq 90\%$ and with the data source covering $\geq 90\%$ of UN estimated livebirths in the given year) and moderate quality administrative data (data from countries with a facility birth prevalence of at least 80% and with the data source covering at least 80% of UN estimated livebirths in the given year, not fulfilling higher quality criteria).

Exclusions based on implausibility

We used conservative cutoffs to identify implausible LBW data. We excluded datapoints with an LBW prevalence of less than 2·1%, on the basis of the lowest population-based LBW prevalence in any country from the INTERGROWTH study.²⁸ Since the INTERGROWTH study only included healthy women at low risk of pregnancy complications, including preterm birth and fetal growth restriction, the national LBW prevalence for all countries would be expected to be substantially higher than this cutoff. For example, the lowest national LBW prevalences from countries with strong national reporting systems are around 4%. The highest population-based LBW prevalence from any data source was 37%.²⁹ We therefore decided to exclude datapoints with LBW prevalence greater than 40%; however, no datapoints were excluded on the basis of LBW prevalence of more than 40% (figure 1).

Estimation of LBW prevalence by year and country

We defined higher quality time series administrative data for LBW prevalence as data from countries with the earliest year of data available before 2005, the latest year after 2010 with data available for at least half of all years, and no evidence of large year-on-year variability in LBW prevalence (coefficient of variation $< 15\%$). We estimated LBW prevalence for all other countries by means of a regression model. We modelled the logarithm of LBW prevalence as the outcome variable by use of restricted maximum likelihood estimation and including a country-level random effect.

We investigated multiple predictor variables associated with LBW, including distal determinants such as

geographical and socioeconomic factors, more proximal demographic and biomedical factors, and markers of perinatal outcome (appendix). We included dummy variables in the model to account for systematic bias in different data types (higher quality national administrative data, moderate quality national administrative data, and nationally representative survey). We included all potential predictors with time series data or estimates available by country for 2000–15 in the model selection process (appendix).

We assessed correlations between predictors by use of the variance inflation factor. We dropped predictors with a variance inflation factor of greater than 10 as this is likely to indicate high correlation with other predictors. We retained predictors when the direction of the coefficient was biologically plausible. We sought to maximise the predictive power of the model, while avoiding overfitting. We removed one predictor at a time from the model, commencing with the predictor with the largest value of the Bayesian information criterion (BIC) on univariate analysis, and refitted the model. If removing this predictor improved the model (lower BIC compared with the model containing the predictor), we dropped the predictor from the model. If the BIC was higher, we retained the predictor. We cycled through all the predictors once.

The final model included the logarithm of neonatal mortality rate, the proportion of children underweight (below $-2SDs$ from median weight for age of reference population), data type (higher quality administrative data, lower quality administrative data, household survey), UN region (southern Asia, sub-Saharan Africa or other region), and a country-specific random effect (table 2). We assessed model performance by use of diagnostic plots. The model seemed to fit the data reasonably well overall ($R^2=0.48$), and both the estimates of the country-specific random effects ($SD 0.31$) and the residuals for the individual datapoints included ($SD 0.11$) appeared to be approximately normally distributed (appendix).

For the 91 countries with data in the input dataset, we included the best linear unbiased prediction of the

	Coefficient (95% CI)
Neonatal mortality prevalence	0.009 (0.005 to 0.012)
Child underweight	0.615 (-0.031 to 1.260)
Region	
Other regions	..
Sub-Saharan Africa	0.300 (0.169 to 0.4)
Southern Asia	0.6 (0.355 to 0.915)
Data type	
High-quality administration data	..
Moderate-quality administration data	-0.008 (-0.0 to 0.002)
Nationally representative survey	0.165 (0.132 to 0.198)

..=baseline category.

Table 2: Model coefficients for included predictor variables of low birthweight prevalence

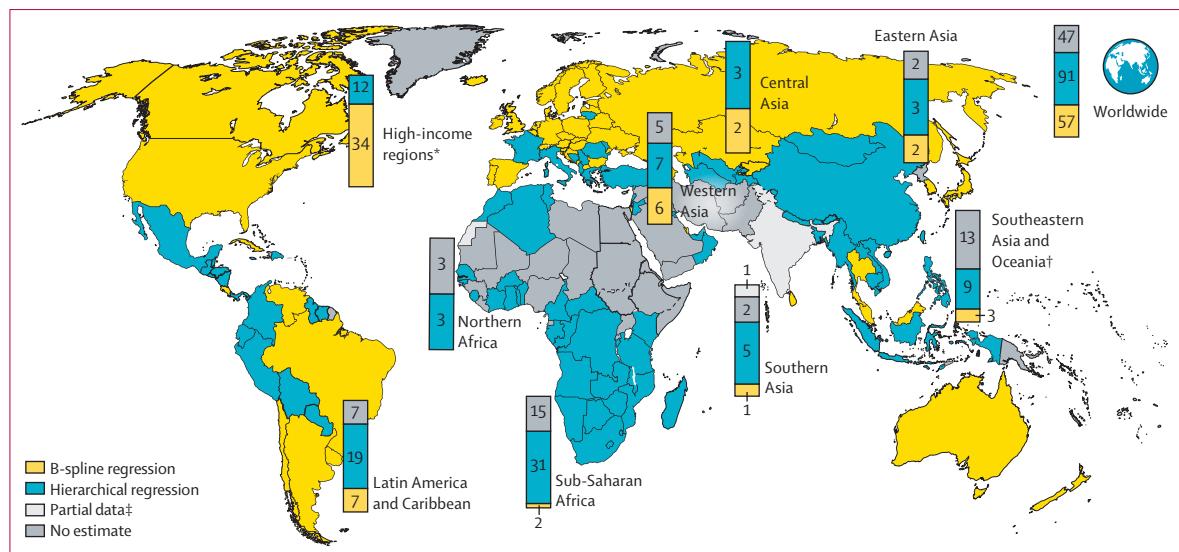


Figure 2: Low birthweight estimate methodology, by country (map) and region (bars), 2000–15

B-spline regression countries met criteria for minimum number of years of highly representative administrative estimates, hierarchical regression countries did not meet B-spline criteria but had at least one estimate meeting inclusion criteria; no estimate countries did not have any LBW estimate which met the inclusion criteria. See appendix for details. *High-income regions include North America, Europe, and Australia and New Zealand. †Southeast Asia and Oceania excluding Australia and New Zealand. ‡Estimate based on partial data for most recent survey, therefore, modelled estimates are not shown for the individual country.

	Number of data inputs	Number of livebirths included	Low birthweight prevalence		
			Mean (SD)	Minimum	Maximum
Overall	1447	281 418 400	8.1% (3.9)	2.2%	32.9%
High-quality administrative data	1026	235 500 000	7.1% (2.5)	2.2%	17.6%
Moderate-quality administrative data	192	44 631 000	7.9% (3.1)	2.4%	15.7%
Nationally representative surveys	229	1287 000	12.9% (5.6)	3.1%	32.9%

Table 3: Low birthweight prevalence input data by type

country-specific effect in the LBW prediction. For countries with no data, contributing only to the regional and global levels, we assumed the country random effect to be zero. We used high-quality national administrative data as the reference standard for prediction purposes for all countries in the higher-income regions (North America, Europe, and Australia and New Zealand). We used nationally representative household surveys as the reference for prediction purposes for countries from all other regions. We generated uncertainty ranges (URs) for modelled estimates by use of a bootstrap approach. When presenting by region we used an aggregate grouping of the United Nations regional subgroups (appendix). To obtain worldwide and regional estimates of uncertainty we summed the country LBW estimate at worldwide or regional level for each of the 1000 samples obtained from the bootstrap or B-spline approach and used the 2.5th and 97.5th centiles of the resulting distributions (appendix). Analyses were done with Stata 14.

We used livebirth estimates from the World Population Prospects: the 2017 revision³⁰ to estimate the absolute number of LBW livebirths (livebirths × low birthweight rate) in a given year. LBW estimates generated from all 195 countries contributed to the regional and global estimates. National-level estimates are presented for the 57 countries with higher quality time series data and 91 other countries with at least one LBW prevalence datapoint since 2000 meeting the inclusion criteria (total 148 countries; figure 2; appendix). The modelled national-level estimate generated is not shown for 47 countries without any input data.

Role of the funding source

The funders of the study had no role in the study design, data collection, data analysis, data interpretation, or writing of the report. HB had full access to all the data in the study and all authors had final responsibility for the decision to submit for publication.

Results

Our final dataset was 1447 country-years of birthweight data (281 million births), comprised of 1026 high-coverage and 192 moderate-coverage datapoints from administrative data sources and data from 229 surveys (figure 1; table 3; appendix). Although data were available for 148 countries, most datapoints were categorised as national administrative data, predominantly from high (65%) or upper middle-income (28%) settings. The majority (54%) of LBW datapoints meeting inclusion criteria from low-income and lower middle-income settings were from household surveys. Countries from high-income regions had an average of 13 datapoints

	2000		2015		Annual rate of reduction in low birthweight prevalence 2000–15
	Low birthweight prevalence per 100 livebirths	Number of low birthweight newborns (UR)	Low birthweight prevalence per 100 livebirths	Number of low birthweight newborns (UR)	
North America, Europe, Australia, and New Zealand	7·0 (6·8–7·2)	832 900 (813 800–856 600)	7·0 (6·8–7·1)	884 400 (866 900–905 600)	0·01%
Northern Africa	13·7 (10·4–19·3)	602 400 (458 800–846 700)	12·2 (9·4–17·9)	712 600 (546 300–1 043 500)	0·77%
Sub-Saharan Africa	16·4 (13·8–20·4)	4 436 000 (3 729 700–5 499 000)	14·0 (12·2–17·2)	5 000 100 (4 349 600–6 146 300)	1·09%
Central Asia	6·0 (5·1–6·9)	71700 (62 000–83 500)	5·4 (4·8–6·1)	85 500 (76 200–96 700)	0·71%
Southern Asia	32·3 (22·4–44·0)	12 694 600 (8 800 300–17 292 700)	26·4 (18·6–35·2)	9 807 400 (6 913 700–13 104 600)	1·37%
Eastern Asia	6·0 (4·9–7·4)	1 111 000 (900 100–1 364 100)	5·3 (4·3–6·6)	1 010 600 (822 600–1 264 800)	0·83%
Western Asia	10·9 (9·0–13·7)	532 300 (437 400–667 200)	9·9 (8·1–12·5)	560 200 (456 400–703 000)	0·63%
Southeast Asia and Oceania*	13·6 (10·1–16·6)	1 598 600 (1 190 300–1 947 200)	12·2 (9·5–14·6)	1 471 000 (1 151 700–1 763 800)	0·75%
Latin America and Caribbean	8·8 (8·1–9·6)	1 023 300 (945 800–1 113 500)	8·7 (8·1–9·6)	938 300 (871 500–1 032 100)	0·07%
Global	17·5 (14·1–21·3)	22 902 400 (18 405 800–27 798 400)	14·6 (12·4–17·1)	20 469 700 (17 375 000–24 017 900)	1·23%

*Excluding Australia and New Zealand.

Table 4: Estimated low birthweight prevalence and number of low birthweight babies for 2000 and 2015, by region

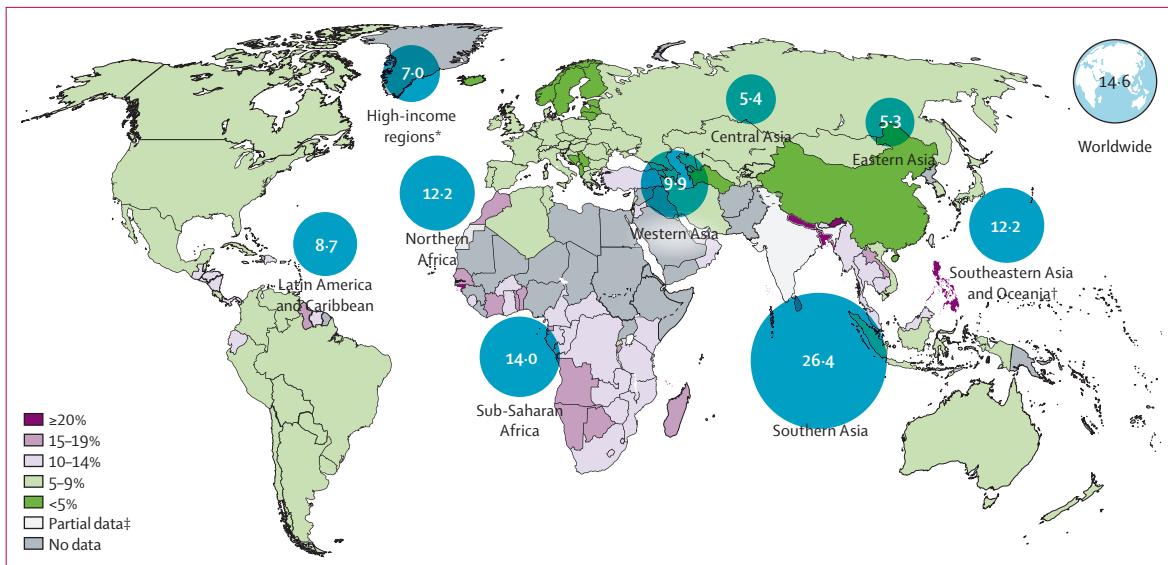


Figure 3: National and regional low birthweight prevalence, 2015

*High-income regions include North America, Europe and Australia and New Zealand. †Southeastern Asia and Oceania does not include Australia or New Zealand.

‡Estimate based on partial data for most recent survey; therefore, modelled estimates are not shown for the individual country.

included compared with eight for upper-middle-income, four for lower-middle-income, and two for low-income regions (appendix). For 47 countries, no data fulfilling the inclusion criteria were located.

We estimate that the global LBW prevalence in 2015 was 14·6% (UR 12·4–17·1), compared with 17·5% (14·1–21·3) in 2000 (table 4). This represents an estimated 16·6% decline in the LBW prevalence over this period

(average annual rate of reduction [AARR] 1·23%). Although the uncertainty around these estimates is sizeable, they suggest some reduction in LBW prevalence over this time period. The highest burden of LBW is in the southern Asian, southeastern Asian, and sub-Saharan African regions (table 4; figure 3). The estimated rate of reduction in LBW prevalence is fastest in the regions with the highest baseline LBW prevalence and

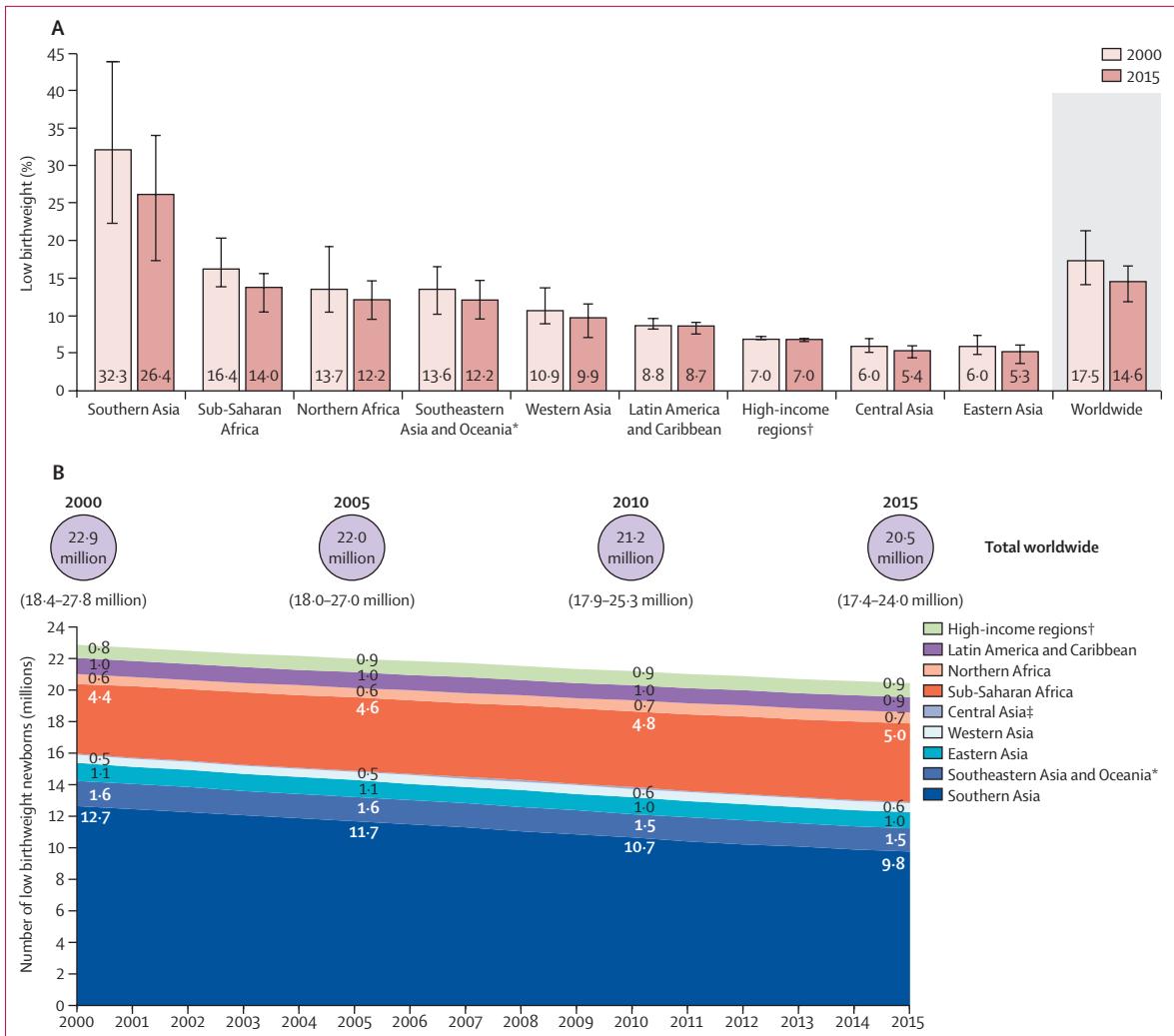


Figure 4: Regional and worldwide change in low birthweight between 2000 and 2015

(A) Changes in low birthweight rates. (B) Changes in absolute numbers of low birthweight newborns. *Southeastern Asia and Oceania does not include Australia or New Zealand. †High-income regions include North America, Europe, and Australia and New Zealand. ‡Central Asia labels not on graph due to space limitations, the number LBW is 0.1 million in all years.

slowest in high-income regions and Latin America and the Caribbean (table 4; figure 4). In 2015, 85 of the 148 countries with data had an estimated LBW prevalence of less than 10%, whereas six countries were estimated to have LBW prevalence of at least 20% (appendix).

The absolute number of livebirths with LBW globally is estimated at 20.5 million (UR 17.4–24.0) in 2015 compared with 22.9 million (18.4–27.8) in 2000 (figure 4). This represents a 10.6% decline in the point estimate against a 7.7% increase in the number of livebirths overall during this period. However, in some regions, despite reducing LBW prevalence, the overall estimated number of LBW livebirths has increased owing to demographic trends. In sub-Saharan Africa, the number of LBW livebirths is estimated to have increased from 4.4 million in 2000 to 5.0 million in 2015 (table 4). Southern Asia remains the region with the largest burden

in terms of numbers, despite progress in reducing LBW prevalence (AARR 1.37%). An estimated 9.8 million LBW livebirths were born in this region in 2015—nearly half (48%) of the worldwide total.

Discussion

We present global, regional, and national estimates for LBW with trend estimates, which are essential for tracking progress towards the Global Nutrition World Health Assembly target regarding LBW. Our estimates suggest that 20.5 million (UR 17.4–24.0) livebirths had a birthweight of less than 2500 g in 2015. Estimated progress in reducing LBW prevalence is slower than that required to meet the global nutrition target¹⁶—with an AARR of 1.23% between 2000 and 2015 compared with the required 2.74% between 2012 and 2025 to reach the target of a 30% reduction.

A strength of this work is that this LBW dataset is the largest compilation to date, including data from 148 countries and more than 281 million births. In addition to the increased data quantity, we have applied new methods to adjust estimates on the basis of survey data that are more able to account for both data heaping and missing data. However, an important challenge is that almost half (48%) of all datapoints are from the high-income regions of North America, Europe, and Australia and New Zealand, which account for 4% of the world's LBW livebirths. By contrast, only 13% of data are from sub-Saharan Africa and southern Asia, the regions with the highest LBW prevalence, accounting for nearly three quarters of all LBW livebirths in 2015. 47 countries—the majority (87%) low-income or middle-income—that account for 23% of all births worldwide had no data meeting inclusion criteria. This is a classic example of the inverse data law—the least data for the highest burden settings.³¹ In addition, when available, these data tend to be lower quality with more heaping and other challenges, which probably lead to underestimates of LBW (table 1).

Regarding trends, no high-quality LBW trend data were available for 138 countries (91 with some LBW data meeting inclusion criteria and 47 without such data), and we therefore predicted LBW prevalence by use of a statistical model. The regions with the highest estimated change in LBW prevalence (and numbers) are sub-Saharan Africa and southern Asia, where the data are most uncertain and the estimated trends are driven by changes in predictors, which might not accurately reflect true changes in LBW prevalence over the same time period. Hence, it is plausible that the true change in prevalence for LBW worldwide is lower than our estimation of 1·23%, and the gap to reach the target is even greater.

The LBW data available from the highest burden settings are predominantly from household surveys and are susceptible to bias owing to missing birthweights and heaping. From 2004 to 2017, UNICEF used a simple cross tabulation to adjust for missing birthweight by use of data from a single variable (perceived size at birth), and a crude standard adjustment for heaping that assumed that 25% of birthweights reported as 2500 g were actually below 2500 g in every survey.^{18,32} This previously used method had a number of important limitations.³³ Hence, we used multiple imputation to impute missing birthweights. We used several variables including perceived size. We sought to address heaping throughout the birthweight distribution by fitting a mixture of two normal distributions to the observed data to obtain an estimate of the proportion of livebirths with a birthweight of less than 2500 g. Although we believe our approach represents an advance on the previous method, it does require assumptions—namely, that missing birthweights are missing at random and that the true distribution of birthweights in a population can be well approximated by a mixture of two normal distributions.

Although we were able to adjust for heaping in the survey data for which we had individual birthweight data, we were unable to do so for national administrative data sources for which such data were unavailable. This might lead to an underestimate of the LBW prevalence from these sources when LBW livebirths with birthweights of less than 2500 g are recorded as (heaped on) 2500 g and categorised as normal birthweight.

Global estimates have well recognised limitations,³⁴ and investments in data systems are needed to improve multicountry tracking of progress towards global targets. Large countries, such as India, are taking steps to improve the data. However, ongoing efforts are required to support countries in strengthening their routine reporting systems to decrease missing and erroneous birthweight measurements as part of their commitment to report on the Global Nutrition Monitoring Framework and SDGs.¹⁷ Improving measurement of birthweight must occur alongside improvements in recording and reporting of all birth outcomes for mothers and their newborns, whether live or stillborn.^{35,36} Challenges arising from the low quality of some data are compounded by absence of clear, internationally harmonised guidelines on how to assess LBW data quality.

More than 80% of all births worldwide are now in health facilities, yet despite this, most of the included datapoints from the highest burden regions are from household surveys, often with relatively low proportions having a reported birthweight. Improving the coverage

Potential approaches	
Ensure accurate birthweight for all births	
Equipment	Improve availability and maintenance of suitable devices for birthweight measurement in all locations where births occur (facility or community). Establish minimum standards for equipment, including precision and scale type.
Training-human resources	Develop and disseminate protocols and guidelines. Preservice and in-service birthweight measurement training. Promote culture of weighing all babies (including the smallest and sickest). Identify and address barriers to weighing (eg, layout, staffing, etc). Improve awareness of clinical and public health importance of birthweight (eg, local data use in birthweight specific mortality).
Ensure all birthweights captured in data systems	
Data management	Standardise and streamline recording process for clinical staff, reduce repetitive recording.
Data coverage	Improve coverage of routine data systems in all facilities (including private) and timeliness of reporting. In settings with high rates of home birth, strengthen weighing in the community (eg, by CHW or TBA and link to health data system). Improve coverage of birth certificates and health cards including birthweight and motivate for birthweight to be included on all birth certificates.
Maximise data quality	
Data quality	Ensure minimum data collated (including number LBW, number weighed, number missing birthweight). Data quality checks and feedback as required. Correct data for heaping where required. Promote data literacy so that poor data are recognised and improved.
Use data to inform policy	
Data use	Improve timely data availability and use at local, district, and national level for policy, programming, and practice.
CHW=community health worker. TBA=traditional birth attendant.	
Table 5: Recommendations for improving birthweight data	

and quality of birthweight data is crucial to drive actions to reduce LBW and will require action at many levels of the health system (table 5). Closing the gap between facility births and accurate birthweight recording should be feasible and would transform data availability. At the individual clinical level, appropriate equipment and trained staff are needed in both the public and private sectors. Weighing devices have been available since antiquity and routine birthweight measurement has been standard practice in Europe since the late 19th century; however, accurate information on birthweight is absent for most births worldwide. For example, heaping has been shown to be worse when analogue scales are used rather than digital ones and where scales with low precision are used.^{37,38} There is a pressing need to develop affordable, robust, portable, and accurate weighing devices for use in both facility and community settings.

Recording of birthweight data on health cards, which can be used as a data source at the time of the survey, could substantially improve the quality of survey birthweight data and reduce the need for adjustments (table 5).

The sickest and smallest newborns are often missing from the data systems, including those who die soon after birth, or are admitted to another ward. Data system improvements and linkages are required to capture information on these most vulnerable newborns.

Misclassification of early neonatal deaths as stillbirths remains an issue. Since these babies are more likely to be LBW, this can lead to an underestimate of LBW prevalence if stillbirths are excluded.³⁹ Therefore, it is important that every newborn, whether live or stillborn, is weighed at birth and that core information including birthweight and gestational age is captured within the data system.

Societal and family demand for birthweight data is an understudied issue. Little is known about family and community perceptions and demand for birthweight measurement, including cultural barriers to birthweight measurement, especially in some community settings, and for stillbirths. Innovations that increase the value parents attach to birthweight data might help recall, and lead to improved recording on handheld health cards and birth certificates.

Birthweight reflects both intrauterine fetal growth and length of gestation. Assessing measures of weight for gestational age, for example small-for-gestational age, enables these two components to be distinguished. However, challenges in assessing gestational age accurately in many low-income and middle-income countries limit its use as a routine public health measure.^{40,41} Debate has focused on the appropriateness of a single birthweight-for-gestational age cutoff for defining fetal growth restriction, with ethnic-specific standards associated with more accurate prediction of neonatal mortality and morbidity.⁴²⁻⁴⁴ Clear guidance on appropriate standards will be required as more data on gestational age become available at a national level worldwide, enabling tracking of fetal growth.

Reducing LBW requires a multifaceted approach.⁴⁶ Even in the absence of accurate gestational age data at a national level, an understanding of the underlying pathways to LBW in a given setting is required to reduce the burden. For example, in southern Asia around half of LBW newborns are phenotypically term but small-for-gestational age, which is driven by underlying maternal undernutrition including maternal stunting.⁴ Conversely preterm birth is the major contributor to LBW in settings with many adolescent pregnancies or with high prevalence of infection (eg, in east and southern Africa) or where pregnancy is highly medicalised with high levels of fertility treatment and intensive obstetric management including high prevalence of caesarean sections (eg, the USA and Brazil).⁴⁷ Improved birthweight data, coupled with high-quality data on gestational age, will be needed to target interventions appropriately and to track progress. Ongoing initiatives to improve CRVS and HMISs should be designed to ensure that this information is captured for all births.

We estimate that there were 20·5 million LBW livebirths in 2015 worldwide, nearly three quarters of them in southern Asia and sub-Saharan Africa. Progress in reducing LBW prevalence (AARR 1·23%) is insufficient to reach the global nutrition targets, which will require an AARR of 2·74%. Accurate birthweight data are needed for all births to improve both individual clinical care and public health action. There are large data gaps for the countries with the highest burden. In addition to better birthweight data, better gestational age assessment would help to identify the most appropriate interventions in a given setting. Targeted action to address the underlying causes of LBW (preterm birth and fetal growth restriction) and improved care for those born with LBW is needed to ensure that all realise their full potential to survive and thrive. In the SDG era, these most vulnerable babies must not be left behind.

Contributors

MdO, EB, CH, REB, and JEL contributed to overall co-ordination and overseeing of the process, and the idea was proposed by JEL. JK contributed to overall co-ordination and led the survey analysis work. HB contributed to overall coordination, collating of data sources, model fitting, and analysis. SC and GAS contributed overall statistical advice. LC contributed to administrative data collection and review, and initial data analysis. SS contributed to administrative data collection and review, model fitting, administrative data analysis, and preliminary survey analysis. XA contributed to survey analysis. VPH contributed to the data analysis and figures. MdO, DE, and CH contributed to co-ordination of the country consultation. The authors alone are responsible for the views expressed in this Article and they do not necessarily represent the views, decisions or policies of the institutions with which they are affiliated.

Declaration of interests

We declare no competing interests.

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Association between ethnicity and under-5 mortality: analysis of data from demographic surveys from 36 low-income and middle-income countries



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Summary

Background The UN Sustainable Development Goals (SDGs) call for stratification of social indicators by ethnic groups; however, no recent multicountry analyses on ethnicity and child survival have been done in low-income and middle-income countries (LMICs).

Methods We used data from Demographic and Health Surveys and Multiple Indicator Cluster Surveys collected between 2010 and 2016, from LMICs that provided birth histories and information on ethnicity or a proxy variable. We calculated neonatal (age 0–27 days), post-neonatal (age 28–364 days), child (age 1–4 years), and under-5 mortality rates (U5MRs) for each ethnic group within each country. We assessed differences in mortality between ethnic groups using a likelihood ratio test, Theil's index, and between-group variance. We used multivariable analyses of U5MR by ethnicity to adjust for household wealth, maternal education, and urban–rural residence.

Findings We included data from 36 LMICs, which included 2 812 381 livebirths among 415 ethnic groups. In 25 countries, significant differences in U5MR by ethnic group were identified (all $p<0.05$ likelihood ratio test). In these countries, the median mortality ratio between the ethnic groups with the highest and lowest U5MRs was 3.3 (IQR 2.1–5.2; range 1.5–8.5), whereas among the remaining 11 countries, the median U5MR ratio was 1.9 (IQR 1.7–2.5; range 1.4–10.0). Ethnic gaps were wider for child mortality than for neonatal or post-neonatal mortality. In nearly all countries, adjustment for wealth, education, and place of residence did not affect ethnic gaps in mortality, with the exception of Guatemala, India, Laos, and Nigeria. The largest ethnic group did not have the lowest U5MR in any of the countries studied.

Interpretation Significant ethnic disparities in child survival were identified in more than two-thirds of the countries studied. Regular analyses of ethnic disparities are essential for monitoring trends, targeting, and assessing the impact of health interventions. Such analyses will contribute to the effort towards leaving no one behind, which is at the centre of the SDGs.

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Introduction

The 2030 Agenda for Sustainable Development, adopted by all UN member states in 2015, provides a shared blueprint for peace and prosperity for people and the planet, and is committed to ensuring that no one is left behind. Regarding child survival specifically, the UN Sustainable Development Goal (SDG) 3.2 aims to “end preventable deaths of newborns and children under 5 years of age”. To achieve this goal, countries should strive to ensure that life-saving interventions are accessible for all children, with a specific focus on subgroups at high risk of mortality. To identify these children, SDG 17.18 calls for countries to “increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts”.

Analyses of intracounty inequalities in child survival stratified by wealth, maternal education, sex, and geographical location are widely available in peer-reviewed literature from low-income and middle-income countries (LMICs), and in reports and websites produced by international organisations.^{1–3} However, few systematic, multicountry analyses of ethnic inequalities in child health and survival in LMICs have been done. Ethnicity is a complex construct comprising culture, diet, language, and ancestry that is associated with variations in health beliefs and behaviours.⁴ Ethnicity is also a key factor in social cohesion, and thus in the dissemination of health information. As a framework of identification, sometimes reactivated for political reasons, ethnicity can be associated with unequal access to socioeconomic opportunities and public goods between different sectors of the population.

Most existing analyses on ethnic inequalities in LMICs are limited to comparisons between indigenous and

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For more on SDG 17.18 see <https://indicators.report/targets/17-18/>

Research in context

Evidence before this study

We searched PubMed from inception to Aug 31, 2019, using the search terms “developing countries” OR “low-and-middle-income” AND (“infant mortality”[Mesh] OR “underfive mortality” OR “under five mortality” OR “under-five mortality”) AND (ethnicity OR race), without any language restrictions. Our search identified a single article published in 2000, which included multicountry analyses of child mortality by ethnicity. The authors compared child mortality among one or two privileged ethnic groups (ie, groups assumed to have lower child mortality because of urban residence, wealth, education, nutritional status, and access to services) with the rest of the population in 11 sub-Saharan African countries. In ten of these countries, child mortality was significantly lower among the privileged ethnic groups than all other ethnicities combined. Multivariable analyses showed that sociodemographic variables and health-care utilisation accounted for a substantial fraction of the disparities observed between different ethnic groups. Our search also identified several analyses done in single low-income and middle-income countries (LMICs) that showed ethnic differences in mortality.

Added value of this study

Our analyses of 415 ethnic groups in 36 countries were based on all standardised demographic and health surveys done

since 2010. In 25 countries, significant differences in under-5 mortality rate (U5MR) were identified between ethnic groups. In these countries, the median mortality ratio between the ethnic groups with the highest and lowest mortality rates was 3·3. The largest ethnic groups did not have the lowest U5MR in any of the countries studied. Adjustment for family wealth, maternal education, and urban-rural residence reduced, but did not eliminate the differences in mortality identified between ethnic groups in most countries. Our analyses provide a better understanding of the inequalities in mortality associated with ethnicity and identified substantial disparities across ethnic groups in most of the countries studied.

Implications of all the available evidence

Despite the recommendation in the UN Sustainable Development Goal (SDG) 17.18 for disaggregation of indicators according to ethnicity, literature on ethnic inequalities in child survival is scarce. We provide the most comprehensive analyses on this topic to date, revealing wide gaps in most countries studied. Regular analyses of ethnic disparities in U5MR in LMICs are essential for monitoring trends, and for targeting and assessing the impact of health interventions. Such analyses will contribute to the efforts towards leaving no one behind, which is at the centre of the SDGs.

non-indigenous subpopulations within one or more countries.^{3,5–9} We found only one multicountry publication on under-5 mortality rate (U5MR) for multiple ethnic groups done in 11 countries in sub-Saharan Africa.¹⁰ In addition to being limited to African countries, that study only compared one or two ethnicities in each country with the rest of the national population.

In this study, we aimed to assess whether significant differences exist in U5MR between ethnic groups within countries, using data from nationally representative household surveys done in 36 LMICs, and we aimed to estimate the magnitude of such differences, and to assess whether the differences persisted after adjustment for household wealth, maternal education, and place of residence.

See Online for appendix

Methods

Data sources and procedures

We used publicly available data from household sample surveys done in 98 LMICs between 2010 and 2016, and selected data from 36 LMICs with available information on birth histories and either ethnicity or a proxy variable, such as language spoken at home. For 28 countries data were extracted from Demographic and Health Surveys (DHS) and for eight countries data were extracted from Multiple Indicator Cluster Surveys (MICS). The two survey programmes are highly comparable with regard to sampling and questionnaires used.^{11,12} We used

broad definitions of ethnicity, including self-reported ethnic affiliation, language, skin colour (in South Africa), and caste or tribal group (in India). For countries with more than one survey, we selected the most recent.

Within each sampled household, women aged 15–49 years are eligible to participate, and those who gave consent provided information on their birth histories and on characteristics of the household. Two questionnaires were used: data on ethnicity or language were collected for women aged 15–49 years in DHS, and for the head of the household in MICS. In eight countries, the information was about the language spoken at home, in South Africa the information was about skin colour, in India the information was about caste or tribe, and for the remaining countries the information referred to ethnicity or tribe. The ethnic groups in each country are listed in the appendix (pp 2–13). Herein, we use the term ethnicity to indicate ethnic group, language, skin colour, or caste.

Ethics approval was obtained by the institutions that administered the surveys and all analyses used anonymised databases.

Statistical analysis

U5MRs and 95% CIs were calculated using survival analyses based on deaths that occurred in the 10 years before the surveys were done, which is the standard approach for stratified analyses (eg, for wealth quintiles,

For more on DHS methodology
see <https://dhsprogram.com/what-we-do/survey-Types/dhs.cfm>

For more on MICS methodology
see <http://mics.unicef.org/>

maternal education).¹³ These methods are described in the appendix (pp 14–15). Using the same procedure, we also estimated neonatal (age 0–27 days), post-neonatal (age 28–364 days), and child (age 1–4 years) mortality rates by ethnicity.

To assess the ethnic differences in U5MR within each country, we used a likelihood ratio test to compare a model including age of the child with another model including age and ethnic group. We also calculated two summary indices for quantifying relative and absolute inequalities in categorical variables.¹⁴ The magnitude of relative inequalities, expressed as ratios among ethnic groups, was estimated using Theil's index,¹⁴ which takes into account the proportion of the population in each group and the mortality ratios in each ethnicity relative to the national mean value. The index equals a value of zero when no inequality exists; as relative inequality increases, the value increases, with no upper bound. The index is most influenced by large ethnic groups with mortality rates that are substantially different from the national rate. In our analyses the original index values were multiplied by 1000 to facilitate interpretation. Further details on the index, formula, and interpretation are provided in the appendix (pp 16–19). Absolute inequalities, expressed as differences among ethnic groups, were calculated with a between-group variance indicator. Further details are also shown in the appendix (pp 16–19). SEs for both indices were estimated by resampling the observations of each ethnicity per country 50 times (with replacement). Negative 95% CI values were truncated at zero. We have focused on relative inequalities since statistical comparisons of mortality rates are usually expressed as ratios.

We calculated the U5MR ratio and the corresponding 95% CI between the ethnic groups with the highest and lowest mortality rates in each country. We have presented median U5MR ratios with corresponding IQRs and ranges. We used a non-parametric medians test to compare the magnitude of Theil's index and between-group variance for neonatal, post-neonatal, and child mortality by ethnicity.

Three covariates were used in multivariable analyses. Maternal education was categorised in three groups on the basis of self-report: none (no formal education); primary (any primary education, including completed primary education); and secondary or higher (any secondary education, including complete secondary). Urban or rural residence was categorised according to country-specific delimitations at the time of the survey. Household wealth indices included in the DHS and MICS datasets were used in the analyses. These indices were derived using principal component analyses of household assets and characteristics of the building, presence of electricity, water supply and sanitary facilities, in addition to other variables associated with wealth. Since relevant assets might vary between urban and rural households, separate principal component analyses were done in each area, which were later

combined into a single score using a scaling procedure to allow comparability between urban and rural households.¹⁵

Data analyses were done using Stata (version 15.0) for descriptive analyses. Estimation of mortality was done using the Stata module syncmrates and the R statistical software (version 3.6.1) was used for adjustment for covariates in a Poisson regression framework (household wealth, women's education, and urban–rural residence). For Poisson regression, the reference category was the ethnic group with the largest number of livebirths in the survey sample. Adjusted mortality rates were obtained by multiplying the rate ratios by the mortality rate in the reference category. For the adjusted mortality rates, we assumed that ethnic differentials were constant by age in children aged younger than 5 years.

All analyses accounted for the complex survey design. Mortality estimates for which the coefficient of variation was greater than 15% were flagged to indicate lower precision, consistent with cutoffs of 10–20% that have been used previously in the literature.¹⁶ Mortality estimates for ethnic groups with fewer than 200 births in the 10 years before the survey were omitted due to the high coefficients of variability observed for these groups.

Role of the funding source

The funders did not have any role in study design, data analysis, data interpretation, writing of the report, or submission for publication. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Results

After the exclusion of mortality estimates for ethnic groups with fewer than 200 births reported in the 10 years before the survey, we included survey data from 36 LMICs, which included 2812 381 livebirths among 415 ethnic groups. The number of ethnic groups per country ranged from three in Guatemala to 32 in Zambia (table).

Of the 36 countries included, no differences in U5MR between ethnic groups were identified in 11 countries (all $p > 0.05$ likelihood ratio test; table). Among these 11 countries, Theil's index for relative inequality was non-significant in six countries (Benin, The Gambia, Guyana, Honduras, Senegal, and South Africa) and significant in the other five countries (Republic of the Congo, Ethiopia, Gabon, Liberia, and Malawi); p values for the likelihood ratio test for these five countries ranged from 0.057 to 0.192. In Guatemala, the p value for the likelihood ratio test was 0.040; however, the Theil's index value was not significant. The between-group-variance indicator for absolute inequality showed similar results in terms of statistical significance to those obtained with Theil's index (appendix pp 16–19), although the rankings of countries differed in terms of relative and absolute inequalities. Overall, the three tests provided consistent results in terms of significance.

	Year	Survey	Variable	Total number of births, n	Ethnic groups, n	U5MR by ethnic group (per 1000 livebirths)			Likelihood ratio p value	Mortality ratio* (95% CI)	Theil's index (95% CI)
						Median (IQR)	Lowest (95% CI)	Highest (95% CI)			
Afghanistan	2015	DHS	Ethnicity	125 488	9	64 (56–73)	45 (23–67)	162 (138–185)	0.009	3.6 (2.4–4.8)	39.9 (30.9–48.9)
Angola	2015	DHS	Language	41 999	12	70 (50–101)	23 (0–53)	132 (87–176)	<0.0001	5.8 (3.2–8.3)	40.1 (28.1–52.0)
Benin	2014	MICS	Ethnicity	45 183	10	113 (99–117)	86 (52–120)	123 (103–144)	0.714	1.4 (1.0–1.8)	2.4 (0.0–5.2)
Burkina Faso	2010	DHS	Ethnicity	55 853	12	163 (125–185)	73 (55–92)	204 (166–241)	<0.0001	2.8 (2.0–3.5)	19.7 (13.6–25.8)
Cameroon	2014	MICS	Ethnicity	26 040	11	125 (81–150)	58 (43–74)	206 (116–295)	<0.0001	3.5 (2.5–4.6)	68.0 (50.7–85.4)
Chad	2014	DHS	Ethnicity	67 356	22	139 (105–172)	38 (20–57)	215 (157–273)	<0.0001	5.6 (3.7–7.5)	50.4 (43.1–57.7)
Democratic Republic of the Congo	2013	DHS	Ethnicity	59 074	9	102 (100–119)	36 (0–76)	126 (102–151)	0.033	3.5 (2.2–4.8)	5.6 (2.5–8.7)
Republic of the Congo	2011	DHS	Ethnicity	31 688	11	95 (75–104)	53 (33–73)	125 (81–169)	0.192	2.4 (1.6–3.1)	10.0 (2.8–17.2)
Côte d'Ivoire	2011	DHS	Ethnicity	26 317	23	121 (102–146)	45 (3–87)	237 (177–296)	0.001	5.2 (3.6–6.9)	8.3 (26.1–57.0)
Ethiopia	2016	DHS	Ethnicity	39 494	19	88 (67–101)	13 (0–35)	127 (0–288)	0.095	10.0 (4.2–15.8)	41.6 (15.1–38.8)
Gabon	2012	DHS	Ethnicity	20 619	9	60 (57–72)	18 (0–41)	76 (54–98)	0.070	4.2 (2.0–6.3)	26.9 (4.9–33.8)
The Gambia	2013	DHS	Ethnicity	26 179	10	53 (49–65)	36 (2–70)	70 (50–89)	0.514	1.9 (1.2–2.7)	19.3 (0.0–16.6)
Ghana	2014	DHS	Ethnicity	23 117	9	62 (60–88)	59 (18–101)	102 (78–126)	0.009	1.7 (1.2–2.3)	7.1 (10.1–39.4)
Guatemala	2014	DHS	Ethnicity	55 300	3	42 (35–61)	34 (30–39)	62 (22–101)	0.040	1.8 (1.0–2.5)	24.8 (0.0–14.5)
Guinea	2012	DHS	Ethnicity	27 683	7	123 (89–148)	59 (0–136)	160 (141–180)	0.0002	2.7 (1.9–3.5)	7.2 (7.9–21.0)
Guinea-Bissau	2014	MICS	Language	27 477	7	88 (77–126)	68 (55–80)	136 (120–151)	<0.0001	2.0 (1.4–2.6)	14.5 (23.7–49.4)
Guyana	2014	MICS	Ethnicity	11 122	4	33 (31–39)	29 (10–48)	44 (29–60)	0.400	1.5 (0.8–2.2)	36.5 (0.0–36.1)
Honduras	2011	DHS	Ethnicity	48 893	7	32 (28–49)	24 (6–42)	54 (38–70)	0.405	2.2 (1.2–3.3)	13.8 (0.0–26.5)
India	2015	DHS	Ethnicity	1265 049	5	58 (53–59)	41 (39–43)	61 (58–63)	<0.0001	1.5 (0.9–2.1)	12.5 (7.1–9.6)
Kenya	2014	DHS	Ethnicity	83 571	23	55 (36–65)	18 (0–49)	95 (84–106)	<0.0001	5.2 (2.6–7.8)	59.3 (45.2–73.4)
Laos	2011	MICS	Ethnicity	56 710	4	98 (82–126)	80 (72–89)	138 (124–151)	<0.0001	1.7 (1.2–2.2)	30.3 (22.9–37.8)
Liberia	2013	DHS	Language	30 713	18	124 (89–142)	59 (33–85)	161 (73–250)	0.174	2.7 (1.9–3.5)	15.2 (8.3–22.0)
Malawi	2015	DHS	Ethnicity	68 074	11	70 (64–79)	58 (47–70)	104 (62–147)	0.057	1.8 (1.2–2.4)	7.0 (3.2–10.8)
Mali	2015	MICS	Ethnicity	55 772	11	117 (90–126)	36 (14–57)	157 (112–201)	<0.0001	4.4 (2.8–6.0)	31.0 (24.4–37.5)
Mozambique	2011	DHS	Ethnicity	37 877	19	106 (83–130)	55 (24–86)	161 (132–190)	<0.0001	2.9 (2.0–3.8)	26.8 (17.7–35.8)
Niger	2012	DHS	Language	43 831	6	106 (69–150)	65 (22–107)	164 (148–179)	<0.0001	2.5 (1.8–3.3)	16.0 (11.2–20.8)
Nigeria	2016	MICS	Ethnicity	101 691	4	82 (70–117)	67 (58–77)	144 (134–153)	<0.0001	2.1 (1.5–2.8)	41.8 (33.5–50.0)
Pakistan	2012	DHS	Language	49 913	15	94 (75–120)	30 (0–60)	185 (30–340)	<0.0001	6.1 (3.8–8.5)	31.7 (21.0–42.3)
Paraguay	2016	MICS	Language	14 355	5	16 (13–24)	8 (2–15)	71 (48–94)	0.002	8.5 (2.4–14.5)	174.5 (94.4–254.5)
Philippines	2013	DHS	Language	31 668	10	31 (27–45)	13 (0–27)	84 (38–129)	<0.0001	6.6 (2.7–10.4)	61.5 (37.5–85.6)
Senegal	2016	DHS	Ethnicity	22 546	7	64 (56–71)	48 (37–58)	71 (59–83)	0.170	1.5 (0.9–2.0)	13.6 (0.0–27.5)
Sierra Leone	2013	DHS	Ethnicity	46 941	10	162 (142–179)	113 (75–151)	198 (172–225)	0.0003	1.8 (1.3–2.2)	7.1 (4.2–10.0)
South Africa	2016	DHS	Ethnicity	14 031	3	40 (29–52)	29 (0–58)	52 (44–61)	0.529	1.8 (1.0–2.7)	5.5 (0.0–20.5)
Togo	2013	DHS	Ethnicity	26 152	7	102 (76–110)	46 (26–65)	121 (80–162)	<0.0001	2.6 (1.7–3.5)	19.1 (10.0–28.2)
Uganda	2016	DHS	Ethnicity	56 618	31	73 (62–86)	44 (12–76)	144 (93–194)	0.002	3.3 (2.2–4.4)	22.0 (13.2–30.8)
Zambia	2013	DHS	Ethnicity	47 987	32	70 (61–89)	27 (6–48)	220 (111–328)	<0.0001	8.2 (4.9–11.4)	31.4 (22.3–40.5)
Total	2 812 381	415

U5MR=Under-5 mortality rate. DHS=Demographic and Health Surveys. MICS=Multiple Indicator Cluster Survey. *Calculated by comparing the the ethnic group with the highest mortality rate and lowest mortality rate in each country.

Table: U5MRs of the 36 countries included in the analyses

Mortality ratios and 95% CIs for the comparison between the ethnic groups with the highest and lowest mortality in each country are shown in the table. The median mortality ratio for all countries was 2.7 (IQR 1.8–4.6; range 1.4–10.0). In the 25 countries for which the likelihood ratio test p value was significant, the median mortality ratio was 3.3 (IQR 2.1–5.2; range 1.5–8.5) whereas

among the remaining 11 countries with non-significant likelihood ratio test results, it was 1.9 (IQR 1.7–2.5; range 1.4–10.0). Only six of 36 countries (Benin, Guatemala, Guyana, India, Senegal, and South Africa) had 95% CIs for the U5MR ratio between the extreme groups that included unity, although the overall likelihood ratio test p value for Guatemala and India was significant. Large mortality

ratios between extreme groups were observed in Ethiopia (mortality ratio 10·0, 95% CI 4·2–15·8) and Gabon (4·2, 95% CI 2·0–6·3), even in the absence of significant overall heterogeneity according to the likelihood ratio test.

Overall, across the 36 countries, the median Theil's index values were 28·9 for neonatal mortality, 40·1 for post-neonatal mortality, and 46·9 for child mortality ($p=0\cdot05$ medians test; appendix p 20). The corresponding median values for between-group variance were 47·9 for neonatal mortality, 56·0 for post-neonatal mortality, and 104·8 for child mortality ($p=0\cdot03$ medians test). These results suggest that ethnic inequalities increased with child age at death.

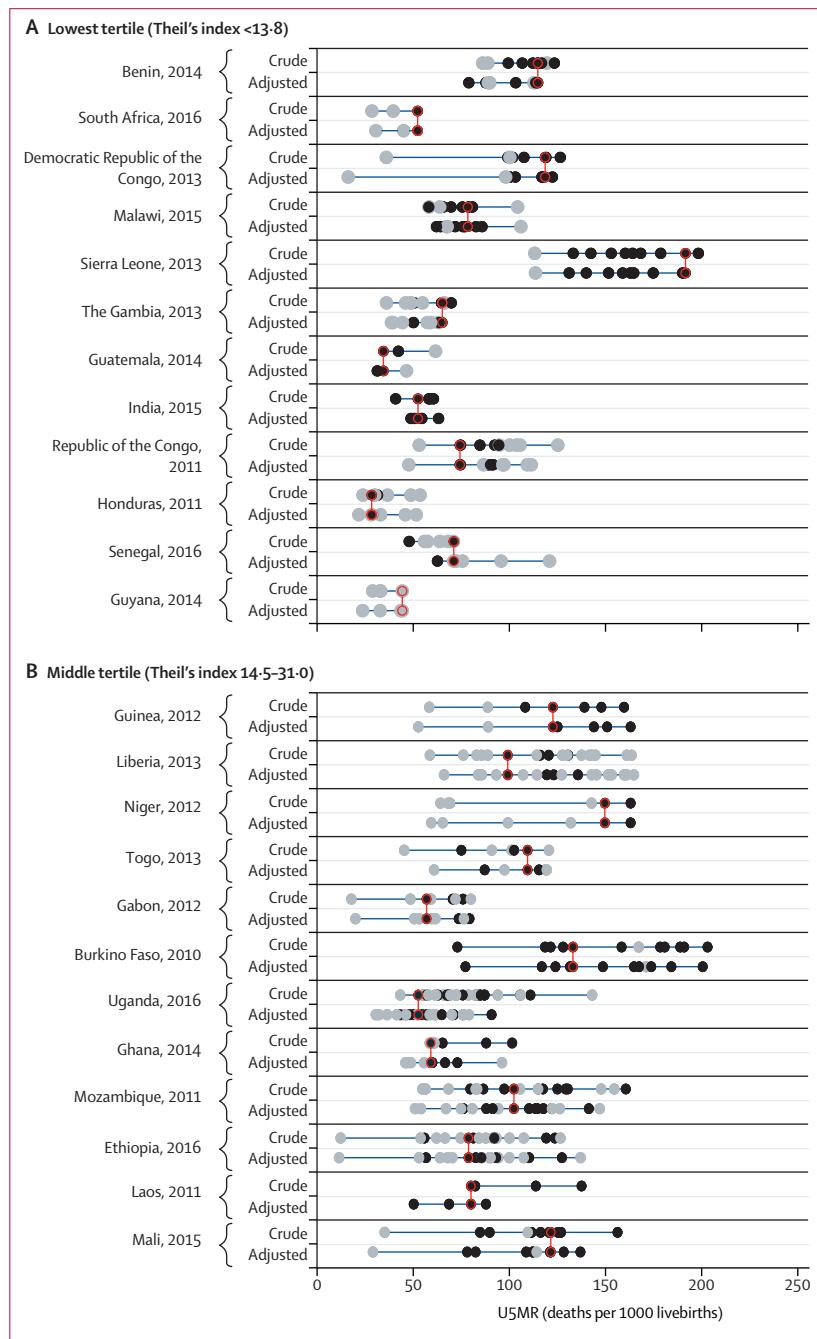
Figure 1 shows the U5MR for ethnic groups in the 36 countries according to Theil's index tertile. U5MRs for ethnic group by world regions are shown in the appendix (pp 21–23). In unadjusted analyses, Theil's index was less than 13·8 for countries in the lowest tertile (Benin, South Africa, Democratic Republic of the Congo, Malawi, Sierra Leone, The Gambia, Guatemala, India, Republic of the Congo, Honduras, Senegal, and Guyana; figure 1A), between 14·5 and 31·0 for countries in the middle tertile (Guinea, Liberia, Niger, Togo, Gabon, Burkina Faso, Uganda, Ghana, Mozambique, Ethiopia, Laos, and Mali; figure 1B), and between 34·0 and 174·5 for countries in the highest tertile (Zambia, Pakistan, Guinea-Bissau, Afghanistan, Angola, Côte d'Ivoire, Nigeria, Chad, Kenya, Philippines, Cameroon, and Paraguay; figure 1C). Overall U5MRs, neonatal, post-neonatal, and child mortality rates and 95% CIs, and crude and adjusted mortality ratios are shown in the appendix (pp 2–13).

For 15 ethnic groups, the lower bound of the 95% CI for U5MR was higher than 150 deaths per 1000 livebirths. These ethnic groups included the Nuristani in Afghanistan (U5MR estimate 162 deaths per 1000 livebirths); the Touareg-Bella (191 deaths per 1000 livebirths), Fulfuldé-Peul (181 deaths per 1000 livebirths), Sénoufo (179 deaths per 1000 livebirths), Gourmatché (189 deaths per 1000 livebirths), and Lobi (204 deaths per 1000 livebirths) in Burkina Faso; the Zarma in Niger (164 deaths per 1000 livebirths); the Temne (168 deaths per 1000 livebirths), Koranko (198 deaths per 1000 livebirths), and Mende (192 deaths per 1000 livebirths) in Sierra Leone; the Karo, Zimé, or Pévé (195 deaths per 1000 livebirths), Gabri, Kabalaye, Nangtchééré, or Soumray (215 deaths per 1000 livebirths), Sara (Ngambaye, Sara Madjin-Gaye, or Mbaye; 189 deaths per 1000 livebirths), and Baguirmi or Barma (215 deaths per 1000 livebirths) in Chad; and the Dioula in Côte d'Ivoire (237 deaths per 1000 livebirths). The group of ethnicities classified as other in Cameroon (206 deaths per 1000 livebirths) was also in the high mortality category.

Two groups had upper 95% CI bounds below the SDG target of 25 deaths per 1000 livebirths: the Spanish speakers in Paraguay (8 deaths per 1000 livebirths) and speakers of both Guarani and Spanish (16 deaths per 1000 livebirths).

In each of the remaining 27 countries, at least two ethnic groups had 95% CIs for U5MR that did not overlap with each other. For these countries, the mortality ratio between the extreme groups ranged from 1·8 (95% CI 1·0–2·5) in Guatemala (between the Maya and Ladino groups) to 10·0 (4·2–15·8) in Ethiopia (between the Gamo and Kembata groups).

In none of the countries studied did the largest ethnic group have the lowest U5MR (figure 1). In most



(Figure 1 continues on next page)

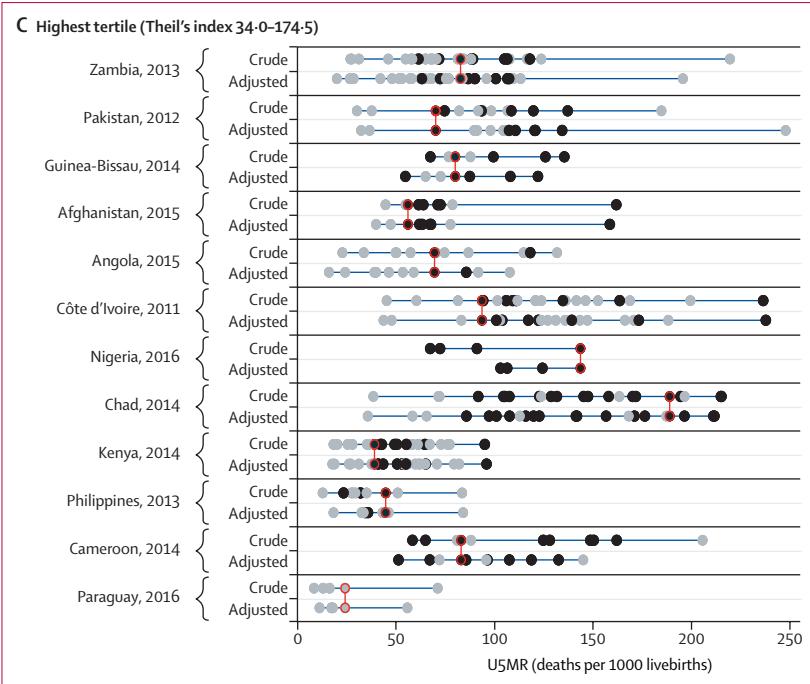


Figure 1: U5MR by ethnic group for countries in the lowest (A), middle (B), and highest (C) tertile of inequality according to Theil's index

Black dots show estimates with a coefficient of variation <15% and grey dots show estimates with a coefficient of variation of ≥15%; red circles show the ethnic group with the largest number of births in each country. Estimates refer to the 10 years before the survey. Crude models included the child's age and ethnic group, and adjusted models also included household wealth, maternal education, and urban–rural residence. U5MR=under-5 mortality rate.

countries, the mortality rate among the largest ethnic group was around the middle or in the upper half of the mortality distribution, and in two countries the largest group had the highest mortality (black individuals in South Africa and the Hausa in Nigeria).

Figures 2 and 3 show the unadjusted U5MR and 95% CIs for the five countries with the highest and lowest Theil's index values.

Results from the adjusted analyses are shown in figure 1, and full results are shown in the appendix (pp 2–13). In nearly all countries, adjustment for maternal education, household wealth, and urban–rural residence did not affect variability in mortality by ethnicity, with the exception of Nigeria, Laos, India, and Guatemala. In these four countries, the gaps in mortality between ethnic groups were substantially reduced after adjustment because substantial differences in wealth, education, and place of residence exist between ethnic groups in these countries, which could partly explain the ethnic gap in mortality. In Nigeria, the Hausa, who constituted the largest ethnic group, were markedly poorer than the rest of the sample and also had the highest mortality. In Laos, the largest ethnic group (the Lao people) were wealthier and had lower mortality than other ethnic groups. In Guatemala, the Maya and Xinca were poorer and had higher mortality than the largest ethnic group (the Ladinos or Mestizos). In

India, scheduled tribes and castes had higher mortality and were poorer than the reference group (other backward classes).

Discussion

To the best of our knowledge, this is the largest analysis of U5MR according to ethnicity to date, covering 415 ethnic groups in 36 countries. Our results show marked variability in U5MR by ethnic group; the median mortality ratio between the groups with the highest and lowest mortality rates in each country was equal to 2·7 in the 36 countries and 3·3 in the 25 countries with significant heterogeneity according to the likelihood ratio test. We also showed that the ethnic group with the largest number of births in each country was seldom the group with the lowest U5MR, suggesting that minorities—defined in terms of population size—were not necessarily being deprived of access to the services and resources required for survival of their children. We also showed that differences between ethnic groups tended to increase with child age at death, with greater disparities observed in deaths of children aged 1–4 years than for younger children, which has also been reported from high-income countries.^{17–19} Further research is needed to assess whether ethnic gaps in health intervention coverage also vary according to age of the children. Since neonatal and infant mortality rates are higher than those for children aged 1–4 years, the absolute gap between ethnic groups (expressed as differences between mortality rates) is greater for deaths in the first year than deaths after the first year of life.²⁰

The wide ranging review of indigenous health by Anderson and colleagues⁵ documented higher infant mortality for indigenous children than non-indigenous children in 18 of 19 countries with data, but the authors did not attempt to discriminate between different indigenous groups. In 2000, Brockerhoff and Hewett¹⁰ analysed ethnic gaps in U5MRs in 11 countries in sub-Saharan Africa, by comparing one or two relatively privileged groups in each country with the rest of the national population. Consistent with our findings on ethnic disparities in most countries studied, in their analyses, statistically significant gaps were identified in all countries, except Mali. The authors did not attempt to compare multiple ethnicities within single countries.

Studies from the Philippines,²¹ China,²² and Pakistan²³ have highlighted differences in coverage of child health interventions such as immunisation by ethnic group. However, few country-specific studies are available on mortality. Single country analyses of ethnic gaps in mortality are available for Brazil,^{24,25} Cameroon,²⁶ Nigeria,²⁷ Mozambique,²⁸ and Guinea-Bissau.²⁹ These publications show substantial disparities according to ethnicity. In China,²² which was not included in the present analyses, minorities in the western regions had higher child mortality than did the dominant Han group. The association between caste and child mortality in India was

reported in the 1990s, showing consistent disadvantages for children from scheduled castes and scheduled tribes,^{30,31} which were consistent with our unadjusted results. In South Africa, we found a stepwise increase in U5MR from white individuals (U5MR 28 deaths per 1000 livebirths, 95% CI 3–54), to coloured individuals (39, 17–62) to black individuals (52, 45–60). The estimates for the first two categories had wide 95% CIs, and the summary indices for inequality were not statistically significant. However, other studies from this country reported wide and significant ethnic disparities.^{32,33}

The literature, which is mostly from high-income countries, suggests that adjustment for sociodemographic variables when comparing health outcomes between ethnic groups often shows that ethnic disparities are attenuated, but still persist.³⁴ In the comparison of privileged ethnic groups and the rest of the population in 11 African countries,¹⁰ the authors concluded that adjustment for sociodemographic variables and household characteristics substantially reduced the survival advantage of privileged ethnic groups. In our analyses, ethnic gaps did not change substantially after adjustment for maternal education, household wealth, or urban–rural residence, with a few exceptions. This suggests that other mechanisms, including possibly discrimination affecting access to essential services and life-saving interventions, might account for the disparities observed. These differences could also partly reflect subnational variations in risk of mortality, since some ethnic groups are highly concentrated in specific areas. For example, in Kenya, more than 95% of the Kalenjin women interviewed in the 2014 DHS lived in the Rift Valley region.

Our analyses had limitations, which include the use of self-reported ethnicity or proxy variables; these issues also affect other studies of ethnic disparities in health.⁵ The method by which different ethnic groups were classified was dependent on the agencies that developed questionnaires for each country, which might not have used consistent approaches. This inconsistency is suggested by the wide variability in the number of ethnic groups among countries. Some groups were labelled as other, indicating national ethnic groups that were not listed separately, or as foreigners or none, indicating individuals who reported that they did not belong to a specific ethnic group, which was observed in Honduras, India, and Liberia. We also note that inconsistencies might exist between successive surveys in some countries—eg, the Nigeria 2013 DHS recognised 11 ethnic groups,³⁵ whereas the 2016 MICS used in the present analyses pooled these 11 groups into four groups.

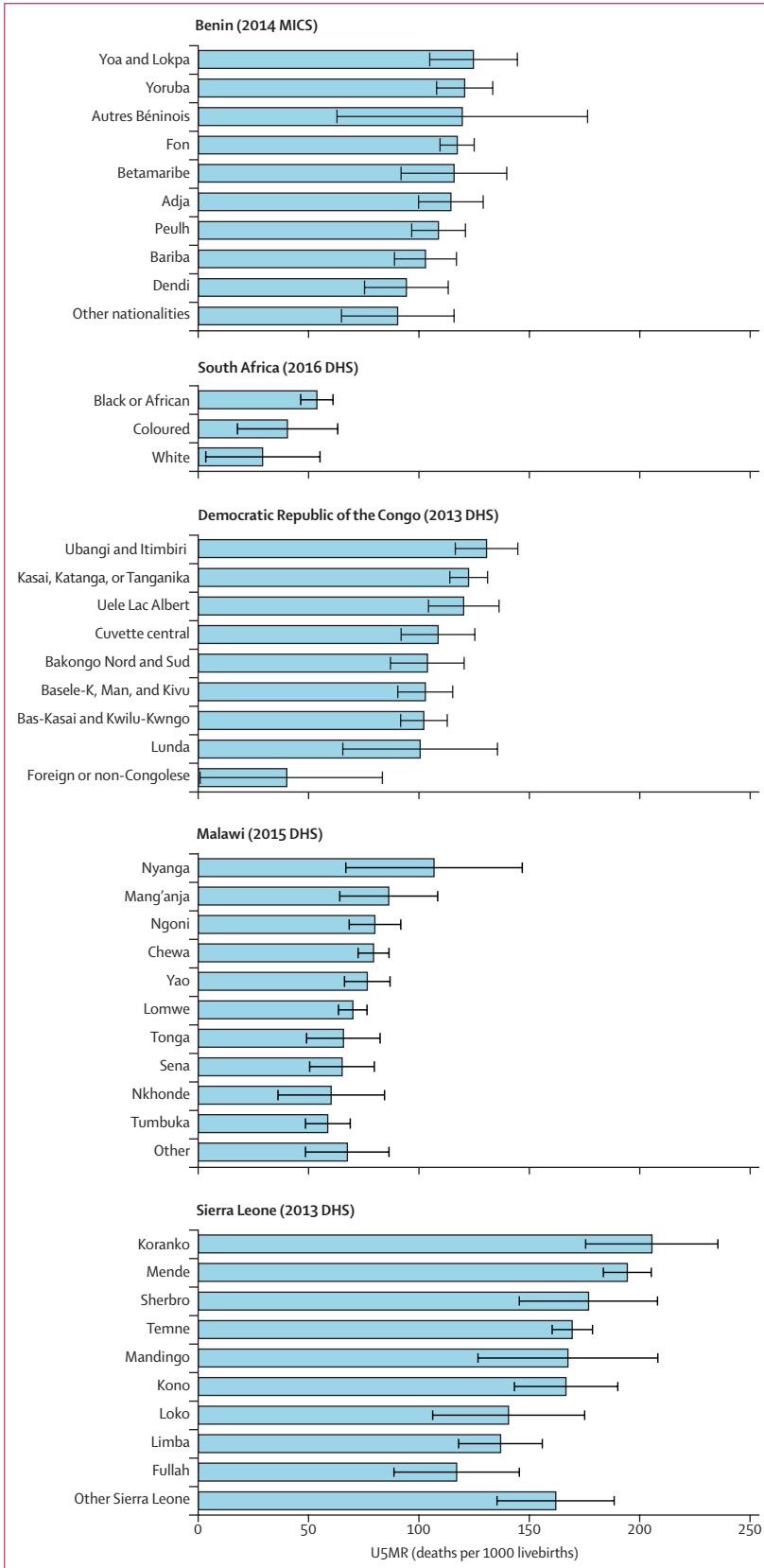


Figure 2: U5MR by ethnicity in the five countries with the narrowest relative inequalities (Benin, South Africa, Democratic Republic of the Congo, Malawi, and Sierra Leone), according to Theil's index

Error bars show 95% CIs. U5MR=under-5 mortality rate. MICS= Multiple Indicator Cluster Surveys. DHS=Demographic and Health Surveys.

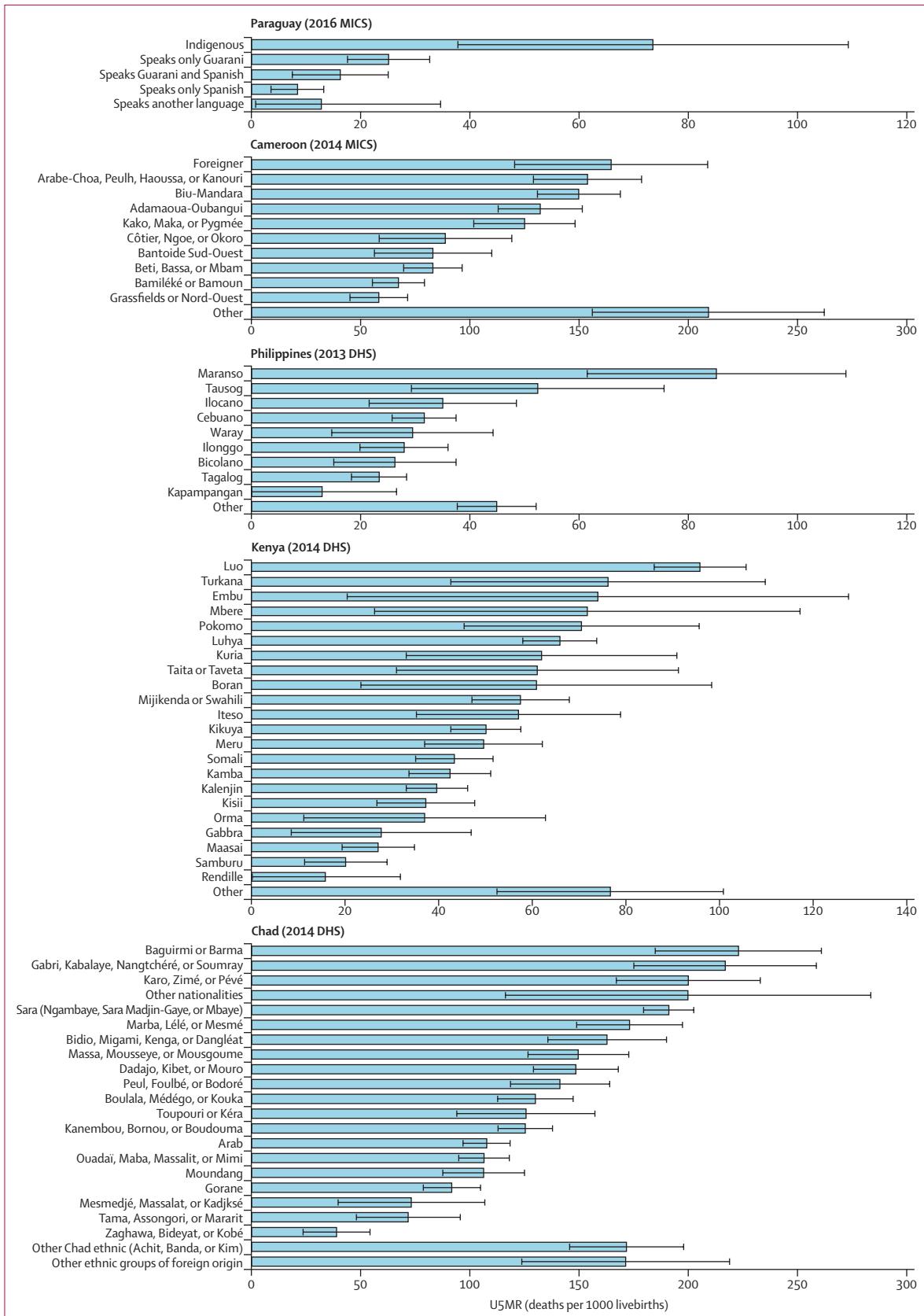


Figure 3: U5MR by ethnicity in the five countries with the widest relative inequalities (Paraguay, Cameroon, Philippines, Kenya, and Chad), according to Theil's index

Error bars show 95% CIs.
U5MR=under-5 mortality rate.
MICS=Multiple Indicator Cluster Surveys.
DHS=Demographic and Health Surveys.

Furthermore, some ethnic groups, such as nomads or individuals living in conflict-ridden areas, might be under-represented in the sample. Our results on the relative sizes of ethnic groups are based on number of births, rather than proportions of the population. For example, in Senegal, a higher number of births was recorded among the Pular than the Wolof; although the Wolof account for a larger proportion of the population than the Pular, they have lower fertility.³⁶

Sample size considerations require the use of information on child deaths from the 10 years before the survey; this is a standard approach used in stratified analyses of mortality based on survey data, but as a consequence the results for a subgroup reflect mortality rates that are dated with an average reference date 5 years before the survey took place. Another limitation is the fact that the dates of the surveys ranged from 2010 (Burkina Faso) to 2016 (Ethiopia), and U5MR tends to decrease over time in most countries. It should also be noted that information collected on household wealth, maternal education, and income referred to the date of the interview, whereas information on child deaths was retrospective. One additional limitation is that the survival analysis methods used for U5MR implicitly assume that ethnic differentials by age are constant; however, our age-stratified analyses showed that gaps increased slightly with child age at death. However, the observed gaps were in the same direction for all age ranges, and the interpretation of results should not be substantially affected.

The number of ethnic categories recorded in the national surveys might affect statistical comparisons between extreme groups and values of the summary indices for inequality. Countries with many ethnic groups will tend to have higher values for these measures than those with few groups, and this finding must be taken into account when interpreting the results. This problem affects all summary measures of inequality for unordered categories, not only the two measures used in the present analyses.^{14,37} In the presentation of results, we focused on Theil's index, a measure of relative inequality that is consistent with the rate ratio approach used in the multivariable analyses.

Our analyses are limited to countries with surveys since 2010 providing data both on ethnicity and birth histories. We examined surveys from more than 100 countries, of which 36 countries had data that could be included in the present analyses. Whether our results can be generalised to other LMICs is debatable, but the fact that most countries had significant ethnic gaps in U5MR suggests that such inequalities might also affect other countries.

The purpose of our analyses was to present a broad picture of ethnic inequalities in child survival on the basis of recent national surveys. We identified wide gaps in most countries studied. A detailed examination of the national contexts in which these inequalities exist is

beyond the scope of the present analyses, but we hope that our results will motivate national researchers to explore these disparities and their determinants in more detail. Further research might include an examination of the drivers of inequalities in different countries, comparisons between countries with contrasting patterns of ethnic group inequalities, and stratified analyses of national samples, for example restricting the analyses to rural populations or poor people living in urban areas.

Studies of health inequalities benefit from the use of multiple stratification variables to characterise households and individuals. Wealth quintiles can be used to represent similar proportions of the population over time, and thus are useful to assess whether gaps are being reduced; however, these quintiles are not very useful for targeting interventions at specific groups. Data on geographical inequalities are useful for targeting interventions, but within the boundaries of a specific province or district important disparities might exist, which is observed for poor individuals living in urban areas within large cities. Our analyses show that ethnicity is an important contributor to inequality in many LMICs. Ethnicity is relatively easy to assess in surveys and in registration systems and might make an important contribution to targeting interventions.

20 years after the publication of the seminal article by Brockerhoff and Hewett¹⁰ on ethnic inequalities in 11 African countries, it is regrettable that little action has resulted from their conclusion that "strong and consistent results in this study support placing the notion of ethnicity at the forefront of theories and analyses of child mortality". With the current SDG emphasis on "leaving no one behind", we strongly advocate the need for greater attention to be given to recording ethnicity in surveys and also in routine administrative systems and health information systems to enable monitoring, guide targeting of interventions, and evaluate the equity impact of ongoing and future health interventions. The magnitude of ethnic inequities documented in our analyses highlights a violation of human rights that goes beyond child mortality. National governments should be made accountable for failing to ensure the basic right of survival for all of their children, regardless of ethnic affiliation.

Contributors

CGV, AJDB, BM, LH, and DY conceptualised the study. CB, JCC, FCW, and LPV did the analyses. CGV wrote the manuscript. CGV, AJDB, and BM supervised the analysis and data interpretation. All other authors contributed to the data interpretation and discussion, and approved the final manuscript.

Declaration of interests

All authors declare no competing interests. The views expressed in this Article are those of the authors and do not necessarily reflect the views or policies of UNICEF.

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Child marriage among boys: a global overview of available data

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ABSTRACT

The practice of child marriage has been well-studied among girls, but there has been little information to date about child marriage among boys. This paper presents an analysis of all nationally representative and internationally comparable data on the prevalence of child marriage among boys. Such data are available for 82 countries within the past 10 years, representing 51% of the global population of men. In the countries with data, on average, 4.5% of young men aged 20–24 years were first married or in union before age 18, with a range of values from less than 1% to nearly 30%. Data from all regions show that the practice has become less common compared to 25 years ago. The countries with the highest prevalence of child marriage among boys are geographically diverse and differ from the countries where the practice is most common among girls. Further research is needed on the drivers of the practice and its effects on child grooms.

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Child marriage; early marriage; child rights; adolescent boys

Introduction

Child marriage, defined as a formal marriage or informal union before age 18, is acknowledged by the United Nations Human Rights Council as ‘a harmful practice that violates, abuses and impairs human rights’ (United Nations, 2015). This articulation of the practice as a human rights violation builds on earlier conventions and declarations which state, for example, that ‘men and women of full age ... have the right to marry’ (United Nations, 1948) and that ‘the betrothal and the marriage of a child shall have no legal effect’ (United Nations, 1979). The age of 18 years is generally considered the age of majority, as codified in the Convention on the Rights of the Child (United Nations, 1989). Thus, unions involving any person younger than age 18 are considered to be child marriages according to international conventions. It is important to note that legislation regarding the minimum legal age for marriage varies across countries, and while data presented here refer to marriage before age 18, the legal age may be older or younger in a given country.

The practice of child marriage among girls, including its prevalence, the determinants, and the effects on child brides, has been extensively studied (Jain & Kurz, 2007; Haberland, Chong, & Bracken, 2003; Nour, 2006; Singh & Samara, 1996; United Nations Children’s Fund [UNICEF], 2014). Relatively little research exists on child marriage among boys, however,

likely because the practice is less common (UNICEF, 2014) and does not carry the same risk for adverse health outcomes stemming from early pregnancy and childbirth, which are borne by girls (Godha, Hotchkiss, & Gage, 2013; Raj, 2010).

While boys and girls who marry in childhood do not face the same risks and consequences due to biological and social differences, the practice is nonetheless a rights violation for children of both sexes. Similar to child brides, child grooms are forced to take on adult responsibilities for which they may not be prepared. The union may bring early fatherhood and result in additional economic pressure in the form of providing for the household; it may also constrain the boy's access to education and opportunities for career advancement.

This paper is the first-ever attempt at providing a statistical overview of the prevalence of child marriage among boys from all countries with data, relying on information collected through nationally representative household surveys. The prevalence of child marriage among boys is compared with that for girls to determine whether the practice is geographically concentrated in similar areas of the world for both sexes, and is reviewed across age cohorts to determine if levels have remained consistent or changed over time.

Methods

The primary indicator used to report on the prevalence of child marriage is the percentage of individuals who were first married or in union before age 18. Unions in which the partners lived together as if married are included in the measure, as cohabitation carries the same rights concerns as marriage (UNICEF, 2005). Data are typically collected among respondents aged 15–49 years, though the prevalence among respondents aged 20–24 years is used by convention as a proxy for the current estimate.

This analysis draws upon data from nationally representative household surveys, including two main sources: Multiple Indicator Cluster Surveys (MICS), supported by the United Nations Children's Fund (UNICEF); and Demographic and Health Surveys (DHS), supported by the United States Agency for International Development (USAID). Other nationally representative data sources which use comparable methodology are also considered.

In such household surveys, females aged 15–49 years in the sampled households are identified as respondents to individual questionnaires, as are males aged 15–49 years (UNICEF, 2017; USAID, 2017). Respondents are provided with information about the purpose of the survey and the topics covered in the questionnaire, and are assured of the confidentiality and anonymity of their responses. Those who consent to the interview are asked, among other topics, whether they have ever been married or lived together with someone as if married. For those who respond affirmatively, they are asked in what month and year they began living with their first partner and, as confirmation, their age at first cohabitation.

Data on age at marriage among males are available for 89 primarily low- and middle-income countries, with reference years for the latest available data source per country ranging from 2002 to 2017. Of the 89 countries with available data, 82 (or more than 90%) had a data source within the most recent 10-year period (2007–2017) and more than 70% within the most recent 5-year period (2012–2017). Data availability on the prevalence of child marriage for females is more common, with comparable estimates from a larger number of countries ($n=127$). For the purpose of the analyses presented here, for both males and females, estimates

that are more than 10 years old have been excluded, leaving 82 countries for males and 117 countries for females.

Using the most recent estimate for each country with available data between 2007 and 2017, population weighted means of the prevalence of child marriage were calculated for all countries, for seven geographical regions (UNICEF Data, 2017) and for the group of 47 least developed countries (United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, 2018). Population weights were obtained from the United Nations Department of Economic and Social Affairs, Population Division (2017).

A trend analysis was conducted for the total and each country grouping, using estimates of child marriage prevalence among each age cohort from the most recent available source for each country. The oldest age cohort captured in the surveys (45–49 years) is a cohort which 25 years prior was aged 20–24; thus, the prevalence among this cohort is used to represent the levels of child marriage 25 years prior to the survey. The rate of change over the period of 25 years was calculated as an average annual rate of reduction between the values from the oldest and youngest cohorts.

Results

Data availability

Data availability for the prevalence of child marriage among boys varies across regions. Aggregates for West and Central Africa, South Asia and Eastern and Southern Africa are based on data representing a majority of the populations of their respective regions (100%, 99% and 77%, respectively), so can therefore be considered representative of the regional prevalence. Estimates from all other regions represent less than a quarter of the regional populations and, consequently, should not be interpreted as representative. Data availability is strong among the group of least developed countries (Table 1), but high-income countries are less likely to have data (*result not shown*).

Data availability on child marriage is stronger for females than males (Table 2), and there are sufficient data to represent at least 50% of the respective female populations in six geographical regions. Regarding the differential characteristics of countries with and without data, data availability is again strongest for the least developed countries, and aggregate values may better represent the situation in lower-income countries than in higher-income countries.

Prevalence by region

Across all countries with data since 2007 ($n = 82$), about 1 in 21 males aged 20–24 years were first married or in union before age 18 (4.5%), as indicated in Table 1. The prevalence of child marriage among males varies across regions, with the highest average levels seen in countries in Latin America and the Caribbean (8.3%) and East Asia and the Pacific (5.9%). Levels are near the average in countries in Eastern and Southern Africa (5.0%), South Asia (4.3%), and West and Central Africa (4.0%). The practice is very uncommon (less than 2% prevalence) in countries in the Middle East

Table 1. Prevalence, range of values, and population coverage of child marriage among males.

Region/Country grouping	Percentage of males aged 20–24 years who were first married or in union before age 18	Range of values	Percentage of regional male population with data
Latin America and Caribbean (n = 9)	8.3%	1.6–19.4%	20.5%
East Asia and Pacific (n = 15)	5.9%	0.0–12.3%	20.8%
Eastern and Southern Africa (n = 17)	5.0%	0.6–12.9%	77.0%
South Asia (n = 6)	4.3%	1.0–10.3%	99.1%
West and Central Africa (n = 23)	4.0%	0.6–27.9%	99.9%
Eastern Europe and Central Asia (n = 10)	1.8%	0.1–3.8%	23.1%
Middle East and North Africa (n = 2)	0.2%	0.2–0.6%	22.3%
Western Europe (n = 0)	n/a	n/a	0.0%
North America (n = 0)	n/a	n/a	0.0%
Least developed countries (n = 41)	5.4%	0.0–27.9%	89.8%
Total (n = 82)	4.5%	0.0–27.9%	51.4%

n/a = not available.

Note: Aggregate values represent population-weighted averages of available national data using the latest available source per country from 2007 to 2017; those with population coverage of less than 50% should not be considered representative of the entire region or country grouping. The number of countries included in each aggregate is noted in the first column, next to the name of the country grouping.

Table 2. Prevalence, range of values, and population coverage of child marriage among females.

Region/Country grouping	Percentage of females aged 20–24 years who were first married or in union before age 18	Range of values	Percentage of regional female population with data
West and Central Africa (n = 23)	40.7%	20.7–76.3%	99.9%
South Asia (n = 8)	29.8%	3.9–58.6%	100.0%
Eastern and Southern Africa (n = 19)	34.6%	5.3–52.9%	86.8%
Latin America and Caribbean (n = 22)	24.7%	7.5–35.9%	54.3%
Middle East and North Africa (n = 12)	16.2%	1.6–31.9%	83.7%
East Asia and Pacific (n = 17)	15.1%	5.2–32.7%	33.4%
Eastern Europe and Central Asia (n = 16)	10.9%	3.2–14.7%	55.9%
Western Europe (n = 0)	n/a	n/a	0.0%
North America (n = 0)	n/a	n/a	0.0%
Least developed countries (n = 45)	40.1%	6.8–76.3%	98.5%
Total (n = 117)	21.2%	1.6–76.3%	64.5%

n/a = not available.

Note: Aggregate values represent population-weighted averages of available national data using the latest available source per country from 2007 to 2017; those with population coverage of less than 50% should not be considered representative of the entire region or country grouping. The number of countries included in each aggregate is noted in the first column, next to the name of the country grouping. Aggregate values presented here may differ from other results published by UNICEF due to different selection criteria and year ranges used for the purpose of this analysis.

and North Africa and in Eastern Europe and Central Asia. No data were available for countries in Western Europe or North America.

With the exception of the Central African Republic, which has the highest level of child marriage among males (27.9%), the prevalence in every country with data is

below 20%, and in many countries is less than 1%. Values range widely across countries in most regions. Four of the seven regions with data (East Asia and the Pacific, Eastern and Southern Africa, South Asia, and West and Central Africa) include both countries above the 80th percentile and countries below the 20th percentile.

Although it is important to note that the estimates are not strictly comparable across sexes due to differences in data availability, the available evidence on child marriage among females, as shown in [Table 2](#), indicates that about 1 in 5 women aged 20–24 years married before age 18 (21.2%). The practice is most common in West and Central Africa (40.7%), Eastern and Southern Africa (34.6%) and South Asia (29.8%). Relative to the average, prevalence is slightly higher in Latin America and the Caribbean (24.7%) and lower in the Middle East and North Africa (16.2%), East Asia and the Pacific (15.1%), and Eastern Europe and Central Asia (10.9%). No data were available for countries in Western Europe or North America.

To some extent, prevalence estimates within regions for females show a wide range across countries. However, West and Central Africa shows fairly high prevalence across countries, with all countries above 20% and all but one above the global average; in Eastern Europe and Central Asia, no country with data shows a prevalence above 15%.

Highest-prevalence countries

The countries with the highest prevalence of child marriage by sex are presented in [Table 3](#). In every country, child marriage is less prevalent among males than females. The 20 highest-prevalence countries for males range from the Central African Republic, at 27.9%, to Malawi and Sierra Leone, both at 6.5%. There are 11 countries in which the prevalence is higher than 10%. The 20 highest-prevalence countries for females range from the Niger, at 76.3%, to Sao Tome and Principe at 35.4%; there are 8 countries in which the prevalence is above 50%.

The countries with the highest levels of child marriage among males differ to some extent from the top-ranking countries for females. Among the 20 countries with the highest levels of child marriage for males and females, only 7 overlap (the Central African Republic, Madagascar, Nepal, Mozambique, Chad, the Dominican Republic and Malawi); among the top 10 countries, there is only 1 in common (the Central African Republic).

Trends across age cohorts

As shown in [Table 4](#), which compares the prevalence among the oldest and youngest cohorts of males represented in the surveys, there appears to be a modest decline in the level of child marriage over the past 25-year period. The average prevalence of marriage before age 18 among males aged 45–49 years is 9.6%. The prevalence among males aged 20–24 years (4.5%) represents a 3.0% average annual rate of reduction (AARR) over 25 years. At the regional level, the greatest declines have been seen in countries in the Middle East and North Africa (AARR = 10.5%) and South Asia (AARR = 4.1%), while the least progress has been made in Latin America and the Caribbean (AARR = 0.4%). There is evidence in most regions of some acceleration in the reduction within the past

**Table 3.** Countries with the highest prevalence of child marriage by sex.

Rank	Country	Child marriage among males aged 20–24 years		Child marriage among females aged 20–24 years		Source	Source
		Prevalence	Source	Rank	Country		
1	Central African Republic	27.9%	MICS 2010 ENIDES 2011–2012	1	Niger	76.3%	DHS 2012
2	Nicaragua	19.4%	ENIDES 2012–2013	2	Central African Republic	67.9%	MICS 2010
3	Madagascar	12.9%	DHS 2007	3	Chad	66.9%	DHS 2014–2015
4	Nauru	12.3%	DHS 2011	4	Bangladesh	64.9%	DHS 2011
5	Honduras	12.2%	DHS 2011–2012	5	Mozambique	52.9%	AIS 2015
6	Comoros	11.9%	DHS 2012	6	Guinea	51.7%	DHS 2012
7	Marshall Islands	11.8%	DHS 2007	7	Burkina Faso	51.6%	DHS 2010
8	Lao People's Democratic Republic	10.8%	MICS 2007	8	South Sudan	51.5%	MICS 2010
9	Cuba	10.7%	MICS 2014	9	Mali	49.7%	MICS 2015
10	Nepal	10.3%	DHS 2016	10	Nigeria	43.5%	MICS 2016–2017
11	Thailand	10.1%	MICS 2015	11	Malawi	42.1%	DHS 2015
12	Mozambique	9.7%	AIS 2015	12	Madagascar	41.2%	ENSOMD 2012–2013
13	Guatemala	9.6%	DHS 2011	13	Eritrea	40.7%	EPHS 2010
14	Guyana	8.5%	MICS 2014	14	Ethiopia	40.3%	DHS 2016
15	Bolivia (Plurinational State of)	8.4%	DHS 2008	15	Nepal	39.5%	DHS 2016
16	Chad	8.0%	DHS 2014–2015	16	Democratic Republic of the Congo	37.3%	DHS 2013–2014
17	Dominican Republic	8.0%	DHS 2013	17	Mauritania	37.0%	MICS 2015
18	Afghanistan	7.3%	DHS 2015	18	Dominican Republic	36.5%	DHS 2013
19	Colombia	6.7%	DHS 2015	19	Liberia	35.9%	DHS 2013
20	Malawi	6.5%	DHS 2015	20	Sao Tome and Principe	35.4%	MICS 2014
20	Sierra Leone	6.5%	MICS 2017				

Note: Child marriage prevalence is the percentage of males/females aged 20–24 years who were first married or in union before age 18. Ranking is based on the same data source for males and females, if a source exists with data for both sexes. No estimates are available for males in South Sudan. For alignment with the data source used for males, a source other than the most recent one available for females is used for the following countries: Bangladesh, Guinea, and the Dominican Republic. Abbreviations in the table above refer to: AIDS Indicator Survey (AIS); Encuesta Nicaragüense de Demografía y Salud (ENIDES); Enquête Nationale sur le Suivi des Indicateurs des Objectifs du Millénaire pour le Développement (ENOMD); and Eritrea Population and Health Survey (EPHS).

Table 4. Trends in child marriage by sex.

Region	Prevalence of child marriage among males aged:			Prevalence of child marriage among females aged:		
	20–24 years	45–49 years	AARR	20–24 years	45–49 years	AARR
Eastern and Southern Africa	5.0%	7.1%	1.6%	34.6%	46.1%	0.8%
West and Central Africa	4.0%	6.4%	1.9%	40.7%	48.9%	0.7%
Middle East and North Africa	0.2%	3.1%	10.5%	16.2%	31.5%	2.7%
South Asia	4.3%	11.9%	4.1%	29.8%	59.0%	2.7%
East Asia and Pacific	5.9%	7.7%	1.1%	15.1%	23.2%	1.7%
Latin America and Caribbean	8.3%	9.3%	0.4%	24.7%	23.5%	-0.2%
Eastern Europe and Central Asia	1.8%	2.6%	1.5%	10.9%	15.3%	1.4%
Western Europe	n/a	n/a	n/a	n/a	n/a	n/a
North America	n/a	n/a	n/a	n/a	n/a	n/a
Least developed countries	5.4%	7.9%	1.5%	40.1%	52.2%	1.1%
Total	4.5%	9.6%	3.0%	21.2%	25.2%	0.7%

n/a = not available.

Note: AARR = Average annual rate of reduction. Aggregate values represent population-weighted averages of available national data; those with population coverage of less than 50% should not be considered representative of the entire region. The number of countries included in each regional average and the respective population coverage is noted in Table 1 (males) and Table 2 (females).

10 years. The average AARR for the most recent 10 years is 6.1%, well above the rate seen over the full period of 25 years (*result not shown*).

Trends in a similar direction are also evident among females, with the practice of child marriage slowly becoming less common. Similar to the trends seen among males, there is relatively strong progress in the Middle East and North Africa (AARR = 2.7%) and South Asia (AARR = 2.7%), and the least progress in Latin America and the Caribbean, where there has been no reduction in the practice among the youngest generation of females compared to the older cohort.

Discussion

Though child marriage is less prevalent among boys than girls, the practice exists for both sexes and remains a rights violation for the 1 in 21 young men represented in this analysis who married in childhood (4.5%).

In every region, evidence from countries with available data indicate that child marriage is less common among boys than girls, though the scale of the difference varies across regions. For example, the prevalence is 2.5 times higher among girls than boys in East Asia and the Pacific, and 10 times higher among girls than boys in West and Central Africa. Further, a high regional prevalence of child marriage among one sex is not predictive of a comparably high level among the other. West and Central Africa, for instance, has the highest prevalence of child marriage among girls, at 40.7% – well above the global average of 21.2% – yet it is not among the regions with the highest prevalence for boys. In an apparent exception regarding the lack of patterns within regions, Eastern Europe and Central Asia shows a level of child marriage about 50% lower than the average for both boys and girls.

There are 11 countries in the analysis with a national prevalence of child marriage of 10% or higher for boys. The Central African Republic, with a level of 27.9%, appears to be an outlier, with a prevalence about 40% higher than the second-ranked country (Nicaragua, 19.4%), and more than twice as high as the third-ranked country

(Madagascar, 12.9%). Further research is warranted on the drivers of child marriage in the Central African Republic. In particular, it is interesting to note that child marriage is also prevalent among girls in the country (67.9%), and it would be worthwhile exploring whether unions in which both partners are children are common, as such unions may carry unique risks.

The countries in which child marriage for boys is most common appear to be disparate from one another and from the countries where the practice is common for girls. The highest-prevalence countries for boys are geographically diverse, with the top five countries (the Central African Republic, Nicaragua, Madagascar, Nauru and Honduras) spanning Central Africa, Latin America, Eastern Africa, and the Pacific. This is distinct from the geographical pattern for the practice among girls, for which 17 of the top 20 countries are located in sub-Saharan Africa.

Further, the top 10 countries for boys include those of various income levels, including three upper-middle-income countries (Marshall Islands, Cuba and Nauru). Conversely, there is more uniformity in highest-ranking countries for girls, and the top 20 countries are all low- or lower-middle-income countries.

This unclear distribution of the practice of child marriage among boys points to a need for further research on social, cultural and economic drivers of the practice. While not included in the present analysis, it is likely that there is also subnational variation in the prevalence. Thus, further research is recommended to identify the populations of boys most at risk.

In comparing the prevalence of child marriage across age cohorts, the decreasing trend is in line with the overall reduction seen in child marriage for females, as well as a general trend towards later marriage for both sexes (Mensch, Singh, & Casterline, 2005).

The largest absolute reduction was seen in South Asia (11.9–4.3%), while the largest relative reduction was seen in the Middle East and North Africa (3.1–0.2%). Both of these regions have also seen reductions in the prevalence among girls, so it is possible that some drivers are affecting child marriage for both sexes in these regions. Increasing attainments in education are often cited as a mitigating factor for reducing child marriage prevalence among girls, though it is unclear whether the impact is similar for boys. An earlier study, for instance, found that there was not a significant relationship between educational attainment and age at marriage for males in sub-Saharan Africa (Mensch et al., 2005).

It is also interesting to note that countries in Latin America and the Caribbean have seen the least progress in reducing the prevalence of child marriage among both boys and girls. The reasons for the persistent levels in this region are unclear. It is possible that the contribution of informal unions in this region plays a role, as these types of unions may be driven by different factors than formal unions.

Limitations

The relative lack of nationally representative data on age at marriage for males, as compared to females, poses the greatest challenge in producing aggregate estimates of child marriage prevalence among boys. In the types of household surveys this analysis draws upon, men's questionnaires are not systematically included. Because the calculation of regional and global aggregates relies on national data from up to 10 years ago, these estimates may not accurately represent the situation today.



The number of countries with any available data is lower for males than females, as is the number of countries with multiple data sources from successive survey rounds, which would allow for trend analysis over a longer period. Further, since the aggregates calculated for males are based on a smaller pool of data than for females, the results may not be strictly comparable across sexes.

In addition, since the countries with data are mostly low- and middle-income countries, the aggregates do not reflect the situation in high-income countries. Factors that may contribute to this limited availability of data include the following: nationally representative household survey data are generally less likely to be collected in high-income countries; household surveys do not always include men as respondents; and many countries choose to exclude data collection modules on topics that are not deemed to be relevant, which may be the case for child marriage among boys in many high-income countries.

Conclusion

Data from 82 countries across seven regions indicate that about 1 in 21 young men were married in childhood, with substantial variation in prevalence across countries and regions. The countries in which child marriage among boys is most common are disparate both from one another and from the countries in which the practice is most common for girls. An analysis of prevalence across age cohorts indicates that the practice has become less common over a period of 25 years, a finding consistent across all geographical regions.

This analysis builds on the evidence base on child marriage, bringing attention to a previously understudied issue. This paper provides the first estimation of the magnitude of the practice around the world. It further identifies the places in which the practice is most common and outlines the trends in the practice during recent decades. While child grooms are less numerous than child brides, they similarly have experienced a rights violation that cuts short their childhood.

The identification of countries where this is an issue also provides direction for where qualitative or ethnographic research/studies should be explored or where targeted interventions might be beneficial. Further research is needed on the determinants of child marriage for boys, including whether or not the unions were arranged by third parties, such as family or members of the community, or initiated by boys themselves. Understanding the onset and motivations for child marriage among boys in countries with the highest prevalence, particularly through qualitative data collection, could help guide programming and policies to eliminate drivers, including any ceremonial or financial incentives, and prevent the practice in the future. Analysis of the implications in the short and long term for child grooms, and their families, can inform efforts to mitigate the effects for those who have already married in childhood.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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Compendium of Resource Partner Contributions

2018



Cover Image: Makani centre, Jordan; © UNICEF/UN0278475/Herwig

Caption: Seven-year-old Yaseen with his sister 10-year-old Besan from Jordan who both attend the UNICEF-supported Makani centre. In November 2018, UNICEF, through its Makani programme, helped vulnerable Jordanian children keep warm in the winter by distributing winter clothing kits to children.

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NOTE OF THANKS

Dear Partners,

Building on the collective opportunities created by the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), UNICEF continued to make progress, result after result, in key areas of the global child rights agenda owing to your ideas, advice and unwavering support. But so much more needs to be done for the SDGs to become a reality for children in the coming decade. A child sensitive lens that looks into the best interest of children will be critical.

The global partnerships landscape and the aid architecture have changed significantly over the past few years, offering UNICEF both new opportunities and challenges, prompting UNICEF to adapt, be creative and innovative to deliver results and be more accountable to all our partners.

However, what remains unchanged is the centrality of solidarity and partnership in addressing issues facing children and young people today. The active involvement of many stakeholders and their collective brain power is a necessary ingredient to tackle the complexity of the solutions required to address some of these challenging global issues.

Working side by side with you, UNICEF has been responding to unabated crises in Syria and Yemen, helping families and children forced to flee across international borders in search of protection, delivering critical supplies to victims of the earthquake and tsunami in Indonesia, saving malnourished children in the Sahel, fighting the outbreak of Ebola in the Democratic Republic of Congo and the return of measles in some high and middle-income countries.

In 2018, our joint efforts helped more than 43 million people in humanitarian settings have access to safe water, while 6.9 million children accessed some form of education; 3.6 million children and adolescents accessed psychosocial support; and 7 million children received humanitarian cash transfers. Together we responded to 285 new and ongoing humanitarian situations in 90 countries.

With your support UNICEF provided life-saving treatment and care to 4.1 million children with severe acute malnutrition (SAM) and enabled nearly 12 million out-of-school children to participate in education, including in humanitarian contexts.

We have also launched a new unprecedented global partnership, Generation Unlimited, that brings together the private and public sectors, civil society and young people to co-create large-scale breakthroughs to secure a better future for the world's 1.8 billion young people.

All the above results were possible because you stepped forward to support us, you spoke out, you cared.

We at UNICEF wish to express our sincere gratitude to all resource partners for what we have achieved together in 2018 for children. Of special note are partners who contributed core resources to UNICEF. Core funding is the bedrock of UNICEF programming. It allows UNICEF to plan strategically, adapt more flexibly to country needs and pool resources to deliver joint results.

Inspired by our shared achievements as well as the global celebration of the 30th anniversary of the Convention on the Rights of the Child in 2019, we are determined to expand and strengthen our longstanding partnerships and to do more to make life better for children and young people as they contend with a range of challenges.



A handwritten signature in blue ink, appearing to read "Carla Haddad Mardini".

Carla Haddad Mardini,
Director
Public Partnerships
New York, May 2019



A handwritten signature in blue ink, appearing to read "Gary Stahl".

Gary Stahl,
Director
Private Fundraising and Partnerships
Geneva, May 2019

EXECUTIVE SUMMARY

The Compendium of Resource Partner Contributions 2018 comprises information on revenue and contributions received from public and private sector resource partners to UNICEF¹. Information presented in the Compendium demonstrates the results of extensive policy and programme partnerships between UNICEF and its resource partners. The Compendium is not an official UNICEF financial document, but it draws on official financial data and is predominantly intended as a practical and illustrative report for partners.

UNICEF revised its accounting policy effective 2017 to recognize revenue in the year an agreement is signed, even for multi-year agreements. Total revenue to UNICEF increased from \$6,577 million in 2017 to \$6,676 million in 2018, representing an increase of 2 per cent or \$99 million. Unearmarked Regular Resources (RR) amounted to \$1,807 million reflecting a 27 per cent or \$383 million increase compared to \$1,424 million in 2017. Public Sector RR increased by 54 per cent from \$580 million to \$894 million – this increase was driven by multi-year commitments from Sweden (\$294 million, up from \$85 million in 2017), the United Kingdom (\$122 million, up from \$54 million in 2017), Switzerland (\$61 million, up from \$23 million in 2017), and Germany, which gave its largest-ever core contribution (\$58 million, up from \$17 million in 2017). Private sector RR increased by 5 per cent from \$706 million to \$739 million. Regular Resources as a proportion of overall revenue increased from 22 per cent to 27 per cent. Earmarked Other Resources revenue decreased by 6 per cent, to \$4,869 million, of which \$2,942 million or 60 per cent came in the form of Other Resources (regular) and \$1,927 million or 40 per cent in the form of Other Resources (emergency).

Public sector revenue inclusive of global programme partnerships constituted a record 76 per cent or \$5,042 million of total revenue. This was composed mostly of

New Revenue Recognition Policy:

Revenue: The UNICEF policy for recognizing revenue from voluntary contributions was revised effective 2017. Under the previous policy, UNICEF recognized revenue based on payment plan due dates included in the resource partner agreements. Under the new policy, revenue is recognized in full, including for multi-year contributions, at the time the agreement is signed with the partner.

Contributions Received: Cash and contributions in kind received from resource partners within a calendar year.

Revenue can represent voluntary contributions intended to be used in programmatic activities over multiple years while contributions received relate to the financial year in question.

contributions from government and inter-governmental partners. The three largest public sector partners were the United States of America, the United Kingdom and Germany. Private sector revenue stood at 22 per cent or \$1,461 million² of total revenue. The three largest private sector partners were the national Committees of United States of America, Japan and Republic of Korea. Other Revenue classified as RR, includes revenue from interest, procurement services and other sources, totaling \$173 million or 3 per cent of overall revenue.

In 2018, with the support of our partners, we made a remarkable difference to the situation of children worldwide. As outlined in the Strategic Plan 2018 – 2021, UNICEF will continue to strengthen public and private sector partnerships as a key strategy for delivering results for children, especially the most vulnerable.



Sifa Ngabusi, age 6, enjoys her new school pack filled with notebooks, folders, pens and other educational materials at a school in Bunia, Democratic Republic of the Congo on 27 March 2018. The supplies assisted schools where internally displaced children returning from conflict and local community children attend school together.

© UNICEF/UN0270737/Oatway

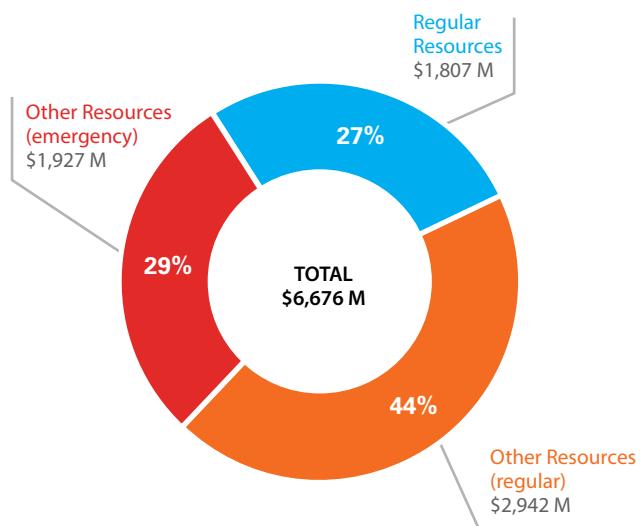
¹ All figures in this report have been rounded and are subject to audit.

² 2018 includes \$47 million for specific management activities.

TOTAL REVENUE BY TYPE OF FUNDING, 2018

In 2018, the total revenue for UNICEF was \$6.7 billion, which represents an increase of 2% or \$99 million compared to 2017. Regular Resources increased by 27% or \$383 million from \$1,424 million in 2017 to \$1,807 million in 2018, while Other Resources decreased by 6% or \$284 million from \$5,153 million in 2017 to \$4,869 million in 2018. Consequently, Regular Resources as a proportion of total revenue increased to 27%.

Revenue by Funding Type, 2018



Regular Resources (RR)

are unearmarked funds that are foundational to deliver results across the Strategic Plan.

Other Resources (OR)

are earmarked funds for programmes; these are supplementary to the funds in unearmarked RR and are made for a specific purpose such as an emergency response or a specific programme in a country/region. These are categorized as below:

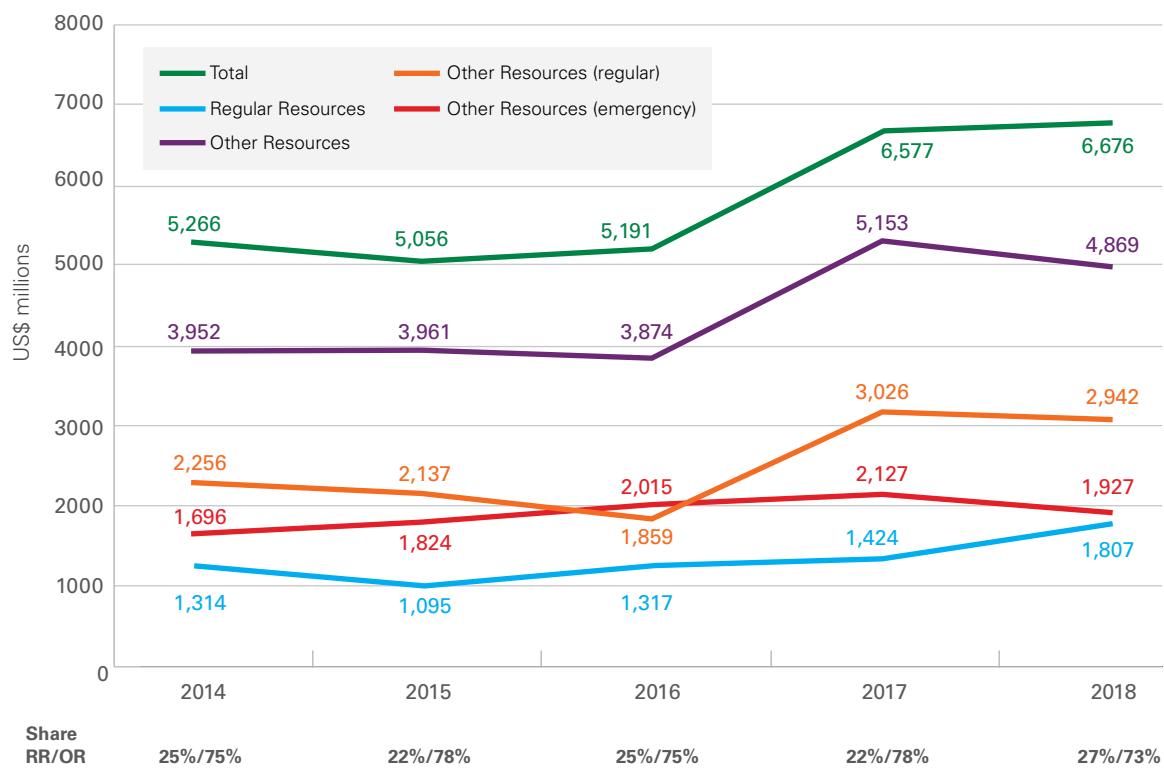
Other Resources (regular)

are funds for specific, non-emergency programme purposes and strategic priorities.

Other Resources (emergency)

are earmarked funds for specific humanitarian action and post-crisis recovery activities.

Revenue by Funding Type, 2014-2018¹



¹ 2014-2016 revenue figures have been restated to reflect UNICEF's 2017 revenue recognition policy.

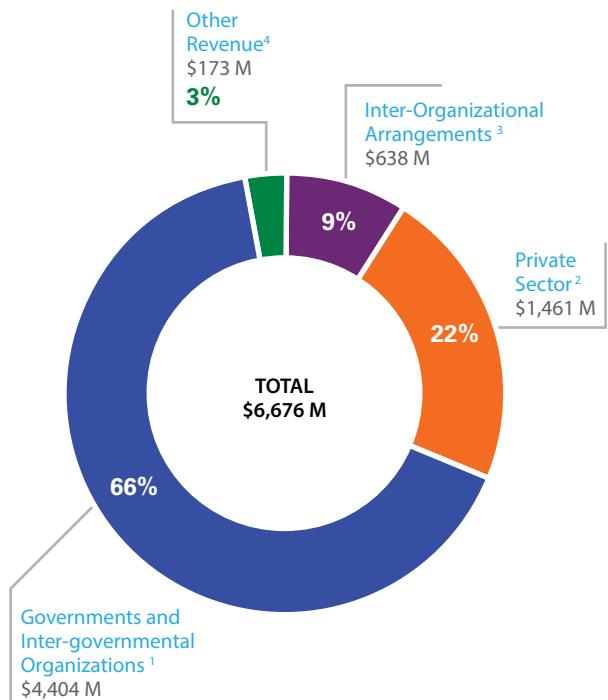
TOTAL REVENUE BY TYPE OF RESOURCE PARTNER, 2018

The total revenue to UNICEF increased from \$6,577 million in 2017 to \$6,676 million in 2018, an increase of 2% or \$99 million.

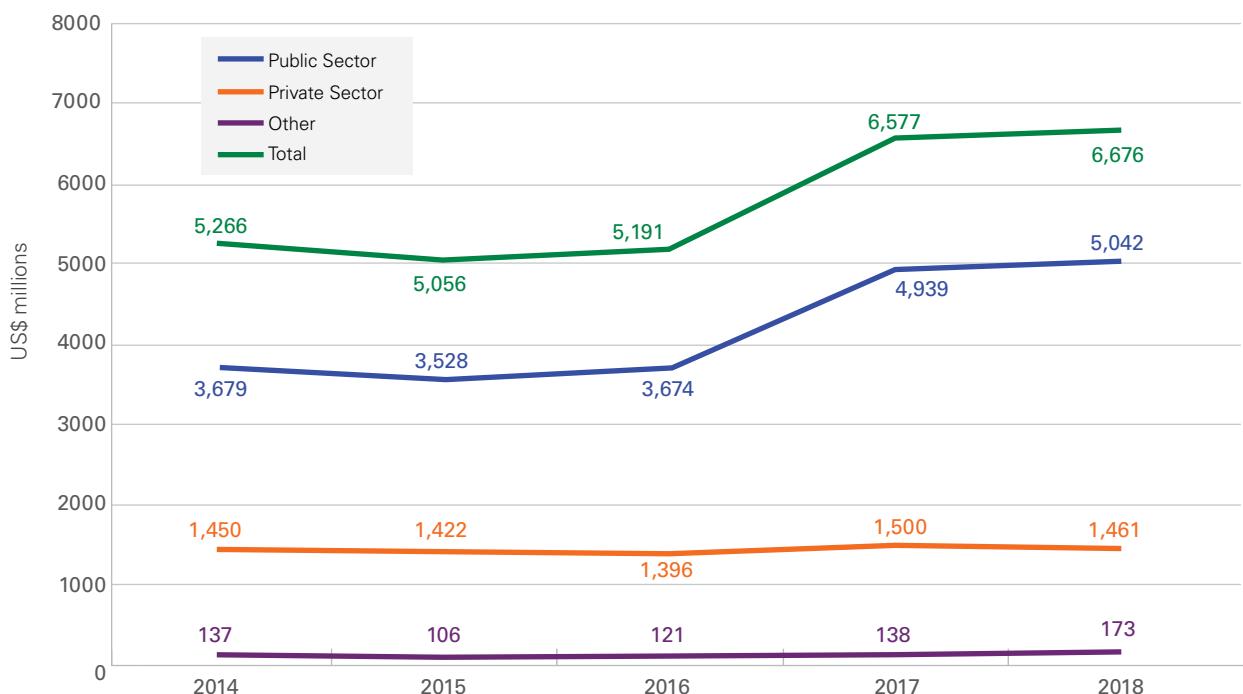
Public Sector revenue constituted 76% or \$5,042 million of the total revenue, representing an increase of 2% or \$103 million over 2017 levels. This revenue was mostly from government and inter-governmental partners.

Private sector revenue constituted 22% or \$1,461 million of the total UNICEF revenue, a decrease of 3% or \$39 million compared to 2017. This revenue was mostly from National Committees, UNICEF Country Office private sector fundraising, and non-governmental organizations.

Other revenue, including income from interest, procurement services and other sources, amounted to \$173 million or 3% of total UNICEF revenue.



Revenue by Resource Partner Category, 2014-2018^{5,6}



¹ Inter-governmental organizations include: EC, Gavi, GPE, NI, Global Fund and UNITAID.

² Revenue from private sector includes foundations, NGOs, UNICEF National Committees and UNICEF Country Offices.

³ Inter-organizational arrangements include: FAO, ILO, IOM, OECD, UNAIDS, UNDP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOPS, UNTFHS, UN Women, WFP, WHO, World Bank Group - International Development Association as well as UN Joint Programmes where UNICEF is the Administrative Agent.

⁴ Other revenue includes income from interest, procurement services and other sources.

⁵ 2014-2016 revenue figures have been restated to reflect UNICEF's 2017 revenue recognition policy.

⁶ 2017 actual data is restated for re-mapping of global programme partners since in the past these partners were categorized under private sector.

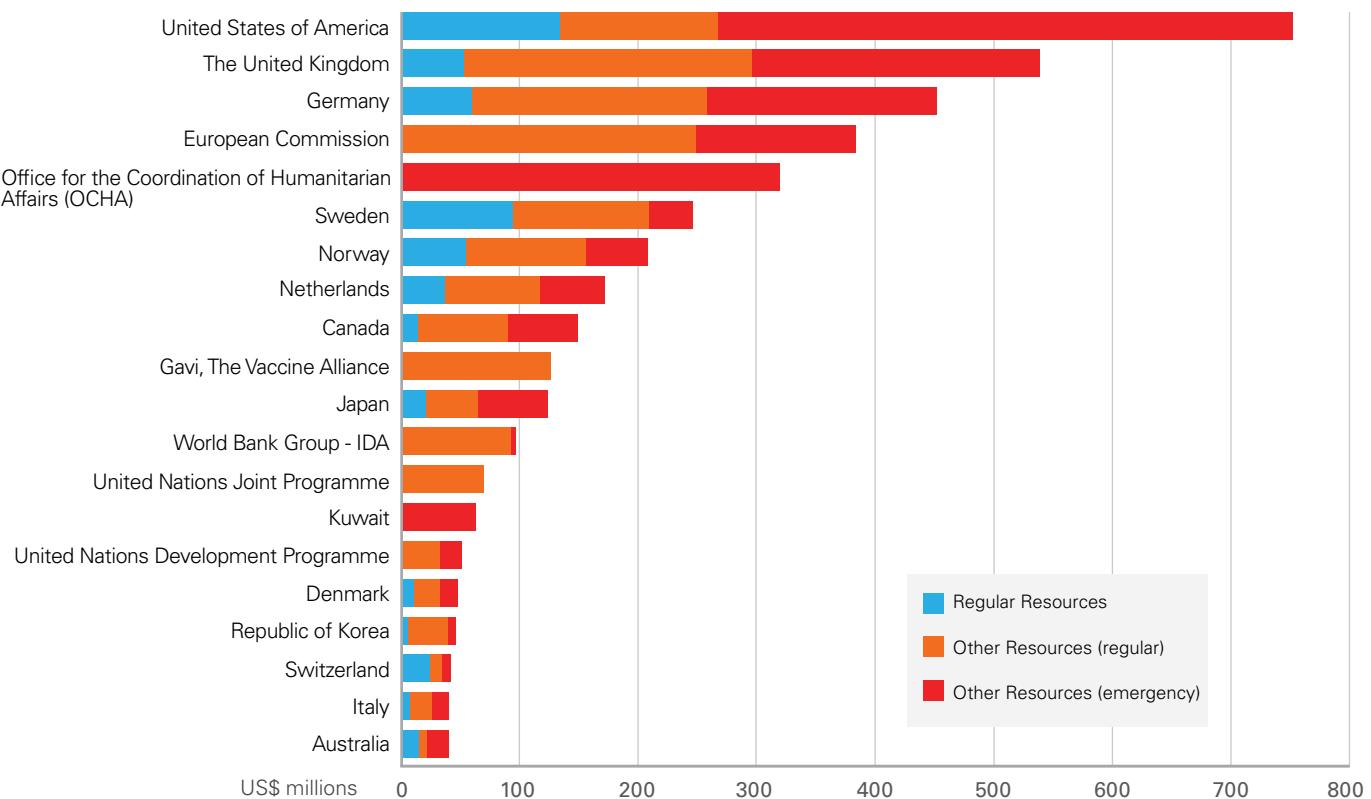
TOP 20 PUBLIC SECTOR RESOURCE PARTNERS BY CONTRIBUTIONS RECEIVED, 2018

The top 20 public sector resource partners provided \$3,940 million or 67% of total contributions received by UNICEF. These partners provided 41% of the total Regular Resources and 75% of the total Other Resources.

In 2018, 139 governments contributed to UNICEF resources. The top five resources partners

were the Governments of the United States of America, the United Kingdom and Germany as well as the European Commission and the Office for the Coordination of Humanitarian Affairs (OCHA). These five partners provided 62% of the total contributions received from the top 20 public sector partners.

Rank 2018	Rank 2017 ¹	Resource Partner	Regular Resources US\$	Rank	Other Resources (regular) US\$	Rank	Other Resources (emergency) US\$	Rank	Total US\$
1	1	United States of America	132,500,000	1	132,946,536	4	485,526,518	1	750,973,054
2	2	The United Kingdom	51,020,408	5	243,179,329	2	243,400,826	3	537,600,563
3	4	Germany	57,823,188	3	198,660,270	3	193,783,042	4	450,266,499
4	3	European Commission			247,202,584	1	135,261,094	5	382,463,678
5	9	Office for the Coordination of Humanitarian Affairs (OCHA) ²					318,321,083	2	318,321,083
6	6	Sweden	92,558,303	2	114,789,787	6	37,707,911	11	245,056,000
7	7	Norway	53,307,487	4	100,949,259	7	52,393,116	10	206,649,863
8	12	Netherlands	35,267,349	6	80,407,688	9	54,554,181	9	170,229,219
9	10	Canada	12,207,988	11	76,242,483	10	59,036,723	8	147,487,194
10	11	Gavi, The Vaccine Alliance			125,101,200	5			125,101,200
11	8	Japan	18,918,327	8	44,354,700	12	59,284,395	7	122,557,422
12	5	World Bank Group - IDA			90,687,671	8	4,540,000	22	95,227,671
13	13	United Nations Joint Programme			67,856,083	11			67,856,083
14	35	Kuwait	200,000	30			61,550,000	6	61,750,000
15	15	United Nations Development Programme ³			31,442,207	15	18,433,190	13	49,875,398
16	14	Denmark	9,079,108	12	22,246,803	17	14,905,221	15	46,231,132
17	19	Republic of Korea	3,978,070	18	34,122,795	14	6,716,638	21	44,817,503
18	18	Switzerland	22,632,386	7	9,941,245	21	7,768,712	20	40,342,344
19	22	Italy	5,909,486	15	18,812,538	19	14,033,074	16	38,755,099
20	17	Australia	13,513,514	10	6,902,690	24	18,127,422	14	38,543,626



¹ 2017 data is restated for re-mapping of global programme partners, this has an impact on 2017 rankings since in the past these partners were categorized under private sector.

² Contributions received from the Office for the Coordination of Humanitarian Affairs includes \$132.1 million related to the Central Emergency Response Fund and \$186.2 million related to other sources including \$151.5 million from Saudi Arabia and United Arab Emirates.

³ Contributions received from the United Nations Development Programme include \$3.9 million related to the Common Humanitarian Fund and \$46.0 million related to joint programmes and One Fund.

TOP 20 PRIVATE SECTOR RESOURCE PARTNERS BY CONTRIBUTIONS RECEIVED, 2018

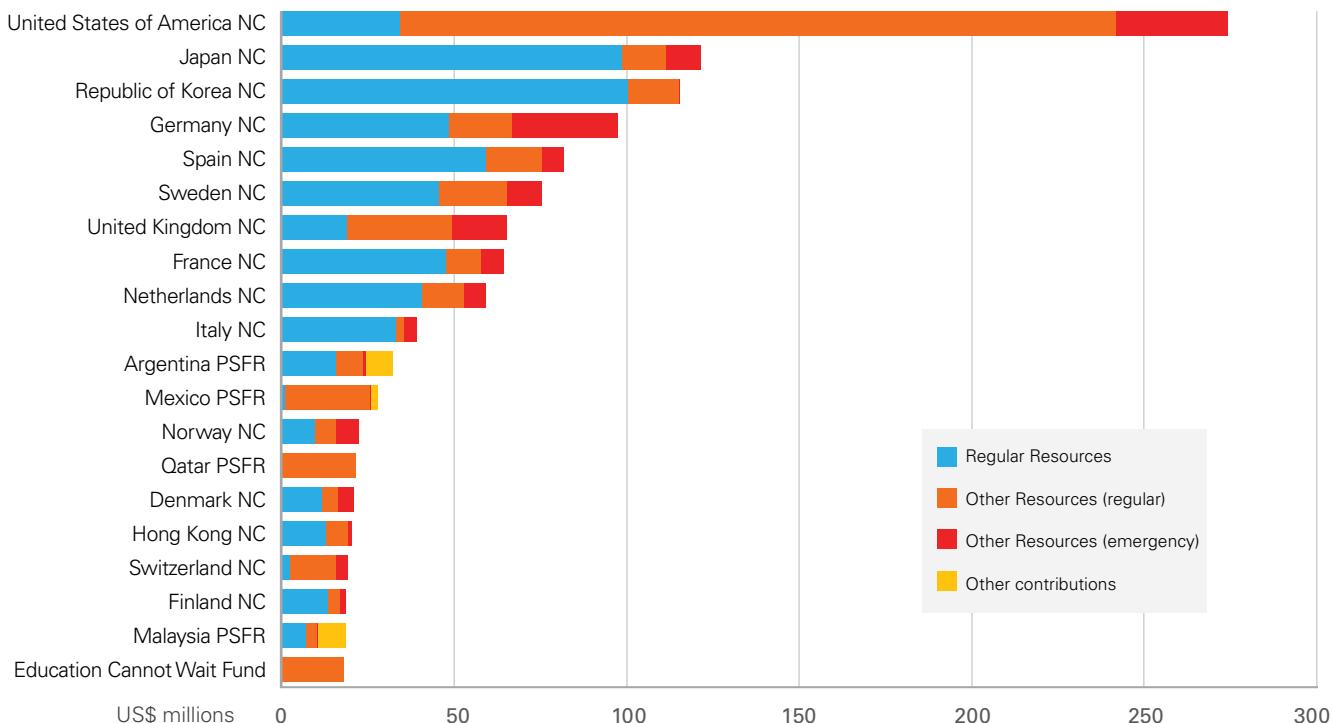
In 2018, National Committees (independent legal non governmental organizations) in 33 countries and 48 UNICEF County Offices were instrumental in mobilizing private sector resources for UNICEF's work.

The top 20 private sector resource partners contributed \$1,213 million or 21% of the total contributions received by

UNICEF. These partners provided 48% of the total Regular Resources and 13% of total Other Resources.

In 2018, the top five partners in this category included the National Committees of United States of America, Japan, Republic of Korea, Germany and Spain. These five partners contributed 57% of the total contributions received from the top 20 private sector partners.

Rank 2018	Rank 2017 ¹	Resource Partner	Regular Resources US\$	Rank	Other Resources (regular) US\$	Rank	Other Resources (emergency) US\$	Rank	Other Contributions ² US\$	Total US\$
1	1	United States of America NC	34,314,514	8	207,339,664	1	32,735,757	1		274,389,935
2	2	Japan NC	98,580,501	2	12,848,026	11	10,013,349	4		121,441,876
3	3	Republic of Korea NC	100,396,662	1	14,697,535	9	391,011	31		115,485,208
4	4	Germany NC	48,604,136	4	18,225,433	6	30,443,648	2		97,273,218
5	6	Spain NC	59,321,202	3	16,053,731	8	6,550,010	7		81,924,943
6	5	Sweden NC	45,663,934	6	19,696,909	5	9,986,027	5		75,346,870
7	7	United Kingdom NC ³	19,073,347	10	30,412,470	2	15,818,536	3		65,304,352
8	8	France NC	47,704,410	5	10,141,265	14	6,409,227	8		64,254,901
9	9	Netherlands NC	40,566,156	7	12,304,064	12	6,213,884	9		59,084,104
10	10	Italy NC	33,120,701	9	2,187,646	33	3,872,776	12		39,181,122
11	11	Argentina PSFR	15,888,450	11	7,724,786	18	782,626	25	7,911,672	32,307,533
12	13	Mexico PSFR	1,058,393	35	24,569,138	3	253,251	34	2,067,626	27,948,408
13	23	Norway NC	9,690,666	16	5,935,645	21	6,856,057	6		22,482,368
14	12	Qatar PSFR	3,970	55	21,422,856	4	6,717	50		21,433,542
15	16	Denmark NC	11,703,512	15	4,585,153	24	4,708,361	10		20,997,026
16	18	Hong Kong NC	12,804,562	13	6,393,748	20	1,114,907	22		20,313,218
17	14	Switzerland NC	2,298,016	28	13,495,255	10	3,287,749	13		19,081,019
18	17	Finland NC	13,318,572	12	3,529,138	26	1,806,301	17		18,654,011
19	24	Malaysia PSFR	6,996,987	17	3,309,020	27	177,507	35	8,044,060	18,527,574
20	15	Education Cannot Wait Fund			18,079,450	7				18,079,450



¹ 2017 data is restated for re-mapping of global programme partners, this has an impact on 2017 rankings since in the past these partners were categorized under private sector.

² Contributions for specific management activities.

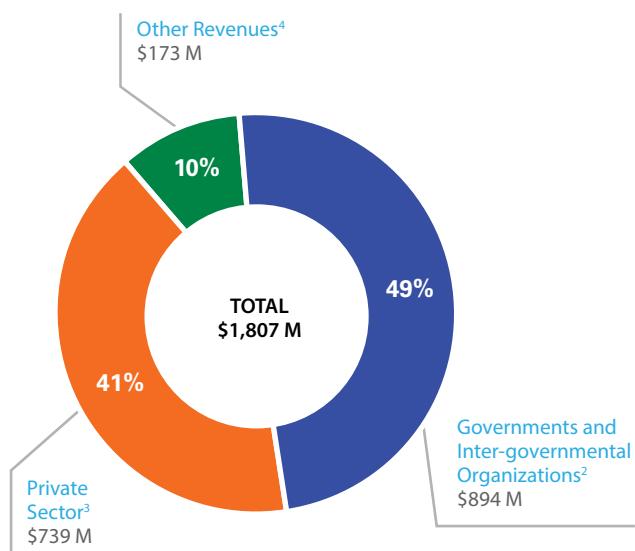
³ 2018 contributions from the United Kingdom NC include \$ 744,146 from Jersey Overseas Aid, which is an independent international aid agency, funded by the States of Jersey.

REGULAR RESOURCES BY TYPE OF RESOURCE PARTNER, 2018

Unearmarked Regular Resources contributions are crucial for UNICEF to reach the most disadvantaged children and respond quickly to emergencies. Steady and predictable Regular Resources allow UNICEF to leverage and invest in innovative programmes and approaches.

Total Regular Resources revenue to UNICEF was \$1,807 million in 2018 – an increase of 27% or \$383 million from \$1,424 million in 2017. Of this, \$894 million or 49% was contributed by government partners, and 41% or \$739 million was contributed by the private sector partners. The remaining \$173 million or 10% included income from interest, procurement services and other sources.

Regular Resources Revenue¹ by Type of Partner, 2018



The top 20 resource partners to Regular Resources contributed \$1,024 million. Of these partners, 48% were government partners, while the remaining 52% were from the private sector.

In 2018, the top five partners to Regular Resources were the governments of the United States of America and Sweden; and the National Committees of Republic of Korea, Japan and Spain. These five partners contributed 47% of the total Regular Resources contributed by the top 20 partners.

Top 20 Partners to Regular Resource by Contributions Received¹, 2018

Rank	Resource Partners	Regular Resources US\$
1	United States of America	132,500,000
2	Republic of Korea NC	100,396,662
3	Japan NC	98,580,501
4	Sweden	92,558,303
5	Spain NC	59,321,202
6	Germany	57,823,188
7	Norway	53,307,487
8	The United Kingdom	51,020,408
9	Germany NC	48,604,136
10	France NC	47,704,410
11	Sweden NC	45,663,934
12	Netherlands NC	40,566,156
13	Netherlands	35,267,349
14	United States of America NC	34,314,514
15	Italy NC	33,120,701
16	Switzerland	22,632,386
17	United Kingdom NC	19,073,347
18	Japan	18,918,327
19	Belgium	18,695,268
20	Australia	13,513,514



Judy Opis with students from Pomberal Primary School. Opis is the UNICEF Program Volunteer at Pomberal Village, in Papua New Guinea where she runs education, play and health programmes for the children.

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¹ Please refer to New Revenue Recognition Policy on page 3.

² Inter-governmental organizations include: EC, Gavi, GPE, NI, Global Fund and UNITAID.

³ Revenue from private sector includes foundations, NGOs, UNICEF National Committees and UNICEF Country Offices.

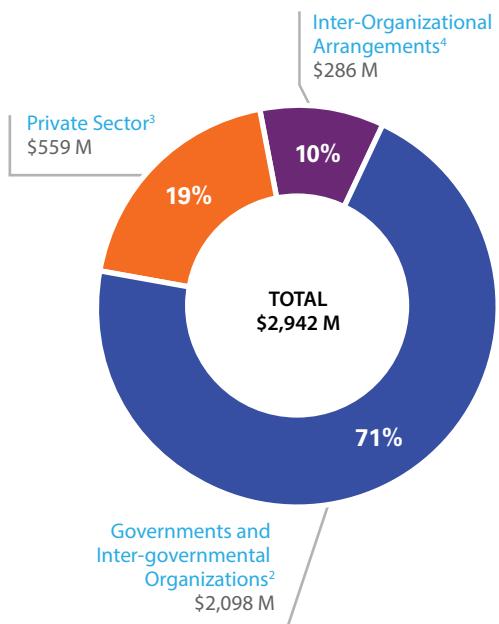
⁴ Other revenue includes income from interest, procurement services and other sources.

OTHER RESOURCES (REGULAR) BY TYPE OF RESOURCE PARTNER, 2018

The total Other Resources (regular) revenue to UNICEF amounted to \$2,942 million – a decrease of 3% or \$84 million from \$3,026 million in 2017. Of this, 81% or \$2,383 million was mobilized from the public sector and 19% or \$559 million from private sector.

The top 20 resource partners to Other Resources (regular) contributed \$1,936 million. Of these top 20 partners, 86% were public sector partners while the remaining 14% were from private sector.

Other Resources (regular) Revenue¹ by Type of Partner, 2018



In 2018, the top five partners to Other Resources (regular) were the European Commission, the Governments of the United Kingdom, Germany and the United States of America as well as the National Committee of United States of America. These five partners contributed 53% of the total contributions from the top 20 Other Resources (regular) partners.

Top 20 Partners to Other Resources (regular) by Contributions Received¹, 2018

Rank	Resource Partners	Other Resources (regular) US\$
1	European Commission	247,202,584
2	The United Kingdom	243,179,329
3	United States of America NC	207,339,664
4	Germany	198,660,270
5	United States of America	132,946,536
6	Gavi, The Vaccine Alliance	125,101,200
7	Sweden	114,789,787
8	Norway	100,949,259
9	World Bank Group - IDA	90,687,671
10	Netherlands	80,407,688
11	Canada	76,242,483
12	United Nations Joint Programme	67,856,083
13	Japan	44,354,700
14	Global Partnership for Education	35,785,492
15	Republic of Korea	34,122,795
16	United Nations Development Programme	31,442,207
17	United Kingdom NC	30,412,470
18	United Nations Population Fund (UNFPA)	27,894,652
19	Mexico PSFR	24,569,138
20	Denmark	22,246,803



In Ukraine, 24-year-old Anton Holovachneko explains how the exoskeleton device operates to six-year-old students during an early children development and innovations session organized by UNICEF in Kyiv.

© UNICEF/UN0251569/Pilipets

¹ Please refer to New Revenue Recognition Policy on page 3.

² Inter-governmental organizations include: EC, Gavi, GPE, NI, Global Fund and UNITAID.

³ Revenue from private sector includes foundations, NGOs, UNICEF National Committees and UNICEF Country Offices.

⁴ Inter-organizational arrangements include: FAO, ILO, IOM, OECD, UNAIDS, UNDP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOPS, UNTFHS, UN Women, WFP, WHO, World Bank Group - International Development Association as well as UN Joint Programmes where UNICEF is the Administrative Agent.

OTHER RESOURCES (EMERGENCY) BY TYPE OF RESOURCE PARTNER, 2018

In 2018, the total Other Resources (emergency) revenue to UNICEF was \$1,927 million, which represents a decrease of 9% or \$200 million from \$2,127 million in 2017.

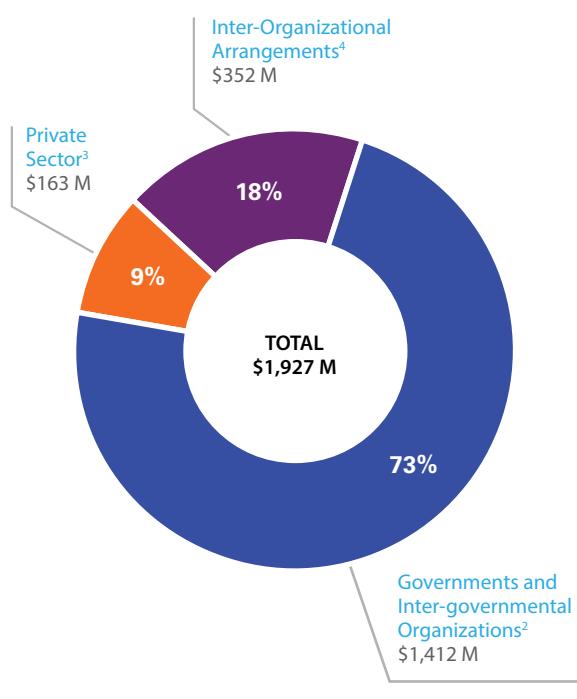
Of the total Other Resources (emergency) revenue, \$1,764 million or 92% came from the public sector, while the remaining \$163 million or 8% was provided by the private sector.

The top 20 resource partners to Other Resources (emergency) contributed \$1,879 million. Of these top

20 partners, 96% were public sector partners while the remaining 4% were private sector partners.

In 2018, the top five partners to Other Resources (emergency) were the Governments of the United States of America, the United Kingdom and Germany, as well as the Office for the Coordination of Humanitarian Affairs (OCHA) and the European Commission. These five partners contributed \$1,376 million or 73% of the total contributions by the top 20 Other Resources (emergency) partners.

Other Resources (emergency) Revenue¹ by Type of Partner, 2018



Top 20 Partners to Other Resources (emergency) by Contributions Received¹, 2018

Rank	Resource Partners	Other Resources (emergency) US\$
1	United States of America	485,526,518
2	Office for the Coordination of Humanitarian Affairs (OCHA) ⁵	318,321,083
3	The United Kingdom	243,400,826
4	Germany	193,783,042
5	European Commission	135,261,094
6	Kuwait	61,550,000
7	Japan	59,284,395
8	Canada	59,036,723
9	Netherlands	54,554,181
10	Norway	52,393,116
11	Sweden	37,707,911
12	United States of America NC	32,735,757
13	Germany NC	30,443,648
14	Saudi Arabia	20,806,500
15	United Nations Development Programme	18,433,190
16	Australia	18,127,422
17	United Kingdom NC	15,818,536
18	Denmark	14,905,221
19	Italy	14,033,074
20	Belgium	13,272,482

Kingdom of Saudi Arabia and United Arab Emirates:

In 2018, the contributions from the Governments of the Kingdom of Saudi Arabia and the United Arab Emirates to UNICEF's humanitarian action has increased by 97% in comparison to 2017. The total funding amounted to \$188 million, including \$151.5 million received through the Office for the Coordination of Humanitarian Affairs (OCHA). Through this partnership, UNICEF was able to reach millions of the most vulnerable children.

¹ Please refer to New Revenue Recognition Policy on page 3.

² Inter-governmental organizations include: EC, Gavi, GPE, NI, Global Fund and UNITAID.

³ Revenue from private sector includes foundations, NGOs, UNICEF National Committees and UNICEF Country Offices.

⁴ Inter-organizational arrangements include: FAO, ILO, IOM, OECD, UNAIDS, UNDP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOPS, UNTFHS, UN Women, WFP, WHO, World Bank Group - International Development Association as well as UN Joint Programmes where UNICEF is the Administrative Agent.

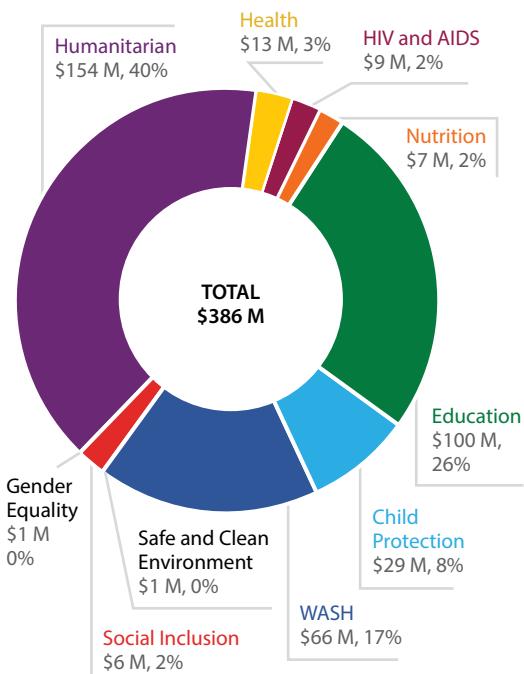
⁵ Contributions received from the Office for the Coordination of Humanitarian Affairs includes \$132.1 million related to the Central Emergency Response Fund and \$186.2 million related to other sources including \$151.5 million from Saudi Arabia and United Arab Emirates.

THEMATIC CONTRIBUTIONS RECEIVED, 2018

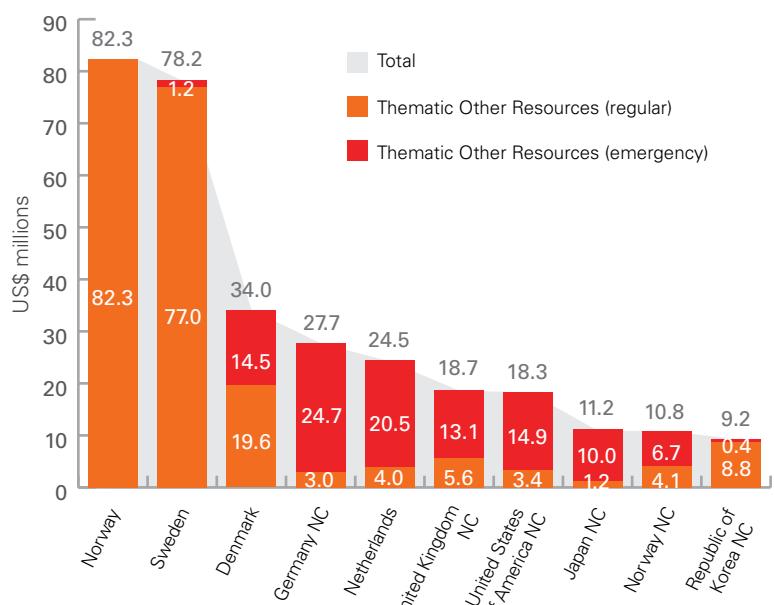
Thematic funds are softly earmarked pooled funds categorized as Other Resources that directly support the achievement of key results aligned with the Strategic Plan. These funds allow for long-term planning, sustainability and savings in transaction costs for both UNICEF and its Resource Partners.

In 2018, overall thematic funding to UNICEF amounted to \$386 million, which represents an increase of 6% or \$23 million as compared to \$363 million in 2017. Thematic funding accounted for 8% of total earmarked Other Resources funding, which is at the same level as in 2017.

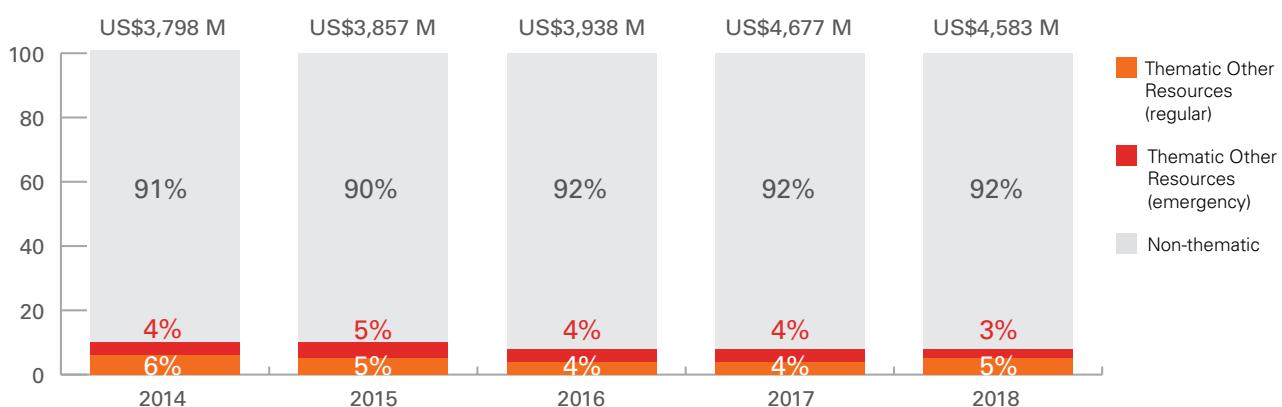
Thematic Contributions by Sector, 2018



Top 10 Resource Partners to Thematic Funding by Contributions Received, 2018



Other Resources Contributions Received 2014-2018: Thematic vs Non-thematic¹



Global Humanitarian Thematic Funding (GHTF):

In 2018, humanitarian thematic funding made up 8% of all emergency contributions, for a total of US\$154 million. Nearly 23% (US\$34.8 million) of this amount was GHTF. Compared with the overall emergency funds received, GHTF stood at only 1.7%.

¹ 2014-2016 contributions received have been restated to reflect UNICEF's 2017 revenue recognition policy.

HUMANITARIAN FUNDING

The map below highlights the key results achieved by UNICEF and partners.

Ukraine:

Nearly 1.9 million people had uninterrupted access to water, sanitation and hygiene facilities through the repair of infrastructure in schools and hospitals, supply of chemicals and coordination of humanitarian and development assistance during the year (95 per cent of the target).

Funding received \$7.8 m
Funding shortfall \$15.8 m
Funding gap 67%



Syrian Arab Republic and the sub-region:

In the Syrian Arab Republic and Syrian refugee-hosting countries, including Iraq, Jordan and Lebanon, UNICEF and partners reached nearly 465,000 households with cash-based support.

Funding received \$684.0 m
Funding shortfall \$587.6 m
Funding gap 46%

Libya:

Nearly 91,000 conflict-affected children were supported with recreational and psychosocial activities, including through mobile psychosocial teams and in community spaces and schools (97 per cent of the target).

Funding received \$10.3 m
Funding shortfall \$9.9 m
Funding gap 49%



Bolivarian Republic of Venezuela migration crisis:

Nearly 50,000 girls and boys on the move, including adolescents, accessed formal education and/or alternative learning activities in Brazil, Colombia and Trinidad and Tobago (exceeding the target).

Funding received \$16.3 m
Funding shortfall \$11.7 m
Funding gap 42%



Lake Chad Basin:

More than 439,000 children with severe acute malnutrition in the Lake Chad Basin (the Far North Region of Cameroon, the Lac Region of Chad, the Diffa Region of the Niger and Adamawa, Borno and Yobe States of Nigeria) received treatment, representing one quarter of all children admitted for treatment in the Sahel region.

Funding received \$57.8 m
Funding shortfall \$123.2 m
Funding gap 68%



Democratic Republic of the Congo:

Nearly 10 million people received Ebola prevention messages, including through community engagement, interpersonal communications, radio and door-to-door outreach.

Funding received \$107.8 m
Funding shortfall \$160.4 m
Funding gap 60%

¹ Papua New Guinea funding figures are part of the overall East Asia and the Pacific funding figure.

partners in some of the major humanitarian responses in 2018.

Afghanistan:

Nearly 278,000 children under 5 years received treatment for severe acute malnutrition in 24 provinces through services provided through health systems and mobile health and nutrition teams (94 per cent of the target).

Funding received \$12.9 m

Funding shortfall \$25.9 m

Funding gap 67%



Bangladesh:

More than 168,000 vulnerable school-aged children accessed non-formal education in both camps and host communities. This included 145,000 Rohingya refugee children (83 per cent of the target).

Funding received \$86.7 m

Funding shortfall \$63.0 m

Funding gap 42%

Earthquakes in East Asia:

In the aftermath of the earthquakes that struck East Asia in 2018, nearly 1.8 million children in Indonesia (92 per cent of the 1.9 million targeted) and over 37,000 children in Papua New Guinea received measles and rubella vaccination (95 per cent of the target).

Indonesia

Funding received \$19.0 m

Funding shortfall \$7.6 m

Funding gap 29%

Papua New Guinea¹

Funding received \$4.8 m

Funding shortfall \$8.9 m

Funding gap 65%

Yemen:

In response to the cholera outbreak, nearly 5 million people gained access to safe drinking water and nearly 732,000 people in high-risk/priority areas received cholera vaccination (83 per cent of the target).

Funding received \$330.1 m

Funding shortfall \$93.9 m

Funding gap 22%

South Sudan:

UNICEF supported the release of nearly 1,000 children (265 girls) associated with armed groups and enrolled them in reintegration programmes.

Funding received \$103.5 m

Funding shortfall \$79.8 m

Funding gap 44%

Ethiopia:

Nearly 5.6 million people gained access to safe water, including through durable solutions such as the extension of piped water systems to provide emergency water supply to internally displaced persons (exceeding the target).

Funding received \$58.5 m

Funding shortfall \$65.3 m

Funding gap 53%

This map is stylized and not to scale. It does not reflect a position by UNICEF on the legal status of any country or area or the delimitation of any frontiers. The dotted line represents approximately the Line of Control agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the Parties. The final boundary between the Republic of the Sudan and the Republic of South Sudan has not yet been determined.

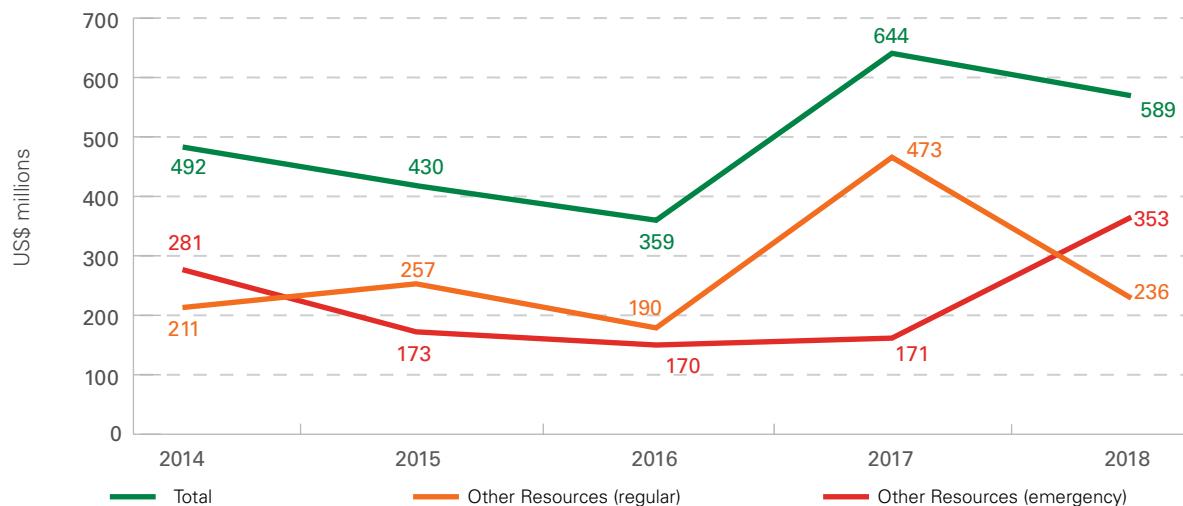
CONTRIBUTIONS RECEIVED THROUGH INTER-ORGANIZATIONAL ARRANGEMENTS, 2014-2018^{1,2,3}

UNICEF continued its participation in UN and inter-organizational partnership arrangements through a variety of pooled funds and Multi-Partner Trust Funds (MPTFs). Contributions from Inter-organizational arrangements decreased overall by 9% (or \$55 million) from \$644 million in 2017 to \$589 million in 2018. This represents a decrease in Other Resources (regular) by 50% (or \$237 million) from \$473 million in 2017 to \$236 million in 2018 and an increase

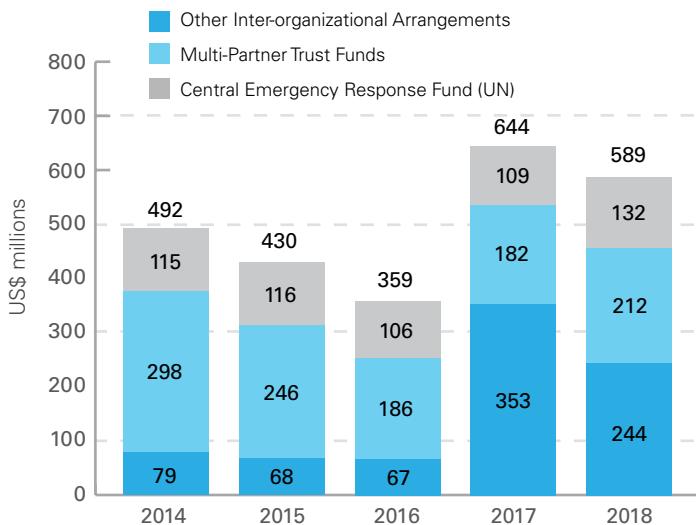
in Other Resources (emergency) by 106% (or \$182 million) from \$171 million in 2017 to \$353 million in 2018.

The top three contributors to UNICEF included funding through the Office for the Coordination of Humanitarian Affairs (OCHA)⁴, World Bank Group - International Development Association and United Nations Joint Programme (UNICEF as an Administrative Agency).

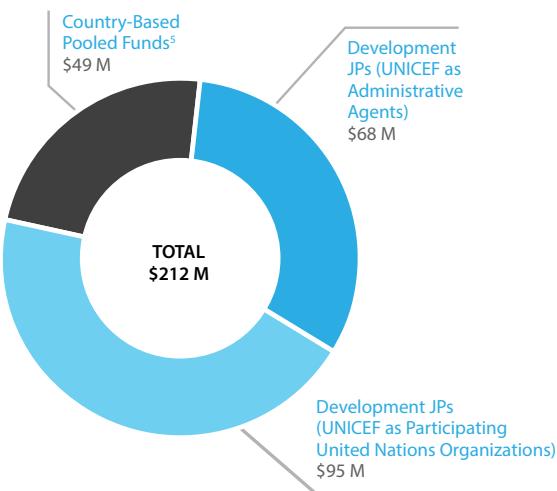
Contributions Received through Inter-organizational Arrangements by Funding Type, 2014-2018



Contributions Received through Inter-organizational Arrangements 2014-2018



Contributions Received through Pooled Funds and Joint Programmes, 2018 (excluding CERF)



¹ Inter-organizational arrangements include: FAO, ILO, IOM, OECD, UNAIDS, UNDP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOPS, UNTFHS, UN Women, WFP, WHO, World Bank Group - International Development Association as well as UN Joint Programmes where UNICEF is the Administrative Agent.

² 2014-16 contributions received (including refunds) have been restated to reflect UNICEF's 2017 revenue recognition policy.

³ 2017 actual data is restated for re-mapping of global programme partners since in the past these partners were categorized under private sector.

⁴ Contributions received from the Office for the Coordination of Humanitarian Affairs includes \$132.1 million related to the Central Emergency Response Fund and \$186.2 million related to other sources including \$151.5 million from Saudi Arabia and United Arab Emirates.

⁵ Country-Based Pooled Funds (CBPFs): CBPFs are multi-donor humanitarian financing instruments established by the Emergency Relief Coordinator (ERC). They are managed by OCHA at the country-level under the leadership of the Humanitarian Coordinator (HC). Donor contributions to each CBPF are un-earmarked and allocated by the HC through an in-country consultative process. As of 2018, CBPFs operate in 17 countries.

TOTAL UNICEF REVENUE, 2017-2018

US \$ millions

	2017 ¹	2018	Change in \$M	Change in %
1. Governments and Inter-governmental Organizations²	4,126	4,404	278	7%
a) Regular Resources	580	894	315	54%
b) Other Resources	3,546	3,509	(37)	-1%
i. Regular	1,781	2,098	317	18%
ii. Emergency	1,765	1,412	(353)	-20%
2. National Committees, Non-Governmental, and other Private Sector Sources³	1,500	1,461	(39)	-3%
a) Regular Resources ⁴	706	739	33	5%
b) Other Resources	794	722	(72)	-9%
i. Regular	611	559	(52)	-8%
ii. Emergency	184	163	(21)	-11%
3. Inter-organizational Arrangements⁵	812	638	(174)	-21%
a) Regular Resources				
b) Other Resources	812	638	(174)	-21%
i. Regular	635	286	(349)	-55%
ii. Emergency	178	352	174	98%
SUB-TOTAL REVENUE	6,439	6,503	64	1%
4. Other revenue (Regular Resources)⁶	138	173	35	25%
GRAND TOTAL REVENUE	6,577	6,676	99	2%

¹ 2017 data is restated for re-mapping of global programme partners since in the past these partners were categorized under private sector.

² Inter-governmental organizations include: EC, Gavi, GPE, NI, Global Fund and UNITAID.

³ Revenue from private sector includes foundations, NGOs, UNICEF National Committees and UNICEF Country Office private sector fundraising.

⁴ 2017 actual and 2018 actual includes contributions of \$36 million and \$47 million respectively for specific management activities.

⁵ Inter-organizational arrangements include: FAO, ILO, IOM, OECD, UNAIDS, UNDP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOPS, UNTFHS, UN Women, WFP, WHO, World Bank Group - International Development Association as well as UN Joint Programmes where UNICEF is the Administrative Agent.

⁶ Other revenue includes income from interest, procurement services and other sources.

GLOBAL AID ENVIRONMENT, 2018¹

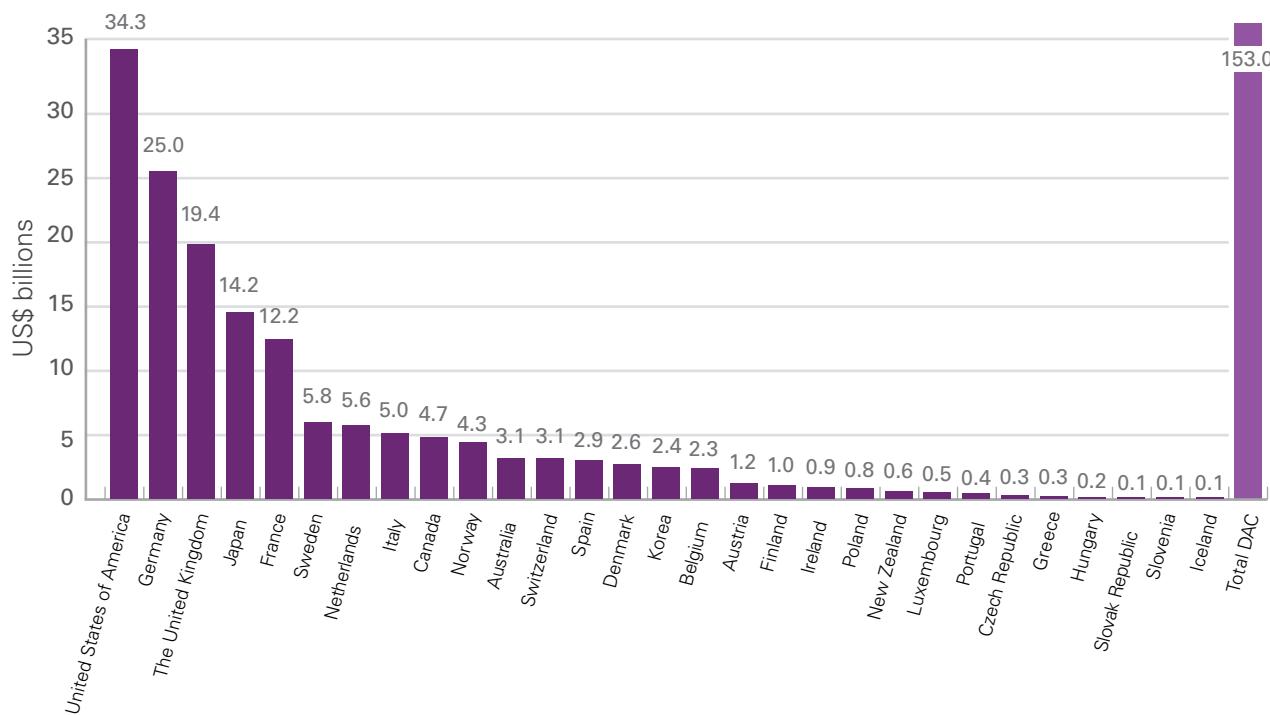
There is a change in the Official Development Aid (ODA) methodology which took effect in 2019 with the publication of preliminary 2018 ODA report.

Preliminary ODA levels in 2018 on a grant equivalent basis: In 2018, net ODA by members of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC), totaled \$153.0 billion, representing 0.31%. ODA on the grant equivalent basis as per cent of GNI met or exceeded by 0.7% for these countries.

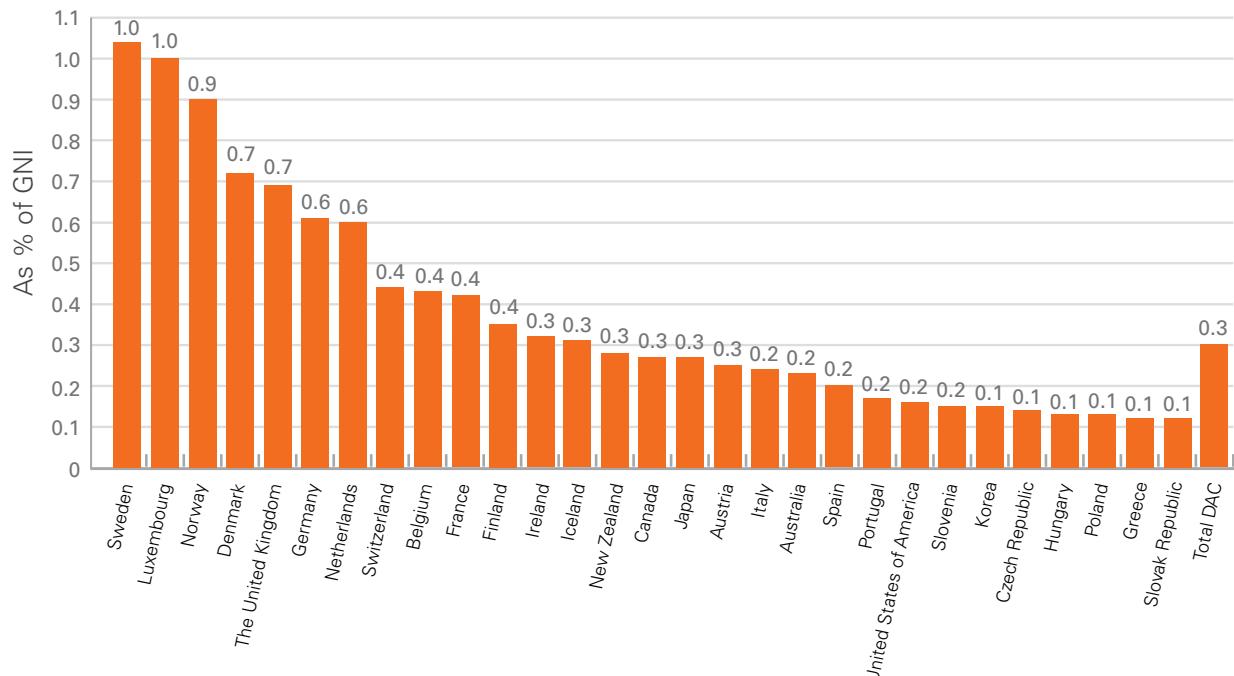
ODA allocations on a cash basis: Net ODA flows by DAC member countries were \$149.3 billion in 2018 representing

a fall of 2.7% in real terms compared to 2017. The fall reflects a reduction in funds provided in country to support refugees for many DAC members; excluding these costs, net ODA levels were stable compared to 2017. Preliminary data shows that net bilateral aid flows to Africa were \$29.7 billion, representing a fall of 4.0% in real terms compared to 2017. Within this total, \$25.9 billion were for sub-Saharan Africa, a fall of 4.4% in real terms. Preliminary data shows that net bilateral ODA from DAC countries to the group of least developed countries, which had been on a falling trend before rebounding in 2017, fell by 2.7% in real terms to reach \$27.6 billion.

Net ODA in 2018 - amounts



Net ODA in 2018 - as a percentage of GNI



¹ OECD Development Aid Statistics, April 2019.

DEVELOPMENT ASSISTANCE COMMITTEE (DAC) MEMBER GOVERNMENTS, TOTAL CONTRIBUTIONS RECEIVED TO UNICEF COMPARED TO ODA, ODA PER CAPITA AND GNI PER CAPITA, 2018¹

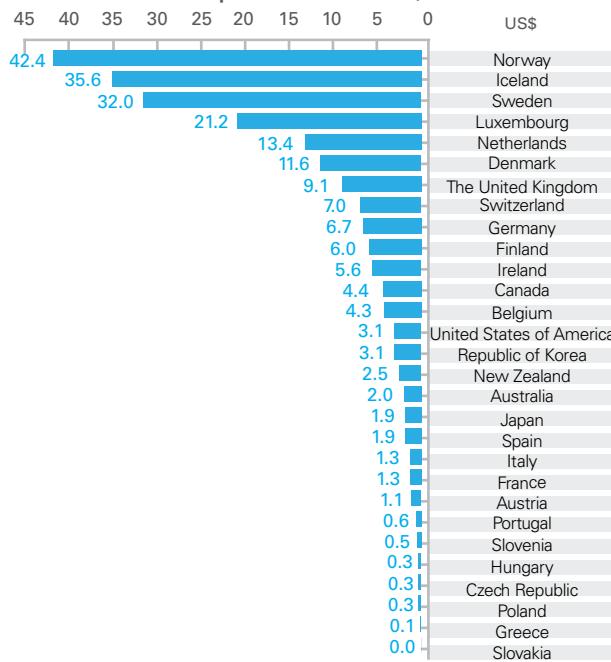
This table ranks resource partner countries' total contribution to UNICEF per capita. Total UNICEF contributions include Government and National Committee sources for any given country. In 2018, Norway maintained the first position with

a \$42.4 per capita contribution, Iceland moved up to second position with a \$35.6 per capita contribution, followed by Sweden with a \$32.0 per capita contribution.

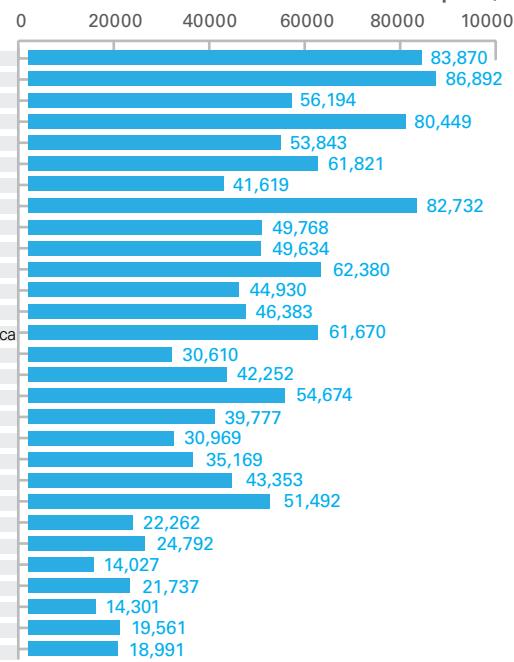
Resource Partner countries	Govt US\$	NatCom US\$	Total US\$	Total ODA US\$ millions	ODA per capita US\$	GNI per capita US\$	ODA as % of GNI
	2018	2018	2018	2018 ²	2018	2018 ³	2018 ²
Norway	38.27	4.16	42.43	4,257	788	83,870	0.94
Iceland	20.00	15.64	35.64	81	269	86,892	0.31
Sweden	24.51	7.53	32.04	5,844	584	56,194	1.04
Luxembourg	17.08	4.16	21.24	473	788	80,449	0.98
Netherlands	9.95	3.46	13.41	5,616	328	53,843	0.61
Denmark	7.97	3.62	11.59	2,582	445	61,821	0.72
The United Kingdom	8.07	0.98	9.05	19,403	291	41,619	0.70
Switzerland	4.75	2.24	6.99	3,094	364	82,732	0.44
Germany	5.47	1.18	6.65	24,985	304	49,768	0.61
Finland	2.56	3.39	5.95	983	179	49,634	0.36
Ireland	3.90	1.68	5.58	928	193	62,380	0.31
Canada	3.99	0.37	4.35	4,655	126	44,930	0.28
Belgium	2.91	1.40	4.31	2,294	199	46,383	0.43
United States of America	2.30	0.84	3.14	34,261	105	61,670	0.17
Republic of Korea	0.88	2.26	3.13	2,351	46	30,610	0.15
New Zealand	1.59	0.93	2.52	556	118	42,252	0.28
Australia	1.55	0.46	2.02	3,119	126	54,674	0.23
Japan	0.96	0.95	1.92	14,167	111	39,777	0.28
Spain	0.13	1.77	1.90	2,874	62	30,969	0.20
Italy	0.65	0.66	1.31	5,005	84	35,169	0.24
France	0.31	0.99	1.30	12,155	186	43,353	0.43
Austria	0.63	0.45	1.08	1,178	134	51,492	0.26
Portugal	0.01	0.64	0.65	390	38	22,262	0.17
Slovenia	0.03	0.49	0.53	83	40	24,792	0.16
Hungary	0.30	0.04	0.35	190	20	14,027	0.14
Czech Republic	0.06	0.27	0.34	323	30	21,737	0.14
Poland	0.01	0.25	0.26	763	20	14,301	0.14
Greece	0.00	0.11	0.11	282	25	19,561	0.13
Slovakia	0.00	0.05	0.05	133	25	18,991	0.13
Average Total	2.81	1.10	3.90	153,025	145	46,697	0.31

Source: OECD/DAC online - Total ODA & GNI from DAC countries

Contributions Per Capita to UNICEF, 2018



Gross National Income Per Capita, 2018



¹The population figures are taken from the UNFPA State of the World Report 2018.

² OECD Development Aid Statistics, April 2019.

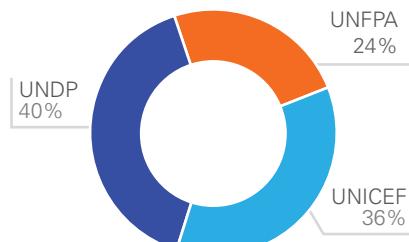
³Weighted average GNI per capita 2018.

DEVELOPMENT ASSISTANCE COMMITTEE (DAC) REGULAR RESOURCES BY CONTRIBUTIONS RECEIVED TO UNDP, UNICEF AND UNFPA, 2018

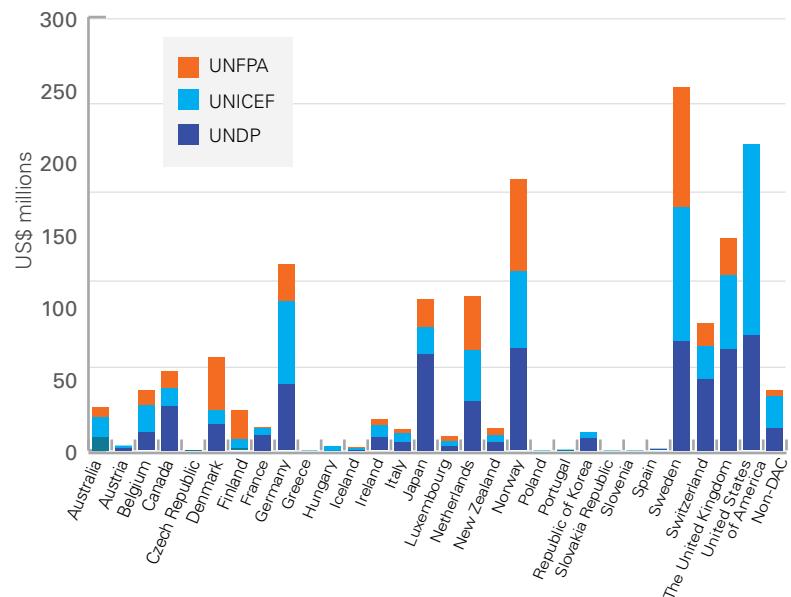
Resource Partners	UNDP ¹			UNICEF			UNFPA		
	US\$ millions	% of total	Rank ²	US\$ millions	% of total	Rank ²	US\$ millions	% of total	Rank ²
Australia	9.1	1.5	13.0	13.5	2.3	10.0	7.4	1.9	12.0
Austria	1.8	0.3	22.0	1.3	0.2	25.0	0.2	0.1	25.0
Belgium	12.3	2.0	11.0	18.7	3.2	9.0	10.8	2.8	11.0
Canada	30.8	4.9	9.0	12.2	2.1	11.0	11.8	3.1	10.0
Czech Republic	0.1	0.0	33.0	0.0	N/A	N/A	0.0	N/A	N/A
Denmark	18.2	2.9	10.0	9.1	1.6	12.0	37.1	9.8	4.0
Finland	1.2	0.2	23.0	6.6	1.1	14.0	20.0	5.3	7.0
France	10.7	1.7	12.0	4.2	0.7	17.0	0.7	0.2	18.0
Germany	45.5	7.3	7.0	57.8	9.9	3.0	25.2	6.7	6.0
Greece	0.0	N/A	N/A	0.0	N/A	N/A	0.0	N/A	N/A
Hungary	0.0	N/A	N/A	2.9	0.5	20.0	0.0	N/A	N/A
Iceland	0.1	0.0	34.0	1.4	0.2	24.0	0.3	0.1	22.0
Ireland	8.9	1.4	14.0	8.3	1.4	13.0	4.2	1.1	14.0
Italy	5.9	0.9	16.0	5.9	1.0	15.0	2.5	0.7	16.0
Japan	66.5	10.7	5.0	18.9	3.2	8.0	19.0	5.0	8.0
Luxembourg	3.2	0.5	20.0	3.2	0.5	19.0	3.2	0.8	15.0
Netherlands	34.1	5.5	8.0	35.3	6.1	6.0	37.5	9.9	3.0
New Zealand	5.7	0.9	17.0	4.4	0.8	16.0	5.3	1.4	13.0
Norway	70.6	11.3	3.0	53.3	9.2	4.0	63.8	16.8	2.0
Poland	0.0	N/A	N/A	0.0	N/A	N/A	0.0	N/A	N/A
Portugal	0.1	0.0	39.0	0.1	0.0	75.0	0.1	0.0	28.0
Republic of Korea	8.6	1.4	15.0	4.0	0.7	18.0	0.1	0.0	29.0
Slovakia	0.0	N/A	N/A	0.0	0.0	110.0	0.0	0.0	66.0
Slovenia	0.0	N/A	N/A	0.0	0.0	92.0	0.0	0.0	69.0
Spain	0.6	0.1	28.0	0.6	0.1	34.0	0.6	0.2	19.0
Sweden	75.8	12.1	2.0	92.6	15.9	2.0	83.0	21.9	1.0
Switzerland	49.3	7.9	6.0	22.6	3.9	7.0	16.0	4.2	9.0
The United Kingdom	70.2	11.2	4.0	51.0	8.8	5.0	25.5	6.7	5.0
United States of America	79.6	12.8	1.0	132.5	22.8	1.0	0.0	N/A	N/A
Total DAC	608.8	97.5		560.4	96.2		374.0	98.7	
Total Non-DAC	15.3	2.5		21.8	3.8		4.8	1.3	
Total Contributions	624.1			582.2			378.8		

Source: Provisional 2018 data provided by respective agencies for contributions received.

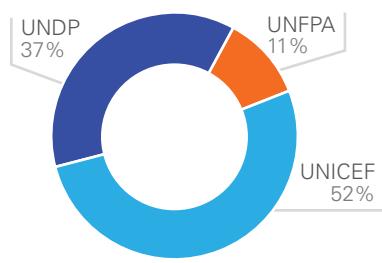
Comparative Regular Resources Funding from DAC countries, 2018



Comparative Regular Resources Funding by DAC and non-DAC countries, 2018



Comparative Regular Resources Funding from Non-DAC countries, 2017



¹ UNDP: Bangladesh, Morocco: Includes contributions for 2017 received in 2018.

² Ranking denotes rank among DAC countries by contribution to regular resources only. Within each of the above agencies, non-DAC donor countries may have higher ranking than some of the DAC donors shown.

TOTAL UNICEF REVENUE BY RESOURCE PARTNER, 2018

Resource Partner	Regular Resources		Other Resources		Other Contributions ¹	Total
	Public sector	Private sector	Public sector	Private sector		
Afghanistan	67,853	-	11,429,331	-	-	11,497,184
Andorra	29,611	161,211	344,210	263,062	-	798,093
Angola	216,667	-	-	-	-	216,667
Argentina	205,000	15,888,450	-	8,507,411	7,911,672	32,512,533
Armenia	116,590	-	-	-	-	116,590
Australia	(3,009,870)	4,307,797	29,696,129	7,134,730	-	38,128,786
Austria	1,257,011	3,675,431	5,882,714	873,534	-	11,688,690
Bangladesh	50,809	-	-	366,781	-	417,589
Barbados	195,575	-	-	-	-	195,575
Belarus	-	-	-	237,181	-	237,181
Belgium	(1,133,581)	14,234,033	10,927,985	3,487,606	-	27,516,043
Benin	24,124	-	3,754,673	-	-	3,778,797
Bhutan	43,553	-	-	-	-	43,553
Bolivia (Plurinational State of)	165,000	-	225,000	88,422	-	478,422
Brazil	1,619,788	1,420,564	259,875	9,117,825	3,387,788	15,805,839
Bulgaria	77,500	62,273	61,728	944,407	312,169	1,458,077
Burkina Faso	5,464	-	2,089,824	-	-	2,095,288
Burundi	-	-	12,521,304	-	-	12,521,304
Cabo Verde	350,000	-	-	-	-	350,000
Cameroon	-	-	688,113	-	-	688,113
Canada	47,812,384	7,822,497	80,688,470	6,181,413	-	142,504,763
Central African Republic	44,000	-	-	-	-	44,000
Chad	54,160	-	7,243,338	-	-	7,297,498
Chile	77,000	2,750,206	-	1,895,067	2,653,955	7,376,228
China	1,849,998	608,659	-	12,249,383	1,895,267	16,603,308
Colombia	-	1,789,489	189,023	3,014,396	2,377,027	7,369,935
Comoros	70,000	-	1,852,398	-	-	1,922,398
Congo	748,450	-	(9,776)	-	-	738,674
Costa Rica	16,772	1,397	-	291,106	-	309,275
Côte d'Ivoire	12,600	-	10,484,824	-	-	10,497,424
Croatia	38,829	476,729	228,311	3,022,278	882,442	4,648,588
Cuba	10,000	-	-	-	-	10,000
Czech Republic	-	2,287,237	672,269	953,845	-	3,913,351
Democratic People's Republic of Korea	130,070	-	-	-	-	130,070
Democratic Republic of the Congo	318,000	-	16,710,382	-	-	17,028,382
Denmark	9,079,108	13,224,881	37,089,327	8,447,219	-	67,840,535
Djibouti	-	-	1,000,000	-	-	1,000,000
Dominican Republic	88,000	-	-	270,745	-	358,745
Ecuador	-	607,947	-	3,116,502	1,799,997	5,524,446
Egypt	-	3,119	-	364,546	-	367,665
Equatorial Guinea	108,612	-	463,595	-	-	572,207
Estonia	170,455	-	1,114,927	-	-	1,285,382
Ethiopia	285,436	-	1,095,932	-	-	1,381,368
Finland	6,642,512	12,337,670	3,727,001	6,093,935	-	28,801,119
France	4,171,779	54,082,640	15,072,703	15,646,751	-	88,973,872
Gabon	89,452	-	-	-	-	89,452
Gambia	-	-	1,802,633	-	-	1,802,633
Georgia	155,000	-	-	-	-	155,000
Germany	57,823,188	44,490,050	407,533,680	50,653,755	-	560,500,673
Ghana	148,512	-	-	-	-	148,512
Greece	-	(61,040)	-	14,091	-	(46,949)
Guatemala	-	-	-	23,432	-	23,432
Guinea	350,000	-	4,537,943	-	-	4,887,943
Guinea-Bissau	621,000	-	-	-	-	621,000
Haiti	600	-	5,456,273	-	-	5,456,873
Honduras	25,944	-	-	9,956	-	35,900
Hong Kong, China	-	11,949,888	-	6,823,639	-	18,773,527
Hungary	2,922,876	355,231	-	91,029	-	3,369,137
Iceland	1,281,415	4,601,639	2,739,180	261,789	-	8,884,024
India	893,131	-	7,367,099	3,600,407	3,536,229	15,396,867
Indonesia	474,970	1,122,140	2,286,022	4,568,735	2,334,014	10,785,882

Resource Partner	Regular Resources		Other Resources		Other Contributions ¹	Total
	Public sector	Private sector	Public sector	Private sector		
Iran (Islamic Republic of)	24,619	575	-	179,364	-	204,559
Iraq	48,785	-	-	-	-	48,785
Ireland	8,333,333	3,287,276	8,564,155	4,679,363	-	24,864,128
Israel	-	-	-	37,308	-	37,308
Italy	5,909,486	37,820,599	26,500,811	5,811,216	-	76,042,113
Japan	18,918,327	117,075,889	103,119,454	25,323,178	-	264,436,848
Jordan	802,963	-	-	-	-	802,963
Kazakhstan	226,970	-	1,000,000	-	-	1,226,970
Kenya	150,000	-	-	-	-	150,000
Kuwait	200,000	-	64,550,000	7,278,816	-	72,028,816
Kyrgyzstan	50,000	-	-	-	-	50,000
Lesotho	120,000	-	-	-	-	120,000
Liberia	-	-	2,648,114	-	-	2,648,114
Liechtenstein	25,075	-	-	-	-	25,075
Lithuania	980	-	23,560	82,818	-	107,358
Luxembourg	3,182,870	993,107	4,200,327	2,227,077	-	10,603,381
Madagascar	-	-	4,433,351	-	-	4,433,351
Malawi	-	-	21,985,721	-	-	21,985,721
Malaysia	290,561	6,996,987	100,000	3,486,527	8,044,060	18,918,136
Mali	33,500	-	3,840,000	-	-	3,873,500
Malta	91	-	56,791	-	-	56,883
Mauritania	20,610	-	-	-	-	20,610
Mexico	-	1,058,393	950,000	4,822,389	2,067,626	8,898,408
Monaco	29,869	-	48,035	-	-	77,904
Mongolia	112,408	-	-	-	-	112,408
Montenegro	18,912	-	-	-	-	18,912
Morocco	101,122	275	-	-	-	101,397
Mozambique	7,500	-	1,491,989	-	-	1,499,489
Myanmar	44,050	-	14,694,139	-	-	14,738,189
Namibia	120,000	-	-	-	-	120,000
Netherlands	35,274,211	37,717,803	185,505,655	18,768,178	-	277,265,847
New Zealand	149,751	1,628,641	8,295,219	2,762,417	-	12,836,028
Nicaragua	41,147	-	-	4,297	-	45,444
Nigeria	1,820,291	2,548	25,941,750	(1,061)	-	27,763,528
Norway	53,307,501	10,843,050	221,368,691	12,904,240	-	298,423,482
Oman	-	-	900,000	-	-	900,000
Pakistan	49,653	-	2,844,141	-	-	2,893,794
Panama	768,500	-	375,000	17,239	-	1,160,739
Paraguay	-	-	-	1,535,216	-	1,535,216
Peru	-	448,307	-	1,038,193	920,274	2,406,774
Philippines	46,995	523,579	-	2,259,834	2,463,483	5,293,892
Poland	-	5,700,719	272,224	2,925,185	-	8,898,128
Portugal	65,506	5,230,964	(1,368)	1,429,588	-	6,724,690
Qatar	8,000,000	3,970	18,000,000	45,748,982	-	71,752,951
Republic of Korea	3,978,099	87,581,942	56,756,790	15,063,630	-	163,380,462
Republic of Moldova	63,000	-	-	-	-	63,000
Romania	50,000	206,459	352,534	906,844	374,667	1,890,504
Russian Federation	1,000,000	30,145	-	(6,772)	-	1,023,373
Sao Tome and Principe	19,500	-	-	-	-	19,500
Saudi Arabia	1,072,000	-	36,642,511	1,241,025	-	38,955,536
Senegal	398,500	-	-	-	-	398,500
Serbia	51,000	129,494	-	821,221	227,263	1,228,978
Sierra Leone	423,098	-	8,114,662	-	-	8,537,760
Singapore	50,000	-	-	85,737	-	135,737
Slovakia	12,346	69,549	-	167,212	-	249,106
Slovenia	36,232	848,340	37,267	154,598	-	1,076,437
Solomon Islands	-	-	151,175	-	-	151,175
Somalia	439,881	-	-	-	-	439,881
South Africa	-	-	-	718,499	248,074	966,572
South Sudan	-	-	4,999,221	-	-	4,999,221
Spain	575,506	60,396,790	5,466,035	21,233,678	-	87,672,009
Sri Lanka	15,500	753	-	-	-	16,253

Resource Partner	Regular Resources		Other Resources		Other Contributions ¹	Total
	Public sector	Private sector	Public sector	Private sector		
Sudan	272,764	-	12,456,477	-	-	12,729,241
Sweden	294,354,112	44,867,485	216,989,126	28,426,283	-	584,637,006
Switzerland	60,718,301	3,164,135	19,983,502	16,279,285	-	100,145,223
Tajikistan	32,400	-	-	-	-	32,400
Thailand	567,986	3,666,755	-	9,472,244	4,308,459	18,015,445
The United Kingdom	121,818,752	23,820,708	524,568,368	47,692,655	-	717,900,483
Timor-Leste	100,000	-	-	-	-	100,000
Togo	26,000	-	261,345	-	-	287,345
Trinidad Tobago	15,000	-	-	-	-	15,000
Turkey	204,835	1,833,578	-	1,659,042	-	3,697,454
Turkmenistan	62,746	-	-	-	-	62,746
Uganda	469,000	-	1,855,855	666,576	-	2,991,431
Ukraine	-	-	-	112,599	-	112,599
United Arab Emirates	641,971	459,589	699,592	11,765,052	-	13,566,203
United Republic of Tanzania	22,000	-	3,296,203	-	-	3,318,203
United States of America	132,500,000	34,321,356	617,817,824	235,564,514	500,000	1,020,703,694
Uruguay	144,900	2,362,358	-	1,997,373	605,270	5,109,901
Uzbekistan	310,000	-	-	80,271	-	390,271
Venezuela (Bolivarian Republic of)	-	1,088	-	125,496	13,528	140,112
Vietnam	14,254	3,789	-	-	-	18,043
Zambia	257,520	-	1,525,600	-	-	1,783,120
Zimbabwe	-	-	1,357,691	-	-	1,357,691
Other	19,868	645,721	(234)	84,016	-	749,371
Revenue Adjustments	(1,374,881)	-	(25,523,860)	1,099,080	-	(25,799,661)
Total Countries	894,453,122	691,942,856	2,896,741,883	697,345,501	46,863,265	5,227,346,626
Inter-governmental Organizations						
European Commission			368,864,691			368,864,691
Gavi, The Vaccine Alliance	-	-	95,644,974	-	-	95,644,974
Global Partnership for Education			119,142,721			119,142,721
Global Fund			46,946,257			46,946,257
Nutrition International			13,094,066			13,094,066
UNITAID			2,042,933			2,042,933
Revenue Adjustments			(32,993,041)			(32,993,041)
Total Inter-governmental Organizations			612,742,600			612,742,600
Non-governmental Organizations						
Education Cannot Wait Fund			18,079,450			18,079,450
End Violence Fund			5,651,051			5,651,051
End Violence Secretariat			50,000			50,000
Other		444,269	438,633			882,902
Revenue Adjustments			276,362			276,362
Total Non-governmental organizations		444,269	-	24,495,496	-	24,939,765

Resource Partner	Regular Resources		Other Resources		Other Contributions ¹	Total
	Public sector	Private sector	Public sector	Private sector		
Inter-organizational Arrangements						
Food and Agriculture Organization of the United Nations (FAO)			821,007			821,007
International Labour Organization (ILO)			275,500			275,500
International Organization for Migration (IOM)			5,450,603			5,450,603
Office for the Coordination of Humanitarian Affairs (OCHA)			316,143,994			316,143,994
The United Nations Educational, Scientific and Cultural Organization (UNESCO)			218,280			218,280
United Nations Development Group joint programmes			67,527,909			67,527,909
United Nations Development Programme (UNDP)			46,411,766			46,411,766
United Nations Development Programme (UNDP)			5,430,072			5,430,072
United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)			179,543			179,543
United Nations High Commissioner for Refugees (UNHCR)			1,311,207			1,311,207
United Nations Office for Project Services (UNOPS)			11,833,798			11,833,798
United Nations Population Fund (UNFPA)			28,149,522			28,149,522
United Nations Programme on HIV/AIDS (UNAIDS)			7,045,143			7,045,143
United Nations Trust Fund for Human Security (UNTFHS)			713,856			713,856
World Bank Group - IDA			146,306,200			146,306,200
World Food Programme (WFP)			2,774,717			2,774,717
World Health Organization (WHO)			685,297			685,297
Other			903			903
Revenue Adjustments			(3,421,904)			(3,421,904)
Total Inter-organizational arrangements			637,857,414			637,857,414
Total other revenue						172,872,200
Grand Total	894,453,122	692,387,124	4,147,341,898	721,840,997	46,863,265	6,675,758,605

¹ Contributions for specific management activities.

GLOSSARY

Central Emergency Response Fund (United Nations)

An emergency fund administered by the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), from which UN agencies can receive advances for financing emergency operations.

Country-Based Pooled Funds (CBPFs)

Multi-donor humanitarian financing instruments established by the Emergency Relief Coordinator (ERC). They are managed by OCHA at the country-level under the leadership of the Humanitarian Coordinator (HC). Donor contributions to each CBPF are un-earmarked and allocated by the HC through an in-country consultative process.

Inter-organizational Arrangements

Arrangements that include, among others, contributions received through UNAIDS, UNDP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOPS, UNTFHS, UN Women, WFP, WHO, and World Bank Group - International Development Association. Funding from these sources is mostly directed to humanitarian responses and includes, among other, income from various pooled funding mechanisms, such as grants from the UNOCHA managed CERF (see above) and multi-partner trust fund contributions.

Other Resources

Earmarked funds for programmes; these are supplementary to the funds in un-earmarked Regular Resources and are made for a specific purpose such as an emergency response or a specific programme in a country/region. These are categorized as Other Resources (emergency) and Other Resources (regular).

Other Resources (emergency)

Funds specifically provided by Resource Partners for UNICEF's humanitarian action and post crisis recovery activities. In addition to UNICEF's traditional resource partners, important sources of funding for Other Resources (emergency) are the inter-organizational arrangements including the CERF and the MDTFs. Funding for Other Resources (emergency) is raised through the UNICEF Humanitarian Action for Children (HAC), the UN consolidated Humanitarian Needs Overview (HNO), and the UN Strategic Response Plan (SRP).

Other Resources (regular)

Funds for specific, non-emergency programme purposes, and strategic priorities. Other Resources (regular) allow UNICEF to implement the specific projects at global, regional, and country levels in support of the approved country programmes. The Other Resources (regular) that UNICEF uses most strategically are those that are flexible both in their purpose and in their duration.

Private Sector

Group of resource partners that includes UNICEF's National Committees, UNICEF Country Office private sector fundraising (PSFR), NGOs, foundations, corporations, and individuals.

Public Sector

Group of resource partners that includes governments, inter-governmental bodies, and inter-organizational arrangements.

Regular Resources (RR)

Un-earmarked funds that are foundational to delivering results across the Strategic Plan. These resources mainly include, funds from governments and National Committees, which mobilize resources through fundraising appeals and ongoing relationships with individuals, civil society groups, companies, and foundations.

Strategic Plan (SP)

UNICEF plan of action that covers a period of 2018-2021 and outlines the organizational priorities - the five goal areas: - Every child survives and thrives, Every child learns, Every child is protected from violence and exploitation, Every child lives in a safe and clean environment, Every child has an equitable chance in life, are central to driving progress towards the achievement of the 2030 Sustainable Development Goals.

Thematic Funding

Thematic funds are softly earmarked pooled funds designed to support the achievement of outcomes or results in the Strategic Plan 2018-2021 through flexible multi-year funding window and achieve UNICEF's mandate to advocate for the protection of children's rights, to help meet their basic needs and to expand their opportunities to reach their full potential.

UNICEF National Committee (NC)

Registered non-profit structures, mostly categorized as non-governmental entities established according to national laws. Committees play a key role in mobilizing resources for UNICEF's work. In 2018, there were 33 UNICEF NCs throughout the industrialized world.

ABBREVIATIONS

CBPFs	Country-Based Pooled Funds	UN	United Nations
CERF	Central Emergency Response Fund	UNAIDS	<i>Not an abbreviation or acronym,</i> UNAIDS is the Joint United Nations Programme on HIV/AIDS
DAC	Development Assistance Committee	UNDP	United Nations Development Programme
EC	European Commission	UNDP	United Nations Development Programme
FAO	Food and Agriculture Organisation of the United Nations	UNESCO	United Nations Educational Scientific and Cultural Organization
Gavi	<i>Not an abbreviation</i> , the full name is Gavi, The Vaccine Alliance	UNFPA	United Nations Population Fund
GHTF	Global Humanitarian Thematic Funding	UNHCR	United Nations High Commissioner for Refugees
Global Fund	the Global Fund to Fight AIDS, Tuberculosis and Malaria	UNICEF	United Nations Children's Fund
GNI	Gross National Income	UNITAID	<i>Not an abbreviation or acronym</i> , UNITAID is an organization hosted by WHO that uses innovative financing to increase funding for greater access to treatments and diagnostics for HIV/AIDS, malaria and tuberculosis in low-income countries, approximately half of UNITAID's funding for HIV/AIDS, malaria and tuberculosis in low-income countries, approximately half of UNITAID's
GPE	Global Partnership for Education	UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
HAC	Humanitarian Action for Children	UNOPS	United Nations Office for Project Services
IDA	International Development Association	UNTFHS	United Nations Trust Fund for Human Security
ILO	International Labour Organization	UN Women	<i>Not an abbreviation or acronym</i> , UN Women is the United Nations Entity for Gender Equality and the Empowerment of Women
IOM	International Organisation for Migration	WASH	Water, Sanitation and Hygiene
MPTFO	Multi-Partner Trust Fund Office	WFP	World Food Programme
NC	National Committee for UNICEF	WHO	World Health Organisation
NGO	Non-Governmental Organisation		
NI	Nutrition International		
OCHA	see UNOCHA		
ODA	Official Development Assistance		
OECD	Organisation for Economic Co-operation and Development		
PSFR	UNICEF Country Office Private Sector Fundraising		
RR	Regular Resources		
SDGs	Sustainable Development Goals		



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Effective coverage measurement in maternal, newborn, child, and adolescent health and nutrition: progress, future prospects, and implications for quality health systems

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Introduction

Universal health coverage is at the centre of Sustainable Development Goal (SDG) 3: “to ensure healthy lives and promote wellbeing for all, at all ages”, and is described as the key driver for achieving health-related targets.¹

Monitoring progress towards achieving universal health coverage requires metrics that capture information on the proportion of the population in need of care that receives health services at a sufficient level of quality to yield the intended health benefits. Effective coverage adds the dimension of quality of care to the measurement of intervention coverage and aims to better capture the potential health benefits of an intervention.² However, despite the potential of the effective coverage approach to overcome some of the limitations of intervention coverage, consensus has not been reached on its definition, methodological approaches for measurement, and how indicators of effective coverage should be interpreted to inform global monitoring and national programmes and policies. This variability in definition leads to confusion as to what actions should be taken to monitor and improve quality of care. Due to varying approaches to estimate effective coverage, the data used to measure effective coverage vary greatly from self-reported population surveys, surveys with biomarkers, observations, facility surveys, and routine data collected through the Health Management Information Systems. Although the data used to estimate effective coverage often depend on the concept being measured (eg, content of visit, readiness of health-care facility to provide care), sometimes the same concepts use different data sources.

Standardisation of methods to measure effective coverage is urgently needed to ensure that health programmers and policy makers can take informed actions to improve quality of care for maternal, neonatal, child, and adolescent health and nutrition (MNCAHN).

In 2019, WHO and UNICEF convened a group of experts, the Effective Coverage Think Tank Group, to establish standardised definitions and measurement approaches for effective coverage, initiate discussions on effective coverage indicators for MNCAHN, and to develop priorities for future research on effective coverage. The Effective Coverage Think Tank series included four video teleconferences, between March and April, 2019, and an in-person meeting in May, 2019. Participants included 98 experts in the fields of quality-of-care measurement, monitoring and evaluation, epidemiology, and research. They were selected to be both geographically diverse and include content expertise across the range of MNCAHN components. Participant inputs were solicited in advance of each video teleconference through a combination of group email correspondence and online survey tools. Participation was moderated through online video conferencing, with a record of each call saved at its completion. The in-person meeting was hosted by WHO and UNICEF and included a representative group of experts selected according to the same criteria described above. The purpose of the meeting was to synthesise the experience from the video teleconferences and make recommendations for defining and measuring effective coverage. This Health Policy paper summarises the

Panel 1: Examples of effective coverage definitions and measurement approaches

Effective coverage has been variously defined or measured:

- As the fraction of possible health gain an individual with a health-care need can expect to receive from the health system, formalised as a combination of need, use, and quality²
- By adjusting intervention coverage levels according to service readiness,⁵ quality of care provided,⁶ or health outcomes achieved⁷
- As a single indicator of overall health-system performance, calculated as a composite measurement of coverage across a range of interventions⁸

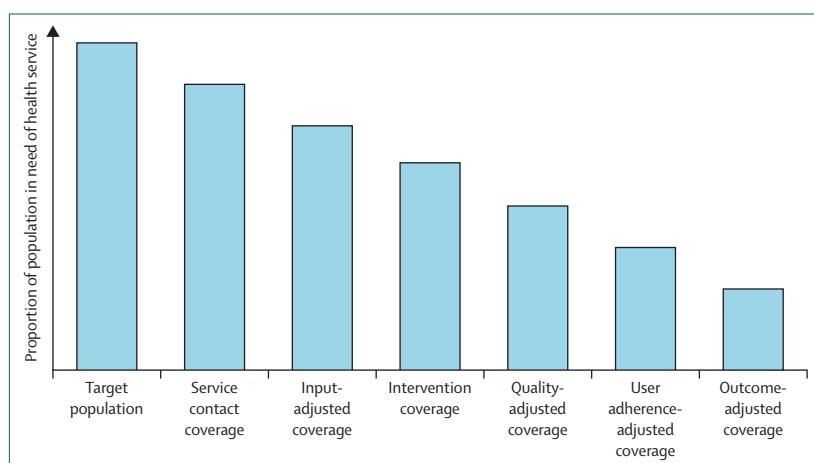


Figure 1: Proposed standardised cascade for measuring effective coverage

Adapted from Amouzou and colleagues.⁴

discussion and recommendations from the Effective Coverage Think Tank Group.

Findings

Evidence synthesis

We examined scoping and systematic reviews on effective coverage frameworks, including a recent scoping review of effective coverage applications³ and systematic review of effective coverage in MNCHN.⁴ In the scoping review, Jannati and colleagues³ searched seven databases for publications on effective coverage applications for assessment of health-system performance published before May, 2017, with no start date restriction, and identified 18 studies, four of which examined effective coverage of the health system as a whole and 14 assessed effective coverage for specific interventions. In their systematic review, Amouzou and colleagues⁴ restricted their focus to applications of effective coverage in MNCAHN and reproductive health. They identified 36 studies published between January, 2000, and October, 2017, 30 of which were not included in Jannati and colleagues' scoping review, and highlighted the considerable variability between studies relating to data sources for effective coverage, indicator definitions, and analytical approaches. We shared our findings (panel 1) with Effective Coverage

Think Tank experts, providing a common background for discussions.

Recommendations for health-service coverage cascades and terminology

Participants recommended that effective coverage be explained using health-service coverage cascades applied at the population level. Cascades provide a tool for assessing health-system performance across the sequence of interactions between patients and the health system.⁹ The generic cascade proposed by Amouzou and colleagues,⁴ which builds on the Tanahashi framework¹⁰ for evaluating health-service coverage and allows for population-level assessment of health services along the MNCAHN continuum of care, was supported by Effective Coverage Think Tank participants for its flexibility to adapt across a range of health services.

The Think Tank Group proposed the following adaptation of Amouzou and colleagues' cascade steps (figure 1) and their definitions, with illustrative examples for MNCAHN interventions. Step 1 is the target population: identifying the population with a specific health need. Step 2 is service contact coverage: the proportion of the population in need who come into contact with the (relevant) health service. Step 3 is input-adjusted coverage: the proportion of the population in need who come into contact with a health service that is ready to provide care. Readiness requires that all inputs necessary to provide the service are available in sufficient quantity and quality and are usable at the time of the visit. The specific components will vary with the service and the context in which it is provided (eg, health facility, community, school). Step 4 is intervention coverage: the proportion of the population in need who come into contact with a service that is ready and that receives the service. Step 5 is quality-adjusted coverage: the proportion of the population in need who come into contact with a service that is ready and that receives the service according to quality-of-care standards. Quality-of-care standards constitute what is expected to be delivered to maximise the potential positive health outcome and are commonly measured by assessing the content of the health service relative to guidelines (eg, WHO guidelines).^{11–14} Meeting these standards implies that the necessary practices have been followed while unnecessary or harmful practices have been avoided (eg, unnecessary antibiotic use). Furthermore, quality of care extends beyond adherence to guidelines to also consider whether the service was provided respectfully.¹⁵ Step 6 is user adherence-adjusted coverage: the proportion of the population in need who receives the service according to quality-of-care standards and that adheres to provider instructions. For newborn babies and young children, this adherence includes caregiver adherence to provider instructions. This step might not apply to services that require no additional user action after they have been delivered (eg, vaccination). Finally, step 7 is outcome-adjusted coverage: the

portion of the population in need who receives the service according to quality-of-care standards, adheres to provider instructions, and has the expected health outcome. For curative interventions, a positive health outcome is assessed by a return to good health, while a positive health outcome for preventive and promotive services is the absence of health loss.

Recommendations for MNCAHN effective coverage definitions and measures

Recommendations from the Think Tank participants for the definition and measurement of effective coverage are shown in panel 2. Several considerations are important when selecting effective coverage measures and developing cascades. First, measuring effective coverage through quality-adjusted or outcome-adjusted coverage without reporting the additional steps of the associated cascade might be best suited for global and national monitoring because it provides an overall impression of effective coverage in a country. Second, the full cascade is most relevant for monitoring at subnational and facility levels, which might need detailed information to identify bottlenecks in service provision for determining appropriate remedial actions.¹⁶ Third, the level at which data are analysed should also be consistent with their intended use. For example, district-level cascades and their assessments could appropriately inform decision making at the district level but might not always be suitable for making targeted changes at each individual facility within the district. Finally, a distinction should be made between what can be currently measured given data availability and techniques for linking data sources, and what could ideally be measured in the future if investments are made in the effective coverage research agenda and in-country health information systems.

Potential data sources proposed for effective coverage measures

Wherever possible, effective coverage measures should rely on validated data. A combination of data sources might be necessary to calculate indicators (eg, health facility assessments, household surveys, and routine Health Management Information System and administrative data). For example, a household survey might collect the epidemiological data necessary to quantify the target population (eg, incidence, prevalence) while also collecting data on care-seeking behaviours for estimating service contact and receipt of services necessary for estimating intervention coverage. These data could be combined with health facility assessment results to estimate input-adjusted coverage and potentially quality-adjusted coverage if the health facility assessment included direct observation of services. Although data on user adherence are generally more challenging to obtain, such data might be estimated according to reported data from similar settings. Finally, outcome data might be

Panel 2: Recommendations from the Effective Coverage Think Tank Group for definition and measures of effective coverage for maternal, newborn, child, and adolescent health and nutrition

- Effective coverage is defined as the proportion of a population in need of a service that had a positive health outcome from the service
- Effective coverage is ideally measured as outcome-adjusted coverage in the health-service coverage cascade; this type of measure is potentially feasible to produce when a target population needs a specific health service with proven effectiveness and for which the health impact can be directly linked to the specific service—eg, children living with HIV requiring antiretroviral therapy and with viral load suppression
- For routine preventive or promotive health services, such as counselling services, or antenatal and postnatal care visits during which multiple interventions are delivered, each of which might be linked to the same or different health outcomes, outcome-adjusted coverage is not an ideal effective coverage measure; a more amenable measure for these health services is quality-adjusted coverage, which might be a proxy (indirect) measurement of effective coverage; quality-adjusted coverage measures can capture information on the timeliness, content, and quality of the health service provided based on guidelines and recommendations
- Quality-adjusted coverage might also serve as a proxy for effective coverage in cases where outcome-adjusted coverage could potentially be measured but the added value of these data is outweighed by the resources necessary to obtain them (eg, immune response resulting from vaccination that is complicated by challenges attributing such a response to vaccination rather than pathogen exposure)
- Mortality measures are generally not a substitute for measuring effective coverage for several reasons—eg, mortality often results from a combination of factors, many of which are outside the health system and aggregated mortality cannot be used to identify where the health system has failed; we also recognise that substantial data gaps exist for cause-specific mortality data (eg, case fatality rates)
- Under a few circumstances, mortality measures might be used to measure effective coverage when the cause of death is directly attributable to (the absence of) a specific health service—eg, the incidence of intrapartum stillbirth (occurring during the labour and childbirth period) has been used as a measure of effective coverage of intrapartum care; also, when the incidence and mortality of lethal conditions with known treatments are tracked (eg, some cancers are monitored through cancer registries), use of mortality-to-incidence ratios might be possible (eg, to assess the health impact or benefit of cancer screening and treatment programmes)

Whether effective coverage is measured directly through outcome-adjusted coverage or indirectly through quality-adjusted coverage as a proxy, effective coverage is represented by a single point along the cascade rather than as the entire cascade itself

collected through disease surveillance or population-based surveys. These illustrative data sources provide an example of how cascade steps might be assessed. However, selecting ideal data sources depends on the service for which effective coverage is being assessed. Additional considerations regarding potential data sources for effective coverage measures have been published elsewhere.^{3,4,17,18}

Applying effective coverage and health-service coverage cascades to MNCAHN

The Effective Coverage Think Tank Group developed several example cascades for MNCAHN to show how effective coverage should be applied.

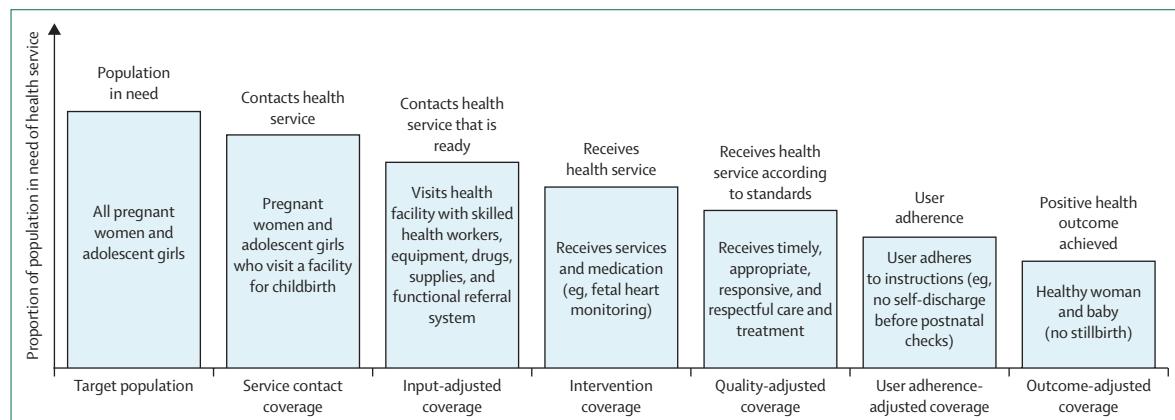


Figure 2: Health-service coverage cascade for routine childbirth care

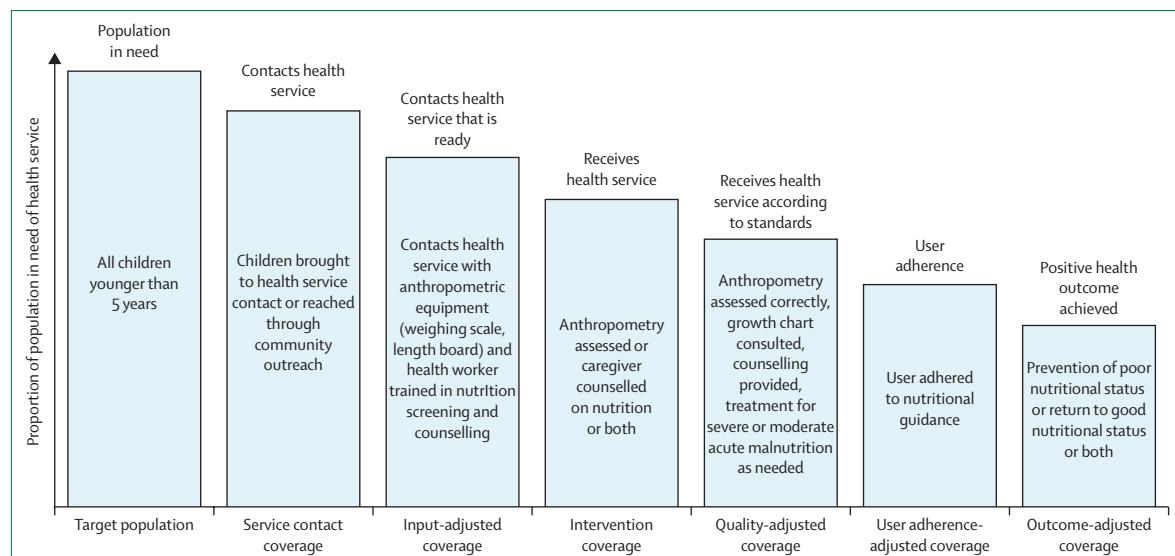


Figure 3: Health-service coverage cascade for growth monitoring, promotion, and treatment of malnutrition in children

Example in maternal and newborn health

For routine antenatal, childbirth, and postnatal care, quality-adjusted coverage is the preferred measure of effective coverage (figure 2) because of the challenge of attributing maternal and neonatal mortality across these services. However, for complications, outcome-adjusted effective coverage would be an appropriate measure. Because measurement of all complications is not practical, a tracer complication can be selected—eg, for post-partum haemorrhage, the outcome-adjusted coverage measure of controlled post-partum bleeding could be used.

Example in child health

The discussion of effective coverage for child health included interventions for both well children, including children with disabilities (prevention of disease, promotion of growth and development), and sick or injured children (treatment of acute and chronic diseases and injuries).¹⁹ Each of these domains includes a suite of

interventions. A separate cascade and measurement of effective coverage could be developed for each intervention; however, resource limitations in different contexts would make tracking of effective coverage of all interventions simultaneously impractical. When multiple interventions are delivered through the same platform (eg, Integrated Management of Childhood Illness²⁰ or Integrated Community Case Management²¹), selection of one intervention as a tracer for the overall contact might be appropriate.

Quality-adjusted coverage was the preferred effective coverage measure for care of a sick child (acute or chronic illness), prevention of disease, and promotion of growth and development. This choice reflects the challenge of attributing contributions of several interventions to a single health outcome of child survival or wellbeing. Additionally, given the strong association between delivering some high-quality interventions and subsequent positive health outcome (eg, immunisations and

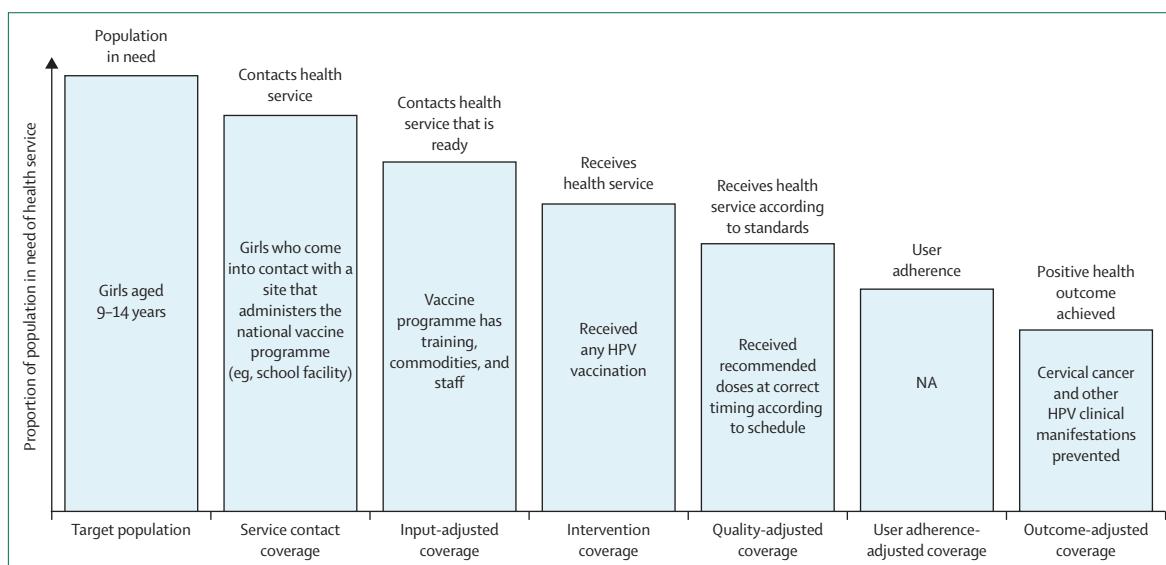


Figure 4: Health-service coverage cascade for HPV immunisation in girls aged 9–14 years
HPV=human papillomavirus. NA=not applicable.

seroconversion), quality-adjusted coverage can be a suitable proxy for outcome-adjusted coverage.

A cascade for growth monitoring and treatment of malnutrition in children is shown in figure 3. The cascade includes a measure of outcome-adjusted coverage, but given the issues discussed here, a quality-adjusted coverage measure could also be appropriate.

Example in adolescent health

The approach to measuring effective coverage for adolescent health differs from the previous two groups because many interventions in adolescent health are delivered outside of the formal health system or not on an individual basis. The Think Tank Group selected interventions from among those delivered either through the health or school-based programmes and identified them on the basis of the burden of disease. One intervention selected was vaccination of adolescent girls aged 9–14 years against human papillomavirus. A cascade for this intervention is shown in figure 4.

Discussion

The outcomes of the Effective Coverage Think Tank Group are a step towards improving effective coverage measurement and our ability to assess health outcomes of proven interventions. At the global level, these recommendations on effective coverage will inform efforts to improve the universal health coverage service coverage index—the official measure for SDG indicator 3.8.1,^{22,23} which has been criticised for not including measures of effective coverage.

The proposed health-service coverage cascade has four important caveats. First, the cascade does not explicitly account for the range of underlying reasons for gaps that might occur between identifying the target population

in the first step of the cascade and the second step that captures who sought or received needed care. These reasons can include a mixture of additional demand and supply factors.^{24–26} If this gap is large, it should trigger further investigation into causal factors. Second, adjustment for user adherence is challenging to measure. Poor adherence to prescribed treatment can result in poor outcomes; however, many factors outside the health system can affect adherence. Third, the cascade does not include user experience as its own component. User experience is a measure of quality of care, yet measuring it is difficult and prone to bias.²⁷ Finally, the cascade assumes that each step must occur to have the maximum positive health outcome. Notable exceptions exist in which a positive health outcome might occur in the absence of any health service (eg, recovery from illness or malnutrition in the absence of any treatment) or when the health service does not meet quality-of-care standards (eg, a healthy woman and neonate after a childbirth without a skilled birth attendant present).

The Effective Coverage Think Tank Group identified several research priorities. First, increased efficiency in the use of traditional data sources is required while also considering the potential for alternative data sources. Household surveys and health facility assessments provide valuable data; however, these instruments are administered only every 3–5 years, and have historically focused on women of reproductive age and children younger than 5 years for health-related issues. Further research is needed to determine how alternative data sources might effectively be used to complement these traditional data sources. These sources might include routinely collected administrative or Health Management Information System data, sentinel surveillance sites, or the growing body of data collected through innovative

mobile health approaches.²⁸ Because a single data source is unlikely to provide information on all steps in the cascade, improved coordination across data collection approaches and standardised methods and guidance for combining data from multiple sources are needed.^{29–31}

Second, new approaches are required to improve the availability, validity, and reliability of data for measuring each step of the cascade. Examples include being able to identify specific target populations, such as preterm newborn babies requiring kangaroo mother care, because not all preterm newborn babies might be stable enough to initiate care. Capturing information on less tangible components of quality of care (eg, provider norms and attitudes) that affect demand issues, such as an individual's willingness to initially seek care and to stay in treatment if needed (step 2 of the cascade), is also a challenge.

Third, research is needed to understand the linkages between the steps in the cascade, which is especially important when measuring quality-adjusted coverage. National guidelines for service provision often include several activities that should be done during a visit, the monitoring of which might not be feasible in resource-limited locations. Defining the subset of activities most linked with a health outcome will minimise the additional reporting burden while maintaining the usefulness of the measurement. Similarly, research is needed to understand and capture the resulting health effects when unnecessary or excessive practices are performed (eg, caesarean section without indication).

Fourth, implementation research is needed to ensure that the effective coverage frameworks proposed are responsive to the needs of decision makers and provide actionable information at the global, regional, national, and subnational levels and to determine what tools and capacity strengthening are needed in countries to collect, analyse, and use these data.

Finally, testing will help to further refine both effective coverage indicators and cascade steps, and to assess feasibility of measurement. As much as possible, these studies should assess inequalities in effective coverage by stratifying by key demographic variables. These stratified analyses should highlight the relevance of effective coverage in both low-income and high-income settings, where persistent inequities in health-service delivery remain.

Contributors

TD, AB, and AS conceived of the Effective Coverage Think Tank series. ADM, MM, TD, JR, DJ, DC, JAC, RG, ACM, and KLS organised and facilitated the discussions of the Effective Coverage Think Tank series. ADM and MM wrote the manuscript. All named authors and members of the Effective Coverage Think Tank Group reviewed the manuscript and approved the final draft.

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Declaration of interests

We declare no competing interests.

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Demographic change and HIV epidemic projections to 2050 for adolescents and young people aged 15–24

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ABSTRACT

Background: Ending AIDS as a public health threat by 2030 is a significant challenge, as new HIV infections among adolescents and young people have not decreased fast enough to curb the epidemic. The combination of slow HIV response and increasing youth populations 15–24 could affect progress towards 2030 goals.

Objective: This analysis aimed to describe global and regional trends from 2010–2050 in the HIV epidemic among adolescents and young people by accounting for demographic projections and recent trends in HIV interventions.

Methods: 148 national HIV estimates files were used to project the HIV epidemic to 2050. Numbers of people living with HIV and new HIV infections were projected by sex and five-year age group. Along with demographic data, projections were based on three key assumptions: future trends in HIV incidence, antiretroviral treatment coverage, and coverage of antiretrovirals for prevention of mother-to-child transmission. Results represent nine geographic regions.

Results: While the number of adolescents and young people is projected to increase by 10% from 2010–2050, those living with HIV is projected to decrease by 61%. In Eastern and Southern Africa, which hosts the largest HIV epidemic, new HIV infections among adolescents and young people are projected to decline by 84% from 2010–2050. In West and Central Africa, which hosts the second-largest HIV epidemic, new infections are projected to decline by 35%.

Conclusions: While adolescents and young people living with HIV are living longer and ageing into adulthood, if current trends continue, the number of new HIV infections is not projected to decline fast enough to end AIDS as a health threat in this age group. Regional variations suggest that while progress in Eastern and Southern Africa could reduce the size of the epidemic by 2050, other regions exhibit slower rates of decline among adolescents and young people.

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Background

The global community has committed to ending AIDS as a public health threat by 2030. This means the number of new HIV infections and AIDS-related deaths must decrease by 90 per cent between 2010 and 2030 [1]. However, this goal will not be achieved unless greater attention is dedicated to preventing HIV infection among adolescents and young people. In 2017, an estimated 3.9 million [2.1–5.7 million] adolescents and young people aged 15–24 were living with HIV. About 61 per cent of adolescents and young people living with HIV are adolescent girls and young women (AGYW), and about 78 per cent live in sub-Saharan Africa. While new HIV infections decreased by 20 per cent among adolescents and young people between 2010 and 2017, today they account for 36 per cent of new HIV infections among adults aged 15 and above. About 1,600 adolescents and young people become infected with HIV every day [2].

To end AIDS by 2030, the United Nations Joint Programme on HIV/AIDS (UNAIDS) developed the Fast-Track agenda. Under this agenda, the 95 – 95 – 95 goals for 2030 specify that 95 per cent of people living with HIV should know their HIV status, 95 per cent of those who know their status should be on antiretroviral treatment, and 95 per cent of those on treatment should be virally suppressed and sustained. The strategy also calls for a reduction of the current 1.6 million [1.3–2.1 million] annual number of new HIV infections among adults to 200,000 new HIV infections among adults by 2030 [1,2]. The Super – Fast Track agenda was set for 2020 to accelerate progress towards these 2030 goals for child, adolescent and young populations. Specifically, it calls for a reduction in the annual number of new HIV infections among adolescent girls and young women to 100,000 in 2020 [3]. However, in 2017 alone there were 340,000 [200,000–490,000] new HIV infections among adolescent girls and young

women [2]. This means that new HIV infections among this population have been decreasing at an average annual rate of 3 per cent between 2010 and 2017, while a 13 per cent average annual rate of decrease has been required to achieve less than 100,000 new infections by 2020. It is clear from current estimates that the HIV response is off track for this 2020 goal.

HIV prevention has been particularly challenging in this population due to issues with social norms, social vulnerability, high-risk sexual behaviour, policy barriers, poor care-seeking behaviours and access to services [4–7]. HIV testing coverage remains low in this age group for these same reasons. In South Africa, the country with the highest burden of HIV in the world, only 38 per cent of adolescent girls and 29 per cent of adolescent boys in the general population report testing for HIV in the last 12 months and receiving the results of the test [8]. Even among those living with HIV in the United States, only an estimated 41 per cent of HIV-positive young people aged 13–29 know their HIV status [9]. Adolescents and young people living with HIV also exhibit low adherence to antiretroviral therapy (ART). For example, a meta-analysis from 53 countries found that 62 [57–68] per cent of adolescents and young people living with HIV aged 12–24 adhered to therapy [10]. This is of concern because 90 – 90 – 90 goals for 2020 call for 73 per cent prevalence viral load suppression among people living with HIV, which cannot be achieved without adequate adherence to ART. The Namibia Population-based HIV Impact Assessment (PHIA) found that 82 per cent and 70 per cent of adult women and men living with HIV, respectively, were virally suppressed, but only 65 per cent of adolescent girls and young women and 61 per cent of adolescent boys and young men were virally suppressed [11]. Evidence shows that the HIV response is off-track for global targets among adolescents and young people. To address this problem, more evidence is needed to monitor progress towards global HIV goals, understand barriers in HIV prevention, care and treatment, and improve interventions for this age group.

Demographic shifts could impact the HIV response and pose an additional complication in preventing HIV infection and improving treatment among adolescents and young people in countries experiencing population growth in this age group. Age structures have changed over time and are projected to continue changing as countries undergo demographic transition. The recent 2017 Revision of World Population Prospects shows that while fertility rates are on the decline globally, some parts of the world are still projected to face population growth in adolescent and youth age groups between now and 2050 [12]. This projected growth is largest in the region most affected by HIV: sub-Saharan Africa. Population

change may also affect the absolute number of new HIV infections and total number of people living with HIV in parts of the world where HIV incidence has increased or remained the same since 2010, namely Latin America and the Caribbean, East Asia and the Pacific and Eastern Europe and Central Asia.

By 2050, the population aged 15–24 is expected to increase by 10 per cent globally. This is mostly driven by sub-Saharan Africa, where the population aged 15–24 is projected to more than double [12]. Sub-Saharan Africa is also home to 72 per cent of new HIV infections among adolescents and young people, and the number of new HIV infections among adolescents and young people in the region has only decreased by 22 per cent since 2010.

The combination of a growing population of young people, high fertility rates and persistent HIV incidence could impact the rate of reduction of new HIV infections in various geographies. This paper uses an HIV epidemic model to assess the influence of HIV programme response and demographic factors such as trends in population size of adolescents and youth, fertility rate, and HIV incidence on the future of the HIV epidemic for adolescents and young people from 2010 to 2050. The ultimate objective of this analysis is to evaluate whether the HIV response is on track for global goals to end AIDS among adolescents and young people by 2030.

Methods

HIV projections were generated for 148 countries from the most recent country-produced HIV estimates using the AIDS Impact Model (AIM) in Spectrum software (Avenir Health, Glastonbury, CT, USA). 21 countries with a 2018 Spectrum file and no historical HIV incidence data available (mostly in the Middle East, North Africa and Western Europe) were excluded from the analysis. Countries may not have historical HIV incidence data if no population-based survey has been conducted, or no data are available from routine surveillance or HIV programme data. The remaining countries have no Spectrum file at all. The Spectrum model utilizes both historical and latest demographic, epidemiologic and HIV programme data to inform HIV estimates and measure progress in the epidemic response [13,14]. Demographic data are gathered from the United Nations Population Division's World Population Prospects or national census data belonging to that country [12]. Epidemiologic data include scientifically-informed parameters and prevalence, incidence, or mortality data from surveillance, surveys and special studies [15–18]. Finally, HIV programme data are imported from national health information systems. Methods are documented in the UNAIDS Annex on Methods [19].

In the country-produced files, HIV incidence and prevalence estimates are projected five years into the future. However, for this analysis the timeframe in the model was extended to 2050 in order to assess possible demographic trends, which cannot be adequately assessed using five years of projected estimates. This required various assumptions about how to project HIV incidence, and coverage of anti-retroviral therapy (ART) and prevention of mother-to-child transmission (PMTCT) services past 2017 (the last year in the model with observed data).

Trends from 2013–2017 of ART and PMTCT coverage were extrapolated into the future using a log-linear curve to reflect typical coverage trajectories in these key HIV interventions. Coverage rates were held constant once they reached 95 per cent. For most countries, HIV incidence trends from 2017–2022 were projected until 2050 using a log-linear curve. A linear projection was applied for all countries where incidence was increasing from 2017–2022.

Two outputs were extracted from the Spectrum AIDS impact model (AIM) to assess the trajectory of the HIV epidemic over time and by five-year age group and sex for each country by number of new HIV infections and people living with HIV. Although the assumptions and projections were calculated at the national level, these were aggregated from the regional and global level for this analysis, with specific focus on the 15–24 age group. All projections were compared to 2010, which was the base year for the *Political Declaration on HIV and AIDS: On the Fast Track to Accelerating the Fight against HIV and to Ending the AIDS Epidemic by 2030* [20]. Decade-long increments are used to compare HIV projections over time: 2010, 2020, 2030, 2040 and 2050. All results were rounded to the nearest thousand to avoid false precision.

Nine geographic regions based on UNICEF classification were used in this analysis: East Asia and the Pacific, Eastern and Southern Africa, Eastern Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, North America, South Asia, West and Central Africa, and Western Europe.

Results

The 148 countries included in this analysis represented about 95 per cent of adults aged 15 and above and nearly 100 per cent of adults aged 15 and above living with HIV in 2017. For adolescents and young people aged 15–24, the countries included in this analysis represented 97 per cent and 100 per cent, respectively, of the absolute population size and those living with HIV. The following results are organized by the two output indicators: number of people living with HIV and number of new HIV infections.

Projected number of people living with HIV

The proportion of the population that is in the 15–24 age group is projected to decline from 18 per cent in 2010 to 14 per cent in 2050 (Figure 1). However, a more rapid pattern is projected for the population living with HIV from 2010 to 2050, as less adolescents living with HIV are projected to join that age group over time (Figure 2). In 2010, the majority of the global population living with HIV was under the age of 35, while in 2050 the majority of the population living with HIV is projected to be under age 55. Projections show a more dramatic ageing of the population living with HIV compared to the general population. By 2050, the majority of the general population is projected to be under age 40; suggesting that in 2050 the population living with HIV will be on average older than the general population. In 2010, there were about 3.9 million adolescents and young people aged 15–24 living with HIV (12 per cent of all people living with HIV). This number is projected to decline to 1.5 million (5 per cent of all people living with HIV) in 2050. Between 2010 and 2050, the number of adolescents and young people living with HIV is projected to decline by 61 per cent, compared to a 10 per cent decline in the general adolescent and youth population. By sex, the number of AGYW living with HIV are projected to decline by 65 per cent while the number of adolescent boys and young men (ABYM) living with HIV are projected to decline by 55 per cent.

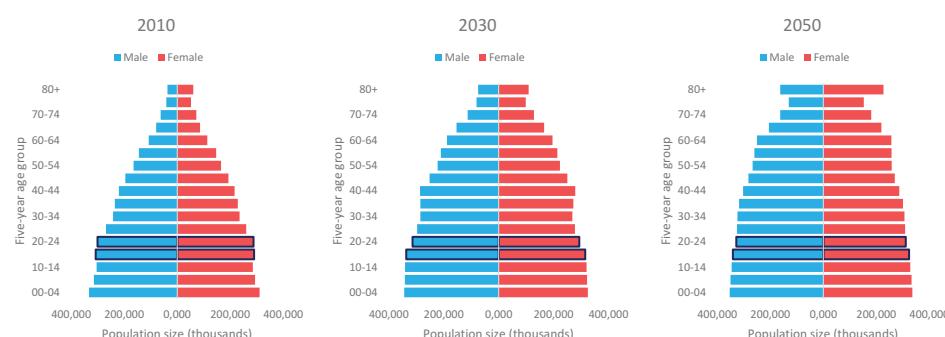


Figure 1. Population size (thousands) by age and sex, 2010, 2030 and 2050, UNAIDS 2018 estimates.

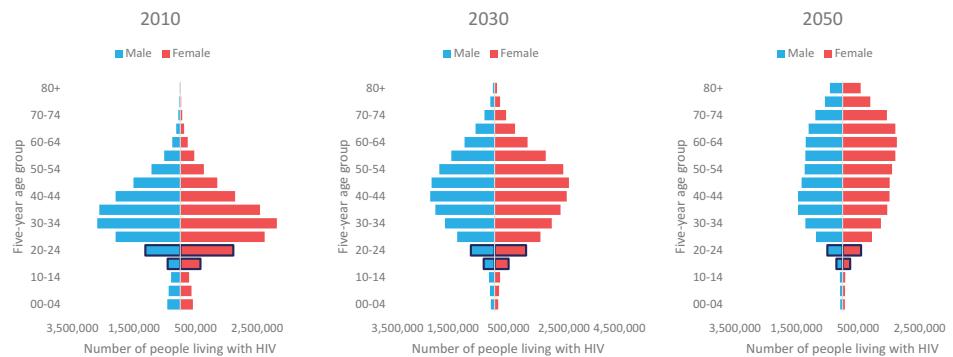


Figure 2. Number of people living with HIV by age and sex, 2010, 2030 and 2050, UNAIDS 2018 estimates.

The projected population living with HIV differs by region (Table 1). The total adult population aged 15–49 living with HIV is projected to decline by at least 50 per cent in Eastern and Southern Africa, East Asia and the Pacific and South Asia between 2010 and 2050. In these same regions, the population aged 15–24 living with HIV is projected to decline by at least 60 per cent.

In West and Central Africa, the number of all adults living with HIV is projected to decrease by 9 per cent between 2010 and 2050, while the number of adolescents and young people living with HIV is projected to decrease by 33 per cent.

Further, the adult population aged 15–49 living with HIV is projected to increase in Eastern Europe and Central Asia and Middle East and North Africa between 2010 and 2050.

In Eastern Europe and Central Asia, the population aged 15–24 living with HIV is projected to increase by 28 per cent by 2030, but then growth is expected to taper and then decline so that the overall increase between 2010 and 2050 will only be 4 per cent. This is the only region with a projected increase in adolescent and youth populations living with HIV from 2010 to 2050.

Projected number of new HIV infections

Projected numbers of new HIV infections also differ by age, sex and region. Globally, new HIV infections are projected to decline between 2010 and 2050, the most for adolescent girls aged 15–19 (70 per cent decline) and young women aged 20–24 (70 per cent decline) (Figure 3). The number of new HIV infections among ABYM is projected to decline by 59 per cent and 65 per cent, respectively. While adolescent boys only accounted for 14 per cent of new HIV infections among adolescents and young people in 2010, this is projected to account for 18 per cent in 2050. For all age groups, steeper reductions in the number of new HIV infections are projected to occur between 2010 and 2030 (3.1

average annual rate of reduction) compared to 2030 to 2050 (2.4 average annual rate of reduction).

By region, the largest reduction in new HIV infections among adolescents and young people from 2010 to 2050 is projected for Eastern and Southern Africa (84 per cent) (Table 2). In East Asia and the Pacific, North America, and South Asia, the number of new HIV infections among adolescents and young people is projected to decline by at least 57 per cent from 2010 to 2050. In Eastern Europe and Central Asia, new HIV infections among those aged 15–24 are projected to increase until 2040 and will decrease thereafter. In West and Central Africa, the region with the second – highest burden, the number of new HIV infections among adolescents and young people is projected to decrease by 35 per cent between 2010 and 2050 assuming incidence patterns follow current trends.

These regional projections result in sex-specific changes in the percent distribution of new HIV infections among adolescents and young people by region (Figure 4). Among AGYW aged 15–24, 64 per cent of new HIV infections occurred in Eastern and Southern Africa in 2010. By 2050, only 32 per cent of new HIV infections among AGYW are projected to occur in Eastern and Southern Africa – or a decrease from 270,000 in 2010 to 41,000 in 2050 in absolute numbers. By 2050, 40 per cent of new HIV infections among AGYW are projected to occur in West and Central Africa (compared to 18 per cent in 2010). Other regions that are projected to contribute more to the global total of new HIV infections among AGYW include Eastern Europe and Central Asia (2 per cent in 2010 to 6 per cent in 2050) and Latin America and the Caribbean (4 per cent in 2010 to 8 per cent in 2050).

Among ABYM aged 15–24, 31 per cent of new HIV infections occurred in Eastern and Southern Africa in 2010, and this is projected to decline to 17 per cent of new HIV infections by 2050, while 25 per cent is projected to occur in West and Central

Table 1. Number of people living with HIV by decade, region, age and sex, 2010–2050, UNAIDS 2018 estimates.

Region	2010		2020		2030		2040		2050	
	Estimate	% of adults aged 15–49	Estimate	% of adults aged 15–49	Estimate	% of adults aged 15–49	Estimate	% of adults aged 15–49	Estimate	% of adults aged 15–49
Eastern and Southern Africa										
Adults aged 15–49	14,476,000	14.9	15,841,000	9.4	12,284,000	-15.1	8,027,000	-44.6	5,218,000	-64.0
Adults aged 15–24	2,157,000	12.5	1,982,000	-8.1	1,459,000	-32.4	885,000	-59.0	548,000	-74.6
Girls and women aged 15–24	1,483,000	10.2	1,290,000	-13.0	913,000	-38.4	548,000	-63.0	336,000	-77.4
Boys and men aged 15–24	675,000	4.7	692,000	4.4	546,000	-19.0	337,000	-50.0	212,000	-68.5
East Asia and the Pacific										
Adults aged 15–49	2,129,000	14.1	2,099,000	-1.4	1,693,000	-20.5	1,279,000	-40.0	1,062,000	-50.1
Adults aged 15–24	300,000	205,000	9.8	-31.7	167,000	-44.3	135,000	-55.1	110,000	-63.4
Girls and women aged 15–24	123,000	5.8	76,000	-38.7	57,000	-54.0	44,000	-64.1	34,000	-72.3
Boys and men aged 15–24	177,000	8.3	129,000	-26.8	110,000	-37.6	91,000	-48.8	76,000	-57.3
Eastern Europe and Central Asia										
Adults aged 15–49	680,000	1,158,000	70.3	1,263,000	85.8	1,178,000	73.3	1,171,000	72.3	
Adults aged 15–24	69,000	10.1	68,000	5.9	88,000	7.0	92,000	7.8	72,000	6.1
Girls and women aged 15–24	33,000	4.8	34,000	2.9	44,000	3.5	34.9	3.8	35,000	3.0
Boys and men aged 15–24	36,000	5.3	34,000	3.0	44,000	3.5	20.7	4.0	30.7	3.1
Latin America and the Caribbean										
Adults aged 15–49	1,386,000	1,662,000	20.0	1,633,000	17.8	1,386,000	0.1	1,168,000	-15.7	
Adults aged 15–24	224,000	16.2	214,000	-4.5	187,000	-16.8	167,000	-25.4	142,000	-36.6
Girls and women aged 15–24	92,000	6.7	86,000	-6.6	76,000	-17.3	69,000	-25.6	58,000	-36.8
Boys and men aged 15–24	132,000	9.5	128,000	-3.0	110,000	-6.8	99,000	-25.3	84,000	-36.5
Middle East and North Africa										
Adults aged 15–49	119,000	150,000	9.1	26.3	156,000	31.1	145,000	21.5	141,000	18.8
Adults aged 15–24	16,000	13.7	14,000	-6.3	16,000	-4.0	16,000	-24	14,000	-13.1
Girls and women aged 15–24	7,000	5.6	6,000	-6.0	7,000	-4.7	7,000	-12.5	7,000	1.6
Boys and men aged 15–24	10,000	8.2	7,000	-23.3	8,000	-5.4	9,000	-12.5	8,000	-23.0
North America										
Adults aged 15–49	567,000	628,000	10.9	624,000	10.2	529,000	-6.7	432,000	-23.7	
Adults aged 15–24	74,000	13.0	58,000	9.2	-21.4	48,000	7.7	-45.3	-55.0	
Girls and women aged 15–24	20,000	3.6	16,000	2.6	-19.7	14,000	2.2	-32.1	-53.4	
Boys and men aged 15–24	53,000	9.4	42,000	6.6	-22.1	35,000	5.5	-35.2	-55.5	
South Asia										
Adults aged 15–49	2,282,000	2,307,000	1.1	1,795,000	-21.3	1,363,000	-40.3	1,013,000	-55.6	
Adults aged 15–24	260,000	11.4	231,000	10.0	-11.0	161,000	9.0	-38.0	-72.8	
Girls and women aged 15–24	121,000	5.3	108,000	4.7	-10.8	76,000	4.2	-37.6	-72.6	
Boys and men aged 15–24	133,000	6.1	123,000	5.3	-11.2	86,000	4.8	-38.4	-73.0	
West and Central Africa										
Adults aged 15–49	4,485,000	4,480,000	-0.1	4,389,000	-2.1	4,229,000	-5.7	4,094,000	-8.7	
Adults aged 15–24	787,000	17.6	788,000	17.6	0.1	733,000	16.7	-6.9	529,000	-32.9
Girls and women aged 15–24	488,000	10.9	474,000	10.6	-2.9	443,000	10.1	-9.2	323,000	-33.9
Boys and men aged 15–24	299,000	6.7	314,000	7.0	5.0	290,000	6.6	-3.0	245,000	-31.1
Western Europe										
Adults aged 15–49	313,000	311,000	-0.8	293,000	-6.6	268,000	-14.4	255,000	-18.6	
Adults aged 15–24	37,000	11.7	31,000	10.1	-14.2	30,000	10.3	-17.3	27,000	-26.7
Girls and women aged 15–24	13,000	4.3	11,000	3.7	-14.8	11,000	3.8	-17.6	10,000	-26.9
Boys and men aged 15–24	23,000	7.4	20,000	6.4	-13.9	19,000	6.6	-17.2	18,000	-26.5
Global										
Adults aged 15–49	26,437,000	28,635,000	8.3	24,130,000	-8.7	18,404,000	-30.4	14,555,000	-44.9	
Adults aged 15–24	3,925,000	14.8	3,592,000	12.5	-8.5	2,890,000	12.0	-26.4	2,087,000	-60.6
Girls and women aged 15–24	2,381,000	9.0	2,102,000	7.3	-11.7	1,641,000	6.8	-31.1	1,158,000	-64.5
Boys and men aged 15–24	1,522,000	5.2	1,322,000	5.2	-11.7	1,202,000	5.2	-22.9	1,172,000	-55.0

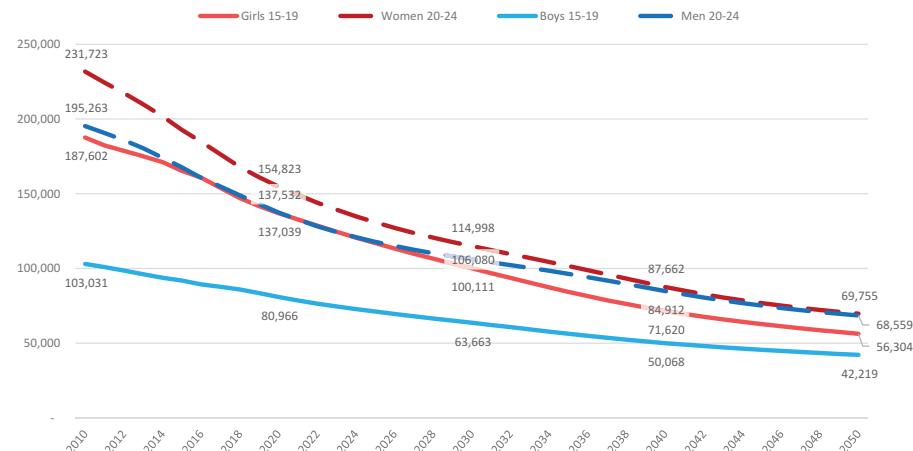


Figure 3. Number of new HIV infections among adolescent and young people, by sex and five-year age group, 2010–2050, UNAIDS 2018 estimates.

Africa (compared to 12 per cent in 2010). Other regions that are projected to contribute more to the global total of new HIV infections among ABYM include East Asia and the Pacific (9 per cent in 2010 to 13 per cent in 2050), Eastern Europe and Central Asia (3 per cent in 2010 to 7 per cent in 2050) and Latin America and the Caribbean (6 per cent in 2010 to 13 per cent in 2050).

Discussion

These findings show that the total number of young people newly infected with HIV will not surge over time, given trends in population size, HIV incidence, and key HIV interventions. However, the pattern in HIV infections and age and sex structure of people living with HIV will differ by region given region-specific population dynamics and epidemic trends.

After 2010, the global youth bulge population from previous decades will finally age out of the 20–24 age group. However, the number of adolescents and young people aged 15–24 is projected to grow at a slow and steady rate until 2050. Unlike the general population, the age structure of the population living with HIV is projected to change dramatically over the next 30+ years. The proportion of all people living with HIV in the 15–24 age group is projected to decline as adolescents and young people age into adulthood. Since these projections do not mimic the general population age structure these global HIV projections are more a function of trends in the HIV response than of population change.

Findings on HIV projections differ by region. As progress is made in Eastern and Southern Africa, the relative burden of new HIV infections in adolescent and youth age groups is projected to tilt to other world regions.

The projections suggest that, with current trends, the 2020 Super – Fast Track targets are not likely to be achieved in any region. For example, this analysis projected about 292,000 new HIV infections among

adolescent girls and young women in 2020 compared to the Super – Fast Track targets of less than 100,000 new HIV infections. Current trends in HIV incidence and intervention coverage must change if an AIDS Free Generation is to be achieved by 2030. While new HIV infections among adolescent girls and young women are projected to decrease at an average annual rate of –2 per cent between 2017 and 2030, the necessary rate of reduction should be –14 per cent for infections to decrease in this population in order to contribute to the global 2030 goal of under 200,000 new HIV infections among all people age 15 and above.

Finally, projections show that recent trends in the HIV response, independent of demographic change, may have a lasting effect on the future of the epidemic. The number of people living with HIV would be expected to change in the same proportion to the total population if population change were the only factor. Since projected numbers of people living with HIV are different from projected numbers of the general population, it is evident that demographic changes are not the only factor in HIV projections. Thus, this analysis suggests that improvements in the HIV response could change the trajectory of the HIV epidemic for the better, despite demographic factors. However, it would be helpful to quantify the contribution of demographic factors alone on HIV epidemic projections. For example, a recent UNAIDS analysis showed that if population growth had been stable, the number of new HIV infections among people in sub-Saharan Africa would have decreased by 19 per cent instead of 16 per cent between 2010 and 2016 [21].

Limitations

This analysis includes some key limitations. First, some countries were excluded from the analysis. In 2018, 169 countries created a Spectrum file available through UNAIDS (representing 99 per cent of the

Table 2. Number of new HIV infections by decade, region, age and sex, 2010–2050, UNAIDS 2018 estimates.

Region	2010			2020			2030			2040			2050		
	Estimate	% of adults aged 15–49	% of adults aged 15–49 Estimate	% of adults aged 15–49	% Change since 2010	Estimate	% of adults aged 15–49	% Change since 2010	Estimate	% of adults aged 15–49	% Change since 2010	Estimate	% of adults aged 15–49	% Change since 2010	
Eastern and Southern Africa															
Adults aged 15–49	951,000	41.9	612,000	-35.7	400,000	-58.0	264,000	-72.2	181,000	-76.0	112,000	-80.0	-81.0		
Adults aged 15–24	398,000	28.0	247,000	-37.9	154,000	-36.2	96,000	-76.0	62,000	-76.0	34,500	-84.3			
Girls and women aged 15–24	266,000	13.9	166,000	-37.5	104,000	-61.0	64,000	-76.0	41,000	-75.8	22,600	-84.6			
Boys and men aged 15–24	132,000	13.2	81,000	-38.7	50,000	-61.8	32,000	-75.8	22,000	-75.8	11,900	-83.7			
East Asia and the Pacific															
Adults aged 15–49	165,000	38.5	133,000	-19.4	105,000	-36.1	90,000	-45.3	82,000	-58.3	23,000	-77.8	-50.4		
Adults aged 15–24	64,000	15.2	43,000	-32.2	32,000	-49.2	27,000	-29.4	16,000	-68.7	7,000	-73.8	-64.2		
Girls and women aged 15–24	25,000	23.3	15,000	-41.9	10,000	-9.5	6,020	-8.7	5,000	-51.5	1,980	-57.9	-57.9		
Boys and men aged 15–24	38,000	21.4	28,000	-25.9	22,000	-42.1	19,000	-20.7	-	-	-	-	-		
Eastern Europe and Central Asia															
Adults aged 15–49	97,000	19.9	123,000	27.0	118,000	20.9	106,000	9.4	102,000	21,000	20,200	11,200	5.4		
Adults aged 15–24	19,000	8.6	17,000	-12.9	22,000	-18.6	13,500	-20.2	17,000	-11.2	8,000	-7.4	-12.2		
Girls and women aged 15–24	8,000	11.2	8,000	-8.3	10,000	-8.5	9,000	-8.8	11,200	-11.2	7,400	-9.8	-9.8		
Boys and men aged 15–24	11,000	9,000	7,400	-16.4	12,000	-10.1	8,900	-11.4	9,000	-11.2	9,200	-14.0	-14.0		
Latin America and the Caribbean															
Adults aged 15–49	105,000	38.8	104,000	-0.5	97,000	-7.3	88,000	-16.3	78,000	-27.3	26,000	33,100	-25.6		
Adults aged 15–24	41,000	14.7	38,000	35.9	38,000	-7.7	33,000	-19.0	30,000	-33.7	10,000	12,800	-36.4		
Girls and women aged 15–24	15,000	24.1	14,000	-13.6	13,000	-7.8	13,000	-18.3	11,000	-13.0	-26,300	-35.2	-35.2		
Boys and men aged 15–24	25,000	23,000	22,300	-7.7	20,000	-20.9	18,000	-19.5	20,700	-27.9	16,000	20,300	-37.2		
Middle East and North Africa															
Adults aged 15–49	12,000	11,000	24.6	-3.4	11,000	-19.0	10,000	-8.6	10,000	-15.7	9,000	-20.0	-20.0		
Adults aged 15–24	3,000	29.7	3,000	-19.9	3,000	-29.0	3,000	-10.8	3,000	-13.9	3,000	-29.2	-21.4		
Girls and women aged 15–24	1,000	11.3	1,000	-10.4	1,000	-11.3	1,000	-1.3	1,000	-2.1	1,000	-12.8	-8.7		
Boys and men aged 15–24	2,000	18.4	2,000	-14.2	2,000	-25.1	2,000	-16.4	2,000	-18.2	2,000	-21.2	-29.2		
North America															
Adults aged 15–49	43,000	34,000	34,000	-21.3	28,000	-34.4	23,000	-46.0	19,000	-31.9	3,000	29,200	-55.5		
Adults aged 15–24	14,000	33.0	11,000	-31.3	25,300	-31.4	27,000	-37.6	27,000	-47.8	6,000	31,700	-57.3		
Girls and women aged 15–24	4,000	8.5	3,000	-8.3	23,600	-8.3	20,000	-35.8	20,000	-46.3	2,000	8,500	-55.9		
Boys and men aged 15–24	11,000	24.5	8,000	-23.0	25,900	-23.0	23,000	-38.2	5,000	-23.5	4,000	23,300	-57.7		
South Asia															
Adults aged 15–49	111,000	87,000	87,000	-21.4	68,000	-38.5	56,000	-49.6	50,000	-65.4	12,000	24,400	-55.4		
Adults aged 15–24	44,000	39.8	31,000	-30.8	21,000	-31.0	52,100	-52.1	15,000	-27.3	-	-	-72.6		
Girls and women aged 15–24	20,000	17.6	13,000	-31.7	9,000	-13.5	52,700	-52.7	7,000	-11.8	-	-	-73.2		
Boys and men aged 15–24	25,000	22.2	17,000	-30.1	12,000	-17.5	51,600	-51.6	9,000	-15.5	-64,800	7,000	-72.2		
West and Central Africa															
Adults aged 15–49	271,000	46.8	115,000	-8.0	233,000	-14.0	218,000	-19.4	210,000	-29.4	82,000	39,100	-22.3		
Adults aged 15–24	127,000	46.3	46,300	-9.1	104,000	-44.7	90,000	-17.9	41,000	-66.1	5,000	10,600	-35.0		
Girls and women aged 15–24	77,000	28.4	69,000	-9.8	64,000	-27.3	55,000	-17.5	25,200	-28.4	5,000	24,200	-33.7		
Boys and men aged 15–24	50,000	18.4	46,000	-8.0	41,000	-17.4	34,000	-18.5	15,800	-30.8	31,000	14,900	-37.1		
Western Europe															
Adults aged 15–49	22,000	32.3	20,000	-10.4	18,000	-19.0	17,000	-23.7	16,000	-19.1	6,000	34,300	-26.3		
Adults aged 15–24	7,000	32.3	6,000	-9.3	6,000	-34.3	13,900	-34.2	2,000	-14.4	2,000	-19.8	-21.8		
Girls and women aged 15–24	2,000	11.0	2,000	-9.4	2,000	-11.6	1,600	-14.4	4,000	-22.7	-18,800	4,000	-22.1		
Boys and men aged 15–24	5,000	21.3	4,000	-9.2	4,000	-22.7	-	-	-	-	-54,700	11,000	-21.7		
Global															
Adults aged 15–49	1,777,000	40.4	1,374,000	-22.7	1,078,000	-39.3	872,000	-50.9	748,000	-59.0	237,000	31,700	-57.9		
Adults aged 15–24	718,000	23.6	510,000	37.1	285,000	35.7	294,000	-46.4	215,000	-48.7	159,000	18,300	-67.0		
Girls and women aged 15–24	419,000	16.8	292,000	21.2	-30,400	-26.8	170,000	-43.1	135,000	-54.7	15,500	-54.7	-69.9		
Boys and men aged 15–24	298,000	21.8	218,000	15.9	-	-	-	-	-	-	11,000	14,800	-62.9		

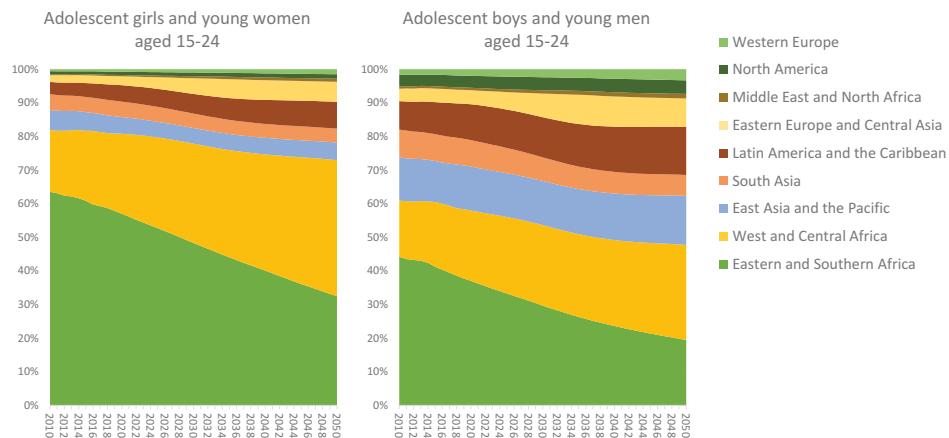


Figure 4. Percent distribution of new HIV infections among adolescents and young people by region, 2010–2050, UNAIDS 2018 estimates.

global population). While some country models were excluded from this analysis due to a lack of historical HIV incidence data, the final set of 148 countries represent 97 per cent of the global adolescent and youth population and almost 100 per cent of the all adolescents and young people living with HIV. Second, projections are only as strong as the input data. Model inputs include population statistics, survey data and HIV programme data. The quality of HIV estimates depends on the robustness of input data, especially programme statistics. While the issue of data quality cannot be completely addressed, UNAIDS, WHO, UNICEF and other partners undertake a rigorous review of PMTCT and ART data to minimize some errors. The quality of HIV estimates also depends on the accuracy of inherent assumptions and algorithms in the model, of which scientific literature is reviewed biennially to implement any methodological changes. Knowledge of epidemic patterns and programme effects is constantly improving which can cause modelled estimates to change from one year to the next. The UNAIDS Reference Group recommends changes based on the latest scientific evidence but some gaps may remain [14,22–30]. For example, while the results suggest that HIV epidemic projections differ by sex in each region, information about incidence rate ratios outside of sub-Saharan Africa is relatively weak due to sparse surveillance and survey data, in addition to small sample sizes in both data types [31,32]. Thus, there is limited certainty around sex-specific projection patterns outside of sub-Saharan Africa.

Projections to 2050 assume that external factors will remain the same as they were in 2018. This model does not account for unforeseen changes in HIV treatment availability, HIV-related policies, or funding contexts.

Furthermore, this analysis aggregated country estimates to a regional level, thus masking country variations. It also used national HIV estimates by five-year

age group and sex as the unit for analysis, which could mask sub-population HIV incidence trends. For example, a study of HIV case reports in South-eastern China found that the percent of new reported HIV cases in the 15–18 age group has decreased while the percent of new reported HIV cases in the 19–22 age group has increased from 2000 to 2015 [33]. Local trends and finer age groups may elucidate further contextual factors that play a role in the projected number of new HIV infections among adolescents and young people.

Conclusion

The numbers of young people living with HIV are projected to decline globally if current trends in HIV infection rates, programmatic response, and population changes continue. However, HIV will remain a serious problem in regions where HIV testing, treatment and retention coverage remains low for this population group and where the adolescent and young adult population is expected to increase in the coming decades. Strong efforts are needed to ensure that the numbers continue to decline and to speed that decline to achieve global targets. Regions of the world with increasing HIV incidence like Eastern Europe and Central Asia must be targeted with locally appropriate interventions. HIV prevention must continue to be prioritized among adolescents and young people living in high – prevalent areas. In these areas, the contextual challenges to HIV prevention must be addressed [4]. Pre-exposure prophylaxis for adolescents at higher risk of HIV infection is one tool that can still be improved and brought to scale in high-prevalent areas, but more research is needed to inform effective implementation of this interventions in adolescent populations [34–36]. These HIV prevention challenges are often gendered. Adolescent boys and young men face different barriers to HIV prevention services compared to adolescent girls and young women [5,37]. These findings

demonstrate that the end of the HIV epidemic is not close for adolescents and young people. By utilizing current trends in the HIV response in the epidemic model, these results illustrate which populations and regions may need more attention to end AIDS as a public health threat by 2030. While reducing HIV incidence in adolescence and young adulthood is critical to ending the epidemic, it will also be important to plan sustainable and integrated testing, care and treatment programmes for this age group- and as they age.

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Author contributions

Tyler Porth (T.P.) and Priscilla Idele (P.I.) conceived of the idea to project the HIV epidemic for adolescents and young people and conducted an initial analysis. Aleya Khalifa (A.K.), Chibwe Lwamba (C.L.), Mary Mahy (M. M.) and John Stover (J.S.) designed the full analysis. J. S. provided the tool in which to conduct the analysis and produced the results. A.K. and C.L. analysed the results. C. L., M.M., T.P. and P.I. reviewed preliminary results and proposed improvements to the analysis. All authors contributed to the interpretation of the final results. A. K. drafted the work, while T.P., P.I., J.S., M.M. and C. L. revised it critically for intellectual content. All authors approved the final work to be published and agree to be accountable for all aspects of the work.

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Ethics and consent

Not applicable.

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Paper context

HIV incidence among adolescents and young people is not decreasing fast enough to end AIDS as a public health threat by 2030. While experts fear that increasing youth populations could further impede progress, this paper demonstrates that improvements in the HIV response could change the trajectory of the HIV epidemic despite demographic factors. New HIV infections must decrease faster and HIV prevention programmes must appropriately target adolescents and young people to secure an AIDS-free generation.

Data availability statement

The data that support the findings of this study are openly available in national HIV estimates files published through UNAIDS at <http://www.unaids.org/en/dataanalysis/data/tools/spectrum-epp>.

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Equitable coverage? The roles of the private and public sectors in providing maternal, newborn and child health interventions in South Asia

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ABSTRACT

Introduction The private sector accounts for an important share of health services available in South Asia. It is not known to what extent socioeconomic and urban–rural inequalities in maternal, newborn and child health (MNCH) interventions are being affected by the presence of private providers.

Methods Nationally representative surveys carried out from 2009 to 2015 were analysed for seven of the eight countries in South Asia, as data for Sri Lanka were not available. The outcomes studied included antenatal care (four or more visits), institutional delivery, early initiation of breast feeding, postnatal care for babies, and careseeking for diarrhoea and pneumonia. Results were stratified according to quintiles of household wealth and urban–rural residence.

Results At regional level, the public sector played a larger role than the private sector in providing antenatal (24.8% vs 15.6% coverage), delivery (51.9% vs 26.8%) and postnatal care (15.7% vs 8.2%), as well as in the early initiation of breast feeding (26.1% vs 11.1%). The reverse was observed in careseeking for diarrhoea (15.0% and 46.2%) and pneumonia (18.2% and 50.5%). In 28 out of 37 possible analyses of coverage by country, socioeconomic inequalities were significantly wider in the private than in the public sector, and in only four cases the reverse pattern was observed. In 20 of the 37 analyses, the public sector was also more likely to be used by the wealthiest women and children.

Conclusion The private sector plays a substantial role in delivering MNCH interventions in South Asia but is more inequitable than the public sector.

INTRODUCTION

During the era of the Millennium Development Goals (MDGs), much progress was achieved in terms of population coverage with key maternal, newborn and child health (MNCH) interventions in South Asia.¹ Between 2000 and 2015, maternal mortality fell by 53% and under-five mortality by 47%.^{2,3}

Key questions

What is already known?

- The private sector is known to play a major role in the delivery of health services in the South Asia region, yet little is known regarding how it affects inequalities in intervention coverage for women and children.
- Earlier analyses of coverage with reproductive and maternal interventions suggest that the distribution of services across wealth quintiles tended to be more equitable in the public than in the private sector. These analyses did not provide formal statistical comparisons of the magnitude of inequalities between the two sectors, nor included the most recent surveys. None of the analyses provided regionally aggregated results.

What are the new findings?

- Our analyses of nationally representative surveys from seven of the eight countries in South Asia confirm the important role played by the private sector in providing preventive and curative interventions to women and children in this region.
- Our findings on socioeconomic inequalities in coverage show that the private sector tends to be markedly more unequal than the public sector throughout the seven countries and for all interventions under study.

What do the new findings imply?

- Our analyses suggest that, unless proactive efforts are made to the contrary, greater involvement of the private sector may exacerbate inequalities in reproductive, maternal, newborn and child health coverage, and if involvement of the private sector is deemed as essential for reaching the health-related Sustainable Development Goals, measures must be put in place to monitor and correct its potential negative impact on health inequalities.

However, progress at the national level does not necessarily mean that within-country inequalities were reduced⁴ and, despite the clear progress, substantial challenges remain.⁵ Most notably, South Asia's neonatal

mortality rate is particularly high, and 40% of newborn deaths globally are in South Asia.^{3,6}

The Sustainable Development Goals (SDGs)⁷ include a comprehensive set of MNCH targets that address the unfinished MDG agenda, while expanding the health agenda to include additional major challenges such as non-communicable diseases, injuries and the environment. The SDG target on universal health coverage (UHC) underpins all health-related targets and provides an opportunity to refocus efforts toward a sustainable approach through system-wide reform. Achieving the SDG targets for MNCH will represent a huge challenge for some South Asian countries. The current annual rates of reduction (ARRs) in maternal mortality, stillbirths and newborn mortality are much lower than the ARRs that are necessary to meet these global targets in countries such as Afghanistan, Bangladesh, India and Pakistan⁶ (UNICEF. Save Newborns).⁸

There is growing recognition of the role played by the private sector in providing MNCH interventions in many countries. The 2018 report of the Independent Accountability Panel for Every Woman, Every Child, Every Adolescent⁹ stated that 'at this point in the roadmap to 2030, it is essential to get it right regarding the private sector's accountability for women's, children's and adolescents' well-being, and for public health'. This plea is particularly relevant for South Asia, which is widely known for the strong role played by the private sector in providing health services. According to a recent review, 'healthcare services in South Asia are characterised by low public investment, dependence on services provided by the private sector, and very high rates of out of pocket expenses as the principal source of health financing'.¹⁰ The same authors found that most people in South Asia depend on private providers for healthcare and that public investment in health has stagnated. As shown in WHO and World Bank's report in 2018, domestic private health expenditure in 2015 was very high in some South Asian countries, corresponding to 78% of total health expenditure in Afghanistan, 74% in Bangladesh, 71% in India and in Nepal and 69% in Pakistan. Furthermore, among domestic private health expenditure, more than 90% are out-of-pocket expenditure which has exposed individuals to financial hardship.¹¹ Although private health expenditure by households is only a proxy for the size of the private sector, these figures support the major role of the private sector in the region.

The public and private sectors differ in terms of geographic distribution, out-of-pocket costs to families and therefore economic accessibility and likely on quality of care. It is therefore likely that reliance on private or public sector will vary according to wealth and place of residence. Given South Asia's need to accelerate progress on key MNCH indicators, as well as existing high private sector expenditures, it is important to assess the current role of the private sector in advancing progress toward the equitable achievement of SDG targets for women's and children's health.

The aim of the present analyses is to determine the relative importance of the private and public sectors in providing MNCH care in South Asian countries, with particular emphasis on their role in terms of equitable coverage. The objectives are to summarise source of care for key MNCH intervention indicators in South Asian countries with recent data; examine socioeconomic and urban–rural inequalities of key MNCH indicators, within the public and private sectors; and to discuss the policy and programmatic implications of these findings regarding the achievement of UHC for women and children.

METHODS

The analyses were carried out using the most recent national survey available for seven of the eight countries in the region, as a recent survey was not available for Sri Lanka. Demographic and Health Surveys (DHS) were available for Afghanistan (2015), Bangladesh (2014), India (2015 National Family Health Survey, based on the DHS methodology), Maldives (2009), Nepal (2016) and Pakistan (2012). Bhutan had data from a Multiple Indicator Cluster Survey (MICS) carried out in 2010. Both types of surveys use multistage sampling to identify women aged 15–49 years and children under the age of 5 years. Their questionnaires and indicator definitions are highly comparable.¹² Further information is available elsewhere on DHS¹³ and MICS.¹⁴

The following coverage indicators were selected as proxies of care during the various stages of the continuum of MNCH care: four or more antenatal care visits, place of delivery (home or institution), early initiation of breast feeding, postnatal care for babies, careseeking for suspected pneumonia and careseeking for diarrhoea. Population coverage was expressed as the proportion of those in need of an intervention who received it. For example, the number of births was the denominator for delivery care, and the number of children under the age of 5 years who presented diarrhoea in the 2 weeks preceding the survey was the denominator for the diarrhoea careseeking indicator. Indicator definitions, with their respective denominators, are available in online supplementary Webannex A.

For each indicator, public and private sector contacts were differentiated. The types of facilities and providers defined as public or private in each country are shown in online supplementary Webannex B. In accordance with WHO definitions (<http://apps.who.int/gho/data/node.wrapper.imr?x-id=4737>), informal providers such as shops selling drugs, quacks and traditional birth attendants are not included in the analyses. Typically, public facilities include hospitals, clinics and primary care units run by the government, while private facilities include hospitals and clinics run by for-profit or not-for-profit institutions. Online supplementary Webannex C shows how different categories of private providers contributed to coverage in each country. For indicators including multiple

contacts—such as antenatal care and careseeking—some women and children who used both types of providers were classified in a combined ‘public and private’ category. Early initiation of breast feeding was also analysed for home births, in addition to the two types of providers involved in delivering the child.

Coverage in the public and private sectors was stratified according to household wealth quintiles and urban–rural residence. Wealth indices were calculated through principal component analyses of data on household appliances (such as televisions and refrigerators), characteristics of the dwelling (materials used for the walls, floor and roof), presence of electricity, type of water supply and sanitary facilities and other variables related to economic status (ownership of the house, land or livestock). Because relevant assets may vary in urban and rural households, separate principal component analyses are carried out in each area, which are later combined into a single score using a scaling procedure to allow comparability between urban and rural households.¹⁵ The values of wealth index for each household were calculated by the survey analysts and are available in the original databases; these were used to divide the sampled households into quintiles.¹⁵ The classification of urban or rural residence was based on criteria defined by each country.

Two summary measures of inequality, based on the frequency of the outcomes in the five wealth groups, were calculated. The slope index of inequality expresses absolute inequalities, being based on a logistic regression approach with coverage as the outcome and wealth as the exposure.¹⁶ It is expressed as the difference in percentage points between the fitted values of the coverage indicator for the top and the bottom of the wealth distribution. The concentration index, on the other hand, reflects relative inequalities and is based on a concept similar to the Gini Index for income concentration; for the purpose of easier presentation, we scaled both indices from −100 to +100. Both take a value of zero when there is perfect equality among all socioeconomic groups; positive values indicate higher coverage among the rich than the poor, and negative values indicate the opposite trend. Further

information on these indices and their calculation is available elsewhere.¹⁶

Regional estimates for South Asia were obtained by weighting the national results by the country’s total number of births; for the careseeking, the weights consisted of the country’s under-five population. Information on births and under-five population for 2016 was obtained from the UNICEF publication *State of the World’s Children*.¹⁷

Statistical tests were initially used for assessing the significance of the associations between wealth quintiles and coverage estimates; p levels for the slope and concentration indices (in the online supplementary materials) show how far the observed distribution is from the line of perfect equality. The inequality measures and respective SEs were obtained from our own reanalyses of the surveys. These were used to test the differences between inequality indices in the public and private sectors, using Z-tests based on a normal distribution approximation and considering inequality in each group independent. The Stata command *ztesti* was used for this purpose.

All analyses are based on anonymised, publicly available datasets. Stata was used for all analyses (StataCorp. 2017. Stata Statistical Software: Release 15; Stata, College Station, Texas, USA). Ethical clearance for data collection was obtained by the national institutions responsible for the national surveys.

Patient and public involvement statement

There was no involvement of patients as the analyses were based on data from publicly available, population-based surveys carried out in the past.

RESULTS

The numbers of births in the 2 years reported in each survey ranged from 2465 in Bhutan to 259 469 in India, with a median of 5038 (Nepal). The number of women and children included in the analyses, by country, are shown in online supplementary Webannex D. The Bhutan survey did not provide information on antenatal or postnatal care, nor on careseeking for diarrhoea. The Nepal and Maldives surveys did not collect information on postnatal care.

Regional and national results

On aggregate across South Asia, the population coverage of the interventions studied varies from 27.4% (postnatal care) to 78.7% (institutional delivery) (figure 1). Only three interventions—institutional delivery (the sum of deliveries in the public and private sectors) and careseeking for diarrhoea and pneumonia—had regional coverage greater than 60%. The lowest coverage levels were observed for the newborn indicators: postnatal care and early initiation of breast feeding.

The data labels in figure 1 show the proportions of the population covered in the public and private sectors. Using all provider contacts as the denominator, the

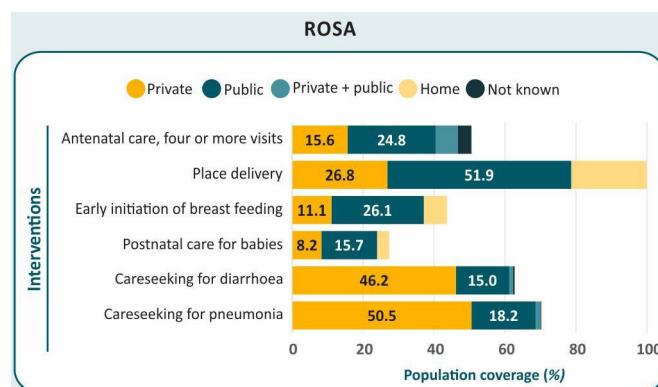


Figure 1 Coverage in the public and private sector for key interventions, aggregated results for the South Asian region.

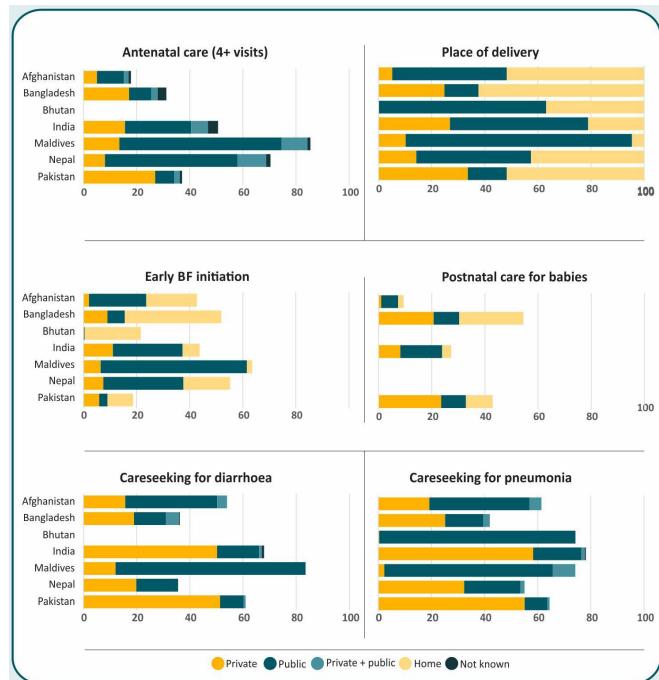


Figure 2 Coverage in the public and private sectors for key interventions, by country. BF, breast feeding.

private sector accounted for 30.9% of all antenatal care, 34.1% of institutional deliveries, 30.1% of postnatal care, 29.8% of early breastfeeding initiation, 73.2% of diarrhoea and 75.3% of pneumonia care.

The regional results are heavily driven by the more populous countries, particularly India and to a lesser extent Bangladesh and Pakistan. However, overall coverage—including both public and private sectors—varied

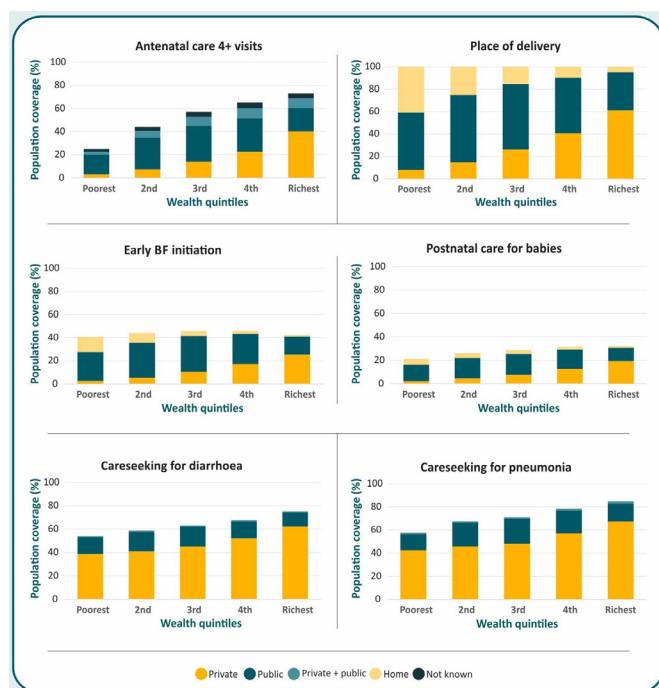


Figure 3 Intervention coverage in the public and private sector by wealth quintile, for the region.



Figure 4 Place of delivery by wealth quintile, by country.

markedly from country to country (figure 2). For example, institutional deliveries ranged from 37.6% in Bangladesh to 95.4% in the Maldives. The Maldives also showed the highest national coverage with early initiation of breast feeding and careseeking for diarrhoea. Of the four countries with available information on postnatal care, the highest coverage was observed in Bangladesh. Variability in pneumonia careseeking was less marked, ranging from 42.0% in Bangladesh to 78.1% in India.

In addition to variations in overall coverage, there were marked between-country differences in terms of the public/private mix. Figure 2 shows the results for the six coverage indicators, by country. The private sector was seldom used for most interventions in Afghanistan, Bhutan and Maldives, where the public sector was responsible for most contacts. In contrast, the private sector accounted for a large share of contacts—often more than half—in Bangladesh, India and Pakistan. In Nepal, much of the careseeking for diarrhoea and pneumonia relied on the private sector, in contrast for antenatal or delivery care where the public sector predominated.

The types of private providers varied by country and by intervention. Online supplementary Web annex C shows the proportions of contacts with different private providers, among women and children who sought private care; the total may exceed 100% when more than one provider was sought. Non-governmental institutions were most frequently used in Bangladesh—where they accounted for up to 23.6% of private contacts—than in other countries where



these represented less than 10% of contacts. For antenatal, delivery and postnatal care, private hospitals or maternity homes accounted for most private contacts, followed by private doctors' offices. The latter were particularly frequent in Afghanistan. Careseeking for diarrhoea and pneumonia was mainly sought from hospitals in the Maldives and Nepal, and from private doctors' offices in the remaining countries.

Analyses by wealth quintile

The second part of the analyses was focused on wealth-related and urban/rural within-country inequalities in overall coverage, as well as within the public and private sectors.

Figure 3 shows wealth-related inequalities in the six coverage outcomes for the whole region, based on the population-weighted indicators. There were very strong direct associations between coverage and wealth for the indicators, with two exceptions: early initiation of breast feeding and postnatal care, both of which had low coverage in all quintiles.

The indicator with the sharpest wealth-related inequalities was the place of delivery (figure 4). In all countries studied, home deliveries were most common in the poorest quintile, and private sector deliveries most common in the wealthiest quintile. In the three countries with the lowest proportion of private-sector deliveries in the whole population—Afghanistan, Bhutan and Nepal—the public sector was most used by wealthy women. The opposite was found in the Maldives and in India, where women in the poorer quintiles were more likely to use the public sector than those in the wealthiest quintile—as most of the latter relied on the private sector as mentioned. In Bangladesh and Pakistan, the proportions of women delivering in public facilities increased only slightly with family wealth. Graphs showing wealth-related inequalities by country and public–private sector for the remaining coverage indicators are shown in online supplementary Webannex E.

Summary measures of inequality

We compared the magnitude of wealth-related inequalities in the public and private sectors, by indicator and countries. The results for absolute and relative inequalities were very similar except for Afghanistan and Bhutan, where the private sector is very small and relative ratios may provide different results from absolute differences. To simplify the description of the findings, table 1 presents the results for absolute inequality (slope indices), and online supplementary Webannex F presents the results for relative inequalities (concentration indices). Absolute measures are easier to interpret, as the difference in coverage between the extremes of the wealth scale is expressed in per cent points, and unlike the concentration index, the slope index is not highly sensitive to coverage in the poorest groups.

The slope index indicates the difference in coverage, expressed in per cent points, between the wealthiest and

Table 1 Values of the wealth-based slope index for absolute inequality (expressed in per cent points) in the public and private sectors, by intervention and country

Country	Antenatal care (4+visits)			Institutional delivery			Early BF initiation			Postnatal care for baby			Careseeking for diarrhoea			Careseeking for pneumonia		
	Private	Public	p-value	Private	Public	p-value	Private	Public	p-value	Private	Public	p-value	Private	Public	p-value	Private	Public	p-value
Afghanistan	14.4	12.7	0.614	15.8	53.7	<0.001	6.0	19.8	<0.001	2.4	5.8	0.114	18.4	-12.8	<0.001	26.0	-11.5	<0.001
Bangladesh	45.1	4.9	<0.001	56.7	7.9	<0.001	23.4	4.2	<0.001	47.0	9.4	<0.001	48.6	-5.8	<0.001	27.2	-23.8	0.002
Bhutan	—	—	—	0.6	72.2	<0.001	0.2	50.4	<0.001	—	—	—	—	—	—	—	—	0.174
India	42.0	7.2	<0.001	58.5	-16.4	<0.001	28.0	-8.1	<0.001	20.1	-1.1	<0.001	21.2	2.9	<0.001	18.8	4.4	<0.001
Maldives	45.8	-48.5	<0.001	31.8	-20.8	<0.001	17.6	-25.4	<0.001	—	—	—	37.3	-25.9	0.003	-1.1	-66.9	0.002
Nepal	26.5	-14.3	<0.001	28.0	33.7	0.265	13.1	7.5	0.207	—	—	—	19.9	-22.1	0.001	40.1	-32.7	0.001
Pakistan	55.1	13.1	<0.001	46.1	16.8	<0.001	12.8	1.7	<0.001	34.0	11.5	<0.001	31.3	-5.8	<0.001	32.5	-4.3	<0.001

Positive values of the slope index indicate pro-rich inequalities, and are shown in black font, while pro-poor inequalities are shown in red font. Cells highlighted in blue indicate that inequalities were significantly larger in the private than in the public sector, whereas yellow cells show the opposite. Cells that are not highlighted presented similar levels ($p>0.05$). BF, breast feeding.

poorest ends of the socioeconomic scale. Positive values correspond to higher coverage among the rich than the poor, that is, pro-rich inequalities. These are shown in black font (**table 1**). All indices for the private sector are in black font, indicating pro-rich patterns for every interventions in every country. Pro-rich inequalities are also common in the public sector, except for diarrhoea and pneumonia careseeking.

Negative values of the slope index signal pro-poor inequalities, all of which were found in the public sector, particularly for the careseeking variables. It is also worth noting the presence of pro-poor inequalities in the public sector for all interventions in the Maldives.

Still in **table 1**, we compared the magnitude of inequalities between the two sectors. Cells that are highlighted in blue indicate that pro-rich inequalities were significantly larger in the private than in the public sector, whereas yellow cells show the opposite. Cells that are not highlighted presented similar levels of inequality in both sectors ($p>0.05$; exact p values are shown in **table 1**). Of the 37 cells with data, 28 are blue, thus indicating that the private sector tends to show greater pro-rich inequalities than the public sector. The exceptions are Afghanistan and Bhutan, where the yellow cells show stronger pro-rich inequalities in the private than in the public sector, as the latter is rarely used in these countries.

Analyses by urban/rural residence

There were also differences in coverage levels according to place of residence (**table 2**), but these patterns varied markedly by country and by intervention. In **table 2**, cells in black font indicate higher coverage in urban than in rural area within a given sector, and those in red font show the opposite trend. Cells highlighted in yellow show significantly greater urban–rural gaps in the private than in the public sector, while blue cells show the opposite pattern. Patterns varied by country and by intervention. Afghanistan mostly shows higher coverage in the public than in the private sector, particularly in rural areas. The reverse is true for Bangladesh, where the private sector is the most frequent source of care in both areas, but particularly for urban women and children. In Bhutan, the private sector is virtually absent. India shows a complex pattern: for careseeking, the private sector predominates in both urban and rural areas; for antenatal and postnatal care, urban areas had similar reliance on both sectors, but rural areas had greater use of public sector; for delivery care and early initiation of breast feeding, the public sector preference was mostly marked in rural than urban areas. In the Maldives, the public sector led for most indicators, particularly in the rural areas, and it also predominated in Nepal, except for the two careseeking indicators in urban areas. Lastly, in Pakistan both urban and rural areas showed substantially higher use of the private than the public sector, for all interventions.

Table 2 also shows urban/rural coverage ratios by intervention and sector. In most countries, private care

is more common in urban than in rural areas, whereas public care is more equitably distributed.

DISCUSSION

Given the major interest on how the private sector may contribute to achieving the health-related SDGs,⁹ disaggregation of coverage statistics by type of provider is essential for understanding the magnitude of inequalities in health and for proposing policy and programmatic interventions to address such inequalities. Our analyses contribute to a comprehensive examination of MNCH coverage disparities in the public and private sector in South Asia and globally.

Earlier analyses have assessed the role of private and public sector providers in delivering a limited number of interventions in several countries in South Asia and elsewhere,^{18–22} but there was limited overlap with the present analyses. In particular, we update and expand on the findings from a 57-country analysis of DHS carried out up to 2012, which included six South Asian countries; we relied on more recent surveys for five of these countries and were able to also include Bhutan.²³ We report on standardised results for seven of the eight countries in South Asia, which jointly account for more than 95% of all children under the age of 5 years in the region. The existing literature suggests that the private sector tends to be less equitable than the public sector. None of these earlier analyses included formal statistical comparisons of the magnitude of inequalities by sector.

At regional level, three interventions—institutional delivery and careseeking for diarrhoea and pneumonia—had coverage between 60% and 80%, whereas the other three—four or more antenatal care visits, postnatal care and early breastfeeding initiation—failed to reach most women and children. The very low coverage with the last two interventions is noteworthy. It is important to note that these were introduced more recently than the other four, which may explain their low coverage.²⁴

Our analyses confirm the major role played by the private sector in delivering maternal and child healthcare in the region.^{10 25} Yet, we show that the public–private mix varied substantially by country and type of intervention. For the region as a whole, the public sector accounted for most of the coverage with maternal and newborn interventions, but the private sector is responsible for most of the careseeking for childhood diarrhoea and pneumonia. Child immunisations were not included in the present analyses, but a 2011 review showed that private sector provision accounted for a very small fraction of all vaccines provided to children in Bangladesh, Pakistan and Sri Lanka, and possibly a higher proportion (17% in the 1990s) in India.²⁶

The analyses by wealth quintile are revealing. Except for the two more recent interventions—postnatal care and early initiation—all other indicators show substantial socioeconomic gradients not only in terms of overall coverage but also according to the type of provider.

Table 2 Table 2 Coverage (%) in urban and rural areas, by intervention, country and type of provider

Country	Area of residence	Antenatal care (4+ visits)			Institutional delivery			Early BF initiation			Postnatal care for babies			Careseeking for diarrhoea			Careseeking for pneumonia		
		Private	Public	Ratio	P-value	Private	Public	Home	Ratio	P-value	Private	Public	Ratio	P-value	Private	Public	Ratio	P-value	
Afghanistan	Urban	12.4	16.2	0.77	<0.001	0.086	12.9	63.3	23.8	0.20	<0.001	5.2	28.7	0.18	<0.001	1.9	9.7	0.20	<0.001
	Rural	2.8	8.4	0.33	<0.001	2.8	37.2	60.0	0.08	<0.001	1.1	19.4	0.06	<0.001	0.7	5.2	0.13	<0.001	
	Urban/rural ratio	4.4	1.9	4.6	1.7	0.4					4.7	1.5			2.7	1.9			
Bangladesh	Urban	29.4	10.9	2.70	<0.001	41.7	15.8	42.5	2.64	<0.001	14.8	7.4	2.00	<0.001	36.1	14.2	2.54	<0.001	
	Rural	12.8	7.5	1.71	<0.002	18.9	11.8	69.3	1.60	<0.001	6.9	6.3	1.10	<0.001	0.583	15.2	8.0	<0.001	
	Urban/rural ratio	2.3	1.5			2.2	1.3	0.6			2.1	1.2			2.4	1.8			
Brunei	Urban					0.4	89.4	10.2	0.00	<0.001	0.1	56.6	0.00	<0.001					
	Rural					0.0	52.2	47.8	0.00	<0.001	0.0	30.5	0.00	<0.001					
	Urban/rural ratio					—	1.7	0.2	—		—	1.8							
India	Urban	27.5	27.1	1.01	<0.001	0.593	42.5	46.2	11.3	0.92	<0.001	18.2	23.6	0.77	<0.001	12.6	13.8	0.91	<0.001
	Rural	10.9	24.0	0.45	<0.001	20.7	54.4	24.9	0.38	<0.001	8.3	27.2	0.31	<0.001	6.5	16.4	0.40	<0.001	
	Urban/rural ratio	2.5	1.1			2.1	0.8	0.5			2.2	0.9			1.9	0.8			
Maldives	Urban	34.4	36.9	0.93	<0.001	0.598	23.5	74.8	1.7	0.31	<0.001	13.7	45.1	0.30	<0.001				
	Rural	4.1	71.8	0.06	<0.001	4.5	89.7	5.8	0.05	<0.001	3.2	59.6	0.05	<0.001					
	Urban/rural ratio	8.4	0.5			5.2	0.8	0.3			4.3	0.8							
Nepal	Urban	8.9	52.9	0.17	<0.001	15.4	53.2	31.4	0.29	<0.001	8.0	35.0	0.23	<0.001					
	Rural	7.1	46.2	0.15	<0.001	12.8	31.4	55.8	0.41	<0.001	6.8	24.4	0.28	<0.001					
	Urban/rural ratio	1.3	1.1			1.2	1.7	0.6			1.2	1.4							
Pakistan	Urban	44.4	12.7	3.50	<0.001	45.7	22.2	32.1	2.06	<0.001	10.5	3.0	3.50	<0.001	31.2	13.4	2.33	<0.001	
	Rural	19.7	4.9	4.02	<0.001	28.7	11.5	59.8	2.50	<0.001	4.0	3.1	1.29	<0.001	16.7	7.6	2.67	<0.001	
	Urban/rural ratio	2.3	2.6			1.6	1.9	0.5			2.6	1.0			1.5	1.8			

Yellow cells show significantly higher coverage in the private than in the public sector, whereas blue cells show significantly higher coverage in the public than in the private sector. Cells in black font indicate higher coverage in urban than in rural area within a given sector, and those in red font show the opposite trend.

BF: breast feeding.



Our analyses of the magnitude of inequalities by sector (**table 1**) show that the private sector is more inequitable than the public sector in all countries except in Afghanistan and Bhutan, where the private sector shows very low coverage.

Both public and private providers contribute to inequalities. Women and children from wealthier families tend to rely both on the private and public sectors, while those from poorer families rely primarily on the public sector, except for careseeking for children.

Urban–rural differences in the public–private patterns were less marked than those associated with wealth. Either private providers predominated both in urban and rural areas (as was the case for Bangladesh and Pakistan) or the public sector led in both areas (as in Afghanistan, Bhutan and Maldives). A mixed pattern was observed in India and Nepal, where the public sector led for all interventions in urban and rural areas, except for careseeking for diarrhoea and pneumonia, where the private sector predominated; in Nepal, this was only observed in urban areas.

In Bangladesh, Pakistan and India, the greater share of the private sector in providing child healthcare is consistent with the findings from the literature—namely, that out-of-pocket expenditures in these countries account for more than 50% of health spending.²⁷ It is also noteworthy that in several countries even the poorest families rely mostly on the private sector, particularly for case management of childhood illnesses.

Care for diarrhoea or respiratory symptoms sought from pharmacies and drugstores was not included in the present analyses, which were limited to appropriate healthcare providers as defined by DHS in conjunction with national governments, and in agreement with the WHO definition of appropriate care (<http://apps.who.int/gho/data/node.wrapper.imr?x-id=4737>). Nevertheless, two of the original DHS reports provide detailed breakdowns on use of pharmacies or drugstores for pneumonia, by wealth quintile. In Bangladesh,²⁸ the percentages of children taken to such shops were 27.3, 28.3, 26.8, 25.6 and 16.5 in wealth quintiles 1–5, showing lesser use by children from the wealthiest families. In Bhutan,²⁹ no children with pneumonia symptoms were taken to a pharmacy or drugstore in the four poorer quintiles, and only 0.9% of those in the wealthiest quintile sought such care. Therefore, these shops may account for a substantial proportion of care sought in countries such as Bangladesh, but are seldom used in others such as Bhutan.

Our analyses have some limitations. First, there were no data for Sri Lanka, and for the Maldives the most recent publicly available survey is from 2009 and for Pakistan from 2012; however, inequalities in coverage tend to change slowly, so that this is unlikely to have substantially affected the comparisons. Second, the classification of private sector providers included both for-profit and not-for-profit clinics, such as non-governmental organisations (NGOs), of which latter might well be more equitable. Given that NGOs accounted for less than 10% of private contacts (except for antenatal,

delivery and postnatal care in Bangladesh), it was not possible to further investigate this possibility. Third, the information on coverage is obtained by recall, usually by the women who were interviewed about their pregnancies and their children. Fourth, we used household asset indices for estimating socioeconomic position; such indices only reflect relative position within the survey sample in each country, and not absolute wealth. Indices were calculated separately for rural and urban areas, and then merged into a national index.¹⁵ The marked differences in coverage by socioeconomic position suggests that the wealth index was able to identify subgroups of the population with different access to services in each country. The regionally aggregated results must be interpreted while bearing in mind that the quintiles represent within-country relative wealth distributions, and that the actual cut-offs in terms of absolute wealth may vary from country to country.

Our analyses do not address effective coverage, that is, the adequacy and quality of the care provided during the contacts with health workers. For some countries, particularly the Maldives and Nepal, sample sizes for pneumonia careseeking were small due to low numbers of children with this condition in the 2 weeks preceding the survey (see online supplementary Webannex D). Our population-weighted results are heavily influenced by the large Indian population, yet provide a detailed overview of the region as a whole; country-specific results are also provided in the tables and online supplementary Webannexes.

Policy and programmatic interventions must reflect the public–private mix in each country, and in particular the different cadres of private providers, which were classified into four categories by McPake and Hanson: ‘the low-quality, underqualified sector that serves poor people in many countries; not-for-profit providers that operate on a range of scales; formally registered small-to-medium private practices; and the corporate commercial hospital sector, which is growing rapidly and about which little is known’.³⁰ For example, in countries with strong presence of the low-quality private sector, such as Bangladesh, India and Pakistan, strategies must be designed to boost the public sector, which is generally more equitable as the above results show. Recognising that expansion of the public sector may require long-term investments in most countries, immediate strategies must be put in place to promote the use of appropriate private providers by poor and rural women and children, and to overcome the monetary, geographic and cultural barriers that hamper their access to the private sector. The India’s Janani Suraksha Yojana scheme of providing cash transfers to vulnerable women who deliver in public or in a selected number of accredited private facilities is an important step in this direction.^{31 32} In addition to vouchers, other options such as contracting-out may be explored.^{33 34} The recent launch of National Health Protection Scheme in India—Prime Minister’s Jan Arogya Yojna or PMJAY—offers a huge opportunity to tap the potential of private sector for providing healthcare services (<https://mera.pmjay.co.in/>). A detailed review of such

schemes is beyond the scope of the present article, but readers are referred to a recent publication-reviewed initiatives aimed at reaching equitable coverage in South Asia, with special attention to those involving the private sector.²⁵ The impact of such initiatives must be closely monitored with an equity lens.

In parallel with efforts to increase access to providers, it is essential to invest in improving quality of care in both public and private sectors and build a responsive regulatory system; poor quality of care in low/middle-income countries is pervasive and has been hampering effects to reduce maternal, newborn and child mortality.³⁵ The high rates of caesarean sections in the private sector in countries such as Bangladesh and India³⁶ highlight the need for regulatory measures.

Training of public and private sector practitioners may also play a role, but it may be affected by turnover and by commercial interests, the latter by private providers. Our results on early initiation of breastfeeding coverage, which was substantially lower than coverage with institutional delivery, suggest the existence of missed opportunities that could be avoided by proper promotion. Health worker training, supportive supervision and innovative quality improvement approaches are necessary to ensure that children brought to facilities effectively get the recommended interventions. Such initiatives must be thoroughly evaluated not only in terms of their overall impact on coverage but also on equity.

Lastly, there is an urgent need to focus on newborn health, as deaths in the neonatal period are becoming more and more important in relative terms as postneonatal deaths are being reduced at a much faster rate than newborn deaths. The leading causes of newborn deaths in the region are prematurity, intrapartum deaths and sepsis.³⁷ Our results included two indicators directly related to newborn health—postnatal visits³⁸ and early initiation of breast feeding³⁹—both of which systematically showed the lowest coverage in all country studies. To address the high mortality rate among newborns, UNICEF is currently promoting the uptake of these interventions in the South Asian region.⁸

Earlier analyses suggested that interventions delivered at community level by the public sector—such as immunisations or vitamin A supplementation—are more equitably distributed in the population than interventions that require contact with a health provider in a hospital or clinic.³⁶ The present analyses are focused on the latter, more inequitable interventions. The main lessons arising learned are that the private sector is an important source of care in most countries, and that access to private services is more inequitable than access to public services, even when for-profit and not-for-profit private services are jointly analysed. Richer women and children are more likely to use both the private and the public sector in most countries, whereas urban–rural differences are not as marked. Family wealth is a driver of inequalities, and use of the private sector may be seen as a strategy used by the wealthy to achieve higher coverage in light

of the limited availability or perceived lack of quality of public services. Yet, success in meeting UHC and the SDG goals for maternal, newborn and child mortality will be largely driven by the ability to reach the poorest women and children with high-quality interventions.

The public–private mix varies markedly by intervention, from country to country, and according to family wealth and residence. Effective programme and policies must be supported by regular monitoring of coverage with an equity lens. It is also likely that for large countries such as India and Pakistan, subnational patterns may vary, requiring efforts to be tailored to the local conditions.

From a whole-population perspective, one may argue that the ultimate goal is to reach universal coverage and that a combination of greater use of private providers by the wealthy and of public services by the poor would be acceptable. Our results, however, show that this is far from being the case in most South Asian countries, where substantial proportions of poor and rural women and children are not being reached by either sector.

The next step is to disseminate the present analyses to policy-makers in the region and to promote data-driven, country-specific policy discussions regarding on how to integrate the public and private sectors in the effort toward reaching high and equitable coverage.

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Advancing measurement and monitoring of reproductive, maternal, newborn and child health and nutrition: global and country perspectives

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INTRODUCTION

Aligned with the Sustainable Development Goals, the Global Strategy for Women's, Children's and Adolescents' Health (2016–2030) represents an essential shift in prioritisation for actions designed to help families live healthy, secure lives and fulfil their economic potential.¹ The reproductive, maternal, newborn, child and adolescent health and nutrition (RMNCAH-N) agenda is now both broader and more complex than was the case during the Millennium Development Goal era, creating a need for new data. To contribute to this need, Countdown to 2030 for Women's, Children's and Adolescents' Health (Countdown), a multi-institutional network of academics from institutions around the world and representatives from United Nations agencies and civil society, aims to enhance monitoring and measurement of women's, children's and adolescents' health globally and in countries.² In 2018, Countdown organised a measurement conference in Stellenbosch, South Africa, that brought together 100 experts in multiple areas of RMNCAH-N, which resulted in the six papers in this supplement and an overall research agenda.

The manuscripts in this collection represent the first developments of Countdown's work to enhance measurement. They identify some of the persistent measurement and monitoring gaps in RMNCAH-N, for example, by reviewing the evidence on methods for generating effective coverage estimates and presenting actionable analytical methods to identify inequalities within and between countries. The collection also considers measurement advances for early childhood development and for nutrition.

Further, it expands to analyse new priority issues, including using national surveys to analyse the impact of armed conflicts on RMNCAH-N;³ and describing the new data needed to better understand the social, political and contextual complexity of health system governance.

Countdown will continue to extend this measurement improvement agenda. In some aspects, however, the measurement and monitoring of RMNCAH-N is more advanced than other health areas, such as infectious diseases, non-communicable diseases, injuries and mental health. Many indicators of service contact and mortality are collected through surveys and can be disaggregated by multiple dimensions of inequality. Indeed, the inequality component of the Universal Health Coverage service coverage index is almost entirely based on RMNCAH-N indicators.⁴ Major gaps remain, however, in terms of service quality and effective coverage, maternal mortality, morbidity and causes of deaths, cognitive development and multiple other indicators of child well-being, and multisectoral service provision.

Beyond the technical detail of each field, the papers in the collection broadly share two common calls for measurement. First, the need for greater harmonisation of measurement standards, ideally underpinned by an authority such as WHO, as demonstrated by current endeavours in the field of maternal and newborn health, for example.⁵ Second, the need for investment in further development of measurement tools and methods. Both are plainly justified and align well with expert opinion.⁶ Consistent with Countdown's commitment to situate more measurement work in countries and to help



build domestic measurement expertise, harmonisation and investment have potential to advance agendas at both global and national levels. But, depending on perspective, there is the possibility of a tension between these two sets of needs.

HARMONISATION

A common theme across the manuscripts is the need for a process to generate global consensus on a minimum core set of validated coverage indicators on high-impact interventions, with guidance for measurement by WHO, and incorporated into relevant measurement tools. The case is well made that without this the interpretation and comparability of data across time and place would be limited, opportunities for learning reduced and potential for influence diminished. The review by Amouzou *et al* demonstrates an urgent need for harmonisation of definition and methods if we are to progress quality-adjusted coverage measurement from specialist studies to standard practice.⁷ For early childhood development, the need for a measurement framework and indicators to enable cross-country comparison of progress and help sustain momentum is clearly made.⁸ And with only half of high-impact nutrition interventions being measured through large-scale surveys, it is evident that programmes addressing malnutrition need more and standardised data.⁹

Gillespie *et al* also make the important point about the possible tension between harmonisation of indicators for global measurement and the indicator definition that speaks to a specific country programme. When measurement is driven by country priorities, the ideal indicators for programme management will depend on the intended use of the data, on the level and frequency of measurement, and on the desire to track progress over time by aligning with past measures. Within countries, governments need to be able to track their own progress and so need a consistent approach to measurement within their own setting. Flexibility in coding and indicator definition is needed to ensure that data can be analysed to meet both global and country needs. This issue is currently prominent for antenatal care as WHO has increased the recommended number of pregnancy contacts from four to eight antenatal visits,¹⁰ but most countries are yet to action such a transition and will continue to need to track coverage of at least four visits for some time to come. Similarly, the global definition and measurement of skilled attendance at birth is becoming more precise as quality-of-care issues are more prominent; but, in the face of acute human resource shortages and task-shifting policies, there continues to be considerable variability between country level definitions of the cadres considered to provide skilled care.¹¹

INVESTMENT

Across multiple topics, investment is needed for better, validated indicators that are integrated in standardised data collection methods with sufficiently large sample sizes for multiple disaggregation, while strengthening country capacity in data analysis and use, to ultimately aid data-informed decision-making and implementation. Whether implicit or explicit, the language of this call for investment primarily focused on investment in better periodic survey data rather than routine health information or indeed qualitative data sources.

For example, the agenda to increase the rate of progress in health by making sure that no one is left behind means that we need to be able to gain greater insight from data. This inevitably means larger household survey datasets with bigger sample sizes for more granular, disaggregated analysis. The analysis by Victora *et al* makes clear the added value of extending relative equity analysis from quintiles to deciles of households, or of examining intersectionality between categories of inequality, for example place of residence and socioeconomic status.¹² This is important not least because of the positive evidence that slowly but surely inequities within and between countries are reducing—so that differences are becoming more subtle, more complex.

In addition to gaining greater use from surveys, there is also an imperative to invest in the country health information systems. Acknowledged as having potential to contribute to data for decision-making, data from these sources are frequently dismissed because of well-justified concerns about data quality or because of the constraint of working with imperfect denominators. Nonetheless, there are essential reasons for both global and national actors to look for investment to improve on this. First, most country programmes want to base decision-making on their own data and are motivated to build capacity to manipulate their own data; this is well aligned with global actor ambitions to support more effective country-led data-driven decision-making for health. Second, routine data can be available in real time and analysed at macro, meso or micro levels of granularity depending on needs and therefore uniquely suitable for real-time monitoring and course correction,¹³ again providing alignment for the global community to promote and support implementation science to increase the rate of progress in health. And third, there are many things that surveys cannot reliably measure because the respondents do not know the answer to questions, for example, treatment for illness or measures of healthcare quality.¹⁴ For measurement of clinical care of this sort, facility data sources need to be strengthened. And this would be to the benefit of the global community's need for data that can be analysed to better estimate the potential of health gain that can be derived from contacts with the health service.¹⁵ The Countdown to 2030 has shifted its focus on collaborating with country public health institutions and ministries of health to generate evidence and strengthen analytical capacity through regional initiatives. The goal is to further expand these collaborations and strengthen

the links with countries' own reviews of progress and performance of the strategies and plans for women's, children's and adolescents' health.

And finally, unpacking the drivers of health, as described by George *et al*, encourages reflection on the current framing of health and the information we use to inform our vision.¹⁶ For this, we need harmonised quantitative data that speak to a service delivery lens—be it survey or administrative—but also other types of data that speak to societal and systems lenses (eg, contextual data on organisational structures, social norms and the interdependence of actors). This agenda, defined and committed to by the Countdown community of measurement experts, needs new data and new combinations of disciplines working together, at global and national levels, to also capture and incorporate country-derived tacit knowledge.

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UNICEF Humanitarian Action for Children **2020**

Overview





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FOREWORD

Humanitarian Action for Children 2020

In conflict and disaster, children suffer first and suffer most. Today, one in four of the world's children lives in a conflict or disaster zone — a fact that should shake each of us to our core. All of these children face an uncertain future.

Sadly, the number of countries experiencing conflict is at its highest point since the adoption of the Convention on the Rights of the Child in 1989. Nearly nine years of war in the Syrian Arab Republic have left nearly 5 million children in need and more than 2.5 million children living as refugees outside of the country. More than four years of conflict in Yemen have created the world's worst humanitarian crisis. About 1.2 million children in the Central African Republic desperately need help after six years of war.

In other ongoing conflicts in Afghanistan, Libya, Mali, Nigeria, Somalia and South Sudan — and many more — children pay the heaviest price. Around the world, more than 30 million children have been displaced by conflict. Many of them are being enslaved, trafficked, abused and exploited. Many more are living in limbo, without official immigration status or access to education and health care.

From the Rohingya refugee crisis in Bangladesh to the outflow of families from Central America seeking a safer and more dignified life, children have been uprooted by conflict and violence in historic numbers.

Diseases such as Ebola and measles are also re-emerging, often in conflict zones. They further complicate the humanitarian response in places where access is more and

more restricted — such as in the Democratic Republic of the Congo, where the current Ebola outbreak is the world's second largest and deadliest on record.

At the same time, extreme weather events are creating more frequent and destructive natural disasters worldwide. More than half a billion children now live in areas with extremely high flood occurrence, and almost 160 million are in areas with high drought severity. Regions like the Sahel, where livelihoods rely on agriculture, grazing and fishing, are especially vulnerable to the effects of climate change.

All too often, armed groups exploit the social grievances that arise under such pressurized conditions. Across West and Central Africa, violence and insecurity are already robbing nearly 2 million children — an entire generation — of their right to education.

Faced with these challenges, UNICEF and partners have responded to emergencies in 61 countries in 2019. In the first eight months of the year, we provided humanitarian assistance to nearly 29 million children — substantially on track to reach the target of 53 million by 31 December.

In eastern Democratic Republic of the Congo, we worked with local partners, community and religious leaders, the media and businesses to bring life-saving information about the Ebola virus to more than 25 million people at risk. In Yemen, we provided mental health and psychosocial support to nearly 400,000 children and caregivers facing the horrors of war



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Democratic Republic of the Congo, 2019

UNICEF Executive Director Henrietta H. Fore speaks with children at a child-friendly space at a camp for internally displaced persons in Bunia in a joint mission with Under-Secretary-General for Humanitarian Affairs and Emergency Relief Coordinator Mark Lowcock (in rear in blue) in March.

and displacement. In the Bolivarian Republic of Venezuela, we vaccinated more than 280,000 children to protect them from measles and avert the spread of this dangerous but preventable disease. In Mozambique, after two devastating cyclones, we have improved access to safe water for more than 1.5 million people.

But the challenges persist. UNICEF's appeal, *Humanitarian Action for Children 2020*, aims to assist 59 million children in humanitarian emergencies in the coming year.

As UNICEF works to save young lives in these critical situations, we also innovate to make a sustained impact. Cost-effective initiatives such as community-based education in Afghanistan and radio programming in Burkina Faso, for example, provide alternative learning opportunities for children when schools are too dangerous to attend.

In other cases, we provide training for community members, including teachers, to cope with traumatic events themselves and nurture children under stress. We have learned from experience how to identify and train members of affected communities to provide mental health and psychosocial support services.

Survivors of gender-based violence, and women and girls at risk, urgently need such support — and they are at the forefront of humanitarian programming carried out by UNICEF and partners. Local women's organizations such as the Somali Women's Development Centre, which operates support centres and a hotline to address gender-based violence in Mogadishu, play a central role in these efforts.

UNICEF also works to strengthen the links between humanitarian action and development work. Our presence in many countries before, during and after emergencies delivers a continuum of support. The rehabilitation and upgrade of water and sanitation systems serve vulnerable households in both the immediate crisis and the longer term, for instance. We also build the long-term capacity of health ministries and civil society partners to identify, treat and prevent chronic conditions such as malnutrition.

Sustainable interventions are important because crises are not one-time shocks; their impact can last for years. That is why flexible funding is essential for multi-year planning to rapidly and equitably reach every child at every stage of a humanitarian emergency and its aftermath.

Children and young people affected by crises call for concrete action to protect and promote their rights — today and into the future. They want to be part of shaping the solutions. We cannot answer their call without you, our partners. But with our collective action, we can make a life-changing difference for children and young people at risk.

Henrietta H. Fore
UNICEF Executive Director

FUNDING REQUIRED IN 2020

Humanitarian Action for Children 2020

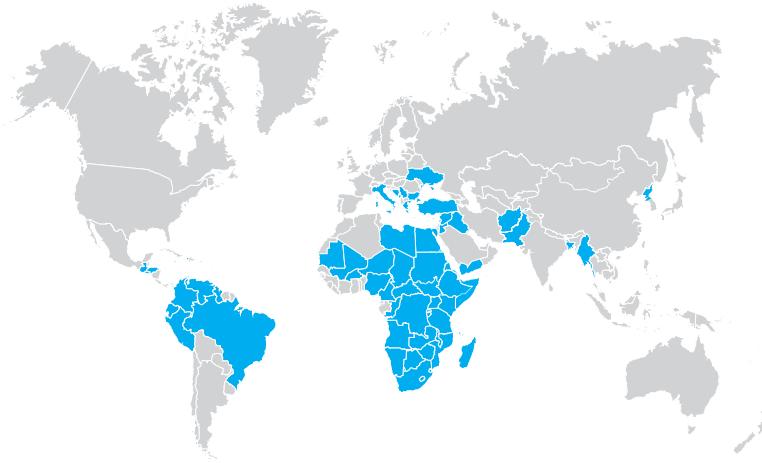
East Asia and the Pacific Region		US\$
Regional Office		8,751,800
Democratic People's Republic of Korea		19,500,000
Myanmar		40,721,000
Total		68,972,800

Eastern and Southern Africa Region		US\$
Regional Office		17,200,000
Angola		15,800,000
Burundi		16,500,000
Eritrea		18,811,000
Ethiopia		161,237,578
Kenya		30,021,640
Madagascar		7,625,000
Mozambique		20,547,648
Rwanda		8,000,000
Somalia		127,033,943
South Sudan		180,481,390
Uganda		50,119,979
Zimbabwe		11,026,650
Total		664,404,828

Europe and Central Asia Region		US\$
Regional Office		1,923,000
Refugee and migrant response in Europe*		27,323,190
Ukraine		9,834,500
Total		39,080,690

Latin America and the Caribbean Region		US\$
Regional Office		19,500,000
Bolivarian Republic of Venezuela		153,247,000
Children and populations affected by the migration flows from the Bolivarian Republic of Venezuela*		64,566,000
Haiti		18,586,000
Total		255,899,000

Middle East and North Africa Region		US\$
Regional Office		10,400,000
Iraq		58,854,223
Libya		26,258,400
State of Palestine		18,402,256
Sudan		147,111,496
Syrian Arab Republic		294,800,037
Syrian refugees*		864,114,705
Yemen		534,982,568
Total		1,954,923,685



This map is stylized and not to scale.

It does not reflect a position by UNICEF on the legal status of any country or area or the delimitation of any frontiers. The dotted line represents approximately the Line of Control agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the Parties. The final boundary between the Sudan and South Sudan has not yet been determined.

South Asia Region		US\$
Regional Office		7,500,000
Afghanistan		72,050,000
Bangladesh		129,070,000
Pakistan		52,535,786
Total		261,155,786

West and Central Africa Region		US\$
Regional Office		18,250,000
Burkina Faso		96,666,528
Cameroon		48,937,000
Central African Republic		58,200,000
Chad		51,680,000
Democratic Republic of the Congo		262,661,000
Democratic Republic of the Congo – Ebola response		125,570,234
Mali		51,850,000
Mauritania		13,420,000
Niger		59,372,000
Nigeria		145,219,262
Republic of Congo		12,141,000
Total		943,967,024
Global support		39,362,637
Grand total		4,227,766,450

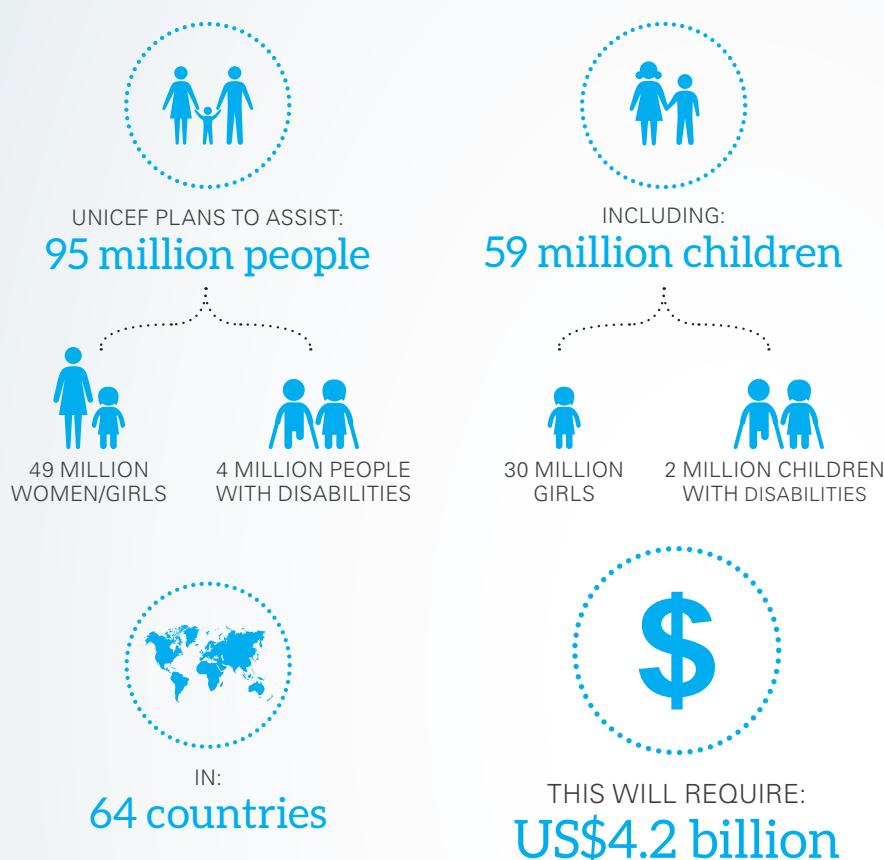
*Multiple countries included in the appeal.

Electronic users can click on each name to go to that office's online content.

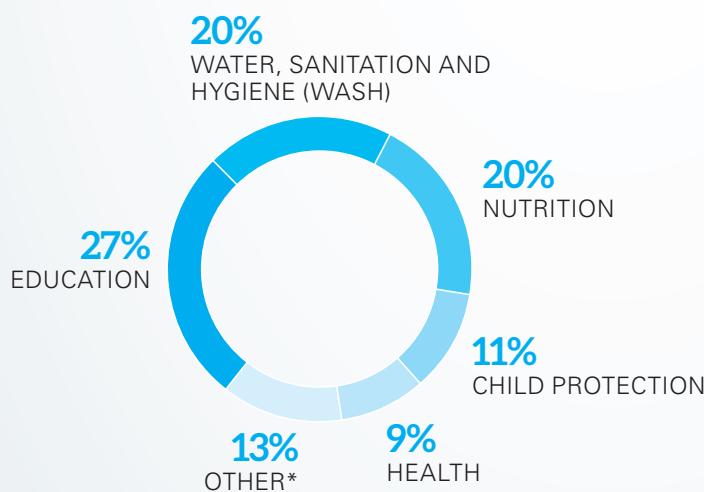
PLANNED RESULTS IN 2020

Humanitarian Action for Children 2020

The information below summarizes the global requirements for UNICEF humanitarian programmes, the total number of people and children to be reached and the planned results in *Humanitarian Action for Children 2020*.



Percentage of total requirements per sector:



*This includes costs from other sectors/interventions (e.g., social protection, advocacy/communications and peacebuilding) (4%), regional preparedness, response and technical support (3%), communication for development (2%), rapid response mechanisms (1%), non-food items (1%), cash transfer assistance (1%), cluster coordination (<1%) and HIV and AIDS (<1%).

All figures are provisional and subject to change upon finalization of the inter-agency needs and planning documents.

UNICEF and partners will work towards the following results in 2020:

- NUTRITION**
5.1 million children to be treated for severe acute malnutrition
- HEALTH**
8.5 million children to be immunized against measles
- WASH**
28.4 million people to have access to safe water for drinking, cooking and personal hygiene
- CHILD PROTECTION**
4.5 million children and caregivers to have access to mental health and psychosocial support
- GENDER-BASED VIOLENCE IN EMERGENCIES**
1.4 million children and women to have access to gender-based violence risk mitigation, prevention or response interventions
- EDUCATION**
10.2 million children to have access to formal or non-formal education, including early learning
- CASH-BASED TRANSFERS**
1.7 million people to be reached with cash assistance
- COMMUNICATION FOR DEVELOPMENT**
49 million at-risk/affected children and adults to be engaged through communication for development/community engagement

CHILDREN IN CRISIS

The map below highlights some of the major crises affecting children and their families at the end of 2019.

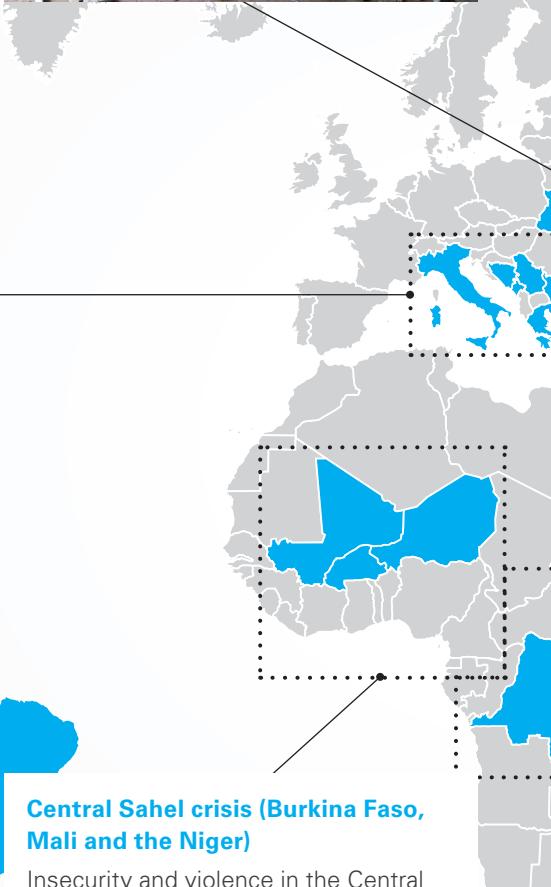


Arrows represent the movement of people to neighbouring countries due to conflict.

This map is stylized and not to scale. It does not reflect a position by UNICEF on the legal status of any country or area or the delimitation of any frontiers. The dotted line represents approximately the Line of Control agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the Parties. The final boundary between the Sudan and South Sudan has not yet been determined.

Ukraine

In eastern Ukraine, 3.4 million people, including 430,000 children, are bearing the brunt of the five-year, protracted conflict, with direct threats to their physical and mental well-being, and limited access to basic services.



Syrian Arab Republic and the sub-region

After eight years of conflict, the scale, severity and complexity of humanitarian needs in the Syrian Arab Republic and neighbouring countries remain extensive. In the Syrian Arab Republic, nearly 11 million people – more than half of the population – require humanitarian assistance. Across the sub-region, there are 5.6 million registered Syrian refugees, including over 2.5 million children, living in Turkey, Lebanon, Jordan, Iraq and Egypt.*



Afghanistan

Humanitarian needs driven by armed conflict, natural disasters and poverty are on the rise in Afghanistan. In 2020, 9.4 million people – 54 per cent of them children – will require humanitarian and protection assistance.



Democratic People's Republic of Korea

The humanitarian situation in the Democratic People's Republic of Korea is characterized by chronic food insecurity and lack of access to life-saving basic services, with profound impacts on the most vulnerable. More than one third of the population lacks access to safe drinking water.



Ebola response (Burundi, the Democratic Republic of the Congo, Rwanda, South Sudan and Uganda)

The Ebola outbreak in the Democratic Republic of the Congo is the second largest ever and the first in a conflict zone, with 3,000 confirmed cases, including more than 900 children. The risk that the outbreak will spill over into neighbouring countries, including Burundi, Rwanda, South Sudan and Uganda, remains high.



Yemen

Five years into the conflict, the humanitarian crisis in Yemen remains the largest emergency globally, with more than 24 million people in need of humanitarian assistance. Some 3.6 million people are internally displaced and over 368,000 children under 5 years are suffering from severe acute malnutrition.



Rohingya crisis in Bangladesh and Myanmar

By September 2019, Cox's Bazar District in Bangladesh was hosting over 910,000 Rohingya refugees from Myanmar, including 730,000 refugees who have been trapped for over two years. In Myanmar, children and their families remain highly vulnerable, with some 905,000 people in need of protection.



RESULTS ACHIEVED IN 2019

As of 31 August 2019

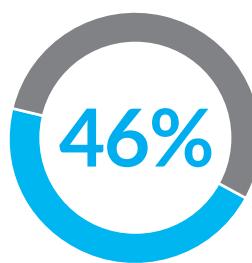
The chart below captures some of the key results achieved against targets for children by UNICEF and partners through the first eight months of 2019. In some contexts, achievements were constrained by limited humanitarian funds (see country funding levels on page 11); inadequate humanitarian access; insecurity; challenging operating environments; limited capacities of implementing partners; and delayed programme initiation, for a variety of reasons. Despite these challenges, significant results were achieved by leveraging UNICEF and partners' core and other resources, and implementing cost-effective and innovative interventions. Further reporting on 2019, including country-specific indicators, is available on the respective country web pages on <www.unicef.org/appeals>.



NUTRITION

2.1 MILLION

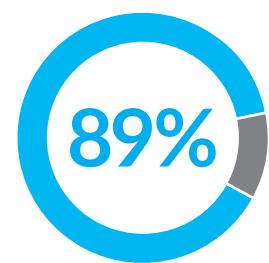
children treated for severe acute malnutrition



HEALTH

28.9 MILLION

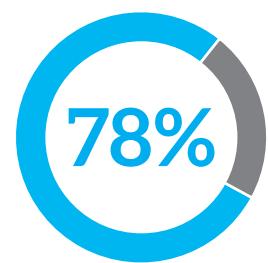
children vaccinated against measles



WASH

32.2 MILLION

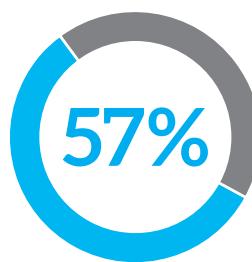
people provided with access to safe water for drinking, cooking and personal hygiene



CHILD PROTECTION

2.6 MILLION

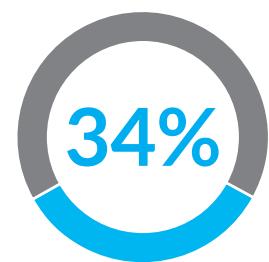
children and caregivers accessed mental health and psychosocial support



EDUCATION

3.9 MILLION

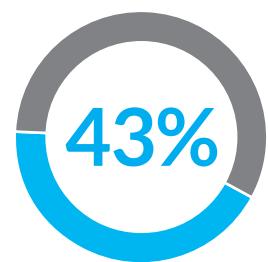
children accessed formal or non-formal education, including early learning



CASH TRANSFERS

850,000

people provided with cash assistance



**Bolivarian Republic of Venezuela, 2019**

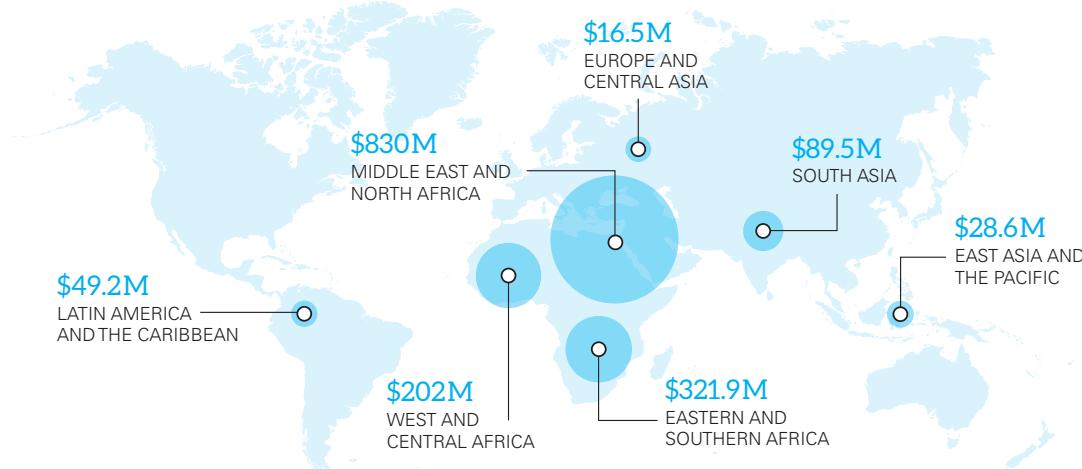
A girl with the Venezuelan flag painted on her face smiles during an art therapy activity in one of the protection centres supported by UNICEF in July. Activities at the centre are part of the psychosocial support provided to the most vulnerable children and adolescents in Barrio Union, Petare, in the outskirts of Caracas. So far this year, UNICEF has provided psychosocial support for nearly 10,000 children and young people affected by the current economic crisis.

HUMANITARIAN FUNDING IN 2019¹

2019 funding overview (US\$)



Funds committed per region (US\$ millions)



Conflict remained the main driver of humanitarian needs in 2019, while extreme weather events, hunger and infectious diseases drove many people to seek and depend on emergency aid. Millions of children uprooted from their homes were in desperate need of protection and humanitarian assistance. Overall, 183.6 million people required humanitarian support globally during the year, and more funding than ever was required to help them.

At the start of 2019, UNICEF requested US\$3.92 billion through the Humanitarian Action for Children appeal. By November, the appeal had reached US\$4.13 billion. Escalating insecurity and limited access to services in countries such as Burkina Faso, Mali, the Sudan and the Bolivarian Republic of Venezuela, as well as natural disasters, including Cyclone Idai in Eastern and Southern Africa and drought in Angola, Kenya, Pakistan and Zimbabwe, contributed to the increasing needs.

International humanitarian assistance from the public and private sectors rose in 2019, compared with the same period in 2018. By November, UNICEF had received US\$1.58 billion² in donor commitments towards the Humanitarian Action for Children appeal. In addition, thanks to multi-year funding support, UNICEF had US\$761 million available from the previous year. Nearly two thirds of the funding received in 2019 came from the United States of America, the Central Emergency Response Fund (CERF), the United Kingdom of Great Britain and Northern Ireland, the European Commission and Germany.

TOP FIVE

Global thematic donors

	Netherlands	\$18.6M
	Swedish Committee*	\$2.4M
	UK Committee*	\$2.2M
	Republic of Korea	\$1.7M
	UNICEF Thailand	\$1M

* Refers to National Committee for UNICEF

TOP TEN

Donors in 2019

	United States	\$529.8M
	CERF	\$131.8M
	United Kingdom	\$131.1M
	European Commission	\$114.9M
	Germany	\$110.1M
	Saudi Arabia	\$66.2M
	Japan	\$66M
	United Arab Emirates	\$56M
	Canada	\$39.9M
	Sweden	\$37.7M

Despite the generous support of donors, as of November, the funding shortfall remained significant at 43 per cent. Over half of the funds received focused on the large-scale, protracted crises in the Democratic Republic of the Congo (including the Ebola outbreak response), South Sudan, the Syrian Arab Republic, neighbouring countries hosting Syrian refugees and Yemen. Seventy-two per cent of all commitments went to support 10 countries, out of the 47 countries with appeals launched in 2019. Many responses remained underfunded, including the situations in Burkina Faso, Cameroon, Pakistan, Uganda and the Bolivarian Republic of Venezuela – all of which had funding gaps exceeding 70 per cent.

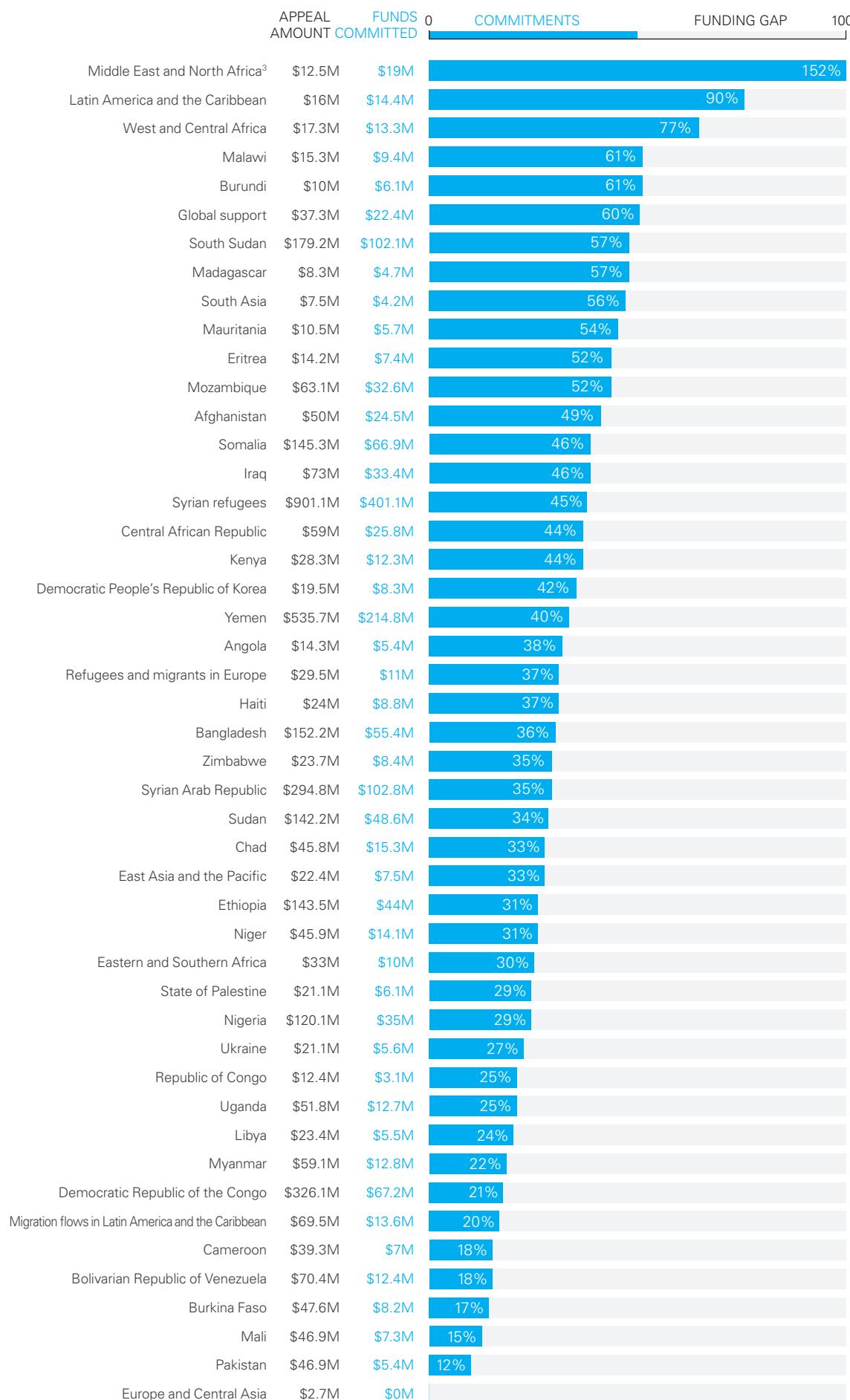
Of the funds received in 2019, US\$127.5 million (8 per cent) was thematic funding for humanitarian responses at the country, regional and global levels. Global humanitarian thematic funding – the most flexible funding after regular resources – made up 2 per cent of the total commitments received. Allocations of global humanitarian thematic funding were used to expand activities and respond to increasing needs in countries such as Burkina Faso where displacement rose dramatically, and the Sudan, where violence and unrest continued to escalate. These funds also enabled UNICEF to respond to cholera in Haiti; fill critical gaps in WASH, nutrition and health in the Democratic People's Republic of Korea; and support the health response and emergency preparedness in the State of Palestine.

UNICEF will continue to adapt and respond to critical humanitarian needs as they evolve and advocate with partners for flexible thematic and multi-year funding, which is crucial to meeting the needs of children everywhere.

¹ Figures presented in this narrative are provisional as of 1 November 2019 and are subject to change.

² Provisional funds committed as of 1 November, as per the contribution agreements against the current appeal year.

Humanitarian Action for Children: Funding commitments and shortfalls in 2019
(US\$ millions)**

**TOP TEN**

Thematic donors

	German Committee*	\$25.1M
	Netherlands	\$18.6M
	US Fund for UNICEF*	\$12.2M
	Denmark	\$11.4M
	UK Committee*	\$9.3M
	Japan Committee*	\$8.6M
	Norwegian Committee*	\$7.2M
	Swedish Committee*	\$4.1M
	French Committee*	\$3.6M
	Spanish Committee*	\$3.3M

TOP TEN DONORS

Multi-year donors***

	Canada
	Czechia
	Denmark
	European Commission
	Italy
	Luxembourg
	Switzerland
	United Kingdom
	United States
	Swedish Committee*

*Refers to National Committee for UNICEF

**Presented figures are provisional as of 1 November 2019 and are subject to change. Fund commitments include global humanitarian thematic funding allocations made in 2019.

***Multi-year funding is funding provided for two or more years based on agreements signed in 2019.

³ The Middle East and North Africa regional appeal indicates a surplus in funding due to the generous donor support for countries such as Algeria, Djibouti and Iran, which do not have individual country appeals.

GLOBAL SUPPORT FOR UNICEF'S HUMANITARIAN ACTION

Humanitarian action is at the core of UNICEF's mandate to realize the rights of every child. UNICEF's global humanitarian architecture – which includes the organization's 7 regional offices and 10 headquarters divisions – supports humanitarian action at the country level. It enables UNICEF country offices to scale up their emergency preparedness and response, effectively deliver humanitarian assistance to the most vulnerable, address children's rights and protect them from violence, abuse and exploitation.

UNICEF's Office of Emergency Programmes coordinates the organization's global support, including through a security team and the 24-hour, 7-day Operations Centre. In 2020, this support will cost US\$71.2 million. UNICEF will cover 45 per cent of this cost through core resources. For 2020, UNICEF requires US\$39.4 million in flexible and multi-year funding to cover the remaining needs.

Global support in 2019

Five Level 3 emergencies required organization-wide mobilization, including global resource mobilization, in 2019: the Ebola outbreak in the Democratic Republic of the Congo, Cyclone Idai in Mozambique, and the protracted crises in Nigeria, the Syrian Arab Republic and Yemen.

As of the end of September 2019, investments in UNICEF's global support translated into the following achievements:

- The revision of the Core Commitments for Children in Humanitarian Action (CCCs) was initiated to better reflect the diversity of humanitarian crises and guide principled, timely, predictable and efficient humanitarian response, in line with updated norms and standards.
- UNICEF renewed and expanded partnerships with the United Nations High Commissioner for Refugees (UNHCR) and the World Food Programme (WFP); continued to support the implementation of the UNHCR, WFP, Office for the Coordination of Humanitarian Affairs (OCHA) and UNICEF Principals statement on cash assistance; conducted six country case studies on collaboration with the International Federation of Red Cross and Red Crescent Societies (IFRC); and organized the first global consultation with humanitarian non-governmental organization partners since 2012 to improve how we work together in emergencies.

- Advocacy on the impact of crises on children was strengthened, with more than 30 high-level statements issued at the global and field levels, four statements to the Security Council Working Group on children and armed conflict and an intervention by the UNICEF Executive Director at the Security Council Open Debate on children and armed conflict.



US\$267.6 million in supplies procured

for countries responding to emergencies⁴



US\$54.5 million⁵ disbursed

through the **Emergency Programme Fund** to 22 country offices and 2 regional offices



80% of country offices
updated their risk analysis and preparedness plans⁶



1.85 million affected people reached
through **U-Report**⁷ in 12 countries

Surge support

(includes Emergency Response Team, Rapid Response Team and standby personnel)



137 personnel
completed 263 deployments



IN 37 countries
totalling 26,597 days of support

⁴ Ninety-five per cent went to Level 2 and Level 3 emergencies.

⁵ These are revolving funds disbursed to field offices within 48 hours of a sudden humanitarian crisis, before donor resources are available, to continue critical humanitarian actions where funding is delayed.

⁶ Three country offices identified as very high-risk received US\$1.5 million to rapidly expand their preparedness levels.

⁷ U-Report is a social messaging tool that allows young people and all affected populations to share feedback and complaints on humanitarian service delivery.

Emergency Response Team support to the gender response in Cameroon

The North-West and South-West regions of Cameroon are in acute crisis, with persistent violence, deteriorating security and increasing protection violations. Nearly 1.3 million people are in need of humanitarian assistance and 536,000 people have been displaced.⁸ Children and women are disproportionately affected.



Cameroon, 2019

Girl, boys, women and men participate in a community-based hygiene promotion activity in South-West Cameroon.

As part of its global support to the humanitarian response in Cameroon, in early 2019, UNICEF deployed an Emergency Response Team member to establish a field presence in conflict-affected regions and to support the integration of gender into the humanitarian response. The pilot Rapid Response Mechanism, which was made possible by flexible funds received from donors for global support, was instrumental in shaping a more equitable, effective and gender-sensitive response.

Key results include:



Over 2,300 women and 2,600 girls received menstrual hygiene support.



Over 5,000 children (2,400 girls) received psychosocial support.



Over 1,500 caregivers (1,050 women and 450 men) received infant and young child feeding counselling.



Half of Rapid Response Mechanism assessment team members were women.



Nearly 19,000 people (4,000 girls and 5,800 women) benefited from community-based sensitization on nutrition, health and WASH management.

Global support for the response to Cyclone Idai in Mozambique

Tropical Cyclone Idai made landfall at the port of Beira, Mozambique in March 2019 before moving across the region. Millions of people in Malawi, Mozambique and Zimbabwe have been affected by what is the worst natural disaster to hit southern Africa in at least two decades.



Mozambique, 2019

Outside Beira, Mozambique, a child fills a jerrycan full of water from a UNICEF tap at the Menderuzi Resettlement Site for people displaced by the recent cyclones.

UNICEF was the first to reach the affected areas and immediately planned a response that aimed to address the most urgent needs, while strengthening existing systems, local capacities and resilience. Drawing on global support, UNICEF was able to deploy 13 personnel from headquarters, regional offices and standby partners for a period of three months – before a new office was established for long-term support.

In all aspects of the response, UNICEF worked with local actors to build capacities and support longer-term recovery:



Life-saving WASH assistance was followed by the rehabilitation of existing water points/systems and the construction of durable new infrastructure.



Schools were reconstructed to be more resilient to future shocks and students and teachers were trained on disaster preparedness.



Cholera rapid response teams and community health workers were trained to provide care in resettlement sites and hard-to-reach areas.

Looking ahead

In 2020, UNICEF will continue to ensure that the most vulnerable people, including women, children and persons with disabilities, are reached with the support they need during emergencies. This will include improving accountability to crisis-affected communities, localizing emergency response and promoting the centrality of protection. UNICEF will review its humanitarian action to foster principled humanitarian access and leadership to maximize equitable coverage and quality of response in complex emergencies; harness evidence and learning for principled emergency programmes at all levels; and roll out the revised CCCs. Training on humanitarian

cash transfers will be rolled out in all regions to strengthen capacities to scale up cash programmes in the field. Standby partnerships will be expanded to include more local actors, and key partnerships will be operationalized to reach even more children. UNICEF will strengthen humanitarian coordination to more effectively analyse and prioritize humanitarian needs. And country offices will be supported to conduct sharper risk analysis and horizon scanning for better emergency preparedness.

⁸ As of August 2019.

GLOBAL SUPPORT

for UNICEF's humanitarian action in 2020

Total cost of
global support
in 2020:
US\$71.2
million

UNICEF's Office of Emergency Programmes coordinates the organization's global support, comprising three major components:

2
OPERATIONAL SUPPORT
US\$14.6 million

Communication



Office of the Security Coordinator and Operations Centre (OPSCEN – 24 hours/7 days)



Human resources^I



3
HUMANITARIAN PROGRAMME SUPPORT
US\$50.5 million

Global cluster/sector coordination^{III}



Partnerships^{IV}



^I Conducted through the headquarters Emergency Unit and three models of deployment.

^{II} This includes procurement, warehousing and logistical support.

^{III} This includes information management.

^{IV} With United Nations agencies, non-governmental organizations, civil society and academia.

^V For nutrition, health, WASH, child protection, education, HIV and AIDS and cross-sector priorities.

^{VI} On the CCCs, equity, protection of civilians, knowledge management, innovation, high-threat environments, humanitarian advocacy and cash-based transfers.



Total cost covered by
UNICEF core resources:
US\$31.9 million

2020 funding requirement:
US\$39.4 million

Delivered by UNICEF's seven regional offices to the respective country offices for humanitarian action, capacity building and technical support.

- Middle East and North Africa
- South Asia
- West and Central Africa

Supply and logistics^{II}



Finance and administration



Information and communications technology



Resource mobilization



Programmatic support^V



Policy and guidance^{VI}



Results-based management



Mobilizing global support



Further information on UNICEF's humanitarian action can be obtained from:

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Cover photo: Yemen, 2019

Children in Aden, Yemen, proudly show off the spots on their arms, where they were vaccinated during a mobile measles and rubella vaccination campaign supported by UNICEF in February.

Back cover photo: Afghanistan, 2019

Grade 3 students sit outdoors during their classes at the Bodyalai Girls' School in Bodyalai village, Kuz Kunar district, Nangarhar province.

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December 2019



National, regional, and global levels and trends in neonatal mortality between 1990 and 2017, with scenario-based projections to 2030: a systematic analysis



Lucia Hug, Monica Alexander, Danzhen You, Leontine Alkema, on behalf of the UN Inter-agency Group for Child Mortality Estimation



Summary

Background Reducing neonatal mortality is an essential part of the third Sustainable Development Goal (SDG), to end preventable child deaths. To achieve this aim will require an understanding of the levels of and trends in neonatal mortality. We therefore aimed to estimate the levels of and trends in neonatal mortality by use of a statistical model that can be used to assess progress in the SDG era. With these estimates of neonatal mortality between 1990 and 2017, we then aimed to assess how different targets for neonatal mortality could affect the burden of neonatal mortality from 2018 to 2030.

Methods In this systematic analysis, we used nationally-representative empirical data related to neonatal mortality, including data from vital registration systems, sample registration systems, and household surveys, to estimate country-specific neonatal mortality rates (NMR; the probability of dying during the first 28 days of life) for all countries between 1990 (or the earliest year of available data) and 2017. For our analysis, we used all publicly available data on neonatal mortality from databases compiled annually by the UN Inter-agency Group for Child Mortality Estimation, which were extracted on or before July 31, 2018, for data relating to the period between 1950 and 2017. All nationally representative data were assessed. We used a Bayesian hierarchical penalised B-splines regression model, which allowed for data from different sources to be weighted differently, to account for variable biases and for the uncertainty in NMR to be assessed. The model simultaneously estimated a global association between NMR and under-5 mortality rate and country-specific and time-specific effects, which enabled us to identify countries with an NMR that was higher or lower than expected. Scenario-based projections were made at the county level by use of current levels of and trends in neonatal mortality and historic or annual rates of reduction that would be required to achieve national targets. The main outcome that we assessed was the levels of and trends in neonatal mortality and the global and regional NMRs from 1990 to 2017.

Findings Between 1990 and 2017, the global NMR decreased by 51% (90% uncertainty interval [UI] 46–54), from 36·6 deaths per 1000 livebirths (35·5–37·8) in 1990, to 18·0 deaths per 1000 livebirths (17·0–19·9) in 2017. The estimated number of neonatal deaths during the same period decreased from 5·0 million (4·9 million–5·2 million) to 2·5 million (2·4 million–2·8 million). Annual NMRs vary widely across the world, but west and central Africa and south Asia had the highest NMRs in 2017. All regions have reported reductions in NMRs since 1990, and most regions accelerated progress in reducing neonatal mortality in 2000–17 versus 1990–2000. Between 2018 and 2030, we project that 27·8 million children will die in their first month of life if each country maintains its current rate of reduction in NMR. If each country achieves the SDG neonatal mortality target of 12 deaths per 1000 livebirths or fewer by 2030, we project 22·7 million cumulative neonatal deaths by 2030. More than 60 countries need to accelerate their progress to reach the neonatal mortality SDG target by 2030.

Interpretation Although substantial progress has been made in reducing neonatal mortality since 1990, increased efforts to improve progress are still needed to achieve the SDG target by 2030. Accelerated improvements are most needed in the regions and countries with high NMR, particularly in sub-Saharan Africa and south Asia.

Funding Bill & Melinda Gates Foundation, United States Agency for International Development.

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Introduction

Improving neonatal mortality (ie, within the first 28 days of life) is an essential part of reducing under-5 mortality. To further advance child survival goals among newborns, the UN Secretary-General Ban Ki-moon launched the Global Strategy for Women's and Children's Health and Every Woman Every Child¹ movement in 2010, the A Promise Renewed² commitment to child survival in

2012, and the Every Newborn Action Plan³ in 2014. The A Promise Renewed and Every Newborn Action Plan initiatives set specific targets to reduce under-5 and neonatal mortality, and these targets were reflected in the Sustainable Development Goals (SDGs), which call for ending preventable deaths of newborn babies and children younger than 5 years by 2030. The SDGs specify that all countries should aim to reduce the neonatal

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7: e710–20

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For the Sustainable
Development goals see
<https://sustainabledevelopment.un.org/>

Research in context**Evidence before this study**

We used all publicly available data on under-5 and neonatal mortality from the UN Inter-agency Group for Child Mortality Estimation (IGME), which are compiled into databases annually. This database is maintained to enable timely estimates of mortality, with the goal of improving monitoring of progress in reducing child mortality. Nationally representative vital registration data on neonatal mortality are available for about 60 countries. For the remaining countries, data on neonatal mortality is collected via household surveys, vital registration, sample vital registration systems, or a combination of these. We collected all available data on Aug 1, 2018, on which date the UN IGME global database contained about 5700 observations spanning from July 1, 1950 (or earlier), to July 1, 2017. All nationally representative data were included in the database. Previous estimates of neonatal mortality rates from this database had relatively large uncertainty intervals and the models did not account for data-driven trends in neonatal mortality over time.

Added value of this study

Our study extended the data in the existing UN IGME global database by including new and updated observations and it incorporated updated HIV/AIDS estimates from UNAIDS and revised population numbers from the UN Population Division. To our knowledge, our findings represent the first comprehensive analysis of estimates of neonatal mortality rates up to 2017, and the first scenario-based projections from 2018 to 2030.

We obtained estimates of neonatal mortality rates for 195 countries between 1990 (or earlier) and 2017, by use of a Bayesian hierarchical penalised B-splines regression model, which allowed for data from different sources to be weighted differently and for the uncertainty in these data to be assessed. Estimates of the mortality rates and associated indicators, such as annual rates of change, aggregated regional outcomes, and uncertainty intervals, help to assess the levels of and trends in neonatal mortality and to monitor progress in child survival. Our estimation method improves on previous methods by incorporation of data-driven changes in the empirical data on neonatal mortality over time as an input in the model, accounting for sampling errors, and producing more realistic uncertainty intervals. Our model allows identification of countries and regions with outlying patterns of neonatal mortality.

Implications of all the available evidence

Although substantial progress has been made in reducing neonatal mortality since 1990, increased efforts to improve progress are still needed to achieve the Sustainable Development Goal (SDG) target. Without any acceleration in the pace of reduction of neonatal mortality, we project that 1·8 million neonates (ie, those in the first 28 days of life) will die in 2030. However, if each country achieved the SDG target by 2030, there would be about 1·2 million neonatal deaths in 2030. However, achieving this goal requires increased efforts to enable continued improvements in child survival, especially in the high-burden regions of south Asia and sub-Saharan Africa.

mortality rate (NMR) to 12 deaths per 1000 livebirths or fewer and under-5 mortality to 25 deaths per 1000 livebirths or fewer in 2030.

The UN Inter-agency Group for Child Mortality Estimation (IGME) has estimated the NMR for 195 countries since 2011, producing trend estimates from 1990 to 2017. Before 2015, a generalised linear model was used to estimate NMR, by use of UN IGME under-5 mortality rate (U5MR) estimates as a predictor.⁴ The model differed on the basis of data available; for countries and regions with survey data, the relationship between NMR and U5MR was modelled, with country-specific intercept parameters. For countries with high-quality vital registration, random-effects parameters for slope or trend parameters in a country were simultaneously added. Although the previous model worked well in estimating overall trends, the model had the limitation that it did not capture empirical data-driven country-specific trends in countries without vital registration systems because the estimates were driven by the U5MR estimates in the model, and hence the previous model could not capture country-specific trends in the NMR that diverged from the changes expected in the U5MR.

Since 2015, a Bayesian model for estimating NMR for all countries from 1990 (or earlier) onwards has been used by the UN IGME. This method is similar to that used by the

UN IGME to estimate both U5MR and sex-specific child mortality.^{5,6} This model has the advantage that, compared with the previous model used by the UN IGME,⁴ it can capture empirical data trends in NMRs, both within countries and over time for all countries with appropriate data. Often NMR is highest in locations where high-quality vital registration data are absent, thus a model to assess trends in neonatal mortality in the SDG era was developed, to better capture trends in empirical data and to avoid treating datapoints from different sources equally. The model also makes use of the entire data series for each survey and does not only use the most recent datapoint.

We aimed to estimate the current state of and trends in neonatal mortality at global, regional, and country levels since 1990 or earlier. We also aimed to develop projections of NMR and the associated numbers of deaths from 2018 to 2030 under various scenarios to provide insight into the burden of neonatal deaths after 2017.

Methods**Overview**

The UN IGME was established in 2004, to report on progress towards child survival goals, to improve methods for estimating child mortality, and to enhance country capacity to produce timely and properly assessed estimates of child mortality. The UN IGME is led by the UN

International Children's Emergency Fund (UNICEF), and it includes members from WHO, the World Bank Group, and the Population Division of the UN Department of Economic and Social Affairs as full members. The UN IGME Technical Advisory Group, which consists of leading academic scholars and independent experts in demography and biostatistics, provides guidance on estimation methods, technical issues, and strategies for data analysis and data quality assessment.

The UN IGME updates its child mortality estimates annually after reviewing newly available data and assessing its quality and following consultations with Member States. These estimates are widely used in UNICEF's flagship publications, the UN Secretary-General's SDG report, and publications by other UN agencies, governments, and donors.

Data sources

The UN IGME maintains a publicly-available dataset that contains nationally-representative empirical data relevant to neonatal mortality, including data from vital registration systems, sample registration systems, and household-based surveys. The full database used in our analysis is available on the UN IGME web portal. The neonatal mortality database contains datapoints from more than 5700 country-years, including 651 datasets and data in 190 countries between 1990 (or earlier) and 2017 (appendix pp 23–39). Most survey data came from Demographic and Health Surveys or variants thereof (eg, national Demographic and Health Surveys or World Fertility Surveys). Multiple Indicator Cluster Surveys were another source of survey data. A detailed description of data sources is available elsewhere.⁷

Our study focused on modelling the ratio of NMR to mortality from ages 1 month to 5 years (59 months), which we defined as $NMR/(U5MR-NMR)$. This ratio is modelled on the logit scale, and data used was also on the logit scale. Estimates of mortality ratios from surveys and associated sampling errors were calculated for an optimised duration, according to the method developed by Pedersen and Liu.⁸ On the basis of a quality assessment of the survey and vital registration datasets, we included or excluded data from the model. LH, MA, and DY were involved in data extraction. Inclusion and exclusion of data was reviewed and agreed upon by the UN IGME. Annual vital registration data were included unless the coefficient of variation (the ratio of the standard error to the value of the observation) was greater than 10%, in which cases the ratio was calculated for longer periods by combining the observed neonatal deaths with deaths in the previous observation years and dividing by the sum of the births in the combined years. For countries affected by HIV/AIDS, the observed ratio of NMR to other child mortality was adjusted to account for the under-reporting associated with high maternal mortality in these countries.⁹ In the NMR model, country-year specific U5MR estimates were used as explanatory variables and

to obtain final estimates. These estimates of U5MR were obtained from the UN IGME 2018 Round of estimation.¹⁰

Data analysis

We estimated the NMR for each country during 1990–2017, or earlier if data were available, by use of a Bayesian hierarchical model.¹¹ For our analysis, we used all publicly available data on neonatal mortality, which were extracted on or before Aug 1, 2018, for data relating to the period between July 1, 1950, and July 1, 2017. We estimated the ratio of NMR to other child mortality (ie, $[U5MR-NMR]$) and obtained estimates of NMR by recombining the ratios with U5MR estimates. The technical details on the model specification, implementation, and validation are available elsewhere.¹¹

The ratio was modelled as the product of two components: the expected ratio and a country-year-specific multiplier. The expected ratio provides the expected association between the ratio and the current U5MR in a particular country and year. We explored parametric and non-parametric forms for the global association between the expected ratio and U5MR, and we found that the association between the log (ratio) and log (U5MR) is well captured by a linear function with a changing slope, suggesting a constant ratio at low U5MR and a decreasing ratio as the U5MR increases.

The second component, the country-year-specific multiplier, allows countries to have ratios that are higher or lower than expected given the current U5MR, compared with the global association. The country-specific multipliers were modelled with penalised splines regression, and they can be interpreted as a country-specific intercept plus fluctuations over time.¹² The splines regression intercepts, and smoothing parameters were modelled hierarchically, and the fluctuations were penalised to ensure smooth trajectories over time. The inclusion of this country-year-specific multiplier in the model allows for data-driven changes in the NMR across countries and over time within countries. This component also allows for the identification of outlying countries—ie, those with relatively large (or small) higher-than-expected (or lower than expected) ratios given the current U5MR, compared with the global association.

NMR estimates were based on data from many sources. As part of the modelling process, a data model was used to capture and account for uncertainty in observations. The data model incorporated stochastic error for vital registration data (to capture uncertainty in the outcomes of random events) and sampling error and non-sampling error (eg, misreporting of age and sex and survivor selection bias) for survey data from different sources. Inclusion of these types of uncertainty in the data model allowed for the downweighting of observations that are less informative of the true ratio, compared with more informative observations.

We used a Markov chain Monte Carlo algorithm, implemented with JAGS software version 4.3.0¹³ within

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See Online for appendix

R version 3.3.3, to generate samples from the posterior distributions of the NMR ratios, and combined these samples with posterior samples of the U5MR to obtain samples of the NMR. The result was a set of trajectories of NMR over time for each country. The best estimate was taken to be the median of these trajectories, and 90% uncertainty intervals were computed by use of the 5th and 95th percentiles of the samples from the posterior distributions. Estimates and associated uncertainty of neonatal deaths for each country over time were obtained by combining the trajectories of NMR with livebirths. Adjustments to crisis-affected country-years were made after estimation.

We used the global association between the ratio of neonatal mortality to under-5 mortality and the U5MR under-5 mortality to calculate the expected NMR. We defined countries as outlying if the absolute difference between the point estimates of the estimated and the expected NMR was larger than one per 1000 livebirths, and if the lower (or upper) bound of the 90% uncertainty interval for the estimated NMR was at least 10% higher (or lower) than the expected NMR—ie, if the posterior probability that the ratio of the estimated NMR to the expected NMR was at least 1·1 (or, at most, 0·9) was more than 95%. Identifying outliers allows us to pinpoint countries with unusually low or high neonatal mortality, given their overall under-5 mortality (appendix pp 3, 4).

Scenario-based projections from 2018 to 2030

We projected NMRs and the number of neonatal deaths under five scenarios from 2018 to 2030. Neonatal mortality was projected based on either a constant NMR or a decreasing NMR using an annual rate of reduction (ARR) defined as $\text{ARR} = \log(\text{NMR}_{t_2}/\text{NMR}_{t_1})/(t_2-t_1)$, where t_1 and t_2 refer to different years with $t_1 < t_2$.

In the first scenario, we estimated neonatal mortality if the NMR were to remain at 2017 rates in all countries. In the second scenario, we assumed that the ARR in each country from 2000 to 2017 would continue from 2018 to 2030. If the ARR from 2000 to 2017 was negative, we kept the country's NMR constant and, for all countries, we constrained that the ratio of NMR/U5MR to ensure that it did not exceed the highest ratios in a country with good vital registration data (Finland, 0·78) during the projection period. In the third scenario, we projected the ARR in each country if it were equal to the ARR from the best performing country in the region—ie, the country with the highest ARR in 2000–17. In the fourth scenario, we calculated the necessary ARR for each country to achieve the SDG target of an annual NMR of 12 deaths per 1000 livebirths or fewer by 2030. Finally, for the fifth scenario, we calculated the necessary ARR for each country to achieve the current average NMR in the group of high-income countries of three deaths per 1000 livebirths by 2030.¹⁰ For countries that had already reached or would reach the targets in scenarios 4, 5, or both, projections from scenario 2 were used. In all

scenarios, if a country reached the current lowest NMR observed among countries with more than 10 000 livebirths (namely, 0·9 deaths per 1000 livebirths annually in Japan), its NMR remained at that level for the rest of the projected period.

We calculated the number of neonatal deaths in each scenario from the medium variant population projections from the UN Population Division.¹⁴ We did not consider other effects, including changing mortality rates, on population numbers. Thus, the scenarios do not indicate the real number of lives to be saved, but they illustrate the potential number of lives that could be saved by reductions in neonatal mortality while maintaining the median number of births reported to the UN Population Division. Our projections for neonatal mortality reductions are based on past trends, but they do not consider how improvement in intervention coverage and quality of care could advance newborn survival.

Role of the funding source

The funders of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all data in the study and had final responsibility for the decision to submit for publication.

Results

Between 1990 and 2017, the global annual NMR decreased by 51% (90% uncertainty interval 46–54), from 36·6 deaths per 1000 livebirths (35·5–37·8) to 18·0 deaths per 1000 livebirths (17·0–19·9; figure 1; table). The estimated number of neonatal deaths was reduced from 5·0 million deaths (4·9 million–5·2 million) in 1990 to 2·5 million deaths (2·4 million–2·8 million) in 2017. During this period, the global annual U5MR decreased by 58% (55–60), from 93·2 deaths per 1000 livebirths (92·0–94·7) to 39·1 deaths per 1000 livebirths (37·3–42·3).¹⁰

In 2017, the annual NMR was highest in west and central Africa, at 30·2 deaths per 1000 livebirths (90% uncertainty interval 25·7–37·2), and in south Asia, at 26·9 deaths per 1000 livebirths (24·1–30·3; figure 1; table). The annual NMR in these regions was more than 9 times higher than the average NMR in high-income countries, which was 3·0 deaths per 1000 livebirths (3·0–3·5). Together, south Asia and sub-Saharan Africa accounted for 79% of the total burden of neonatal deaths, and south Asia alone accounted for 38% of neonatal deaths (34–39), west and central Africa for 23% of neonatal deaths (20–23) and east and south Africa for 18% of neonatal deaths (16–18). At the country level, annual NMRs ranged from 44·2 to 0·9 deaths per 1000 livebirths (appendix p 52). Countries with the highest NMRs were concentrated in sub-Saharan Africa and south Asia. However, since 1990, most regions have made substantial progress in reducing neonatal mortality.

Globally, the ARR in NMR increased from 1·8% (90% uncertainty interval 1·5–2·1) in the 1990s to 3·1%

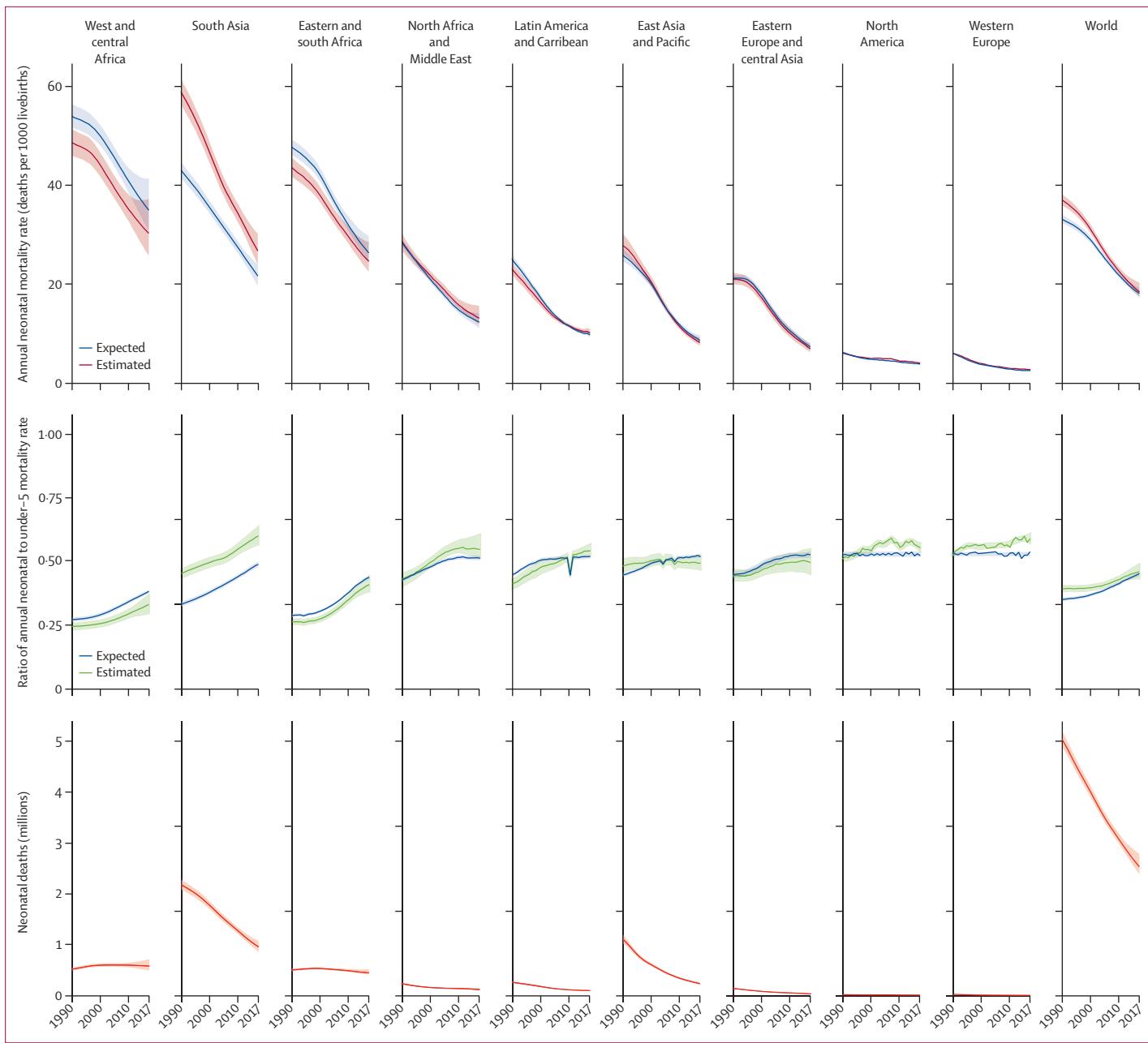


Figure 1: Neonatal mortality rate and deaths, including relative to under-5 mortality

The expected annual neonatal mortality rate represents the annual neonatal mortality rate based on the annual under-5 mortality rate and the observed global association between the ratio of neonatal and under-5 mortality.

(2·5–3·5) in 2000–17 (appendix p 53). At the country level, annual NMRs ranged from 44·2 to 0·9 deaths per 1000 livebirths; in 17 countries the annual NMR was more than 30 deaths per 1000 livebirths whereas, in 17 countries, the annual rate was less than 2 deaths per 1000 livebirths. Progress in reducing neonatal mortality between 1990 and 2017 was slower than progress in reducing mortality among children aged 1 to 59 months, particularly from 2000 to 2017, when the ARR in mortality among children

aged 1 to 59 months (4·7, 90% uncertainty interval 4·1–5·1) was 1·5 times higher than that in neonatal mortality (3·1, 2·5–3·5). In 1990–2017, the ARR in the NMR was 2·6% (2·3–2·9), versus 3·7% (3·4–4·0) in the ARR of the mortality rate of children aged 1 to 59 months, a difference of 1·1% (0·7–1·5; appendix p 53). As a result, the global ratio of NMR to under-5 mortality increased by 0·07 (90% uncertainty interval 0·04–0·10), from 0·39 (0·38–0·40) in 1990 to 0·46 (0·43–0·49) in 2017 (figure 1; table).

At a regional level, the highest accelerations in ARR since 2000 have been noted in eastern Europe and central Asia, where the ARR has increased from 2·1% (90% uncertainty interval 1·3–2·8) in 1990–2000 to 5·6% (4·7–6·3) in 2000–17 (appendix p 53). In all regions, apart from east Asia and the Pacific, the ratio of NMR to U5MR has substantially increased since 1990, and differences across the regions have narrowed (table). In 2017, the ratio of NMR to U5MR was more than 0·5 in all regions, apart from those in sub-Saharan Africa, which still have the world's highest U5MRs. Among many low-income and lower middle-income countries with high under-5 mortality in 1990, decreases in under-5 mortality were faster than those in neonatal mortality, resulting in an increase in this ratio. This trend is reflected in the proportion of deaths in children younger than 5 years occurring in the neonatal period. In 2017, 47% of the global under-5 deaths

(44–50) were in neonates, versus 40% of those (39–41) in 1990.

The estimated to expected ratios for a given under-5 mortality, based on the global association between U5MR and the ratio of NMR to U5MR, are shown in figure 2. The estimated global association from data from all country-years suggest that, with decreasing U5MR, the ratio of NMR to U5MR increases until the U5MR rate reaches a threshold: the piecewise-linear model suggests that the association between the logit ratio of NMR to U5MR is constant up to a U5MR of 37·2 deaths per 1000 livebirths annually (90% uncertainty interval 36·8–37·8). This threshold is equivalent to an NMR to U5MR ratio of 0·53 (0·52–0·54). Above this threshold, the estimated linear negative association indicates that a 1% increase in the log U5MR is associated with a 0·65% (0·62–0·69) decrease in the logit ratio.

	Neonatal mortality rate				Neonatal deaths				Proportion of total deaths worldwide in 2017, %
	1990	2000	2017	Percentage decrease between 1990 and 2017, %	1990	2000	2017	Percentage decrease between 1990 and 2017, %	
By region									
World (all regions)	36·6 (35·5 to 37·8)	30·6 (29·8 to 31·6)	18·0 (17·0 to 19·9)	51%	5038 (4891 to 5202)	3997 (3891 to 4115)	2533 (2381 to 2789)	50% (45 to 53)	100% (100 to 100)
Sub-Saharan Africa	45·7 (44·0 to 47·6)	40·7 (39·2 to 42·4)	27·2 (24·7 to 31·6)	40·0%	1033 (995 to 1075)	1141 (1100 to 1188)	1038 (940 to 1205)	-1% (-17 to 9)	41% (35 to 42)
East and south Africa	43·2 (41·4 to 45·2)	37·5 (36·1 to 39·2)	24·2 (22·1 to 28·1)	44·0%	509 (488 to 533)	538 (517 to 562)	453 (413 to 525)	11% (-3 to 20)	18% (16 to 18)
West and central Africa	48·6 (46·0 to 51·3)	44·0 (41·7 to 46·5)	30·2 (25·7 to 37·2)	38·0%	524 (496 to 554)	603 (572 to 638)	586 (498 to 721)	-12% (-38 to 5)	23% (20 to 23)
North Africa and Middle East	28·2 (26·3 to 29·8)	21·2 (20·3 to 22·1)	12·6 (11·3 to 15·1)	55·0%	241 (225 to 256)	165 (158 to 173)	124 (111 to 148)	49% (37 to 55)	5% (4 to 5)
South Asia	58·6 (56·1 to 61·3)	46·6 (44·5 to 48·7)	26·9 (24·1 to 30·3)	54·0%	2184 (2090 to 2282)	1773 (1695 to 1853)	961 (862 to 1082)	56% (50 to 61)	38% (34 to 40)
East Asia and Pacific	27·4 (25·4 to 29·8)	20·0 (19·0 to 21·1)	7·8 (7·1 to 8·8)	71·0%	1112 (1032 to 1209)	611 (580 to 644)	241 (218 to 271)	78% (75 to 81)	10% (9 to 10)
Latin America and Caribbean	22·6 (21·4 to 23·8)	15·8 (14·9 to 16·7)	9·6 (9·2 to 10·4)	57·0%	268 (254 to 283)	183 (173 to 194)	103 (97 to 110)	62% (58 to 64)	4% (4 to 4)
North America	5·6 (5·5 to 5·8)	4·5 (4·4 to 4·7)	3·6 (3·4 to 3·8)	36·0%	24 (24 to 25)	20 (19 to 20)	16 (15 to 17)	34% (31 to 37)	1% (1 to 1)
Europe and central Asia	14·1 (13·4 to 14·8)	10·4 (9·9 to 10·9)	4·6 (4·2 to 5·2)	67·0%	175 (167 to 184)	105 (100 to 111)	51 (46 to 57)	71% (67 to 74)	2% (2 to 2)
Eastern Europe and central Asia	20·6 (19·6 to 21·9)	16·8 (15·9 to 17·8)	6·5 (5·8 to 7·5)	68·0%	145 (137 to 154)	88 (83 to 94)	39 (35 to 45)	73% (68 to 76)	2% (1 to 1)
Western Europe	5·5 (5·5 to 5·6)	3·5 (3·4 to 3·5)	2·3 (2·2 to 2·4)	58·0%	30 (30 to 31)	17 (17 to 17)	11 (11 to 12)	62% (61 to 64)	<1% (<1 to <1)
By income group									
Low income	47·8 (46·1 to 49·7)	40·5 (39·2 to 42·2)	26·4 (24·2 to 30·4)	45%	748 (722 to 778)	783 (757 to 816)	671 (615 to 772)	10% (-3 to 18)	27% (22 to 26)
Lower-middle income	48·8 (47·2 to 50·6)	40·0 (38·6 to 41·5)	23·9 (21·9 to 26·8)	51%	2971 (2870 to 3081)	2498 (2409 to 2592)	1566 (1433 to 1753)	47% (41 to 52)	62% (56 to 65)
Upper-middle income	26·0 (24·3 to 28·1)	18·5 (17·7 to 19·5)	7·1 (6·6 to 7·7)	73%	1221 (1139 to 1320)	655 (624 to 690)	255 (238 to 279)	79% (76 to 81)	10% (9 to 10)
High income	6·8 (6·5 to 7·1)	4·6 (4·4 to 4·7)	3·0 (3·0 to 3·5)	55%	96 (92 to 101)	61 (59 to 63)	41 (40 to 48)	57% (51 to 59)	2% (2 to 2)

Data are presented with 90% uncertainty intervals. Annual neonatal mortality rate is shown as deaths per 1000 livebirths. Neonatal deaths are shown in thousands.

Table: Neonatal mortality rate and number of neonatal deaths, globally and by region and income group, in 1990, 2000, and 2017

The expected NMR estimates are based on U5MR and the observed global association between U5MR and the ratio of neonatal to under-5 mortality. A comparison of estimated with expected data thus allows us to pinpoint countries with NMRs that are higher or lower than expected when compared with the U5MR-implied outcomes. Globally, the ratio of the estimated NMR to expected NMR was significantly more than 1·12 (90% uncertainty interval 1·10–1·14) in 1990 but, in 2017, this ratio was no longer significantly different from 1, at 1·02 (0·97–1·08; figure 1; appendix pp 11–12). However, different patterns of estimated to expected NMR ratios applied to different countries and regions. In 1990, this ratio was 1·36 (1·33–1·40) times higher than expected in south Asia, and 1·08 (1·02–1·14) times higher than expected in east Asia and the Pacific, whereas this ratio was significantly lower than expected in east and south Africa, Latin America and the Caribbean, North America, and west and central Africa. By 2017, only south Asia had a high estimated NMR to expected NMR ratio, which was 1·23 (1·16–1·30) times higher than expected, and only west and central Africa had a ratio that was lower than expected, of 0·87 (0·78–0·96) times lower than expected (figure 1; appendix pp 11–12).

Patterns of estimated NMR to expected NMR ratios in south Asia were driven by country-specific outlying NMRs. Among the countries in south Asia (Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka), we found consistently and significantly higher ratios of NMR to U5MRs over the last 25 years in Afghanistan, India, and Pakistan (figure 3) and in Bangladesh and Nepal in 1990–2010. Overall, fewer countries showed higher or lower NMRs than expected in 2017 than in 1990. The number of countries with 10% higher-than-expected NMRs, which represented an absolute difference between the point estimates of the estimated annual NMR and the expected annual NMR of at least one death per 1000 livebirths and more than 10 000 livebirths in 2017, decreased from 14 countries to 12 countries between 1990 and 2017, whereas the number of countries with 10% lower-than-expected NMRs decreased from 25 countries to five countries.

In our projection, we found that, if countries maintained their 2017 NMRs (scenario 1), the global annual NMR would increase to 19·0 deaths per 1000 livebirths and we would expect 2·7 million neonatal deaths in 2030 (figure 4; appendix pp 12–14). These numbers are higher than the 2017 estimates because of projected increases in the proportions of livebirths occurring in countries with high mortality. In this first scenario, during the entire period from 2018 to 2030, 37·6 million neonates would die. Under scenario 2, if each country maintained their current ARR, by 2030, the global annual NMR would decrease to 13·2 deaths per 1000 livebirths and an estimated 1·8 million neonates would die. The cumulative 27·8 million neonatal deaths occurring during 2018–30 would account for almost half of the

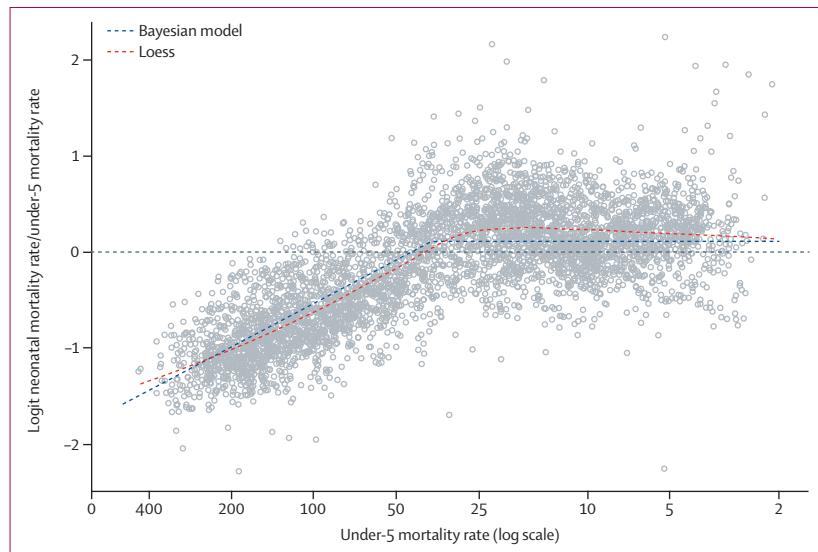


Figure 2: Estimated to expected ratios for a given under-5 mortality, based on the global association between the under-5 mortality rate and the ratio of neonatal mortality rate to under-5 mortality rate
Loess= locally estimated scatterplot smoothing.

projected 56 million deaths in children younger than 5 years under a similar scenario.¹⁰ In this scenario, the proportion of neonatal deaths in the overall under-5 deaths would increase from 47% in 2017 to 53% in 2030. Under scenario 3, assuming that each country would have the same ARR in neonatal mortality as the best performing country in the region, the annual NMR would decrease to 10·0 deaths per 1000 livebirths and 1·4 million children would die in 2030, with an estimated 24 million neonatal deaths between 2018 to 2030. By our estimates for scenario 4, which projects all countries achieving the SDG target (12 deaths per 1000 livebirths) by 2030, the global annual NMR would further decrease to 8·8 deaths per 1000 livebirths and 1·2 million neonates would die in 2030. Between 2018 and 2030, we estimated that the cumulative neonatal deaths under scenario 4 would be 22·7 million, about 5 million fewer than under scenario 2, which assumed that countries maintained their 2017 ARR. To achieve this SDG goal by 2030, more than 60 countries need to accelerate progress (appendix p 59), a higher number of countries than for the U5MR target (U5MR of 23 or lower; 51 countries).¹⁰ Among countries with more than 10 000 livebirths in 2017, 15 countries will not achieve the neonatal mortality SDG target at their estimated NMR under scenario 2, but these countries would achieve the under-5 mortality SDG target by 2030. 42 of more than 60 countries need to more than double their past reductions in NMR; the required ARR to meet the SDG target by 2030 is at least two times larger than the observed ARR in these countries (appendix p 61). Even more deaths could be averted if every country would at least reach the annual NMR of high-income countries (3 deaths per 1000 livebirths) by 2030, as we projected under scenario 5:

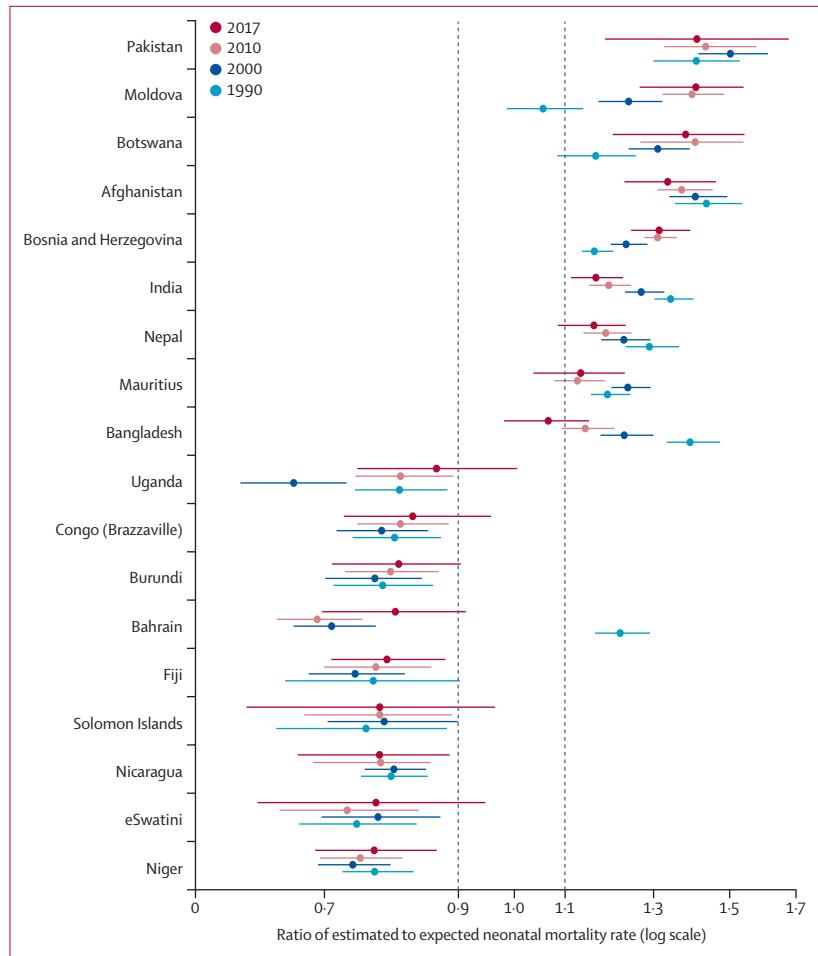


Figure 3: Patterns of ratios of estimated to expected neonatal mortality rates for countries with outlying ratios in 1990, 2000, and 2017 or 2000, 2010, and 2017
Error bars are 90% uncertainty intervals.

the global NMR would further decrease to 2·7 deaths per 1000 livebirths and 0·4 million neonates would die in 2030. In this scenario, we would project 13·5 million cumulative deaths during 2018–30.

Discussion

Despite substantial progress, 2·5 million neonates died in 2017 alone, and huge disparities in neonatal mortality persist across regions and countries. At the country level, annual NMRs ranged from 44·2 to 0·9 deaths per 1000 livebirths in 2017; in 17 countries the annual NMR was more than 30 deaths per 1000 livebirths whereas, in 17 countries, the annual rate was less than 2 deaths per 1000 livebirths (appendix pp 14–23). Countries with the highest NMRs were concentrated in sub-Saharan Africa and south Asia, and countries with the lowest NMRs were in western Europe.

The survival of neonates has improved substantially between 1990 and 2017: we found a 51% reduction in the NMR and a decrease in the annual number of deaths from

5 million to 2·5 million. An estimated 103 million neonates died during this time and, although an acceleration in neonatal mortality reductions (ie, the ARR) since 2000 can be observed, the acceleration was less pronounced in neonates than among other children younger than 5 years. Progress in reducing neonatal mortality in the high-mortality regions in sub-Saharan Africa has been modest, with a regional average ARR of 1·9% during 1990–2017. However, current neonatal mortality remains high; in almost a third of the countries in the region, annual NMRs were more than 30 deaths per 1000 livebirths in 2017, and two-thirds of countries that are at risk of missing the SDG neonatal mortality target are in sub-Saharan Africa, according to our projections.

Focusing on the neonatal period implies that policy makers need to address the main causes of neonatal mortality, which differ from the causes of deaths of older children. Neonates predominantly die because of preterm birth and intrapartum-related complications and infections, such as sepsis, meningitis, and pneumonia. According to estimates by WHO and the Maternal and Child Epidemiology Estimation group, 35% of all neonatal deaths in 2017 were due to complications associated with preterm birth; 24% of deaths were associated with intrapartum events, such as birth asphyxia; 14% of deaths were due to sepsis or meningitis; and 11% were associated with congenital anomalies.¹⁵ More neonates survived birth and avoided infectious diseases in 2017 than in 2000, and the proportion of deaths associated with premature births and congenital anomalies increased during this time. Prevention of neonatal deaths due to prematurity and congenital anomalies could help to reduce neonatal mortality, even in low-mortality settings. Efforts are also needed to address disparities within countries, since children born in poorer resource settings often have worse health outcomes than children with more resources.^{16,17}

To improve neonatal survival, it is crucial to ensure every pregnant woman and neonate has access to lifesaving interventions.^{18–21} A substantial proportion of neonatal deaths can be prevented by relatively straightforward but effective interventions delivered along the continuum of care during pre-pregnancy, antenatal, intrapartum, delivery, postpartum, and postnatal periods for mothers and their newborns. It is essential that newborn babies receive appropriate care and nutritional support.²² Prematurity and low birthweight can be largely addressed through interventions related to antenatal care, education, nutrition, and maternal health. Further improvements in neonatal survival will require a higher proportion of deliveries occurring in well equipped facilities with high-quality care. Considerable investments in terms of training and health infrastructure are needed to enable skilled birth attendants to deliver lifesaving interventions, especially during delivery and the first week of life.²³ Additionally, improvements in postnatal care interventions need to be scaled up, particularly in settings

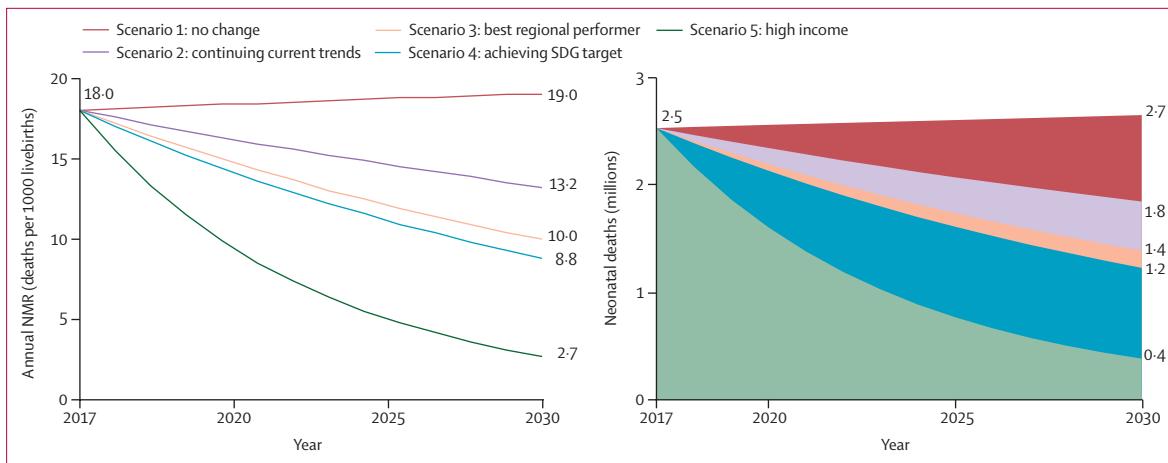


Figure 4: Projected NMR and number of neonatal deaths under different scenarios, from 2018 to 2030

Scenario 1 assumes a continuation of 2017 NMRs. Scenario 2 assumes a continuation of the 2000–17 annual rate of reduction in NMRs. Scenario 3 assumes an annual rate of reduction in NMR in each country that is equal to that of the country in the region that had the best annual rate of reduction in 2000–17. Scenario 4 assumes the necessary annual rate of reduction to achieve the Sustainable Development Goal target of 12 deaths per 1000 livebirths or fewer by 2030, across all countries. Scenario 5 assumes the necessary annual rate of reduction to achieve the 2017 average annual NMR across high-income countries—three deaths per 1000 livebirths—across all countries. NMR=neonatal mortality rate.

with high neonatal mortality, to increase the prevalence of neonatal survival beyond the first week.²⁴

A focus of health-care interventions on births is essential, since about a third of all neonatal deaths globally occur on the day of birth and almost three-quarters of neonates who die do so during the first week of life.^{24,25} Neonatal deaths often happen quickly, caused by an illness presenting as an emergency, either soon after the birth or later, due to infections such as tetanus or community-acquired infections.²⁶ Improved data on where and when neonatal death occur and what causes delays is key to designing context-specific community and health system strategies. To do so, it is necessary to focus on homes and facilities as well as on communication and transportation, to reduce delays in service deliveries, but also to intensify research to identify obstacles in service deliveries.

Our estimates suggest that south Asia is a notable outlier with respect to its ratio of neonatal to under-5 mortality and overall level of under-5 mortality; we found that this region has one of the highest ratios of NMR to U5MR and a high overall U5MR compared with other regions. The neonatal mortality in south Asian countries tends to be higher than expected given the global pattern. Household survey data that track important components of health for mothers and neonates indicate that the prevalence of low birthweights (ie, less than 2·5 kg) for the years 2009–13 was highest in south Asia, with around a quarter of births with a low birthweight, and a prevalence of low birthweight of more than 10% of births in sub-Saharan Africa.²⁷ Further coverage data from household surveys suggest that the skilled birth attendance is low, with about 73% of births attended by skilled health personnel in south Asia (with a range of 51–86% in the countries).²⁸ Besides coverage, attention needs to be placed on the quality of care, since studies^{23,29} show that survival benefits expected for neonates

delivered by skilled health personnel are not always met in sub-Saharan Africa and Asia, due to a lower quality of care. Exclusively breastfeeding with breastmilk for the first 6 months, which reduces the risk of infection-related neonatal mortality compared with partial breastfeeding,²⁶ is practised for around 33% of children born in west and central Africa, 52% in south Asia and around 56% in east and south Africa. Maternal health and nutritional status are important factors in neonatal health that could contribute to higher NMRs. Additionally, national averages can hide disparities within regions. According to the Million Death study¹⁷ in India, the neonatal mortality caused by prematurity or low birthweight was increasing in rural areas and poorer states from 2000 to 2015, while it decreased in urban areas and richer states. Evidence is not sufficient to conclude on the related factors, and poor availability of high-quality data make it challenging to identify the underlying causes for this pattern. More research is required to identify the constraints in implementing interventions to reduce neonatal mortality and to understand the mechanism behind disparities in regions and countries and within countries.

In the absence of reliable and standardised vital registration and administrative data in many countries, modelling of NMRs remains necessary for public health policy and priority setting and monitoring. Only around 70% of children younger than 5 years have a birth certificate,³⁰ and most neonatal deaths do not result in the issue of a death certificate.²⁵ Data on causes of neonatal deaths and the timing around neonatal deaths are often sparse and less reliable than all-cause mortality data, and these data result in uncertain estimates, which pose substantial challenges to the generation of evidence-based interventions to prevent neonatal deaths. Self-reported neonatal deaths in surveys can result in

misclassification errors,³¹ particularly regarding stillbirths. Given the error in national data collection systems and surveys, considerable uncertainty around both mortality rates and progress in reducing them remains. For example, in our data based on point estimates, more than 102 countries halved their NMR since 1990, but only 55 countries halved their rate with 95% probability. More investment is urgently required to improve data collection and data quality, to better distinguish real country-level effects from data issues. Additionally, more in-depth studies are required to analyse potential reporting biases for stillbirths, early neonatal deaths, and livebirths in surveys, surveillance data, and vital registration data. Even in high-quality civil registration systems, large international differences in recording of births and deaths exist between countries, which can lead to variation in NMRs and stillbirth rates, particularly at extremely early gestations when survival is low.³² To better estimate neonatal mortality, improvements to counting methods for neonatal deaths and stillbirths is crucial for tracking SDG targets and improving vital statistics.

Fewer countries showed an outlying pattern in 2017 than in 1990. This decrease was mostly due to fewer countries with a lower-than-expected NMR given the level of under-5 mortality in 2017 than in 1990. One could assume that under-reporting of neonatal deaths is more likely than over-reporting, and this bias would result in lower-than-expected neonatal mortality estimates in our model rather than in higher-than-expected neonatal mortality estimates. With improved reporting of neonatal deaths over time, we would expect fewer outliers with lower-than-expected neonatal mortality for recent years than for past years. Given that we cannot clearly distinguish data quality issues from abnormal country patterns, more in-depth country analysis is needed to support this conclusion of improved data quality.

At the global level, our neonatal mortality estimates for 2017 are similar to those produced for the same year in 2018 by the Global Burden of Disease (GBD) study.³³ The GBD global neonatal mortality was estimated as 16·8 deaths per 1000 livebirths³⁴ in 2017 and the annual U5MR was estimated as 38·9 deaths per 1000 livebirths (or 40·6 in the appendix of the same Article).³³ Additionally, the projections by the Institute of Health Metrics and Evaluation (IHME) in 2017, based on past trends, suggest that the global NMR would decrease to 11·8 deaths per 1000 livebirths by 2030 from 16·8 deaths per 1000 livebirths in 2017.³⁴ These results are similar to our scenario 2, of maintaining current trends in ARR of NMR, in which we projected a global annual NMR of 13·2 deaths per 1000 livebirths in 2030. The correlation coefficient of the two sets of country-specific point estimates for the 187 countries assessed for 1990–2017 is 0·97 for NMR, 0·98 for U5MR, and 0·90 for the ratio of NMR to U5MR. Differences between the two sets of estimates arise through differences in input data, processing of input data, and modelling approaches. For

most countries, differences in the neonatal and under-5 mortality rates are small. Large differences are found for some countries between UN IGME and IHME GBD estimates: 29 countries showed an absolute difference in NMR between the datasets that was more than five deaths per 1000 livebirths and relative differences greater than 10% in 2017, and 32 countries showed an absolute difference in the U5MR between the datasets that was more than ten deaths per 1000 livebirths and a relative difference greater than 10% in 2017. Differences in the mortality rates tend to occur in countries with no recent available input data, small populations, or recent crises. Finally, for the ratio of NMR to U5MR, 23 countries showed an absolute difference between these datasets of 0·1 and a relative difference greater than 10% in 2017. Differences in the ratios occur mostly at very low levels of mortality. A comparison of the estimates for NMR, U5MR, and ratio of NMR to U5MR for all 187 countries for the years 1990, 2000, and 2017 is shown in the appendix (pp 39–51). A previous decomposition study on the differences in under-5 mortality estimates between the UN IGME and GBD shows that differences in input data contributed substantially to the discrepancies in the estimates.³⁵ We expect that, with increasing data availability, the estimates will further converge.

To conclude, to advance child survival and achieve the SDG goals, it is important to focus on neonatal survival. Without intensified commitment to neonatal survival, many countries will not be able to meet the SDG goal to end preventable child deaths. Our projections suggest that more countries are at risk of missing the neonatal mortality SDG target than the under-5 mortality target (appendix pp 60–61). Half of the more than 60 countries that would not achieve the neonatal mortality SDG target if they continue their current ARR in NMR would only achieve the target after 2050. Almost two-thirds of these countries are in sub-Saharan Africa and two are in south Asia. Without acceleration, our projections indicate that, with no improvement in neonatal mortality, 27·8 million neonates will die between 2018 and 2030. If interventions were scaled-up and the quality of care increased, then the lives of thousands of newborns could be saved and the SDG target achieved in countries that are behind in reducing neonatal mortality. If the SDG target would be achieved on time in the countries that are at risk of falling behind, the lives of 5 million neonates could be saved from 2018 to 2030. Far more newborn lives could be saved if every country achieved the average NMR of high-income countries, indicating that progress should not end with achieving the SDG neonatal mortality target.

Contributors

LA and DY initiated the study and provided overall guidance. LH and DY compiled the data base, analysed findings, and constructed and analysed the projection scenarios. MA and LA developed the statistical model and obtained and analysed model findings. All authors contributed to manuscript writing.

Declaration of interests

We declare no competing interests.

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Gendered influences on adolescent mental health in low-income and middle-income countries: recommendations from an expert convening



An estimated 67 000 adolescents die each year from self-harm, and far more—an estimated 10% of all adolescents—have intentionally harmed themselves.¹ Suicide consistently ranks among the leading causes of death for older adolescent girls and boys globally, and depressive disorders, anxiety, behavioural problems, and self-harm are among the greatest contributors to young people's burden of disease.¹ Academics, practitioners, and advocates increasingly recognise the importance of mental health to the overall wellbeing of adolescents, and the complex linkages between gender and mental health.² As outlined in a more detailed paper,² gender norms can negatively affect adolescent girls and boys, but particularly limit girls' ambitions and opportunities. Yet policies and programmes, particularly in low-income and middle-income countries, do not adequately address these important issues. To better understand these relationships and identify priorities for adolescent-focused and gender-responsive mental health research and programmes, the International Center for Research on Women and UNICEF convened experts from academia, civil society, donor, and bilateral and multilateral institutions for a consultation in April, 2017 (appendix). In this Comment, we summarise their recommendations.

Firstly, data for and indicators on the gendered drivers of poor mental health in adolescence are required. Age-disaggregated and sex-disaggregated data are necessary to understand the epidemiological burden and unmet need for mental health prevention and care among adolescent girls and boys. However, reviews done for the Global Burden of Disease Study indicate that two-thirds of countries have no data for any mental disorder, and that data for mental disorders in those aged 5–17 years are available for only 6·7% of these countries.³ When also considering the World Health Statistics,⁴ which reports that half of deaths have no recorded cause, it is clear there is a need for improved hospital records, health surveys, and vital registration systems among other data sources. Furthermore, indicators and frameworks for adolescent mental health have mostly been developed and applied only in high-income

countries, with few tested for cross-cultural use, and even fewer for gender-sensitivity.

Secondly, understanding pathways through which gender norms influence adolescent mental health is essential. During childhood, girls are no more likely than are boys to manifest symptoms of depression, but after puberty their risk of depressive disorders increases substantially. Moreover, girls are one and a half to two times more likely than are boys to be diagnosed with clinical depression in adolescence and throughout their life course.⁵ The paper² produced for the expert convening addresses some gendered aspects of adolescent mental health, yet far more research is needed on the mechanisms through which gender norms might affect the mental health of girls and boys differentially. Given the paucity of currently available data, implications for vulnerable adolescents, such as pregnant, married, out-of-school, and LGBTQI (lesbian, gay, bisexual, transgender, queer or questioning, and intersex) adolescents, also urgently require attention.

Thirdly, implementation and programmatic research to improve adolescent mental wellbeing are needed. Mental health and psychosocial support programmes for adolescents in low-income and middle-income countries have largely been confined to humanitarian settings; however, few of these programmes have been rigorously evaluated, and fewer yet specifically incorporate gender considerations.⁶ Although some evidence suggests school-based interventions can reduce depression and anxiety, there is limited understanding of how gender might influence students' mental health in these countries.⁷ Programmes that do not explicitly focus on mental health can provide new opportunities to address the effect of harmful gender norms. At the same time, more information is needed to understand whether and how programmes and interventions that are deliberately designed to be gender-responsive or gender-transformative are, in fact, effective at improving mental health outcomes among adolescents.

Lastly, incorporation of adolescent mental health into national policy agendas is crucial. Mental health and



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See Online for appendix

Panel: Recommendations for creating gender-responsive adolescent mental health research and programmes

- Review existing indicators to determine applicability and adaptability across countries, as well as whether indicators measure the influence of gender norms and attitudes on mental health outcomes
- Include new questions in widely used surveys, such as the Demographic and Health Surveys, Multiple Indicator Cluster Surveys, and Global School-Based Health Surveys, to generate data on the effect of gender norms on adolescent mental health
- Do a systematic review to detail what is already known about how gender norms and discrimination precipitate depression, self-harm, and suicide among adolescents
- Further analyse existing evidence and datasets, and undertake novel research to understand how gender and gender norms, including those at play within the family, among peers, and through contextual and structural factors, might differentially influence mental health and health-seeking behaviours of adolescent girls and boys
- Investigate whether the way in which gender norms are portrayed in the media, as well as use of social media, influence the mental health and wellbeing of adolescent girls and boys
- Adapt and incorporate evidence and tools from successful programming into the design, implementation, and testing of interventions that deliberately aim to address gender norms and improve the mental wellbeing of adolescents in low-income and middle-income countries
- Test and rigorously evaluate interventions at different points of the adolescent developmental life cycle and through different delivery platforms (ie, mass media, social media, schools, clinics, and communities), as they might be differentially effective in reaching adolescent girls and boys and addressing gender norms across contexts
- Engage adolescents and other key stakeholders in all phases of programme design, implementation, and evaluation to ensure programme relevance, sustainability, and effectiveness
- Develop and disseminate evidence on the cost of inaction to strengthen the case for policy makers to prioritise gender-sensitive adolescent mental health policies and programmes

adolescent health have both been neglected in low-income and middle-income countries, due in part to a paucity of funding and overburdened health systems. Country-level policies can drive the coordination of essential services and activities to most effectively and efficiently ensure that prevention, diagnosis, and care are delivered to those in need. As a start, mental health and adolescent health policies that do exist in low-income and middle-income countries should consider the potential impact of gender and gender norms.

Global attention to adolescent health has increased substantially in the past several years. Recently, the UN Secretary General's Every Woman Every Child movement added adolescent health to its agenda, and WHO and its partners issued the Global Accelerated Action for the Health of Adolescents guidance¹ to help countries generate and use data to develop and implement adolescent-focused health programmes and policies. As the evidence base on adolescent health continues to increase, there is a growing recognition of the importance of mental health to the overall health and wellbeing of adolescents,

both now and later in life. Our hope is that improved understanding of the distinct mental health challenges that adolescent girls and boys face, and particularly of how these challenges are influenced by gender norms and inequities, can help spur future research and action (panel).

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Migrant and displaced children in the age of COVID-19: How the pandemic is impacting them and what can we do to help

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Available data and statistics show that children have been largely spared the direct health effects of COVID-19. But the indirect impacts – including enormous socioeconomic challenges – are potentially catastrophic for children. Weakened health systems and disrupted health services, job and income losses, interrupted access to school, and travel and movement restrictions bear directly on the well-being of children and young people. Those whose lives are already marked by insecurity will be affected even more seriously.

Migrant and displaced children are among the most vulnerable populations on the globe. In 2019, around 33 million children were living outside of their country of birth, including many who were forcibly displaced across borders. At the end of 2018, a total of over 31 million children were living in forced displacement in their own country or abroad due to violence and conflict. This includes some 13 million child refugees, around 1 million asylum-seeking children, and an estimated 17 million children displaced within their own countries. It is estimated that 3.7 million children live in refugee camps or collective centres.² COVID-19 threatens to bring even more uncertainty and harm to their lives.

The challenges of day-to-day life

Worldwide, 52 per cent of migrant children and over 90 per cent of displaced children live in low- and

middle-income countries where health systems have been overwhelmed and under capacity for protracted periods of time. It is in these settings where the next surge of COVID-19 is expected, following China, Europe and the United States.³ In low- and middle-income countries, migrant and displaced children often live in deprived urban areas or slums, overcrowded camps, settlements, makeshift shelters or reception centres, where they lack adequate access to health services, clean water and sanitation.⁴ Social distancing and washing hands with soap and water are not an option. A UNICEF study in Somalia, Ethiopia and the Sudan showed that almost 4 in 10 children and young people on the move do not have access to facilities to properly wash themselves.⁵ In addition, many migrant and displaced children face challenges in accessing health care. Half of respondents aged 14–24 years in a UNICEF poll who self-identified as migrants and refugees indicated that they did not see a doctor when needed.⁶

Similarly, in high-income countries, the safety of many migrant and displaced children is also under threat. In Marseille, France, for instance, many unaccompanied minors had been left unprotected before the pandemic as authorities failed to provide care and shelter. Now

³ “COVID-19 Will Not Leave Behind Refugees and Migrants”, Editorial, *The Lancet*, vol. 395, 4 April 2020.

⁴ United Nations High Commissioner for Refugees, “UN Refugee Agency Steps Up COVID-19 Preparedness, Prevention, and Response Measures”, Press release, 10 March 2020. Available at www.unhcr.org/uk/news/press/2020/3/5e677f634/un-refugee-agency-steps-covid-19-preparedness-prevention-response-measures.html, accessed 23 April 2020.

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² Data from end of 2018; UNICEF analysis based on United Nations High Commissioner for Refugees, *Global Trends: Forced displacement in 2018*, Geneva, 2019.

that public child protection services have halted due to the risks posed by COVID-19, more unaccompanied migrant children have been forced to live on the streets or in unsanitary, often overcrowded squats.⁷ This has become a harsh reality for many children around the world. Children in situations like these may face the added risk of being detained by immigration authorities, potentially exposing them to violence, abuse or exploitation.

Migrant and displaced children across contexts are at risk of missing out on accurate public health information, due to language barriers or simply being cut off from communication networks. Undocumented children living in foreign countries may fear contact with public authorities. Meanwhile, misinformation on the spread of COVID-19 has exacerbated the xenophobia and discrimination that migrant and displaced children and their families face.

Legal shifts

Sudden, sweeping restrictions and regulations have been enacted to contain the virus's spread. Many further undermine displaced children's safety and security. Closed borders and restricted travel are disrupting the humanitarian supply chain and relief workers' ability to assist displaced communities. Millions are missing out on vital assistance such as food distributions and other basic medical supplies. In Yemen, where one third of children are malnourished and 80 per cent of the population depends on humanitarian aid, travel restrictions have already led to reduced relief operations.⁸

UN agencies were forced to suspend resettlement procedures due to the COVID-19 pandemic, cutting off a "vital lifeline for particularly vulnerable refugees",⁹ leaving millions of refugees with an uncertain path ahead. In many countries, border closures have left migrants stranded, placing children and their families at risk of further harm and potentially separating

⁷ Human Rights Watch, "France: Children left in limbo despite COVID-19", 26 March 2020. Available at www.hrw.org/news/2020/03/26/france-children-left-limbo-despite-covid-19#, accessed 23 April 2020.

⁸ United Nations Children's Fund, "Yemen Crisis". Available at www.unicef.org/emergencies/yemen-crisis, accessed 23 April 2020.

⁹ "COVID-19: Agencies temporarily suspend refugee resettlement travel", UN News, 17 March 2020. Available at <https://news.un.org/en/story/2020/03/1059602>, accessed 23 April 2020.

families for longer stretches. As of 22 April, of the 167 countries that have fully or partially closed their borders to contain the spread of the virus, some 57 States have made no exception for access for asylum seekers.¹⁰ In the United States, people seeking asylum, including children, have been turned away or deported to their countries of origin at the United States–Mexico border as part of the response against COVID-19.¹¹

As countries instituted lockdowns and quarantines, in Ethiopia, 3,273 returnees have been registered and quarantined at various centres set up by the Government in Addis Ababa, including 434 unaccompanied children – 135 of them girls.¹² Many had not gone through prior health screenings nor received child protection assistance. UNHCR has called on States to respect international human rights and refugee protection standards, including through quarantines and health checks, stating, "Securing public health and protecting refugees are not mutually exclusive".¹³

The dimensions of risks for children

Facing many challenges and barriers, migrant and displaced children stand to be hit hard by the socioeconomic impacts of COVID-19. A UN report grouped the impacts on children in general into four dimensions: poverty, survival and health, learning and safety.¹⁴ The pandemic is exacerbating pre-

¹⁰ United Nations High Commissioner for Refugees, "Beware Long-Term Damage to Human Rights and Refugee Rights From the Coronavirus Pandemic", Press release, 22 April 2020. Available at www.unhcr.org/news/press/2020/4/5ea035ba4/beware-long-term-damage-human-rights-refugee-rights-coronavirus-pandemic.html, accessed 23 April 2020.

¹¹ Hesson, Ted, and Mica Rosenberg, "U.S. Deports 400 Migrant Children Under New Coronavirus Rules", *Reuters*, 7 April 2020. Available at www.reuters.com/article/us-health-coronavirus-usa-deportations/u-s-deports-400-migrant-children-under-new-coronavirus-rules-idUSKBN21P354, accessed 23 April 2020.

¹² United Nations Children's Fund, "Heightened Risks as Thousands of Migrants Return to Ethiopia amid the Coronavirus Pandemic", 16 April 2020. Available at www.unicef.org/ethiopia/stories/heightened-risks-thousands-migrants-return-ethiopia-amid-coronavirus-pandemic, accessed 24 April 2020.

¹³ UNHCR, "Beware Long-Term Damage to Human Rights and Refugee Rights From the Coronavirus Pandemic".

¹⁴ United Nations, "The Impact of COVID-19 on Children", Policy brief, 15 April 2020. Available at https://unsdg.un.org/sites/default/files/2020-04/160420_Covid_Children_Policy_Brief.pdf, accessed 23 April 2020.

existing vulnerabilities and lack of access to services – meaning migrant and displaced children will be disproportionately affected and suffer long after the public health crisis ends.

Dimension one: Impacts on poverty

Migrant and displaced children often live in families that are more vulnerable to job loss or economic downturns. The World Bank has suggested that COVID-19 will push some 40 to 60 million people into extreme poverty, forecasting stark economic consequences.¹⁵ The ILO estimated a rise in global unemployment of between 5.3 million and 24.7 million from a base level of 188 million in 2019.¹⁶ In addition, 1.25 billion workers, or 38 per cent of the global workforce, were employed in sectors with high risk of workforce displacement.¹⁷ These economic impacts are likely to widen pre-existing vast global economic inequalities and disproportionately hit developing countries and vulnerable populations. Yet migrant families and children are less likely to be included in economic recovery initiatives, which are mainly aimed at the formal sectors and nationals.¹⁸

Migrant workers are particularly vulnerable – and among these, the young, women, and female domestic workers even more so – as restrictions are enacted on access to places of work in destination

countries and on return to families.¹⁹ Many foreign nationals are employed in short-term work in trades such as tourism, hospitality, construction, and the garment industry, and are at great risk of losing their jobs. Others are engaged in precarious work with limited provision for health care or sick leave.

In Thailand, following the closure of border points and many businesses, coupled with uncertainty around the validity of work permits, an estimated 60,000 to 200,000 migrant workers rushed home to Myanmar, Cambodia and the Lao People's Democratic Republic. Other migrant workers across Thailand reported losing their jobs but being unable to travel, putting their challenged health and economic security at greater risk.²⁰ For those who have retained work, the shuttering of Migrant Learning Centers or day care centres – where many children of migrants are able to secure food and care – introduced other difficulties.

For children staying behind with caregivers when one or both parents have migrated for work, remittances are often a critical source of income and security. This is especially the case in low- and middle-income countries, where remittances alleviate poverty, improve nutritional outcomes, and are associated with higher education spending and reduced child labour. It is estimated that three quarters of remittances are used to cover essentials such as food, housing, school and health care.²¹ The World Bank projects that remittances will decline by about 20 per cent in 2020, the sharpest decline in recent history.²² As this happens, the well-being of families and children will come under threat, potentially leading more children to drop out of school, seek work, migrate, or be subjected to child marriage or trafficking.

¹⁵ Mahler, Daniel Gerszon, et al., "The Impact of COVID-19 (Coronavirus) on Global Poverty: Why sub-Saharan Africa might be the region hardest hit", *World Bank Blogs*, 20 April 2020. Available at https://blogs.worldbank.org/opendata/impact-covid-19-coronavirus-global-poverty-why-sub-saharan-africa-might-be-region-hardest?CID=WBW_AL_BlogNotification_EN_EXT, accessed 23 April 2020.

¹⁶ International Labour Organization, "COVID-19 and the world of work: Impacts and policy responses", Briefing note, 18 March 2020. Available at www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_738753.pdf, accessed 30 April 2020.

¹⁷ International Labour Organization, "ILO Monitor: COVID-19 and the world of work. Second edition", Briefing note, 7 April 2020. Available at www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_740877.pdf, accessed 30 April 2020.

¹⁸ International Organization for Migration, "IOM Launches USD 499 Million Expanded COVID-19 Response Plan to Help Address Critical Socio-Economic Impacts of Pandemic", Press release, 15 April 2020. Available at www.iom.int/news/iom-launches-usd-499-million-expanded-covid-19-response-plan-help-address-critical-socio, accessed 23 April 2020; Guermond, Vincent, and Kavita Datta, "How Coronavirus Could Hit the Billions Migrant Workers Send Home", *World Economic Forum*, 19 April 2020. Available at www.weforum.org/agenda/2020/04/how-coronavirus-could-hit-the-billions-migrant-workers-send-home, accessed 23 April 2020.

¹⁹ International Organization for Migration, "COVID-19 Places Migrant Workers in Highly Vulnerable Situations", News release, 26 March 2020. Available at <https://crest.iom.int/news/covid-19-places-migrant-workers-highly-vulnerable-situations%C2%A0>, accessed 23 April 2020.

²⁰ Guadagno, Lorenzo, *Migrants and the COVID-19 Pandemic: An initial analysis*, IOM, Geneva, 2020, <https://publications.iom.int/system/files/pdf/mrs-60.pdf>, accessed 23 April 2020.

²¹ United Nations Department of Economic and Social Affairs, "Remittances Matter: 8 facts you don't know about the money migrants send back home", 17 June 2019, www.un.org/development/desa/en/news/population/remittances-matter.html, accessed 24 April 2020.

²² World Bank, "World Bank Predicts Sharpest Decline of Remittances in Recent History", Press release, 22 April 2020. Available at www.worldbank.org/en/news/press-release/2020/04/22/world-bank-predicts-sharpest-decline-of-remittances-in-recent-history, accessed 23 April 2020.

Dimension two: Impacts on survival and health

Many migrants and displaced children live in conditions where latrines and water supplies are inadequate and extreme overcrowding is common. Humanitarian agencies have warned of the catastrophic health consequences of COVID-19 for displaced persons around the world – especially children.²³ Across the Syrian Arab Republic, medical infrastructure and water facilities have been destroyed and there are few doctors to tend to the needs of the displaced. In the country's Idlib Province, for instance, children are living outside or in tents packed with family members, with little to no access to water.²⁴ In the Greek islands, tens of thousands of people, including children, live in reception and identification centres, where conditions are dire. UNICEF has called for the immediate transfer of these vulnerable refugees, including the 1,900 unaccompanied and separated refugee and migrant children, to appropriate accommodation facilities on the mainland, in line with public health measures and guidelines.²⁵

The situation in the Bolivarian Republic of Venezuela presents another example of the intersecting challenges presented to migrant and refugee populations. With most essential services to refugees nearly halted and work across borders scarce, as reported by the International Rescue Committee, many Venezuelans are going back to their country. But they are returning to a country where half the doctors have left and 90 per cent of hospitals face supply shortages.²⁶

²³ United Nations Children's Fund, "COVID-19 Pandemic Could Devastate Refugee, Migrant, and Internally Displaced Populations Without Urgent International Action", Press release, 1 April 2020. Available at www.unicef.org/press-releases/covid-19-pandemic-could-devastate-refugee-migrant-and-internally-displaced, accessed 23 April 2020.

²⁴ United Nations Children's Fund, "Syrian Crisis". Available at www.unicef.org/emergencies/syrian-crisis, accessed 23 April 2020.

²⁵ Sharp, Melanie, and Olga Siokou-Siova, "Refugee and Migrant Communities Brace for COVID-19 in Already Dire Conditions on Greek Islands", UNICEF, 21 March 2020. Available at www.unicef.org/eca/stories/refugee-and-migrant-communities-brace-covid-19-already-dire-conditions-greek-islands, accessed 23 April 2020.

²⁶ International Rescue Committee, *COVID-19 in Humanitarian Crisis: A double emergency*, April 2020. Available at www.rescue.org/sites/default/files/document/4693/covid-19-doubleemergency-april2020.pdf, accessed 23 April 2020; Daniels, Joe Parkin, Tom Philip, and Emily Costa, "Venezuelans Return Home as Coronavirus Piles More Misery on Migrants", *The Guardian*, 12 April 2020. Available at www.theguardian.com/world/2020/apr/12/venezuelans-return-home-coronavirus-migrants, accessed 23 April 2020.

Deprived of access to health care, underlying conditions among displaced children – such as malnutrition and communicable and non-communicable diseases – can worsen.²⁷ The Measles & Rubella Initiative has cautioned that over 117 million children in 37 African countries are at risk of missing out on life-saving measles vaccines as immunization campaigns are delayed, which would further threaten the health and well-being of vulnerable migrant and displaced children.²⁸

Access to public health services for migrant and displaced children and their families may be limited, and, in some cases deliberately avoided, particularly if they are undocumented. In conflict zones with large internally displaced populations, health systems have often been destroyed and high levels of distrust in government may exist.²⁹ In Libya, ongoing hostilities continue to threaten health care and water supplies and have led to the further displacement of thousands.³⁰

Migrants and displaced families may also be excluded from public health information programming or lack the financial means to manage periods of self-isolation or quarantine or seek health care. Poor integration of these populations in hosting countries further limits access to health care and social benefits.

There are also psychological concerns associated with COVID-19. Cases of anxiety, depression and stress have been reported in China, prompting mental health professionals to be stationed at isolation hospitals and the establishment of psychological assistance

²⁷ IRC, *COVID-19 in Humanitarian Crisis*.

²⁸ The Initiative comprises representatives from the American Red Cross, U.S. CDC, UNICEF, UN Foundation and WHO; World Health Organization, "More Than 117 Million at Risk of Missing Out on Measles Vaccines, as COVID Surges", 14 April 2020. Available at www.who.int/immunization/diseases/measles/statement_missing_measles_vaccines_covid-19/en/, accessed 23 April 2020.

²⁹ IRC, *COVID-19 in Humanitarian Crisis*.

³⁰ United Nations Office for the Coordination of Humanitarian Affairs, "Libya: Hostilities Threaten COVID-19 Response", News release, 13 April 2020. Available at www.unocha.org/story/libya-hostilities-threaten-covid-19-response, 23 April 2020.

hotlines and online counselling services.³¹ Migrant and displaced children face additional psychological harms, such as pre-existing psychological trauma; marginalization and stigma from host communities; less recreational material to offset boredom caused by lockdowns and school closures; and poor access to psychosocial support, which is already under-resourced among this group.³² In Italy, young migrants and refugees – many of whom are unaccompanied – are experiencing isolation, apathy, frustration, boredom, mood swings and sleep problems following sudden impacts on their studies, jobs, permit of stay process and appeals.³³

Dimension three: Impacts on education

The pandemic has affected the schools of 1.5 billion students worldwide and is likely to exacerbate the vulnerabilities of the millions of migrant and displaced learners around the world.³⁴ In many cases, these marginalized children have already missed critical time in the classroom and are at risk of falling even further behind. Even before the COVID-19 crisis, refugee children were twice as likely to be out of school than other children. Migrant and displaced children face numerous obstacles accessing classrooms, ranging from enrolment issues to lack of available instruction to language barriers.³⁵ For many learners living in

displacement, their education will now be more limited or disappear completely.

Where learning has switched to online delivery, access to online resources and reliable electricity is out of reach for many, especially those living in remote locations, refugee camps or informal settings. In sub-Saharan Africa, where more than a quarter of the world's refugees reside, 89 per cent of learners do not have household computers and 82 per cent lack Internet access.³⁶

Nearly 120,000 Syrians live in Jordan's two largest refugee camps, where a large portion of residents are children – many of whom have seen war deprive them of years in the classroom. As the nation came under lockdown, 32 schools in the camps were closed, impacting 18,000 students who now rely on a national television broadcast to learn. UNHCR is helping these students continue their studies by increasing the supply of electricity to camp households from eight to more than 12 hours each day, while UNICEF is providing children learning materials and life-skills messages, strengthened by positive parenting messages and related activities for parents.³⁷

Prior to COVID-19, Internet and education for the Rohingya refugees in Bangladesh had already been limited. After years of advocacy, the Bangladeshi Government recently pledged to offer these hundreds of thousands of children education, but it is difficult to see how these students can regain their chance to learn without the conditions to connect to the outside world.³⁸

³¹ Wen, Li, et al., "Progression of Mental Health Services during the COVID-19 Outbreak in China", *International Journal of Biological Sciences*, vol. 16, no. 10, 15 March 2020, pp. 1732–1738. Available at www.ncbi.nlm.nih.gov/pmc/articles/PMC7098037; Liu, Shuai, et al., "Online Mental Health Services in China During the COVID-19 Outbreak", *The Lancet – Psychiatry*, vol. 7, no. 4, 1 April 2020. Available at [www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(20\)30077-8/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(20)30077-8/fulltext).

³² Save the Children, *COVID-19: Operational Guidance for Migrant & Displaced Children*, version 1, April 2020. Available at <https://bettercarenetwork.org/sites/default/files/2020-04/OperationalGuidanceCovid19andMigrationandDisplacement.pdf>, accessed 23 April 2020.

³³ United Nations Children's Fund, "The Impact of the COVID-19 Emergency on Unaccompanied Minors and Young Refugees and Migrants in Italy", Internal document, 24 April 2020.

³⁴ United Nations Educational, Scientific, and Cultural Organization, "COVID-19 Educational Disruption and Response". Available at <https://en.unesco.org/covid19/educationresponse>, accessed 23 April 2020; *Migration, Displacement, and Education: Building bridges not walls*, UNESCO, 2018. Available at <https://en.unesco.org/gem-report/report/2019/migration>, accessed 23 April 2020.

³⁵ Right to Education, "Migrants, Refugees, and Internally Displaced Persons". Available at www.right-to-education.org/migrants-refugees-IDP, accessed 23 April 2020.

³⁶ United Nations Educational, Scientific, and Cultural Organization, "Startling Digital Divides in Distance Learning Emerge", Press release, 21 April 2020. Available at <https://en.unesco.org/news/startling-digital-divides-distance-learning-emerge>, accessed 23 April 2020.

³⁷ Dunmore, Charlie, and Rima Cherri, "Syrian Refugees Adapt to Life Under Coronavirus Lockdown in Jordan Camps", UNHCR Press release, 2 April 2020. Available at www.unhcr.org/en-us/news/stories/2020/4/5e84a3584/syrian-refugees-adapt-life-under-coronavirus-lockdown-jordan-camps.html, accessed 23 April 2020; UNICEF Middle East and North Africa Regional Office, "CoViD-19 Situation Report No.2, 1–15 April 2020". Available at www.unicef.org/mena/reports/unicef-menarocovid-19-situation-report-no2, accessed 24 April 2020.

³⁸ Human Rights Watch, "COVID-19 and Child's Rights", 9 April 2020. Available at www.hrw.org/news/2020/04/09/covid-19-and-childrens-rights-0#, accessed 23 April 2020; Reidy, Karen, "Expanding Education for Rohingya Refugee Children in Bangladesh", UNICEF, 10 February 2020. Available at www.unicef.org/rosa/stories/expanding-education-rohingya-refugee-children-bangladesh, accessed 23 April 2020.

As access to school is curtailed, more children may drop out; some will be called to work to offset economic strains, potentially making a return to school after the pandemic subsides even more difficult.

Dimension four: Impacts on protection and safety

The safety and security of migrant and displaced children stand to further erode as jobs and incomes are lost. Economic downturns typically lead to more children working, getting pregnant or married, and being trafficked or sexually exploited.³⁹ As pressures on families around the world increase, so too has domestic violence, as seen in reports from Brazil, Australia and the United States.⁴⁰ Lockdowns, income loss, and confinement to small places increase threats to the safety and well-being of children – including mistreatment, gender-based violence, exploitation, social exclusion and separation from caregivers.⁴¹ These impacts are likely to be even more acutely felt in humanitarian settings, where the stresses of daily life are already severe and child protection services less available.⁴²

In Jordan, with most case management and protection services being provided remotely, women and children are not always able to call hotlines because of proximity with the perpetrator. For refugees living in camps sharing the same limited space, privacy becomes an issue; moreover, women and children in the camps often do not own their own mobile phone.⁴³

The increasing global death toll means some children will be orphaned and become vulnerable to child protection abuses. Children from migrant and displaced families will be less likely to have extended family nearby to turn to for help, leaving many to fend for themselves.

Stigma, xenophobia and discrimination towards migrant and displaced children and their families are reaching new levels of concern in countries around the world. In Lebanon, multiple municipalities have introduced restrictions on Syrian refugees to stem the spread of the virus that do not apply to Lebanese residents, such as curfews.⁴⁴ Displaced families in the Greek islands are also facing curfews that do not apply to Greek nationals.⁴⁵ Meanwhile, in Italy there have been episodes of discrimination by the police towards young migrants and refugees simply walking on the street.⁴⁶

What needs to be done?

The COVID-19 pandemic will have broad-ranging, long-term humanitarian and socioeconomic impacts on migrant and displaced children. Many of these effects have yet to be seen. Sound policies and urgent actions are needed to put migrant and displaced children at the forefront of preparedness, prevention and response to COVID-19 – to ensure health, safety, and protection for all today, and for the long term.

Some countries are already taking action to mitigate the risks for these children: Portugal has set an example by temporarily granting residency permits

³⁹ Human Rights Watch, “COVID-19 and Child’s Rights”.

⁴⁰ The Brazilian Public Security Forum, *Domestic Violence During COVID-19 Pandemic*. Available at http://forumseguranca.org.br/publicacoes_posts/violencia-domestica-durante-pandemia-de-covid-19, accessed 23 April 2020; Peterman, et al., “Pandemics and Violence Against Women and Children”, CDG Working Paper 528, Center for Global Development, Washington D.C., April 2020. Available at www.cgdev.org/sites/default/files/pandemics-and-vawg-april2.pdf, accessed 23 April 2020.

⁴¹ United Nations Children’s Fund, “COVID-19: Children at heightened risk of abuse, neglect, exploitation and violence amidst intensifying containment measures”, Press release, 20 March 2020. Available at www.unicef.org/mena/press-releases/covid-19-children-heightened-risk-abuse-neglect-exploitation-and-violence-amidst, accessed 24 April 2020.

⁴² Ibid.

⁴³ GBV IMS Taskforce Jordan, “Preliminary Analysis of Gender Based Violence Trends During COVID 19”, 14 April 2020. Available at <https://data2.unhcr.org/en/documents/download/75490>, accessed 24 April 2020.

⁴⁴ Human Rights Watch, “Lebanon: Refugees at Risk in COVID-19 Response”, News release, 2 April 2020. Available at www.hrw.org/news/2020/04/02/lebanon-refugees-risk-covid-19-response, accessed 23 April 2020.

⁴⁵ General Secretariat for Information and Communication, “National Situational Picture Regarding the Islands at Eastern Aegean Sea”, Government of Greece, 21 April 2020. Available at <https://infocrisis.gov.gr/8631/national-situational-picture-regarding-the-islands-at-eastern-aegean-sea-21-4-2020/?lang=en>, accessed 23 April 2020; Khatib, Lina, “COVID-19 Impact on Refugees is Also Political”, Chatham House, 31 March 2020. Available at www.chathamhouse.org/expert/comment/covid-19-impact-refugees-also-political?utm_source=Chatham%20House&utm_medium=email&utm_campaign=11425646_MENA%20COVID-19%20newsletter&dm_i=1S3M,6SW32,O7Z3PV,R87RM,1, accessed 23 April 2020.

⁴⁶ United Nations Children’s Fund, “The Impact of the COVID-19 Emergency on Unaccompanied Minors and Young Refugees and Migrants in Italy”, Internal document, 24 April 2020.

to all migrants and asylum seekers with pending applications, allowing them full access to health care and social services, such as social benefits and housing.⁴⁷ The Spanish Government agreed to release persons in immigration detention, after examining each case in light of the 60-day detention limit.⁴⁸ Ireland introduced an unemployment payment scheme that is accessible to all, regardless of legal status.⁴⁹ The Malaysian authorities have said non-citizens – including those who are undocumented – that come forward for testing will not be arrested or detained.⁵⁰ To better protect vulnerable migrants, Belgian authorities are transferring them to individual accommodation or other facilities, moving families together to maintain unity; new arrivals are also being medically screened.⁵¹

In Peru, where 1.2 million Venezuelans have migrated, children of asylum seekers in quarantine are being provided hygiene kits and virtual psychosocial support. The Government is implementing distance learning for all public schools, paying specific attention to rural areas and the enrolment of migrant children – 66.7 per cent of whom are out of school – while also working to provide cash transfers to at least 63,000 migrants in extreme vulnerability.⁵²

And in many contexts, governments are addressing the issue of violence against children during the pandemic, including among migrant and displaced children, with UNICEF-supported efforts taking place in countries including Cameroon, Colombia, Côte d'Ivoire, Croatia and Mexico. To increase access to remote services, child and family helplines have been set up, expanded or are being explored in many countries, such as Algeria, Bulgaria, Jordan, several Gulf States,⁵³ Mauritania and Tunisia. To reach all migrants in Libya, a national hotline has been established, and multiple channels – social media, radio, television, outdoor and print materials – are being used to share key messages. These messages have been translated into French, Somali, Hausa, Amharic and Tigrinya and are being widely disseminated to health facilities, host communities, restaurants and other public spaces.⁵⁴

With the right policies, it is possible to mitigate the risks that migrant and displaced children are facing today – and the hardships to come. The global and UN system-wide response must include a child-sensitive approach and always uphold the principle of the best interests of the child.⁵⁵

Policies and actions are needed to:

1. Include migrant and displaced children in preparedness, response, and mitigation efforts for COVID-19.
2. Provide accessible, timely, culturally and linguistically appropriate, child-friendly and relevant information on COVID-19 to children and families on the move.
3. Ensure access to clean water, basic toilets and good hygiene practices for migrant and displaced children and families when transiting or for those living in camps and in urban areas.
4. Ensure universal access to COVID-19 testing, health care, mental health and psychosocial support, and other essential services, for all those who need them, regardless of status.

⁴⁷ Serviço De Estrangeiros E Fronteiras, "Covid-19: Changes at SEF Public Service", Portugal Ministry of Foreign Affairs. Available at <https://Imigrante.Sef.Pt/En/Covid-19/>, accessed 24 April 2020.

⁴⁸ "Interior Abre la Puerta a Liberar a Internos en los CIE por el Coronavirus", *Lavanguardia*, 19 March 2020. Available at www.lavanguardia.com/politica/20200319/474263064358/interior-abre-puerta-liberar-internos-cie.html, accessed 23 April 2020.

⁴⁹ Gov.ie, "COVID-19 Pandemic Unemployment Payment". Available at www.gov.ie/en/service/be74d3-covid-19-pandemic-unemployment-payment, accessed 23 April 2020.

⁵⁰ Arumugam, Tharanya, "Don't Worry About Being Detained, Just Come Forward for Covid-19 Testing, Please" *The Straits Times*, 22 March. Available at www.nst.com.my/news/nation/2020/03/577004/dont-worry-about-being-detained-just-come-forward-covid-19-testing-please, accessed 23 April 2020.

⁵¹ United Nations High Commissioner for Refugees, "Practical Recommendations and Good Practices to Address Protection Concerns in the Context of COVID-19", April 2020. Available at <https://data2.unhcr.org/en/documents/download/75453>, accessed 23 April 2020.

⁵² United Nations Children's Fund, "Inspirational Models for UNICEF's COVID-19 Response for Refugees/Migrants/the Displaced: What can be done/is being done concretely?", Working draft, version 13 April 2020.

⁵³ Participating Gulf States are: Bahrain, United Arab Emirates, Qatar, Kuwait and Saudi Arabia; *ibid*.

⁵⁴ *Ibid*.

⁵⁵ United Nations Children's Fund, "Quick Tips on COVID-19 and Migrant, Refugee and Internally Displaced Children" (Children on the Move), 6 April 2020. Available at www.unicef.org/media/67221/file, accessed 23 April 2020.

5. Support and advocate for safer living and housing conditions to allow for social distancing, including in shelters and camps for refugees and internally displaced persons.
6. Implement education strategies for continued learning for all children – including migrant and displaced children – and make schools safe, healthy, and inclusive environments.
7. Stop refoulement, immigration, detention, push-backs, deportations and mass expulsions of migrant and displaced children and families in the context of the COVID-19 pandemic. These practices threaten children's rights and are a risk to public health.
8. Expand social protection policies and programmes to minimize the economic impact of COVID-19 on families.
9. Advocate proactively against xenophobia, stigma and discrimination – the virus does not discriminate, and neither should we.

Collaboration and unity are needed more than ever to ensure health, safety, and protection for all, especially for those in the most vulnerable of circumstances. Around the world, millions of migrant and displaced children on nearly every continent are already facing acute deprivations that will upend their growth and development as they mature into adults. COVID-19 presents even greater challenges and threatens to disrupt their lives even further. Protecting these children's well-being today is the best way to invest in their future and restore hope for a calmer path ahead. ■

RESEARCH ARTICLE

Open Access



Child marriage among boys in high-prevalence countries: an analysis of sexual and reproductive health outcomes

Christina Misunas*, Colleen Murray Gastón and Claudia Cappa

Abstract

Background: While the determinants and impacts of child marriage among girls have been well documented, little research exists on the practice among boys. This paper explores the sociodemographic profile of men who married by age 18 and assesses whether they are more or less advantaged than their peers in terms of their sexual and reproductive health outcomes.

Methods: This analysis used the most recent data from nationally representative household surveys for the 15 countries with the highest prevalence of marriage by age 18 among men aged 20–24 at the time of the survey. The prevalence of child marriage was then explored for the full cohort of men aged 20–49 through descriptive statistics and bivariate analysis. Available reproductive health indicators were explored, comparing men who married during childhood and men who married in adulthood. For the youngest and oldest cohorts, the total number of children fathered and the total ideal number of children were compared based on whether men married by age 18.

Results: For this subset of countries, the prevalence of child marriage among men aged 20–24 ranges from 8.4 to 27.9%. The practice appears most common among respondents living in the poorest households and in rural areas, and with no education or only primary schooling. Men who married as children appear less likely to have comprehensive knowledge of HIV than their peers who married in adulthood. Little difference among men who married by age 18 and those who married in adulthood was observed regarding knowledge or use of modern methods of contraception. In almost all countries with data, the odds of having fathered three or more children among men aged 20–29 are higher for those who married as children compared to their peers. In four countries, the odds of exceeding one's ideal family size among men aged 40–49 also appear higher among those who married during childhood compared to men who married at older ages.

Conclusion: These results highlight the need for further research to identify drivers of the practice and short- and long-term outcomes for men who married during childhood, specifically concerning fatherhood, fertility preferences, and completed family size.

Keywords: Child marriage, Adolescent boys, Male sexual and reproductive health

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Introduction

Background

Child marriage, defined as a formal marriage or informal union before the exact age 18, has been widely acknowledged as a violation of fundamental human rights by several conventions, treaties, and international agreements, including the Convention on the Rights of the Child, the Convention on the Elimination of All forms of Discrimination against Women, and the Universal Declaration of Human Rights [1–4].

Yet the mere existence of legal instruments prohibiting child marriage adopted by the international community has not been enough to eliminate the practice. Although age 18 is recognized as the *age of the majority* in most parts of the world, the Convention on the Rights of the Child creates exceptions for national laws [3]. Moreover, even in some countries with strong legal frameworks prohibiting the practice, implementation of the ban on child marriage is often inconsistent and weak [5]. Despite a general global trend towards later marriage for both sexes [6], the percentage of girls and boys who marry during childhood remains sizeable. Globally, an estimated 21.2% of females currently aged 20–24 were first married or in union before age 18; 4.5% of males currently aged 20–24 were also married during childhood based on data available for 82 countries [7].

Research on the practice of child marriage has focused mainly on its determinants and outcomes for girls and the children they bear [8–12]. In many countries, the risk of child marriage is highest for girls in rural areas, in the poorest communities, and with lower levels of education [8, 13]. Likewise, research on health outcomes of the practice has indicated that girls who marry during childhood are often at higher risk of unintended pregnancy, acquiring HIV and other sexually transmitted infections, pregnancy-related mortality and morbidity, and potential longer-term consequences of early childbearing such as obstetric fistula and cervical cancer [14–16]. In comparison to marriage that occurs during adulthood, child marriage has been shown to be associated with lower age at first birth, lower contraceptive use, higher fertility, and higher risk of having more than one's ideal number of children [17, 18].

Conversely, less is known about the profile of men who married during childhood and the determinants of the practice among boys; no comparable research currently exists on the long-term reproductive health and fertility outcomes for men who married before turning 18. The lack of research is likely due to differences in the global magnitude of the practice [6–8] and the grave physiological risks of early pregnancy and childbirth often faced by girls [18, 19]. However, the practice remains a rights violation for children of both sexes and further

investigation on the scale and implications of child marriage among boys is needed.

Similar to girls who marry during childhood, boys who marry before age 18 might enter into unions that involve experiences and responsibilities, including early fatherhood and providing for the household, for which they may lack adequate knowledge, resources, and psychosocial support. Both in the immediate aftermath and later in life, men who married as children might suffer similar reproductive health consequences regarding lower knowledge and use of contraception and higher unwanted fertility as women married during childhood. While men's contraceptive needs and fertility intentions have been explored more broadly [20–24], to the best of our knowledge, no studies have assessed whether and how they vary based on age at marriage.

Aims and objectives

This paper aims to explore the sociodemographic background of men who married during childhood in countries where the practice is most common to determine if prevalence is concentrated in certain subpopulations and whether the factors strongly associated with child marriage among girls, such as residence, wealth, and education, are similar for boys. Subsequent analysis provides insight into whether key life outcomes related to sexual and reproductive health and family size differ for men who married as children compared to their peers who married in adulthood.

Methods

Data sources

Data used for this analysis were from nationally representative household surveys, predominantly the Multiple Indicator Cluster Surveys (MICS), supported by the United Nations Children's Fund (UNICEF), and the Demographic and Health Surveys (DHS), supported by the United States Agency for International Development (USAID), both of which use two-stage cluster sampling.

Nationally representative data collected during the past decade on child marriage among boys were available for 82 countries. To identify countries where the practice among boys is most common, the prevalence of marriage by age 18 among men currently aged 20–24 was used as a proxy for the current estimate because this cohort most recently completed exposure to the risk period. Based on the latest estimates, the following 15 countries with the highest prevalence of child marriage among men currently aged 20–24 were selected for further analysis: the Plurinational State of Bolivia (DHS 2008), the Central African Republic (MICS 2010), Comoros (DHS 2012), Cuba (MICS 2014), Guatemala (DHS 2015), Guyana (MICS 2014), Honduras (DHS 2011–2012), Lao People's Democratic Republic (MICS 2011–2012), Madagascar (Enquête Nationale sur le

Suivi des Objectifs du Millénaire pour le Développement à Madagascar (2013)), the Marshall Islands (DHS 2007), Mozambique (DHS 2011), Nauru (DHS 2007), Nepal (DHS 2016), Nicaragua (Encuesta Nicaragüense de Demografía y Salud (2011–2012)), and Thailand (MICS 2015). The Marshall Islands and Nauru were excluded from further analysis because the data are not publicly available and request for access was not granted.

In these surveys, males aged 15–49 in selected households were identified as respondents to individual questionnaires. Among other topics, men consenting to be interviewed were asked whether they had ever been married or lived with someone as if married. Men who responded affirmatively were asked to provide the month and year they began living with their first partners and, for validation, their exact age at first marriage or union [25, 26].

Although the prevalence of child marriage among men currently aged 20–24 was used to identify countries for further investigation, subsequent analyses presented in this paper included the full cohort of men aged 20–49, 20–29 or 40–49 to ensure the analytic sample was of sufficient size. The 15–19 age group was excluded due to censoring.

Outcome-level indicators

Prevalence of marriage by age 18 among men aged 20–49 was explored using descriptive statistics and bivariate analysis of age and other background-level indicators for which research on child marriage among girls has revealed associations. These variables include household wealth (quintiles), place of residence (urban and rural), and level of education attainment (none or primary and secondary or higher). Prevalence estimates for each five-year age cohort from the most recent available data source were also compared to assess trends.

Two available indicators of reproductive health (comprehensive knowledge of HIV,¹ and knowledge and use of modern methods of contraception²) were explored for men aged 20–49, comparing men who married during childhood and those who married in adulthood.

Self-reported data on the total number of children fathered, including those living in and outside the household as well as deceased children, were used to compare the size of men's families both early and later in life based on whether they married in childhood or adulthood.³ The percentage of men aged 20–29 who biologically fathered three or more children at the time of the survey was compared according to whether they married by age 18 or in adulthood. The mean total number of children fathered and the mean number of living children were also compared for those married by 18 with those married in adulthood.

The linear relationship between men's age and the number of children fathered was documented;

additionally, the total number of children ever fathered by men who married during childhood and men who married in adulthood was compared according to the number of years men have been married. Since data on length of previous marriages were not collected, this analysis was restricted to currently married men aged 20–49 who reported to have been married only once to ensure accurate estimates of marriage duration.

For the 40–49 age group, additional analysis was conducted on whether men's ideal family size varied according to age at marriage (before or at/after age 18).⁴ The percentage of men aged 40–49 who had already exceeded their ideal family size based on the number of living children at the time of the survey was compared between men based on their age at first marriage in bivariate and multivariate regression analyses.

Statistical methods

Data were analysed using Stata, version 15.0. Analysis was weighted to account for the sampling design of each survey. Estimates based on fewer than 25 unweighted cases are not shown, and those based on fewer than 50 are noted. Results from the chi-square test for bivariate analysis and the Wald test for multivariate regression analysis along with confidence intervals (95%) were used to assess the strength of association and model fit. In the regression analysis used to explore the associations between age at marriage and each outcome-level variable, additional models were used to adjust for the effects of known

¹Comprehensive knowledge of HIV was demonstrated by three items: correctly identifying the two major methods of preventing sexual transmission of HIV (frequent condom use and limiting sex to one faithful, uninfected partner); knowing that an individual who appears healthy can be HIV positive; and rejecting the two most common local misconceptions of HIV transmission. Questions used to assess men's knowledge of HIV in the survey for Nicaragua differed from those used in other surveys; results are incomparable with the standard indicator used and not shown.

²Use of a modern family planning method was defined as currently using at least one of the following: the pill, female and male sterilization, injectables, implants, male and female condoms, diaphragms, or emergency contraception. Knowledge of at least one modern family planning method was defined as having heard of at least one of the aforementioned methods. Information on men's knowledge and use of family planning methods was not collected in the surveys for the Central African Republic, Cuba, Guyana, Lao People's Democratic Republic, or Thailand.

³Information on men's total number of children fathered or total number of living children was not collected in the surveys for the Central African Republic, Cuba, or Lao People's Democratic Republic.

⁴To determine ideal family size, respondents who had living children were asked: "If you could go back to the time when you did not have any children and could choose exactly the number of children to have in your lifetime, how many would that be?" Information on men's ideal family size was not collected in the surveys for the Central African Republic, Cuba, Lao People's Democratic Republic, or Thailand.

confounders, specifically age as a continuous variable and household wealth as a categorical variable using quintiles.

Results

Sociodemographic background

Table 1 presents the countries with the highest percentage of men currently aged 20–24 who were

married by age 18 based on the most recent available data. Prevalence of child marriage varies across five-year age groups, and trends appear inconsistent across countries. In 11 countries, prevalence appears higher among the youngest men (20–24) than the oldest (45–49), although the confidence intervals are wide and overlapping. In the remaining four countries, prevalence appears lower among the youngest cohort than the oldest,

Table 1 The percentage of men aged 20–49 who were married by age 18, by current age

Country	Year	Men's current age						
		20–24	25–29	30–34	35–39	40–44	45–49	20–49
Bolivia (Plurinational State of) <i>N</i> = 3987 <i>P</i> = 0.550	2008	8.4 (6.1–11.4)	7.1 (5.0–10.0)	9.1 (6.8–12.0)	6.1 (4.3–8.5)	7.8 (5.4–11.1)	6.6 (4.5–9.7)	7.6 (6.6–8.7)
Central African Republic <i>N</i> = 3893 <i>P</i> = 0.010	2010	27.9 (24.2–32.0)	30.5 (26.2–35.2)	28.2 (24.2–32.5)	24.8 (20.5–29.8)	19.4 (15.8–23.6)	25.0 (20.3–30.4)	26.7 (24.8–28.7)
Comoros <i>N</i> = 1477 <i>P</i> = 0.396	2012	11.9 (8.0–17.2)	15.0 (10.5–20.9)	9.7 (6.1–15.1)	9.3 (5.6–14.9)	12.9 (8.0–20.2)	8.6 (4.9–14.8)	11.4 (9.2–13.9)
Cuba <i>N</i> = 3125 <i>P</i> = 0.848	2014	10.7 (6.9–16.1)	13.1 (8.8–19.3)	14.9 (9.8–22.1)	11.7 (7.4–18.1)	14.8 (10.5–20.5)	13.2 (9.0–18.9)	13.1 (11.1–15.5)
Guatemala <i>N</i> = 7242 <i>P</i> = 0.071	2015	9.6 (8.1–11.3)	11.8 (10.0–14.0)	11.8 (10.0–14.0)	11.6 (9.5–14.1)	14.3 (11.6–17.5)	11.5 (9.2–14.2)	11.5 (10.6–12.5)
Guyana <i>N</i> = 1308 <i>P</i> = 0.324	2014	8.5 (5.1–13.8)	6.1 (3.4–10.7)	5.2 (2.3–11.5)	9.8 (5.2–17.8)	4.0 (1.7–9.2)	4.9 (2.3–10.4)	6.6 (4.8–9.0)
Honduras <i>N</i> = 4815 <i>P</i> = 0.245	2011	12.2 (10.0–14.9)	14.5 (11.9–17.5)	13.4 (10.7–16.7)	16.7 (13.5–20.4)	11.6 (9.0–14.9)	13.1 (9.9–17.1)	13.6 (12.3–14.9)
Lao People's Democratic Republic <i>N</i> = 7832 <i>P</i> = 0.013	2011	12.7 (10.8–14.9)	16.7 (14.6–19.0)	16.0 (13.7–18.7)	14.3 (12.4–16.5)	15.6 (13.1–18.5)	11.8 (9.9–14.2)	14.6 (13.5–15.7)
Madagascar <i>N</i> = 5293 <i>P</i> = 0.004	2013	12.9 (10.6–15.6)	12.3 (10.0–15.0)	8.6 (6.9–10.7)	9.7 (7.4–12.6)	7.1 (5.3–9.4)	10.6 (8.0–14.0)	10.4 (9.4–11.4)
Marshall Islands <i>N</i> = 704	2007	11.8	11.1	17.4	9.3	18.0	6.4	12.4
Mozambique <i>N</i> = 2627 <i>P</i> = 0.072	2011	8.7 (6.0–12.4)	10.7 (8.0–14.2)	7.3 (4.8–10.9)	5.6 (3.6–8.8)	3.7 (1.7–7.8)	6.0 (2.8–12.1)	7.6 (6.4–9.0)
Nauru <i>N</i> = 252	2007	12.3	17.7	7.5	27.4	7.1	6.5	13.8
Nepal <i>N</i> = 3131 <i>P</i> < 0.001	2016	10.3 (7.5–14.1)	13.3 (10.2–17.1)	19.9 (15.9–24.5)	22.7 (18.0–28.4)	21.3 (17.0–26.4)	18.6 (14.7–23.3)	17.3 (15.4–19.4)
Nicaragua <i>N</i> = 4650 <i>P</i> = 0.236	2011	16.2 (12.6–20.6)	16.7 (13.3–20.7)	18.7 (15.3–22.6)	20.9 (16.8–25.6)	21.9 (16.8–28.0)	14.9 (10.9–19.9)	18.0 (16.3–19.8)
Thailand <i>N</i> = 19783 <i>P</i> = 0.032	2015	10.1 (8.2–12.4)	7.5 (5.9–9.5)	5.7 (4.4–7.5)	8.2 (6.5–10.4)	8.9 (7.2–11.1)	7.8 (6.3–9.6)	8.0 (7.3–8.9)

Confidence intervals and *p* values are not shown for the Marshall Islands and Nauru because data sets were not publicly available

although this difference is only statistically significant in Nepal. The percentage of men currently aged 20–24 who were married by age 15 is considerably lower in all countries, suggesting that most child marriages involving boys occur during later adolescence, between the ages of 15 and 18 (Table 10 in Appendix).

With the exception of the Central African Republic, prevalence of child marriage among men aged 20–49 is higher among those in the poorest household wealth quintile than among men in the richest (Table 2). Evidence of a strong association between household wealth quintile and marriage by age 18 is observed at the $p < 0.01$ level in eight countries (the Plurinational State of Bolivia, Guatemala, Honduras, Lao People's Democratic Republic, Madagascar, Mozambique, Nepal, and Thailand).

Prevalence is higher among men in rural locations compared to those in urban areas in all countries except the Plurinational State of Bolivia, the Central African Republic, Cuba, and Thailand; however, differences are statistically significant at the $p < 0.01$ level only in Guatemala, Lao People's Democratic Republic, and Madagascar. In all countries with available data, the percentage of men aged 20–49 who married by age 18 appears higher among those with no education or only primary schooling compared to those with secondary education or higher; the differences in prevalence by level of men's education are statistically significant at the $p < 0.01$ level in nine countries. Although prevalence among men with no education is higher compared to those who completed primary schooling, the confidence intervals are wide and overlapping (*not shown*).

Sexual and reproductive health

Comprehensive knowledge of HIV

In all countries with data, the percentage of men aged 20–49 who lack comprehensive knowledge of HIV appears higher among men married as children than among those who married at/after age 18; these differences are significant at the $p < 0.01$ level in six countries (Table 3). Results from multivariate logistic regression analysis indicate that men who married as children in Lao People's Democratic Republic, Madagascar, and Thailand have higher odds of lacking comprehensive knowledge of HIV compared to men who married at or after age 18 even after adjusting for their current age and household wealth quintile. This trend is also observed for the other countries with available data although not at the $p < 0.01$ level.

Knowledge and use of modern family planning methods

The percentage of men aged 20–49 with knowledge of at least one modern method of family planning is above 85% in all countries with available data, with little variation among men married as children and those who married as adults (*not shown*). Use of modern methods of

contraception appears to vary widely across countries. In half of the countries with available data (the Plurinational State of Bolivia, Comoros, Honduras, and Nepal), the use of modern contraception is higher among men aged 20–49 who married by age 18 compared to those who married in adulthood, although differences are significant at the $p < 0.01$ level only in Comoros and Nepal (Table 4). With the exception of Madagascar, men aged 20–49 who were married by age 18 appear to have higher odds of using a modern method compared to men married in adulthood after adjusting for socioeconomic status and age in multivariate logistic regression analysis, although differences are significant at the $p < 0.01$ level only in Nepal.

Family size among the youngest and oldest cohorts of men

Early fatherhood

In nine of the ten countries with available data, the percentage of men aged 20–29 who had already fathered three or more children at the time of the survey is higher among men married as children compared to men married in adulthood (Table 5). In seven of the countries, more than a quarter of men aged 20–29 who married by age 18 reported having fathered three or more children. With the exception of Guyana, the odds of having fathered three or more children remain higher for men who married as children compared to men who married in adulthood even after adjusting for men's current age and household wealth quintile, with differences observed at the $p < 0.001$ level. In all countries with data, both the mean total number of children fathered and the mean total number of living children appear higher among men aged 20–29 who married during childhood than those who married in adulthood; differences were observed at the $p < 0.01$ level in eight countries (Table 6).

Fertility outcomes later in life

In eight of the ten countries with available data, the mean total number of children fathered and the mean number of living children fathered by men currently aged 40–49 were higher among men who married during childhood compared to those married in adulthood, with differences observed at the $p < 0.01$ level (Table 6). The largest difference was observed for Comoros, where men aged 40–49 who married by age 18 fathered 8.3 children on average compared to 4.7 for those married in adulthood ($p = 0.001$).

Linear regression analyses were conducted to explore the association between marriage by age 18 and the number of children fathered after adjusting for men's current age and the number of years spent living in a marital or cohabiting union. Since data on length of previous marriages were not collected, analysis was restricted to currently married men who reported to have been married only once in order to

Table 2 The percentage of men aged 20–49 who were married by age 18, by household wealth quintile, place of residence, and level of education attainment

Country	Household Wealth Quintile					Place of residence			Education	
	Poorest	Second	Middle	Fourth	Richest	Urban	Rural		None or primary	Secondary or higher
Bolivia (Plurinational State of) N = 3987	8.3 (6.2–10.9) <i>P</i> = 0.002	9.8 (7.2–13.2)	9.9 (7.6–12.9)	6.6 (4.6–9.2)	4.2 (2.8–6.2)	7.6 (6.4–9.1)	7.4 (5.9–9.2)	11.5 (9.6–13.6)	5.4 (4.3–6.8)	
Central African Republic N = 3893	25.2 (22.0–28.6) <i>P</i> = 0.140	28.2 (25.2–31.5)	22.5 (19.3–26.0)	30.0 (24.9–35.7)	27.5 (22.1–33.7)	28.0 (24.1–32.3)	25.9 (24.0–27.9)	27.0 (25.0–29.2)	26.2 (22.9–29.8)	
Comoros N = 1477	17.1 (12.1–23.6) <i>P</i> = 0.135	10.3 (6.2–16.4)	100 (6.6–15.0)	11.9 (8.3–16.8)	9.0 (6.1–13.3)	10.2 (7.4–13.8)	12.0 (9.2–15.6)	13.6 (10.4–17.5)	9.3 (7.1–12.2)	
Cuba N = 3125	— —	—	—	—	—	13.6 (11.3–16.3)	11.5 (7.7–16.9)	15.4 (6.7–31.5)	13.1 (11.0–15.4)	
Guatemala N = 7242	17.1 (14.8–19.7) <i>P</i> < 0.001	14.2 (12.1–16.6)	13.2 (11.2–15.4)	10.2 (8.5–12.2)	5.5 (4.3–6.9)	8.9 (7.7–10.3)	13.7 (12.5–15.1)	16.7 (15.3–18.2)	5.2 (4.4–6.2)	
Guyana N = 1308	11.5 (7.6–17.2) <i>P</i> = 0.176	5.7 (3.2–9.7)	5.7 (3.0–10.6)	5.8 (2.9–11.0)	4.9 (1.8–12.5)	4.2 (2.2–8.1)	7.4 (5.2–10.5)	8.4 (4.0–16.8)	6.2 (4.4–8.6)	
Honduras N = 4815	15.7 (13.3–18.5) <i>P</i> = 0.013	13.4 (10.9–16.3)	16.3 (13.6–19.5)	12.3 (9.7–15.3)	10.2 (7.8–13.2)	13.1 (11.4–15.1)	14.0 (12.3–15.8)	16.9 (15.2–18.7)	7.9 (6.4–9.8)	
Lao People's Democratic Republic N = 7832	22.8 (20.5–25.4) <i>P</i> < 0.001	20.8 (18.6–23.2)	15.9 (14.0–18.0)	9.5 (8.1–11.2)	6.5 (5.1–8.2)	7.3 (5.9–9.0)	17.5 (16.2–18.8)	20.9 (19.3–22.5)	7.7 (6.8–8.7)	
Madagascar N = 5305	15.0 (12.2–18.3) <i>P</i> < 0.001	13.2 (10.6–16.3)	9.7 (7.8–12.1)	10.5 (8.4–13.0)	6.6 (5.3–8.2)	6.0 (4.6–7.8)	11.4 (10.3–12.7)	13.8 (12.4–15.2)	4.4 (3.4–5.7)	
Mozambique N = 2627	6.5 (4.3–9.8) <i>P</i> < 0.001	11.1 (7.7–15.7)	11.7 (8.4–16.2)	6.6 (4.2–10.2)	3.5 (2.3–5.4)	6.7 (5.0–8.9)	8.1 (6.5–10.0)	9.0 (7.4–11.0)	3.7 (2.4–5.6)	
Nepal N = 3132	21.5 (17.3–26.5) <i>P</i> < 0.001	22.0 (18.5–25.9)	21.1 (17.6–25.0)	19.8 (15.3–25.2)	6.7 (4.7–9.7)	15.7 (13.2–18.6)	20.4 (17.7–23.4)	25.8 (22.5–29.3)	13.0 (11.0–15.3)	
Nicaragua N = 4450	— —	—	—	—	—	16.9 (14.4–19.7)	19.5 (17.4–21.7)	24.7 (21.1–28.6)	15.8 (13.9–17.9)	
Thailand N = 19783	7.3 (6.0–8.9) <i>P</i> < 0.001	10.2 (8.5–12.2)	9.6 (7.6–12.0)	8.8 (7.2–10.7)	4.0 (3.0–5.3)	8.1 (6.9–9.5)	8.0 (7.0–9.1)	11.0 (9.5–12.7)	6.4 (5.6–7.2)	

Information on household wealth quintile unavailable for Cuba or Nicaragua

Table 3 The odds of lacking comprehensive knowledge of HIV comparing men aged 20–49 who were married by age 18 with those married at or after 18 (reference group)

Country	Percentage of men who lack comprehensive knowledge of HIV	Unadjusted odds ratios (Model 1)		Odds ratios adjusted for age (Model 2)		Odds ratios adjusted for age and household wealth (Model 3)	
		Married by age 18	Married at/after 18	Odds ratio	P value	Odds ratio	P value
Bolivia (Plurinational State of) N = 2999	78.0 (71.2–83.6) <i>P</i> = 0.344	74.7 (72.3–77.0)	1.20 (0.82–1.76)	0.345	1.23 (0.84–1.80)	0.289	1.11 (0.74–1.66)
Central African Republic N = 3455	76.1 (72.6–79.2) <i>P</i> = 0.585	75.0 (72.7–77.1)	1.06 (0.86–1.31)	0.585	1.05 (0.85–1.31)	0.633	1.10 (0.88–1.37)
Comoros N = 1101	81.3 (73.7–87.1) <i>P</i> = 0.015	70.7 (65.9–75.0)	1.80 (1.12–2.91)	0.016	1.71 (1.06–2.74)	0.027	1.61 (1.01–2.58)
Cuba N = 3125	41.6 (33.4–50.3) <i>P</i> = 0.273	36.6 (33.1–40.3)	1.18 (0.81–1.73)	0.391	1.18 (0.81–1.74)	0.387	—
Guatemala N = 7242	81.2 (77.5–84.4) <i>P</i> < 0.001	72.4 (70.8–73.9)	1.53 (1.22–1.91)	< 0.001	1.52 (1.21–1.90)	< 0.001	1.18 (0.94–1.49)
Guyana N = 1050	61.1 (44.2–75.7) <i>P</i> = 0.065	44.5 (40.0–49.3)	1.95 (0.95–4.02)	0.069	1.92 (0.93–3.96)	0.078	1.76 (0.91–3.45)
Honduras N = 3788	68.6 (63.9–72.9) <i>P</i> = 0.492	66.7 (64.4–69.1)	1.08 (0.86–1.37)	0.492	1.12 (0.89–1.41)	0.345	1.03 (0.81–1.31)
Lao People's Democratic Republic N = 7832	78.3 (75.0–81.2) <i>P</i> < 0.001	68.0 (66.2–69.8)	1.69 (1.40–2.05)	< 0.001	1.69 (1.40–2.05)	< 0.001	1.32 (1.09–1.60)
Madagascar N = 4236	85.1 (81.2–88.4) <i>P</i> < 0.001	73.2 (71.4–75.0)	2.10 (1.55–2.83)	< 0.001	1.97 (1.46–2.67)	< 0.001	1.87 (1.38–2.54)
Mozambique N = 2627	55.6 (46.4–64.5) <i>P</i> = 0.121	48.3 (45.6–51.0)	1.28 (0.88–1.86)	0.202	1.34 (0.91–1.96)	0.136	1.29 (0.89–1.87)
Nepal N = 2648	79.4 (75.1–83.1) <i>P</i> = 0.005	71.4 (68.5–74.2)	1.54 (1.14–2.08)	0.005	1.54 (1.14–2.09)	0.005	1.27 (0.94–1.71)
Thailand N = 14583	57.4 (52.4–62.2) <i>P</i> = 0.001	48.7 (46.6–50.8)	1.42 (1.15–1.75)	0.001	1.40 (1.14–1.73)	0.002	1.33 (1.08–1.64)

Nicaragua could not be included in this analysis because questions on knowledge of HIV included in that survey differed, making results incomparable with the standard indicator used

Table 4 The odds of using a modern method of family planning, comparing men currently aged 20–49 who were married by age 18 with those married at or after 18 (reference group)

Country	Percentage of men using a modern method of family planning, by men's age at marriage		Unadjusted odds ratios (Model 1)		Odds ratios adjusted for age (Model 2)		Odds ratios adjusted for age and household wealth (Model 3)	
	Married by age 18	Married at/ after age 18	Odds ratio	P value	Odds ratio	P value	Odds ratio	P value
Bolivia (Plurinational State of) N = 2999	34.9 (28.5–41.9) <i>P</i> = 0.535	32.6 (30.3–35.0)	1.11 (0.80–1.53)	0.535	1.01 (0.74–1.38)	0.959	1.07 (0.77–1.50)	0.674
Comoros N = 1101	26.0 (18.8–34.8) <i>P</i> = 0.013	17.1 (14.2–20.6)	1.69 (1.11–2.59)	0.014	1.27 (0.82–1.95)	0.281	1.27 (0.82–1.99)	0.285
Guatemala N = 5584	47.8 (43.6–52.0) <i>P</i> = 0.298	50.1 (48.3–51.9)	0.91 (0.77–1.09)	0.298	0.93 (0.78–1.11)	0.421	1.09 (0.91–1.30)	0.371
Honduras N = 3789	70.2 (65.9–74.2) <i>P</i> = 0.058	65.6 (63.5–67.7)	1.23 (0.99–1.54)	0.058	1.25 (1.00–1.56)	0.049	1.29 (1.03–1.61)	0.027
Madagascar N = 4235	24.3 (19.9–29.2) <i>P</i> = 0.004	32.2 (30.3–34.1)	0.67 (0.52–0.88)	0.004	0.65 (0.50–0.85)	0.002	0.69 (0.53–0.91)	0.008
Mozambique N = 2223	18.3 (13.0–25.2) <i>P</i> = 0.906	18.6 (16.6–20.9)	0.98 (0.64–1.48)	0.906	0.94 (0.62–1.41)	0.752	1.17 (0.75–1.82)	0.486
Nepal N = 2648	60.5 (55.3–65.5) <i>P</i> = 0.015	53.9 (50.9–57.0)	1.31 (1.05–1.63)	0.015	1.33 (1.07–1.66)	0.009	1.31 (1.06–1.63)	0.015
Nicaragua N = 3609	73.9 (72.1–77.1) <i>P</i> = 0.790	74.7 (68.8–78.5)	0.96 (0.72–1.28)	0.790	0.96 (0.73–1.28)	0.790	–	–

ensure accurate estimates of marriage duration; the age group was expanded to include men aged 20–49 to allow for adequate sample size.

The total number of children fathered was first modelled as a linear regression for men aged 20–49, with marriage by age 18 (a dichotomous variable) and current age (a continuous variable) as potentially associated factors. The strong linear relationship between men's age and the number of children fathered was documented (Table 11 in [Appendix](#)). A second model was then constructed to regress the total number of children on marriage by age 18 and marriage duration in years (a continuous variable), removing current age due to its collinearity with the number of years married (Table 7). The number of years a man remains married appeared positively associated with the number of children fathered in all countries at the $p < 0.001$ level. Once the number of years married remains fixed, the association appears inconsistent and weakened in eight of the ten countries with data.

In the seven countries with available data, the mean number of children desired during one's lifetime appeared consistently higher among men aged 40–49 who were married by age 18 compared to men married in adulthood (Table 8). These differences appear significant at the $p < 0.01$ level in the Plurinational State of Bolivia, Guatemala, Madagascar, and Nepal. In five countries, the average number of children fathered by men aged

40–49 appears higher than the average number of children desired for both men married as children and men married in adulthood (Tables 6 and 8).

The percentage of men aged 40–49 who had already exceeded their ideal family size at the time of the survey appears higher among those married by age 18 compared to those married in adulthood in all countries with data; differences are significant in four of the seven countries. For men aged 40–49, the odds of having already exceeded one's ideal family size appear higher among men who married by age 18 compared to those who married in adulthood even after adjusting for men's current age and household wealth, with differences significant at the $p < 0.01$ level in Guatemala, Honduras, and Nepal (Table 9, Table 12 in [Appendix](#)).

Discussion

The 15 countries with the highest prevalence of child marriage among boys are geographically, economically, and culturally diverse, perhaps indicating country-specific drivers of the practice. Given the lack of a clear geographical pattern, further assessment of the extent of sub-national variation in prevalence is recommended to identify the most vulnerable populations. Moreover, for almost all countries included in this analysis, the legal age of marriage for men is 18 or older, with Bolivia and Thailand as exceptions; however, most countries permit marriage

Table 5 The odds of having fathered three or more children at the time of survey, comparing men aged 20–29 who were married by age 18 with those married at or after 18 (reference group)

Country	Percentage of men aged 20–29 who fathered three or more children, by men's age at marriage		Unadjusted odds ratios (Model 1)		Odds ratios adjusted for age (Model 2)		Odds ratios adjusted for age and household wealth (Model 3)	
	Married by age 18	Married at/ after age 18	Odds ratio	P value	Odds ratio	P value	Odds ratio	P value
Bolivia (Plurinational State of) N = 780	31.4 (21.4–43.4) <i>P</i> < 0.001	14.5 (11.3–18.3)	2.69 (1.50–4.80)	< 0.001	5.37 (2.73–10.56)	< 0.001	6.17 (3.02–12.58)	< 0.001
Comoros N = 279	30.3 (19.2–44.3) <i>P</i> = 0.002	10.2 (5.7–30.3)	3.84 (1.61–9.14)	0.003	5.63 (2.47–12.80)	< 0.001	7.25 (2.49–21.16)	< 0.001
Guatemala N = 1807	31.9 (26.0–38.4) <i>P</i> < 0.001	12.4 (10.7–14.4)	3.30 (2.36–4.61)	< 0.001	6.80 (4.57–10.16)	< 0.001	6.88 (4.46–10.59)	< 0.001
Guyana N = 316	6.3 (2.2–16.8) <i>P</i> = 0.997	6.3 (4.0–9.6)	1.00 (0.31–3.28)	0.997	1.26 (0.37–4.31)	0.710	1.28 (0.40–4.07)	0.675
Honduras N = 1194	27.2 (21.8–33.3) <i>P</i> < 0.001	8.4 (6.7–10.4)	4.08 (2.82–5.90)	< 0.001	5.76 (3.82–8.68)	< 0.001	5.88 (3.84–9.01)	< 0.001
Madagascar N = 1308	40.2 (33.0–47.7) <i>P</i> < 0.001	17.9 (15.1–21.0)	3.08 (2.13–4.45)	< 0.001	6.89 (4.41–10.76)	< 0.001	6.90 (4.27–11.1)	< 0.001
Mozambique N = 811	60.0 (47.0–71.8) <i>P</i> < 0.001	21.8 (17.9–26.2)	5.39 (2.99–9.72)	< 0.001	11.10 (5.66–21.75)	< 0.001	10.14 (5.23–19.66)	< 0.001
Nepal N = 718	36.3 (26.4–47.5) <i>P</i> < 0.001	7.2 (5.0–10.2)	7.37 (4.18–13.0)	< 0.001	13.61 (7.39–25.06)	< 0.001	11.33 (6.01–21.36)	< 0.001
Nicaragua N = 1287	11.5 (7.8–16.8) <i>P</i> = 0.021	6.5 (4.7–8.8)	1.89 (1.09–3.25)	0.023	2.69 (1.53–4.75)	< 0.001	–	–
Thailand N = 2381	7.5 (4.4–12.3) <i>P</i> < 0.001	1.6 (0.8–3.0)	5.03 (2.15–11.75)	< 0.001	8.75 (3.76–20.33)	< 0.001	9.39 (3.95–22.32)	< 0.001

before age 18 based on specific circumstances, such as in cases of parental consent [27]. Future research on the enforcement of and exceptions to the legal age of marriage within these countries is warranted to better understand the social and cultural norms surrounding the practice. Although analysis of trends across the five-year age cohorts is limited by sample size, the absence of a consistent decline in prevalence of marriage by age 18 might suggest that the changes observed at the regional and global level do not reflect the situation in high-prevalence countries [6, 7].

Among the men who married during childhood, most entered into marital unions as older adolescents: across all countries, less than 3% of men currently aged 20–24 were married by age 15, with the exception of men in the Central African Republic (14%). For most countries included in this analysis, the patterns of prevalence observed by household wealth quintile, place of residence, and level of education attainment are aligned with findings for child marriage among girls [8]. Prevalence among men appears concentrated among those living in the poorest households and in rural areas, and among those with no education or only primary schooling. However, since data used for this analysis are from cross-sectional surveys, the

results are unable to indicate whether these time-variant factors were antecedents or consequences of early marriage. Consequently, further research is needed on whether and to what extent child marriage negatively impacts boys' educational and employment opportunities both in the immediate aftermath and later in life.

Similar to the findings on health outcomes of child marriage among girls, there is also evidence of reproductive health consequences for boys who marry during childhood. Even after adjusting for their current age and household wealth quintile, men who married during childhood appear more likely to lack comprehensive knowledge of HIV than their peers who married in adulthood. Girls who marry by age 18 are shown to be at higher risk of HIV infection due to their young age, physical immaturity, and limited power to negotiate safer sex [28, 29]. In the absence of data on HIV prevalence, these findings might suggest that men who marry during childhood are also at higher risk of infection.

There appears to be little variation regarding knowledge and use of modern methods of family planning among men aged 20–49 based on their age at first marriage. However, in most countries with available data, for both the

Table 6 Among ever-married men aged 20–29 and 40–49, the mean number of children ever fathered and mean number of living children, by men's age at marriage

Country	Ever-married men currently aged 20–29				Ever-married men currently aged 40–49			
	Mean number of children fathered		Mean number of living children		Mean number of children fathered		Mean number of living children	
	Married by age 18	Married at/ after age 18	Married by age 18	Married at/ after age 18	Married by age 18	Married at/ after age 18	Married by age 18	Married at/ after age 18
Bolivia (Plurinational State of)	2.09 (1.90–2.28)	1.48 (1.38–1.58)	1.97 (1.78–2.16)	1.39 (1.29–1.49)	6.42 (5.55–7.28)	4.52 (4.32–4.72)	5.38 (4.60–6.16)	3.98 (3.81–4.14)
	$P < 0.001$		$P < 0.001$		$P < 0.001$		$P < 0.001$	
Comoros	2.10 (1.03–3.17)	0.98 (0.73–1.23)	1.77 (0.90–2.64)	0.96 (0.71–1.20)	8.33 (6.25–10.42)	4.68 (4.11–5.25)	7.33 (5.96–8.70)	4.37 (3.87–4.87)
	$P = 0.046$		$P = 0.077$		$P = 0.001$		$P < 0.001$	
Guatemala	2.12 (1.96–2.28)	1.36 (1.30–1.41)	2.00 (1.85–2.16)	1.30 (1.25–1.36)	6.07 (5.68–6.46)	4.47 (4.31–4.64)	5.58 (5.22–5.95)	4.22 (4.06–4.37)
	$P < 0.001$		$P < 0.001$		$P < 0.001$		$P < 0.001$	
Guyana	0.90 (0.52–1.29)	0.78 (0.63–0.94)	0.87 (0.50–1.25)	0.75 (0.60–0.90)	3.88 (2.70–5.07)	3.31 (3.00–3.61)	3.66 (2.64–4.68)	3.14 (2.85–3.43)
	$P = 0.556$		$P = 0.535$		$P = 0.358$		$P = 0.343$	
Honduras	1.86 (1.70–2.02)	1.17 (1.10–1.24)	1.79 (1.63–1.95)	1.14 (1.07–1.21)	5.29 (4.72–5.87)	4.14 (3.96–4.32)	4.99 (4.47–5.51)	3.96 (3.79–4.12)
	$P < 0.001$		$P < 0.001$		$P < 0.001$		$P < 0.001$	
Madagascar	2.35 (2.14–2.56)	1.53 (1.44–1.61)	2.25 (2.05–2.44)	1.47 (1.39–1.56)	5.97 (5.28–6.66)	4.71 (4.54–4.88)	5.41 (4.79–6.02)	4.41 (4.25–4.56)
	$P < 0.001$		$P < 0.001$		$P < 0.001$		$P = 0.002$	
Mozambique	2.89 (2.56–3.21)	1.59 (1.47–1.72)	2.42 (2.12–2.72)	1.38 (1.27–1.49)	—	—	—	—
	$P < 0.001$		$P < 0.001$					
Nepal	2.19 (1.90–2.48)	1.02 (0.90–1.13)	2.00 (1.73–2.28)	0.97 (0.86–1.08)	4.45 (4.20–4.69)	3.43 (3.24–3.62)	3.99 (3.77–4.22)	3.07 (2.92–3.23)
	$P < 0.001$		$P < 0.001$		$P < 0.001$		$P < 0.001$	
Nicaragua	1.41 (1.26–1.55)	1.08 (0.98–1.17)	1.38 (1.24–1.52)	1.05 (0.96–1.15)	5.39 (4.80–5.98)	3.65 (3.39–3.91)	4.96 (4.42–5.51)	3.48 (3.23–3.73)
	$P < 0.001$		$P < 0.001$		$P < 0.001$		$P < 0.001$	
Thailand	1.24 (1.09–1.38)	0.79 (0.72–0.86)	1.23 (1.09–1.38)	0.78 (0.72–0.85)	2.17 (1.92–2.43)	1.78 (1.73–1.83)	2.12 (1.90–2.34)	1.75 (1.70–1.80)
	$P < 0.001$		$P < 0.001$		$P = 0.002$		$P = 0.001$	

For Mozambique, estimates for men aged 40–49 who were married by age 18 are based on fewer than 25 unweighted cases, so values are not shown

Table 7 Results from linear regression analysis adjusting for the number of years married: Factors associated with the number of children fathered among currently married men aged 20–49

Country		Regression coefficient	P value	Confidence interval
Bolivia (Plurinational State of)	Marriage by age 18	-0.05	0.732	(-0.37–0.26)
	Years married	0.20	< 0.001	(0.19–0.22)
Comoros	Marriage by age 18	-1.05	0.030	(-2.01–0.09)
	Years married	0.27	< 0.001	(0.24–0.31)
Guatemala	Marriage by age 18	0.35	< 0.001	(0.19–0.51)
	Years married	0.21	< 0.001	(0.20–0.21)
Guyana	Marriage by age 18	-0.34	0.345	(-1.06–0.37)
	Years married	0.12	< 0.001	(0.09–0.14)
Honduras	Marriage by age 18	-0.03	0.800	(-0.30–0.23)
	Years married	0.19	< 0.001	(0.17–0.20)
Madagascar	Marriage by age 18	-0.08	0.544	(-0.32–0.17)
	Years married	0.21	< 0.001	(0.20–0.22)
Mozambique	Marriage by age 18	-0.29	0.158	(-0.69–0.11)
	Years married	0.30	< 0.001	(0.28–0.32)
Nepal	Marriage by age 18	0.25	0.005	(0.08–0.44)
	Years married	0.13	< 0.001	(0.13–0.14)
Nicaragua	Marriage by age 18	0.11	0.414	(-0.15–0.36)
	Years married	0.16	< 0.001	(0.14–0.18)
Thailand	Marriage by age 18	-0.04	0.632	(-0.20–0.12)
	Years married	0.06	< 0.001	(0.06–0.07)

Results exclude men who report having been married or in union more than once

Table 8 The mean number of children desired among ever-married men currently aged 40–49, by men's age at marriage

Country	Married by age 18	Married at/after age 18
Bolivia (Plurinational State of) N = 996 P = 0.003	3.87 (3.36–4.38)	3.09 (3.00–3.22)
Comoros N = 316 P = 0.026	9.68 (6.88–12.47)	6.56 (5.88–7.26)
Guatemala N = 1616 P = 0.010	4.34 (4.01–4.67)	3.88 (3.74–4.03)
Honduras N = 1109 P = 0.541	4.19 (3.67–4.71)	4.02 (3.84–4.71)
Madagascar N = 1193 P = 0.001	7.33 (6.10–8.57)	5.29 (5.10–5.49)
Nepal N = 873 P < 0.018	2.61 (2.48–2.74)	2.43 (2.35–2.52)
Nicaragua N = 891 P = 0.343	4.27 (2.82–5.73)	3.56 (3.31–3.81)

For Mozambique, estimates for men aged 40–49 who were married by age 18 are based on fewer than 25 unweighted cases, so values are not shown

youngest (aged 20–29) and oldest (aged 40–49) cohorts, the number of children fathered is consistently higher among men who married by age 18 than among men who married in adulthood. While this paper provides insight on the family size of young men, information on the exact timing and spacing of births could confirm whether men who married during childhood experienced an earlier onset of fatherhood compared to their peers. Given the high proportion of men aged 20–29 married by age 18 who reported having fathered three or more children, future studies might explore whether men who marry during childhood face greater responsibilities as parents and providers at an earlier age than men who delay marriage.

In four of the seven countries with available data (Honduras, Guatemala, Nicaragua, and Nepal), the odds of exceeding one's ideal family size at the time of the survey appear higher among men aged 40–49 who married during childhood compared to their peers who married at older ages, even after adjusting for associated covariates. The strong linear relationship observed between marriage duration and the number of children fathered might indicate that the differences observed between men who married by age 18 and those who married in adulthood regarding both the number of children fathered and the percentage exceeding their ideal family size are related to longer exposure to being in a marital union.

Table 9 Odds of having exceeded one's ideal family size based on the total number of living children at the time of survey, comparing men currently aged 40–49 who were married by age 18 with those married at or after 18 (reference group)

Country	Percentage of men exceeding their ideal family size		Unadjusted odds ratios (Model 1)		Odds ratios adjusted for age (Model 2)		Odds ratios adjusted for age and household wealth (Model 3)	
	Married by age 18	Married at/ after age 18	Odds ratio	P value	Odds ratio	P value	Odds ratio	P value
Bolivia (Plurinational State of N = 996	53.4 (39.2–67.1) <i>P</i> = 0.574	49.1 (45.1–53.1)	1.19 (0.65–2.16)	0.574	1.22 (0.68–2.20)	0.508	1.11 (0.60–2.06)	0.728
Comoros N = 316	21.8 (10.8–39.0) <i>P</i> = 0.898	20.8 (14.5–28.9)	1.06 (0.42–2.67)	0.898	–	–	–	–
Guatemala N = 1616	50.3 (42.9–57.8) <i>P</i> < 0.001	31.7 (28.7–34.8)	2.19 (1.57–3.05)	< 0.001	2.26 (1.62–3.15)	< 0.001	2.15 (1.54–3.01)	< 0.001
Honduras N = 1109	48.3 (38.5–58.1) <i>P</i> = 0.004	33.5 (29.7–37.4)	1.85 (1.21–2.85)	0.005	1.87 (1.21–2.87)	0.005	1.81 (1.18–2.78)	0.007
Madagascar N = 1193	22.4 (14.5–33.0) <i>P</i> = 0.820	21.3 (18.5–24.5)	1.07 (0.60–1.87)	0.821	1.05 (0.60–1.83)	0.872	0.97 (0.56–1.70)	0.921
Nepal N = 873	69.3 (62.4–75.5) <i>P</i> < 0.001	44.7 (40.0–49.4)	2.80 (1.96–3.99)	< 0.001	3.02 (2.11–4.32)	< 0.001	2.63 (1.85–3.72)	< 0.001
Nicaragua N = 848	53.2 (42.3–63.7) <i>P</i> < 0.001	30.9 (26.0–36.3)	2.54 (1.54–4.18)	< 0.001	2.62 (1.59–4.31)	< 0.001	–	–

For Mozambique, estimates for men aged 40–49 who were married by age 18 were based on fewer than 25 unweighted cases, so values are not shown. For Comoros, estimates for men aged 40–49 who were married by age 18 were based on 35 unweighted cases, so additional models were not used

Finally, future research on whether boys who marry as children are also more vulnerable to adverse mental health outcomes and risky behaviour than their peers would help guide programmes and policies aimed at meeting the needs of boys and young men who married during childhood. Beyond the sexual and reproductive health consequences noted for girls, evidence has revealed a negative association between child marriage and psychological well-being, suggesting girls married during childhood are at increased risk for depression and suicide [30–32].

Limitations

The lack of nationally representative data on men's age at marriage for all countries poses the greatest challenge in ensuring the list of countries with the highest prevalence is conclusive. Recall bias or mortality differences between men who marry in childhood and those who did so in adulthood might have affected the accuracy of prevalence estimates, particularly for the older age cohorts.

The types of household surveys drawn upon for this analysis are focused predominantly on females. Men's questionnaires are not systematically included, thus restricting the sample size for this analysis. The 15–49 age group, which has been the focus of such surveys to accommodate women's reproductive age span, has also been applied to men, thereby restricting analysis of men's completed family size. The analysis of

the number of children fathered remains inconclusive since men are not biologically restricted in their fertility and can continue fathering children beyond the oldest age covered in these surveys. Men who delay marriage might also delay fatherhood but still achieve the same family size as men who marry earlier, therefore distorting our comparison of the two groups' total number of children.

Conclusion

The overall lack of research on child marriage among boys has likely hindered the initiation and implementation of any large-scale programmatic and policy efforts to eradicate the practice. Results from this analysis help to bridge the evidence gap by providing a profile of younger and older men who married during childhood in the countries where the practice is most common. While this paper explores variation in men's sexual and reproductive health and family size based on their age at first marriage, analysis of other short- and long-term outcomes for men who married by age 18 and their families can inform efforts to mitigate the effects for men who have already married in childhood. To protect the current and future generation of boys at risk of child marriage, further research is needed on the determinants of the practice, including whether the unions were arranged by third parties or initiated by the boys themselves, as well as any country-specific incentives.

Appendix

Table 10 Percentage of men aged 20–49 who were married by age 15, by current age

Country	Men's current age						
	20–24	25–29	30–34	35–39	40–44	45–49	20–49
Bolivia (Plurinational State of) <i>N</i> = 3987 <i>P</i> = 0.592	0.8 (0.3–2.1)	0.2 (0.0–0.6)	0.8 (0.3–2.5)	0.3 (0.0–1.3)	0.5 (0.1–2.2)	0.9 (0.3–3.2)	0.6 (0.3–1.0)
Central African Republic <i>N</i> = 3893 <i>P</i> = 0.062	14.0 (11.1–17.6)	11.9 (9.0–15.5)	11.4 (8.7–14.9)	10.9 (8.3–14.2)	6.9 (4.8–9.8)	9.6 (6.5–14.0)	11.2 (10.0–12.6)
Comoros <i>N</i> = 1477 <i>P</i> = 0.432	3.2 (1.5–6.5)	3.4 (1.5–7.5)	1.4 (0.4–5.3)	4.3 (2.1–8.7)	1.8 (0.6–5.6)	1.6 (0.5–4.7)	2.8 (1.8–4.1)
Cuba <i>N</i> = 3125 <i>P</i> = 0.167	1.1 (0.4–3.4)	3.1 (1.2–7.5)	2.4 (1.0–5.8)	2.6 (1.0–6.2)	1.5 (0.6–3.9)	0.4 (0.1–1.5)	1.7 (1.1–2.5)
Guatemala <i>N</i> = 7242 <i>P</i> = 0.156	0.8 (0.5–1.5)	0.8 (0.4–1.5)	1.0 (0.4–2.1)	1.8 (1.0–3.1)	0.9 (0.4–1.8)	0.5 (0.2–1.2)	1.0 (0.7–1.3)
Guyana <i>N</i> = 1308 <i>P</i> = 0.159	1.8 (0.5–5.6)	0.8 (0.3–2.1)	0.5 (0.1–1.9)	0.8 (0.2–3.2)	0.1 (0.0–0.9)	0.0	0.7 (0.4–1.5)
Honduras <i>N</i> = 4815 <i>P</i> = 0.597	1.7 (1.0–3.1)	2.4 (1.4–4.2)	2.8 (1.7–4.3)	2.1 (1.1–3.8)	1.4 (0.6–2.9)	2.9 (1.4–6.0)	2.2 (1.7–2.8)
Lao People's Democratic Republic <i>N</i> = 7832 <i>P</i> = 0.397	2.6 (1.9–3.7)	3.0 (2.1–4.3)	4.3 (3.2–5.7)	3.2 (2.3–4.6)	3.8 (2.6–5.5)	3.0 (2.0–4.7)	3.3 (2.8–3.8)
Madagascar <i>N</i> = 5293 <i>P</i> = 0.600	1.8 (1.1–3.0)	2.3 (1.4–3.6)	1.9 (1.2–3.1)	1.9 (1.1–3.2)	1.0 (0.5–2.1)	2.1 (1.1–3.7)	1.8 (1.5–2.3)
Marshall Islands <i>N</i> = 704	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mozambique <i>N</i> = 2627	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru <i>N</i> = 252	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nepal <i>N</i> = 3131 <i>P</i> = 0.333	1.2 (0.5–2.8)	2.7 (1.5–4.8)	2.7 (1.3–5.5)	3.4 (2.1–5.5)	3.2 (1.9–5.4)	2.7 (1.5–4.7)	2.6 (2.0–3.3)
Nicaragua <i>N</i> = 4650 <i>P</i> = 0.214	2.0 (0.9–4.3)	1.8 (1.0–3.2)	2.4 (1.5–3.8)	3.3 (1.9–5.7)	3.8 (1.8–7.9)	0.7 (0.2–2.7)	2.3 (1.7–3.1)
Thailand <i>N</i> = 19783 <i>P</i> = 0.265	1.3 (0.8–2.1)	1.8 (1.0–3.4)	2.3 (1.5–3.4)	2.4 (1.6–3.7)	2.0 (1.3–3.0)	1.3 (0.8–2.1)	1.9 (1.5–2.3)

Confidence intervals and *p* values are not shown for the Marshall Islands and Nauru because data sets were not publicly available

Table 11 Results from linear regression analysis: Factors associated with the number of children ever fathered among currently married men aged 20–49

Model 1: Adjusted for men's current age		Regression coefficient	P value	Confidence interval
Bolivia (Plurinational State of)	Marriage by age 18	1.37	< 0.001	(1.03–1.71)
	Current age	0.17	< 0.001	(0.16–0.18)
Comoros	Marriage by age 18	1.80	< 0.001	(0.88–2.72)
	Current age	0.17	< 0.001	(0.14–0.20)
Guatemala	Marriage by age 18	1.56	< 0.001	(1.39–1.72)
	Current age	0.17	< 0.001	(0.17–0.18)
Guyana	Marriage by age 18	0.78	0.035	(0.05–1.51)
	Current age	0.12	< 0.001	(0.10–0.15)
Honduras	Marriage by age 18	1.11	< 0.001	(0.82–1.39)
	Current age	0.16	< 0.001	(0.15–0.17)
Madagascar	Marriage by age 18	1.34	< 0.001	(1.06–1.58)
	Current age	0.17	< 0.001	(0.16–0.18)
Mozambique	Marriage by age 18	1.58	< 0.001	(1.22–1.94)
	Current age	0.26	< 0.001	(0.24–0.28)
Nepal	Marriage by age 18	1.16	< 0.001	(0.97–1.36)
	Current age	0.14	< 0.001	(0.13–0.15)
Nicaragua	Marriage by age 18	1.09	< 0.001	(0.83–1.35)
	Current age	0.14	< 0.001	(0.13–0.16)
Thailand	Marriage by age 18	0.51	< 0.001	(0.34–0.68)
	Current age	0.05	< 0.001	(0.05–0.06)

Results exclude men who report having been married or in union more than once

Table 12 Odds of having exceeded one's ideal family size at the time of survey based on the total number of children ever fathered, comparing men currently aged 40–49 who were married by age 18 with those married at or after 18 (reference group)

Country	Percentage of men exceeding their ideal family size		Unadjusted odds ratios (Model 1)		Odds ratios adjusted for age (Model 2)		Odds ratios adjusted for age and socio-economic status (Model 3)	
	Married by age 18	Married at/after age 18	Odds ratio	P value	Odds ratio	P value	Odds ratio	P value
Bolivia (Plurinational State of) N = 996	67.3 (53.2–78.8)	56.3 (52.3–60.1)	1.59 (0.87–2.95)	0.132	1.64 (0.90–3.01)	0.172	1.54 (0.84–2.82)	0.164
	$P = 0.129$							
Comoros N = 316	28.4 (15.7–45.8)	23.7 (17.3–31.6)	1.27 (0.55–2.94)	0.569	1.33 (0.59–2.98)	0.484	1.04 (0.44–2.48)	0.916
	$P = 0.568$							
Guatemala N = 1616	57.2 (49.8–64.4)	37.4 (34.2–40.7)	2.23 (1.62–3.10)	< 0.001	2.31 (1.67–3.20)	< 0.001	2.13 (1.53–2.97)	< 0.001
	$P < 0.001$							
Honduras N = 1109	50.9 (41.0–60.7)	35.9 (32.1–39.9)	1.85 (1.20–2.85)	0.005	1.86 (1.21–2.87)	0.005	1.80 (1.17–2.77)	0.008
	$P = 0.005$							
Madagascar N = 1193	27.2 (18.7–37.8)	26.6 (23.5–30.0)	1.03 (0.62–1.72)	0.912	1.00 (0.60–1.67)	0.992	0.92 (0.55–1.54)	0.748
	$P = 0.912$							
Nepal N = 873	80.9 (74.5–86.0)	54.2 (49.2–59.1)	3.58 (2.36–5.41)	< 0.001	3.86 (2.54–5.87)	< 0.001	3.32 (2.21–5.0)	< 0.001
	$P < 0.001$							
Nicaragua N = 891	60.5 (49.7–70.4)	32.9 (27.9–38.3)	3.13 (1.90–5.15)	< 0.001	3.26 (1.98–5.36)	< 0.001	–	–
	$P < 0.001$							

For Mozambique, estimates for men aged 40–49 who were married by age 18 were based on fewer than 25 unweighted cases, so values not shown. For Comoros, estimates were based on 35 unweighted cases

Abbreviations

DHS: Demographic and Health Surveys; MICS: Multiple Indicator Cluster Surveys; UNFPA: United Nations Population Fund; UNICEF: United Nations Children's Fund; USAID: United States Agency for International Development

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Authors' contributions

All authors read and approved the final manuscript. CM: Conceptualization, literature search, data analysis, data interpretation, writing – original draft. CMG: Conceptualization, literature search, data interpretation, writing – review and editing. CC: Conceptualization, resources, supervision, review.

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Availability of data and materials

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Ethics approval and consent to participate

Ethical approval for each survey was obtained by the respective implementing organization in each country. More information on the ethical approval processes can be found in the survey reports and on the respective implementing organizations' websites.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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THE STATE OF THE WORLD'S CHILDREN 2019



Children, food and nutrition

Growing well in a changing world



EAST ASIA AND PACIFIC

A CHANGING WORLD

It is twenty years since *The State of the World's Children* last examined children's nutrition, and, in that time, much has changed.

We have changed where we live: more families have left behind the countryside and moved to cities.

We have changed our roles: women are increasingly joining the formal workforce, balancing work responsibilities with their role as primary caregivers, and often with little support from families, employers and societies.

Life on our planet has changed: climate change, the loss of biodiversity, and environmental damage now raise concerns over whether we can feed this generation of children sustainably, never mind the generations to come.

And we have changed what we eat: we are leaving behind traditional diets and embracing modern diets that are frequently high in sugars and fats, low in essential nutrients.

This is the backdrop to children's malnutrition today. Like so much else, it, too, is changing. A word once inextricably linked in the public's mind to images of hunger and famine, malnutrition must now be used to describe children with stunting and wasting, but also those suffering from the 'hidden hunger' of deficiencies in essential vitamins and minerals as well as the growing numbers of children and young people who are affected by overweight or obesity.

In 2018, 13 million children under 5 were stunted and 4.5 million were wasted in East Asia and the Pacific

These are the children who are ***not growing well***.

Their numbers are worryingly high. Globally, one in three children under the age of 5 is stunted, wasted or overweight and, in some cases suffers from a combination of two of these forms of malnutrition. In East Asia and Pacific it is almost one in five.

The triple burden of malnutrition

Undernutrition continues to affect tens of millions of children. Its presence is visible in the stunted bodies of children deprived of adequate nutrition in the first 1,000 days and beyond. These children may carry the burden of early stunting for the rest of their lives and may never meet their full physical and intellectual potential. Undernutrition is also evident in the wasted bodies of children when circumstances like food shortages, poor feeding practices and infection, often compounded by poverty, humanitarian crises and conflict, deprive them of adequate nutrition and, in far too many cases, result in death. In 2018, 149 million children under 5 were stunted and almost 50 million were wasted. In East Asia and Pacific, 13 million children under 5 were stunted and 4.5 million were wasted.

Deficiencies of essential vitamins and minerals – **hidden hunger** – rob children of their vitality at every stage of life and undermine the health and well-being of children, young people and mothers. The numbers of children and women affected by various forms of hidden hunger are striking. Recent global estimates by UNICEF and partners indicate

that at least 340 million children under 5 (one in two) suffer from hidden hunger.

The number girls and boys with obesity between the ages of 5 and 19 have soared since the mid-1970s, rising by between 10- and 12-fold globally. **Overweight** and **obesity**, long thought of as conditions of the wealthy, are now increasingly a condition of the poor, reflecting the greater availability of ‘cheap calories’ from fatty and sugary foods around the world. They bring with them a heightened risk of non-communicable diseases, like type 2 diabetes. Analysis carried out as part of the Global Burden of Disease study suggest that diets lacking adequate nutrition are now the leading cause of death worldwide.

Surviving, but not thriving

More children and young people are surviving, but far too few are thriving.

To understand malnutrition today requires a focus on food and diet at every stage of a child’s life. The picture that emerges is a troubling one: **Far too many children and young people are eating too little healthy food and too much unhealthy food.**

These problems start early on: In their first six months, only two out of five children are being exclusively breastfed, depriving them of the best food a baby can get. When it comes to the ‘first foods’ that infants should start consuming at around the age of 6 months, these too are, in far too many cases, not meeting children’s needs: Less than one in three children worldwide between 6 and 23 months are eating foods from the minimum number of food

groups that can support their rapidly growing bodies and brains. For the poorest children, the proportion falls to only one in five.

Making food systems work for children

At current levels, the impact of food production on the environment will only grow, with food demand set to increase by at least half by mid-century. This demand will have to be satisfied against the backdrop of a world that, after decades of decline, is seeing a slow rise in hunger, with 820 million people worldwide suffering from undernourishment in 2018.

Understanding how food systems work is essential to improving our diets. But far too often, the interests of a very important group of people are left out of food systems analysis – children. This is a dangerous omission. Poor diets have lifelong impacts on children’s physical growth and brain development. That is why they must be at the heart of our thinking about food systems. If food systems deliver for children, they are delivering for us all.

Good nutrition can break the intergenerational cycles through which malnutrition perpetuates poverty, and poverty perpetuates malnutrition. Children who are well nourished have a firm foundation from which they can develop to their full potential. And when children do that, societies and economies develop better, too.

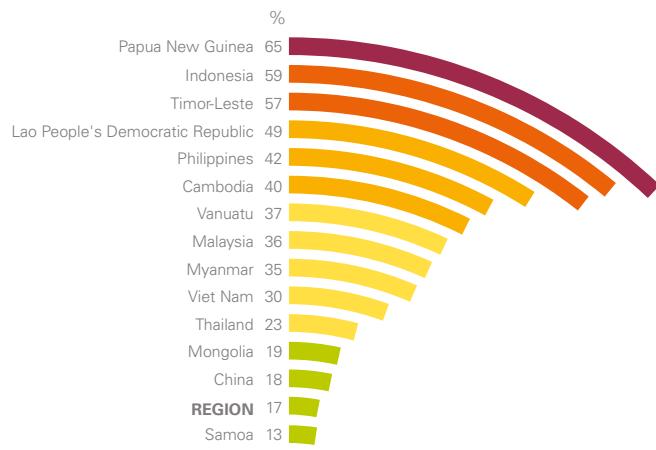
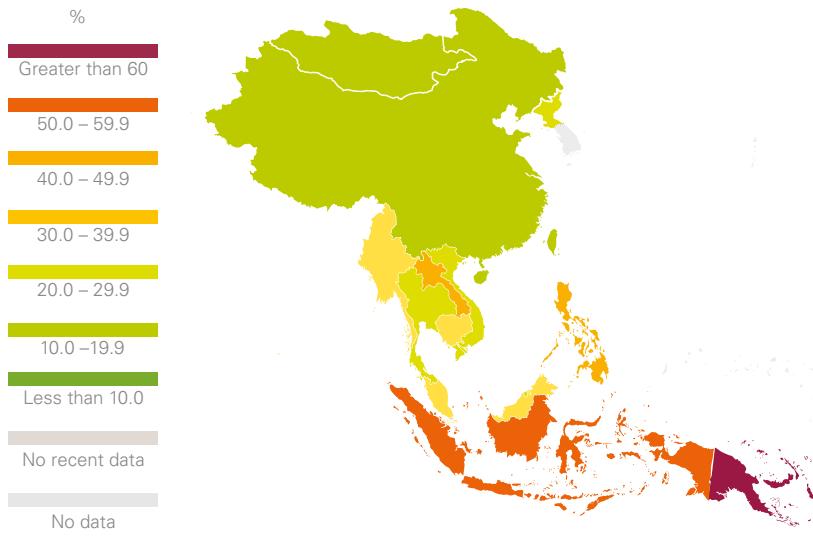
Our goal must be to give children diets that are **nutritious, safe, affordable** and **sustainable**.

More children and young people are surviving, but far too few are thriving



Where are children not growing well?

FIGURE 1 | Prevalence of children under 5 who are not growing well (stunted, wasted or overweight), East Asia and Pacific, (EAP) 2018



Children under 5



Children under 5



EAP



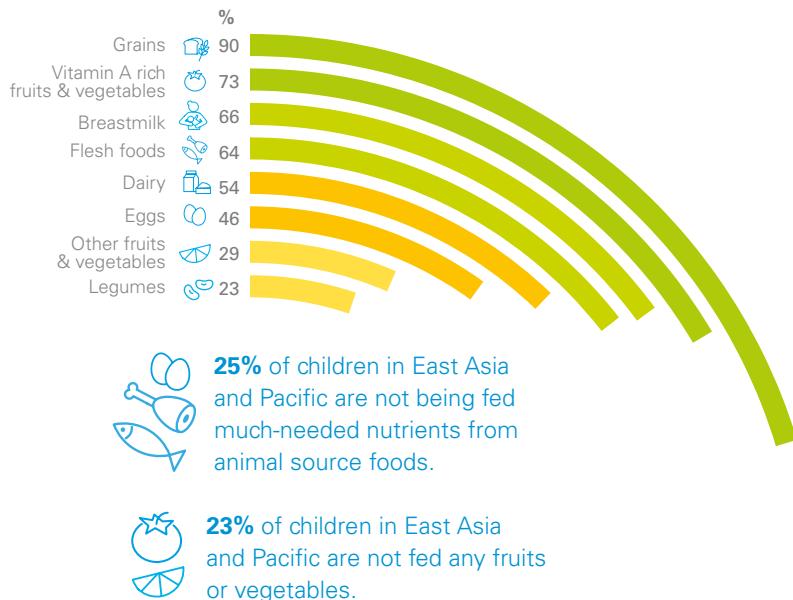
Note: Country data are the most recent available estimate between 2006 and 2018; where only data prior to 2000 are available, the dark grey color denoting no recent data is used. The designations employed in this publication and the presentation of the material do not imply on the part of the United Nations Children's Fund (UNICEF) the expression of any opinion whatsoever concerning the legal status of any country or territory, or of its authorities or the delimitations of its frontiers.

'Growing well' is defined as free from stunting, wasting and overweight. See Note on Figures on p. 179 for more information.

Source: UNICEF analysis of UNICEF/World Health Organization/World Bank Group Joint Malnutrition Estimates, 2019 edition. *Levels and trends in child malnutrition: Key findings of the 2019 edition of the Joint Child Malnutrition Estimates*.

What are young children eating? The importance of first foods

FIGURE 2 | Percentage of children aged 6–23 months fed food groups, by type, East Asia and Pacific, 2018

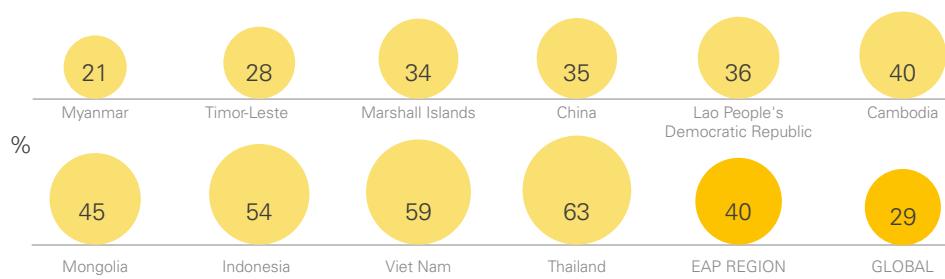


When children start eating soft, semi-solid or solid foods at 6 months old, they need nutritious and safe diets with a range of nutrients to grow well.



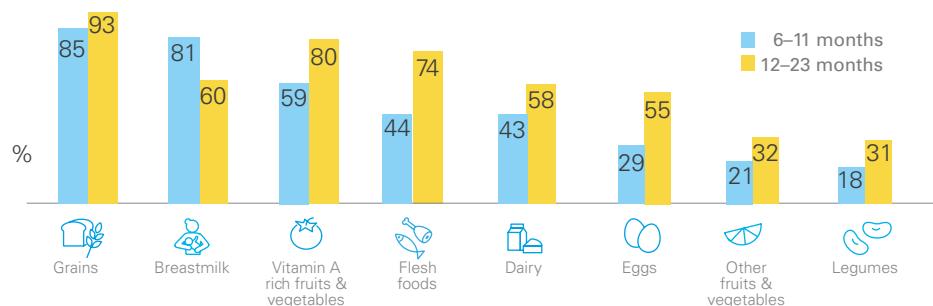
Without enough diversity in children's diets, they may not get enough nutrients to grow well, which can take a devastating toll on children's bodies and brains. UNICEF and WHO recommend that children at this age eat a minimum of five of eight food groups.

FIGURE 3 | Percentage of children aged 6–23 months eating at least 5 of 8 food groups (Minimum Dietary Diversity), by country 2018



3 in 5 children do not eat foods from the minimum number of food groups in East Asia and Pacific.

FIGURE 4 | Percentage of children aged 6–23 months fed food groups, by type and age, East Asia and Pacific, 2018



Children 6–11 months are eating less diverse diets compared to children 12–23 months.

Note: The regional and global estimates were generated using the most recent data available for each country between 2013 and 2018. UNICEF regional and global estimates are population weighted averages using the 2018 estimates from the World Population Prospects, 2019 revision as weights.

Source for all figures: UNICEF global databases, 2019.

“Double Duty” to Combat the Double Burden of Malnutrition in the Philippines

The Philippines is a middle-income country with persistent severe inequalities despite high economic growth. Many children in the Philippines are being left behind, and economic gains do not reach the poorest of the poor. At the same time, the economic growth is bringing rapidly changing diets and food environments, with sugary beverages, processed foods, snacks and fast food increasingly available and affordable, even in the remote rural areas. This means that while many Filipino children are still suffering from undernutrition - stunting and wasting - increasing numbers of children and their families are also affected by overweight and obesity.

The 2018 Expanded National Nutrition Survey shows that undernutrition rates remain alarming. Stunting is declining too slowly, from 34 per cent in 2003 to 30 per cent in 2018, with 3.5 million children under 5 affected. Just over 5 per cent of children were wasted, but this means 650,000 children are affected, 300,000 of them with the severest form that requires treatment. The Philippines has the highest rate of low birthweight - 1 in 5 children - in the region. Data from this survey also shows the increasing double burden of malnutrition among children under five years, around 460,000 or 4 per cent were overweight. Overweight among adolescents was found to be 12 per cent with a steadily increasing trend since 2003. Among adult women, over 40 per cent were overweight.

Joemar Bacaltos is the face of the 300,000 Filipino children with severe wasting. The youngest child of

poor and sickly parents, living deep in rural Palawan, he is the perfect example of a child deprived of many of the rights and opportunities he is entitled to. Because of those deprivations, he became a severely malnourished child – all skin and bones. Joemar was lucky; he received appropriate treatment at the health centre and he fully recovered. With support from UNICEF, the Philippines Department of Health has been scaling up services to treat severely wasted children, enabling frontline workers to have the knowledge and skills they need to detect, treat or refer children like Joemar. The Filipino public health insurance scheme is covering the costs of treatment, to ensure that poor children can receive treatment.

The Department of Health and the National Nutrition Council of the Philippines recognize the strong need to address both undernutrition and overweight and obesity. In fact, overweight and obesity is a priority program of the Philippine Plan of Action on Nutrition 2017-2022. The Filipino Government has already passed a law to tax sugary beverages, and the plan also includes other legislative measures like restricting marketing of unhealthy foods and beverages to children and putting in place clear front of pack labels, as well as ensuring healthy school food environments. In schools, health centres, the social transfer scheme and communication messages, ‘double duty’ is the focus of all nutrition efforts: supporting children and their families to eat more healthy foods and less unhealthy ones, so that they have healthy growth and healthy lives.

Caption. ©UNICEF Philippines/2016



An agenda to put children's nutrition first

This agenda is driven by two imperatives. First, children have unique nutritional needs and can suffer unique harm from malnutrition. Putting children's needs first is key to ensuring that every child and young person has the nutrition they need to get the best start in life. Second, all children and young people will need nutritious, affordable and sustainable diets if societies are to meet the economic, social and environmental challenges of our changing world in the 21st century.

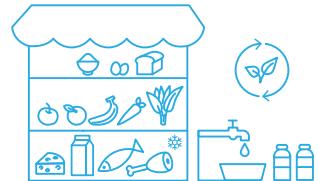
1 | Empower families, children and young people to demand nutritious food

Demand affects supply as food producers respond to consumers' behaviours and aspirations. When healthy options are affordable, convenient, and desirable, parents and caregivers make better food choices for children. As children grow older, knowledge and information can make them powerful agents of change. Stimulating demand for nutritious foods means not only educating consumers on the benefits of healthy diets, but also leveraging cultural and social aspirations.



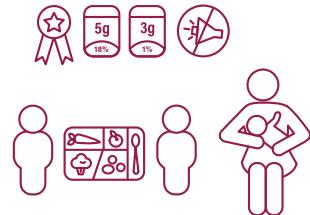
2 | Drive food suppliers to do the right thing for children

Demand alone is not enough: Healthy food must also be available, affordable, safe, and convenient. Food producers and suppliers have a key role to play, and so do governments, which must create a level playing field for all producers and suppliers, ensuring their actions align with children's best interests. Food systems are diverse, and so are solutions. But all food production and consumption must become sustainable if we are to protect children's nutrition today and tomorrow.



3 | Build healthy food environments for all children

The personal and external food environments are where children and their caregivers interact with the food system. While the forces of supply and demand shape food environments, context-appropriate actions such as mandatory front-of-pack labelling and protection against exploitative marketing and mandatory labelling can help create food environments conducive to nutritious diets for children.



4 | Mobilize supportive systems to scale up nutrition results for every child

As well as food systems, four other key systems must be mobilized to deliver nutrition services, improve nutrition practices and achieve nutrition outcomes at scale. The health, water and sanitation, education and social protection systems must all deliver interventions in a coordinated fashion. A systems approach to children's nutrition can help ensure that children and families have access to healthy diets and that children receive the nutrition services they need to develop to their full potential.



5 | Collect, analyse and use good-quality data and evidence regularly to guide action and track progress

Lack of adequate data prevents governments from responding with effective policies, strategies and programmes. Accurate and timely data is needed to understand malnutrition, take coordinated, evidence-based action, and hold all actors accountable. Data collection methods and frequency must be transformed to expand what we know about the diets and nutrition of children, adolescents and women at every stage of life. Data systems must become responsive and develop a culture of data sharing and transparency.





What do adolescents and young mothers think about nutrition and eating habits?

BACKGROUND

12 workshops were implemented in China, Indonesia and the Philippines with adolescents and first-time mothers to discuss eating habits, food and nutrition, and barriers to eating well.



©UNICEF/China/2019/Ma Yuyuan

ADOLESCENTS

“Cheap food is not healthy, healthy food is not cheap.”

—Female, 13, China

“To stay healthy, it is important to avoid consuming fatty and oily foods”

—Male, 14, Indonesia

MOTHERS

“My mother-in-law wants to feed her congee every day because these are easy-to-digest foods. I want the child has all kinds of food.”

—Female, 27, China

“[It is difficult] when I want to feed my child, but I have to go to work”

—Male, 25, Indonesia

For more information,
the full report is available at
www.unicef.org/sowc2019

www.unicef.org/eap

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For every child, reimagine

UNICEF Annual Report,
2019



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For every child, reimagine

UNICEF Annual Report, 2019



A UNICEF staff member playing with a baby at the health centre of Odienné, in the Northwest of Côte d'Ivoire.

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UNICEF staff assist children and their families at an informational #ConLosNiñosDeVenezuela event in Cambalache, Bolívar state, the Bolivarian Republic of Venezuela.

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Foreword

UNICEF is releasing our *Annual Report 2019* against the backdrop of the COVID-19 pandemic.

The pandemic represents a shared global struggle against an invisible enemy. Not only are children and young people contracting COVID-19, they are also among its most severely impacted victims. Unless we address the pandemic's impacts on children, the echoes of COVID-19 will permanently damage our shared future.

The fight against COVID-19 brings into sharp relief the importance of everything UNICEF does as an organization – not only to support children and young people, but to help their communities build stronger health, education, protection, nutrition, and water and sanitation system for the future.

In fact, UNICEF's global agenda for action to address COVID-19 represents a microcosm of our organization's work to protect the most vulnerable and disadvantaged children, and invest in strengthening systems and services in the long run:

- To keep children healthy and well nourished;
- To reach vulnerable children with water, sanitation and hygiene;
- To keep children learning;
- To support families to cover their needs and care for their children;
- To protect children from violence, exploitation and abuse, especially girls; and
- To protect refugee and migrant children, and those affected by conflict.

As the results outlined in this Annual Report clearly demonstrate, UNICEF's global reach across more than 190 countries and territories, along with the expertise and experience of our staff members, has put us in a good position to respond to this crisis.

We are deeply proud of the commitment and dedication our staff members demonstrate each and every day, as they carry out their vital, life-saving work.

They understand that the world is not standing still for children – neither are we.

Last year, we reached 307 million children under age 5 with services to prevent malnutrition; 17 million out-of-school children with education; 4 million children and young people with skills development; 18.3 million people with access to safe drinking water; 5.5 million with basic sanitation services; and we provided humanitarian assistance in 281 emergencies in 96 countries.

We are also finding new ways to involve children and young people in our work. We need their participation and their voices, as we work together to design and deliver the programmes, services and support they need as they develop, grow and prepare to inherit our world.

For over 70 years, UNICEF has supported children and young people facing a range of barriers to their health and well-being. From poverty and exclusion, to natural disasters, armed conflict, famine and disease, our organization stands with children and young people – no matter who they are or where they live.

As we stand with them, we call on our partners around the world to do the same.

Join our cause. Invest in children's futures. Support our vital, life-saving work.

Let's continue building a better, safer, healthier and more peaceful world. For every child.



Henrietta H. Fore
UNICEF Executive Director

UNICEF COVID-19 response, 2020



1. In Morovine village in the north of Côte d'Ivoire, a UNICEF staff member talks with young children wearing masks to protect themselves against the coronavirus.



2. In Saptari District, Nepal, a health worker attends to a patient at a clinic installed with UNICEF support at the Gajendra Narayan Singh Hospital.

3. In Morovine village, Côte d'Ivoire, children attend classes on television at the home of the village chief. UNICEF has been working on a 'School at home' initiative that includes taping lessons to air on national TV and radio.



4. In Guatemala City, UNICEF assists in providing groceries to parents of more than 2.4 million pre-primary and primary children, allowing the children to continue receiving the school meals they had relied on before COVID-19.

5. In Beirut, Lebanon, UNICEF staff inspect medical supplies to be delivered to health-care frontline workers and populations at risk. Supplies include gloves, surgical and N95 respirator masks, gowns and thermometers, among other items.

Introduction

In 2019, UNICEF and partners worked side by side with children and young people to overcome the obstacles that keep far too many children from reaching their full potential. Together, we helped create new opportunities and placed dreams and aspirations within reach.

There were many successes to celebrate.

In more than 190 countries and territories, UNICEF and partners helped children survive, thrive and go to school ready to learn and make the most of their opportunities. UNICEF engaged with partners around the globe to protect children, ensure safe environments, reduce poverty, address harmful gender norms and fight against discrimination.

In emergency situations, children and families received mental health care and psychosocial support, along with the basics of nutrition, education and health care. Migrant and refugee children were provided with protective services.

And in 2019, the world celebrated the 30th anniversary of the Convention on the Rights of the Child while at the start of 2020, we marked the 25th anniversary of the Beijing Declaration and Platform for Action on gender equality and the empowerment of women.

To mark the 30th anniversary of the Convention, 110 United Nations Member States recommitted to implementing child rights in the 21st century and 24 governments made new national commitments. Championed by the co-chairs of the Group of Friends of Children and the SDGs: Bulgaria, Jamaica and Luxembourg, a voluntary global pledge “For Every Child, Every Right” was launched.

Focus on the future

However, even as UNICEF looks back to 2019, our focus is on the future.

At the start of a new decade, the world is grappling with COVID-19, a global pandemic that is taking the lives of many thousands and upending homes and schools for children everywhere, threatening their well-being and future.

UNICEF is addressing the challenge of providing information and services that protect children and families from the virus, while also focusing on the hidden effects of the disease, especially for already marginalized children – those who live daily with poverty, violence, conflict or who are refugees, migrants or internally displaced.

INTRODUCTION



Abdoulaye Konate, Immunization Officer at UNICEF's field office in Kayes, Mali, sensitizes Ramata Diallo on the importance of vaccinating her youngest child, Hachime, 11 months, who has never been vaccinated. The use of mobile vaccinators to reach vulnerable populations living in hard-to-reach areas such as gold mine sites are among the approaches that UNICEF and its partners have put in place to reach every child.

UNICEF and partners including Gavi are supporting the Mali Ministry of Health to bring vaccines directly towards the most isolated and vulnerable children.

© UNICEF/UN0293818/Keïta

INTRODUCTION

This new global threat arrived just as the United Nations Secretary-General António Guterres called for a Decade of Action in an effort to reach the Sustainable Development Goals (SDGs) by 2030.

UNICEF's response to this call to action was a heightened focus on investing in children – the key to achieving the ambitious goals of the SDGs. To do so, UNICEF has assessed its progress towards achieving the marks established in the UNICEF Strategic Plan, 2018–2021 and the SDGs.

Delivering on the strategic plan

The UNICEF Strategic Plan, 2018–2021 was created shortly after the world agreed on the SDGs. It identifies five goal areas for achieving results that can deliver on the SDGs:



Goal Area 1

Every child survives and thrives involves thematic work in health, nutrition, HIV and AIDS, early childhood development and adolescent health.



Goal Area 2

Every child learns focuses on education.



Goal Area 3

Every child is protected from violence and exploitation involves child protection services.



Goal Area 4

Every child lives in a safe and clean environment features UNICEF's work in water, sanitation and hygiene, and efforts on climate, disaster risk reduction and urban settings.



Goal Area 5

Every child has an equitable chance in life is a manifestation of UNICEF's commitment to leave no child behind and encompasses efforts to address poverty, gender equality and discrimination, provide support for adolescents and children with disabilities, and support the safe and meaningful participation and civic engagement of children at all ages.

The strategic plan also identifies two cross-cutting areas that touch on all of UNICEF's efforts: **humanitarian action** and **gender equality**.

In addition, UNICEF identified four organizational enablers and eight strategies for change. The change strategies examined in this annual report are: *winning support for the cause of children from decision makers and the wider public; developing and leveraging resources and partnerships for results for children; leveraging the power of business for children; and fostering innovation in programming and advocacy for children*.

Accelerating results

This annual report comes at a time when UNICEF hits the mid-term mark of its Strategic Plan. Combined with the annual review, the mid-term review of results highlighted clear progress on many child-related SDG targets. And across the United Nations system, agencies continue to share lessons learned, coordinate action and collaborate to accelerate results toward the SDGs.

However, the review also noted that progress on some targets must be accelerated if the SDGs and Strategic Plan goals are to be realized. This is particularly true in fragile contexts where the scale of needs is high and trends in progress are of great concern.

By 2019, 74 per cent of the targets set out in the UNICEF Strategic Plan were achieved. However, despite a strong performance by UNICEF in many of the SDG areas, progress remained too slow in others, with 26 per cent of the targets off-track. At the current pace, for example, SDG targets will not be achieved for many critical issues including: immunization, health, nutrition, HIV and AIDS and early childhood development. In addition, progress is slow for targets relating to:

- Access to quality education
- Birth registration and violence against children
- Safely managed water and sanitation
- Disaster risk reduction and climate-change
- Child poverty

TOP RESULTS

In 2019, UNICEF provided support for:

Humanitarian assistance

in 281 emergencies in 96 countries.

Treatment for severe acute malnutrition

for 4.1 million children in emergencies.

Access to **safe drinking water** for 18.3 million more people and basic **sanitation services** for 15.5 million more people.

Expanding **menstrual health and hygiene services**, including direct support to 20,495 schools in 49 countries.

Safe births for nearly 28 million babies in health facilities.

Early learning, primary and secondary education for 17 million out-of-school children; and **skills development programmes** for 4 million children and young people.

Cash transfer programmes benefitting 51 million children, including 8.5 million in emergency settings.

Services for 307 million children younger than age 5 to **prevent malnutrition**.

More than 21 million **birth registrations** in 47 countries.

Care and interventions to **prevent child marriage** for 5.7 million adolescent girls.



Challenges

Among the challenges to achieving the SDGs for children are the unprecedented levels of humanitarian crises, including the global pandemic of COVID-19, and a climate shaped by limited predictable resources. Though UNICEF resources grew in 2019, the growth occurred in earmarked funding. Regular resources – funding that is predictable and flexible, and that allows UNICEF to respond quickly – declined. Regular resources, and other flexible funding, are essential for UNICEF to accelerate results with innovations, new partnerships, increased capacity and better data. Flexible funding is also essential to bridge gaps and allow for quick and immediate response in emergencies.



RIGHT: A group of boys stand outside Shaheed Abdul Ahad Khan Karzai Orphanage in Kandahar, Afghanistan.

© UNICEF/UNI229588/Bouvet

UNICEF expenditure, 2019

(in millions of US dollars)

BUDGET CATEGORY

Development	5,529
Programme	5,363
Development effectiveness	166
Management	392
United Nations development coordination	10
Special purpose (including capital investment)	29
Private fundraising and partnerships	222
Other	77
Total expenditure	6,259

Note: The UNICEF expenditure by budget categories in this table is presented on a modified cash basis.

Direct programme expenses, 2019

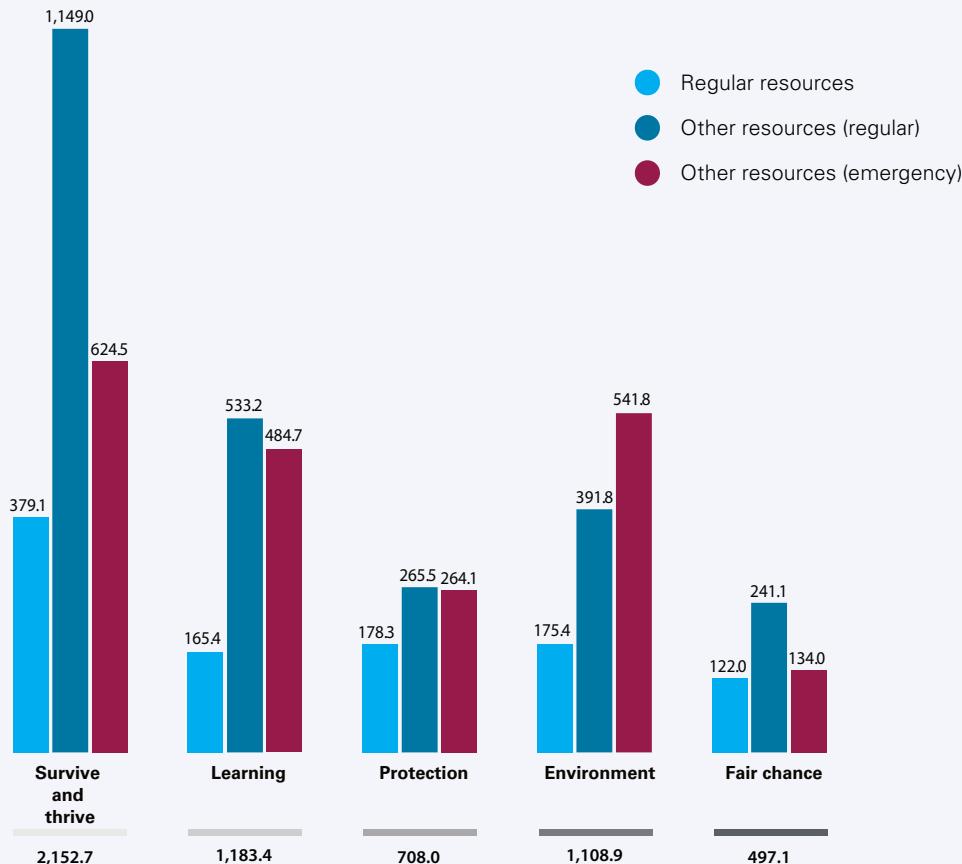
(in millions of US dollars)

Note: Numbers may not add up because of rounding.

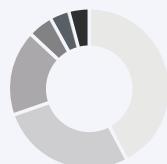
BY GOAL AREA



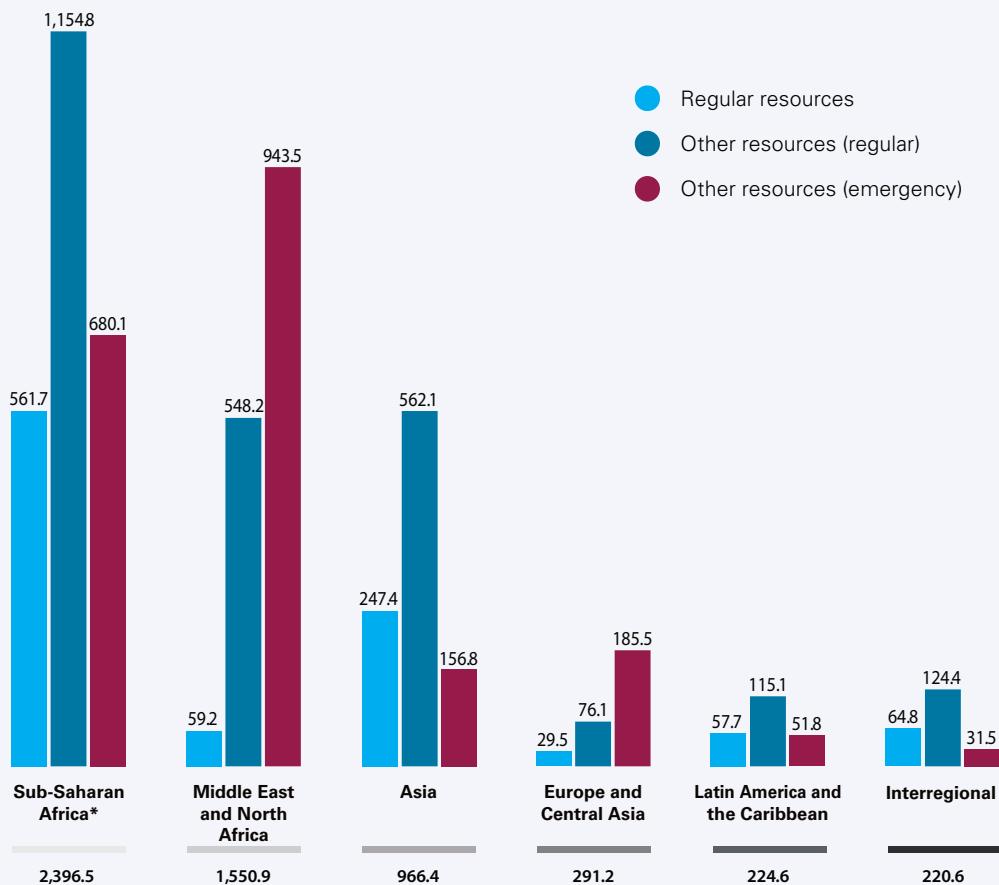
Total expenses
\$5,650 million



BY REGION



Total expenses
\$5,650 million



* Programme expenses for Djibouti are included under sub-Saharan Africa.



A decade of action

As the United Nations embarks on a new decade dedicated to accelerating results for children, UNICEF will prioritize efforts to effectively and efficiently improve children's health, nutrition, water, sanitation and hygiene, early childhood and adolescent development. We will focus on making sure every child goes to school and learns, and double down on our efforts to protect children and their environments. As always, we will focus on the most vulnerable children, providing social protection interventions and reaching out with efforts to end discrimination based on gender and ability.

Some priorities will include:

- Acceleration on core priority areas
- Stronger links between development and humanitarian programming
- Generation Unlimited, a partnership focused on modern education and job skills
- Community-based primary health care
- Mental health
- Climate change
- Intellectual leadership
- Innovations
- Gender equality

And as the child rights crisis of the global COVID-19 pandemic continues, UNICEF is leading the charge to respond, recover and reimagine a world fit for every child, calling for action to:

- Keep children healthy and well-nourished
- Reach vulnerable children with water, sanitation and hygiene
- Keep children learning
- Support families to cover their needs and care for their children
- Protect children from violence, exploitation and abuse
- Protect refugee and migrant children, and those affected by conflict

With a staff of thousands, UNICEF remains committed to its core values of care, respect, integrity, trust and accountability. As we embrace a new decade, we recalibrate and rededicate ourselves to achieving the SDGs and the UNICEF aspirations for children while meeting the non-stop challenges children face in a dynamic world.

Indeed, the world does not stand still for children. And neither do we.



Rose Tupemuni sits with her children outside her family's new home in Katanga health area (Tshikapa Health Zone) in Tshikapa, Kasai Province, Democratic Republic of the Congo, on 6 November 2019. Earlier in the year, the family was forced to flee their home in a remote village because of fighting. Rose was unable to have her three-year-old daughter vaccinated against the measles and the child succumbed to the disease. Now that the family has settled in the Katanga health area (Tshikapa Health Zone) in Tshikapa, Rose has made vaccinations a priority. "Now all of my children are protected," she says. "They've all been vaccinated against measles."

Goal Area 1

Every child survives
and thrives



**Every child has
the right to
survive and thrive.**

Protecting that right requires that every child has access to health care and food. It involves immunization and protection from HIV and AIDS, and from preventable diseases. And it means that homes, families and communities have access to early childhood development opportunities.

UNICEF addresses needs in quality health care, adequate nutrition, immunization, HIV prevention, adolescent health and early childhood development – all with the awareness that these services are interconnected, and that a holistic and multisectoral approach is essential.

In 2019, UNICEF helped children survive and thrive in 152 countries at a cost of US\$2.15 billion. The work included activities in 82 countries that required emergency assistance at a cost of US\$0.95 billion.



A mother holds her newborn baby as they wait for the baby to receive its vaccinations at Gambool Health Centre in Garowe, Puntland, Somalia. UNICEF supports primary health care in Somalia and partners with the Government of Somalia to strengthen national capacity in the provision of vaccinations and preventive and curative services for pneumonia, diarrhoea, malaria and other diseases. UNICEF is working to scale up the coverage and quality of maternal health services and essential newborn care services in the country.

© UNICEF/UNI218212/Hinds

**UNICEF addresses
needs in quality
health care,
adequate nutrition,
immunization,
HIV prevention,
adolescent health
and early childhood
development.**

Health

UNICEF's maternal, newborn, child and adolescent health programme focuses on strengthening integrated primary health care, ending preventable deaths through a package of essential maternal and newborn health services, preventing and treating childhood diseases, and ensuring that every child is fully immunized in terms of child and adolescent health and well-being. Health programmes are increasingly addressing child development, child disability, non-communicable diseases, mental health services, HPV vaccination, pregnancy prevention, environmental pollution and adolescent maternal care.

In 2019, there were 27.4 million live births in health facilities supported through UNICEF programmes in countries with high maternal and neonatal mortality. Chad and the Democratic Republic of the Congo eliminated maternal and neonatal tetanus, while UNICEF and partners supported the vaccination of 65.7 million children with three doses of DTP/pentavalent vaccine in 64 priority countries, and measles vaccination of 41.3 million children in humanitarian settings. Nigeria remained polio-free for a third year, paving the way for the potential certification of Africa as polio-free in 2020.

In 25 countries with high pneumonia prevalence, 9.4 million children with suspected pneumonia received antibiotics through UNICEF-supported programmes. UNICEF backed the skills enhancement of 35,840 community health workers in integrated community case management. The distribution of insecticide-treated nets was facilitated in humanitarian situations, reaching 1.69 million people.

By 2019, 67 countries had inclusive, multi-sectoral and gender-responsive national plans for adolescent health, and UNICEF supported their implementation in 31 countries. Nearly 1 million adolescent girls received the full schedule of HPV vaccination in five countries where UNICEF had supported the vaccine's introduction. In 2019, 79 countries implemented school health programming, leveraging a primary platform for integrated delivery of interventions for adolescent health, including mental health.

The top resource partners to health in 2019 were the World Bank Group; Gavi, the Vaccine Alliance; U.S. Fund for UNICEF; Germany; and the United Kingdom.



ABOVE: A child in preprimary class at Tahouak Primary School, Ta Oi District, in Saravane Province, Lao People's Democratic Republic, eats nutritious food during her lunch break.

© UNICEF/UN0311087/Verweij

Nutrition

In 2019, UNICEF provided support to nutrition programmes in more than 120 countries, addressing what *The State of the World's Children 2019: Children, food and nutrition – Growing well in a changing world* called the triple burden of malnutrition – undernutrition, micronutrient deficiencies and overweight.

Programmes supported by UNICEF in 2019:

- **Early childhood:** Reached 307 million under-fives with services to prevent stunting and other forms of malnutrition in early childhood.
- **Adolescence:** Helped 60 million boys and girls with services to prevent anaemia and other forms of malnutrition in adolescence.
- **Severe malnutrition:** Treated 4.9 million children for severe wasting and other forms of severe malnutrition.

As UNICEF continues to support nutrition programmes, the focus will be on prevention first and if that fails, treatment. This approach is the premise of UNICEF's partnership on nutrition with the Bill & Melinda Gates Foundation. In 15 high-burden countries, the partnership delivers food, health and social protection programmes in the first 1,000 days of life for children and their mothers.

The top resource partners to nutrition in 2019 were the World Bank Group, Germany, European Commission, United Kingdom and the Netherlands.



ABOVE: Kansiime Ruth ensures that both of her children, Lighton (1 year, pictured here) and Joanita, 4, take their daily pediatric HIV medicine. UNICEF is working in partnership with the Ministry of Health in Uganda to improve early diagnosis and initiation of treatment for HIV-positive infants, which is critical for saving lives.

© UNICEF/UNI211887/Schermbrucker

HIV and AIDS

In 2019, 13.5 million girls and 9 million boys were tested for HIV and received the results. However, progress towards ending AIDS by 2030 is insufficient. Efforts to prevent mother-to-child transmission of HIV resulted in 4 per cent more pregnant women living with HIV accessing antiretroviral treatment (ART) in the past four years. Some countries are making progress in the elimination of mother-to-child transmission of HIV. Botswana, Malawi, Namibia, Uganda and Zimbabwe are reaching 95 per cent of pregnant women living with HIV with ART and are on the pathway to elimination, and Sri Lanka joined the list of 13 countries that have been validated for elimination of mother-to-child transmission of HIV by WHO.

Globally there were an estimated 310,000 new HIV infections among adolescent girls and young women at the end of 2018, three times the global target. Regionally, while Eastern and Southern Africa saw improvements in the number of new infections among adolescents and young adults there continues to be concerning HIV epidemics among this population worldwide.

The top resource partners to HIV and AIDS in 2019 were the Islamic Development Bank, UNAIDS, Korean Committee for UNICEF, The Global Fund, and the UNFPA-managed UN Partnerships and Joint Programmes.



TOP RESULTS

27.4 million **babies were delivered in health facilities** with support from UNICEF.

More than 249 million children received **two doses of vitamin A supplementation** in key countries.

41.3 million children in emergency situations were **vaccinated against measles**.

More than 4.9 million children received **treatment for severe acute malnutrition**.

9.4 million children **suspected to have pneumonia were treated** by programmes supported by UNICEF.

13.5 million girls and 9 million boys were **tested for HIV** and received the results.

UNICEF joined 11 multilateral agencies to launch a **joint plan to better support countries** over the next 10 years, collectively contributing nearly one third of all development assistance to health.

Goal Area 2

Every child learns



Around the world, children and young people face disruptions to their right to go to school and learn.

In 2019, war, disaster, disease and the effects of climate change were barriers to children's right to education. In addition, vulnerabilities including poverty, gender norms and disability continue to put education out of reach for far too many children. And at the start of 2020, children in many corners of the world were forced from school by COVID-19.

In 2019, funding shortfalls, escalating insecurity and targeted attacks resulted in UNICEF reaching only 60 per cent of its ambitious target to provide education to 12.3 million children most at risk in emergency contexts.

The top resource partners to this Goal Area in 2019 were Germany, European Commission, Norway, the Global Partnership for Education and the Netherlands.



Students at the playground of Turgani High School in Faizabad, the largest city of Badakhshan, a northern province of Afghanistan.

In Afghanistan 3.7 million children are out of school and only 54 per cent of enrolled children complete primary school. Working at the national, provincial and community levels with the Ministry of Education and other partners, UNICEF focuses on the most vulnerable people in disadvantaged areas, particularly girls, to combat exclusion due to poverty, discrimination and conflict.

In 2019, UNICEF responded to these challenges by providing support to education in 143 countries at the expense of US\$1.18 billion. UNICEF supported education programmes in emergency contexts in 82 countries at a cost of US\$0.69 billion.

Successes

Despite the challenges, UNICEF education efforts achieved notable successes in 2019, including:

- 37 per cent of countries supported by UNICEF had systems in place to provide equitable access to learning opportunities for children, up from 29 per cent in 2018.
- 49 per cent of countries that received UNICEF support had plans to prevent gender-based violence in schools, compared with 38 per cent in 2018.
- 48 per cent of countries had effective systems to improve learning outcomes, compared with 35 per cent in 2018.
- 23 per cent of countries supported by UNICEF had systems to ensure that boys and girls were equally learning important skills, up from 16 per cent in 2018.
- 102 countries supported the Safe Schools Declaration, which calls on UNICEF, partners, governments and armed groups to protect education from attack and provides guidelines for implementation.

Still, more work needs to be done. If results are not accelerated, 420 million of the 1.4 billion school-aged children in low- and middle-income countries will not have learned basic skills by 2030 and 825 million will not acquire basic secondary-level skills.

With *Every Child Learns: UNICEF Education Strategy, 2019–2030*, adopted in 2019, UNICEF put learning outcomes at the heart of its efforts to meet the SDGs and its goals for children. The strategy calls on UNICEF to ensure that five-year-olds are ready for school, 10-year-olds are prepared to succeed in school and 18-year-olds are prepared for life and work.

The strategy emphasizes attendance and retention, learning methods and assessments and accountability. It prioritizes three approaches: system strengthening, use of data and evidence, and innovations that can be scaled up and sustained.

In recent years, it has become clear that the challenges to children's right to education are changing; disruption caused by crises are becoming an ever-greater threat. The good news is that, for UNICEF, the lessons have emerged and, with a new strategy, the path forward is clear.

GOAL AREA 2: EVERY CHILD LEARNS

RIGHT: A South Sudanese refugee pupil looks out through a classroom window at Tika Primary School in the Arua district of Uganda.

Tika Primary School, located in Rigbo sub-county, has been supported by UNICEF through Trailblazer Mentoring Foundation since April 2018. The school houses both formal primary education and an Accelerated Education Programme (AEP) for children from the host and refugee communities. A total of 3,632 children (1,750 girls, 1,882 boys) are enrolled in the primary school.

© UNICEF/UNI313340/Adriko



TOP RESULTS

More than 17 million out-of-school children participated in **early learning, primary or secondary education programmes**.

More than 12 million children received **education or early learning materials**.

More than 4 million took part in **skills development programmes** for learning, empowerment, employment or active citizenship.

UNICEF and the World Bank announced a **\$1 billion partnership to invest in education and skills training for youth** in support of Generation Unlimited, which seeks to prepare the world's youth for the future of work.

Goal Area 3

Every child is protected from violence and exploitation



Despite the expressed commitment to protect children against violence as reflected in the Sustainable Development Goals, children continue to face violations in their homes, schools, communities and online.

Indeed, 2019 concluded a deadly decade of more than 170,000 verified grave violations committed against children in conflict situations.

In an effort to protect children against violence and exploitation, UNICEF worked in more than 150 countries at an expense of nearly US\$708 million.

The top resource partners to this Goal Area in 2019 were Germany, the Netherlands, the European Commission, Sweden and the United Nations Joint Programme.



Matthew, 17, was abducted from his home in South Sudan by an armed group and held for two years. He was formally released with support from UNICEF and received a reintegration package and training in agriculture. He was also assigned a case worker, who provided psychosocial support and guidance as Matthew transitioned into normal life again. In 2019, across 19 countries, UNICEF provided care and services to more than 14,400 children who had left armed forces or groups over the course of several years.

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**UNICEF's efforts
to protect children
started with
initiatives to
encourage birth
registration, one of
the first essential
tools for protecting
children's rights
and safety.**

Successes

In 2019, the number of birth registrations supported by UNICEF increased 35 per cent compared with 2018. UNICEF is now supporting 13 priority countries – who account for slightly more than 1 in 3 of all unregistered children worldwide – to accelerate action.

UNICEF worked to end violence against children in and around schools through the launch of a powerful global coalition, the Safe to Learn programme. UNICEF also assisted 24 countries in implementing the WeProtect National Model Response to tackle online child sexual exploitation and abuse. Overall, UNICEF reached 17 per cent more children who experienced violence with health, social work or justice and law enforcement services in 2019 compared to 2018.

In 2019, UNICEF also reached millions of children in humanitarian situations in 74 countries with protection services. More than 4.37 million girls and boys in 22 countries affected by landmines and other explosive weapons were reached in 2019 with relevant prevention and survivor assistance interventions. And efforts to protect children from exploitation and abuse in emergencies increased to 32 countries in 2019 from 16 countries in 2018. Overall, more than 8.9 million adults and children had access to a channel to report sexual exploitation and abuse in 2019, a 27 per cent increase compared to 2018.

UNICEF supported 128 countries in 2019 to implement a range of interventions to improve children's access to justice. UNICEF's work to champion the rights of children without parental care, including children with disabilities, was boosted through a landmark United Nations General Assembly Resolution, which focused on preventing family separation and ending institutionalization of children.

In addition, more than 158,000 girls and women received prevention and protection services against female genital mutilation. And UNICEF's contribution provided more than 5.7 million adolescent girls with prevention and care interventions to thwart child marriage.

Looking forward

Though UNICEF child protection efforts reached many millions of children, there is much more to do.

To speed up the rate of progress, UNICEF will work to strengthen the systems that prevent and respond to violence against children and ensure children's access to justice. UNICEF will also emphasize behavioural change programmes and measurement and community engagement as a means to transform harmful practices and address social and gender norms that contribute to many forms of violence against children.

GOAL AREA 3: EVERY CHILD IS PROTECTED FROM VIOLENCE AND EXPLOITATION

RIGHT: 17-year-old Rima Bera is a young activist, committed to preventing child marriages in her community in Namgarh, Tarakeshwari, Hoogly, West Bengal, India.

© UNICEF/UN0331595/Das



TOP RESULTS

More than 21 million children were **registered at birth** in 47 countries.

3.7 million children in humanitarian situations received **community-based mental health care and psychosocial support**.

1.7 million migrant, refugee and internally displaced children were **provided protective services** in 76 countries.

3.3 million women, girls and boys received **gender-based violence risk mitigation, prevention or response interventions in humanitarian situations** including mental health care, psychosocial support and child-friendly spaces.

UNICEF and the European Union launched the **#RealChallengeTikTok campaign focusing on child labour, gender equality, children separated from families and bullying**, with 300 million views, 51,000 pieces of generated content and 1.2 million shares in 41 countries.

Goal Area 4

Every child lives in
a safe and clean
environment



In 2019, children's right to a safe and clean environment faced threats caused by often protracted emergencies, conflict and extreme weather events – many related to climate change.

In response, UNICEF focused on five key areas: water, sanitation and hygiene, disaster risk reduction, urban settings and environmental sustainability. In 2019, UNICEF undertook efforts to ensure a safe and clean environment for children in 145 countries at an expense of US\$1.12 billion; in 84 countries, the work was part of emergency responses totalling US \$0.68 billion.

The top resource partners to water, sanitation and hygiene programmes in 2019 were Germany, the United Kingdom, the European Commission, the Netherlands and Sweden, while the top resource partners to UNICEF's Safe and Clean Environment programmes in 2019 were the Netherlands, Germany, the UNDP-managed UN Partnerships and Joint Programmes, Sweden and Japan.

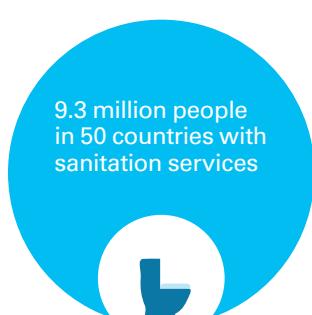
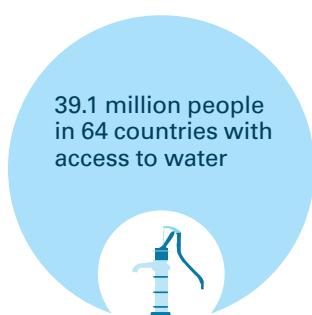


School children drink water from a water tap that was installed by UNICEF at the Topa Primary School in Mendi, Southern Highlands Province of Papua New Guinea. After massive earthquakes in 2018 damaged the school and destroyed nearby communities, UNICEF in 2019 provided an integrated package of services to the school and surrounding communities including water, sanitation and hygiene, as well as services in health, nutrition, education and child protection.

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**Significant progress was made in 2019:
millions more children and families gained
access to safe water and sanitation; more
countries focused on children in their plans to
manage the risks of climate-related disasters
and build resilience; and governments
concentrated on the specific disadvantages
faced by children in urban settings.**

In emergency contexts,
UNICEF reached:



With the onset of COVID-19 at the end of 2019, UNICEF responded with the procurement of necessary medical supplies, a worldwide handwashing campaign, efforts to supply soap and support to health facilities.

Water

In addition to providing direct support for access to water, UNICEF also continued to build local capacity to innovate and improve services. In the Sudan, for example, UNICEF encouraged a new approach to tapping ground-level rainwater catchment basins. And in 27 countries, UNICEF commissioned independent checks to test water systems for sustainability, the results of which are being used to improve programmes.

The number of countries where UNICEF backs community-based handwashing promotion increased, from 71 countries in 2018 to 90 countries in 2019. UNICEF also reached 2.4 million children in 8,026 schools in 2019 to ensure the availability of basic water, sanitation and handwashing facilities.

Sanitation

The UNICEF Game Plan to End Open Defecation continued its efforts in 26 high-burden countries in 2019. Direct support from UNICEF helped 22,267 communities gain the status of being free of open defecation. In Nigeria, for example, with UNICEF assistance, 4,781 communities reached that milestone.

Efforts to improve sanitation also included guidance on market-based programmes and support to entrepreneurs in the sanitation field. In Bangladesh, for example, 165,000 households acquired improved toilets through local entrepreneurs, and in Ghana, a partnership with the National Board for Small Scale Industries is rapidly building private-sector capacity.



Resilience and risk reduction, urban programming and environmental sustainability

Increasingly, UNICEF is focusing on the link between humanitarian response and longer-term sustainable development. This effort includes strengthening resilience to climate change and disasters as well as promoting peaceful and inclusive societies.

In 2019, UNICEF issued a procedure that requires risk-informed programming for new UNICEF country initiatives, accounting for the fact that crises are becoming more frequent and complex, and are lasting longer and affecting more children. In 2019, 41 per cent of UNICEF country offices met benchmarks on implementing risk-informed programming.

UNICEF supports programmes in urban settings in more than 80 countries aimed at improving intra-urban data, making national and city development programmes child-responsive, and bringing in a child focus to infrastructure and spatial planning in cities.

UNICEF also expanded its programming on climate change and 56 country offices engaged in child-inclusive programmes that fostered climate resilience in 2019, compared with 27 in 2018. These activities included support to combat air pollution, make social services more climate resilient and encourage sustainable energy, especially in health-care facilities, schools, and water and sanitation services.

TOP RESULTS

18.3 million more people gained **access to safe drinking water**.

58 countries kept data on disparities among **children in urban settings**.

15.5 million more people gained **access to basic sanitation services**.

56 countries implemented child-inclusive programmes for **climate change resistance and low-carbon development**.

57 countries had local or national **child-sensitive management plans to address disasters, conflict, public health and other emergencies**.

Goal Area 5

Every child has an equitable chance in life



In 2019, the world marked the 30th Anniversary of the Convention on the Rights of the Child by celebrating progress achieved in past decades.

Though there was much to celebrate, much more must be done to make sure every child has an equitable chance to survive, thrive and build a future.

In 2019, UNICEF continued working to safeguard the rights enshrined in the Convention on the Rights of the Child by reducing child poverty and ending discrimination. To achieve this goal, UNICEF worked in 154 countries and invested over US\$497.11 million to provide children with an equitable chance in life. In emergency contexts, UNICEF worked to equitably reach children in 60 countries at a cost of US\$0.27 billion.

The top resource partners to this Goal Area in 2019 were the World Bank Group, the European Commission, Sweden, United Nations Joint Programmes and the United States.



Arina, age 13, holds her little brother Daniil. Together with their mother, stepfather and two sisters, they share a small two-room house in Nur-Sultan, Kazakhstan. Over the last decade, Kazakhstan has made considerable progress in reducing poverty levels. However, many vulnerable families are still falling through the cracks. Children are particularly vulnerable. In 2019, UNICEF initiated a 'cash plus' model, where cash transfer programming is linked with appropriate information and knowledge, working jointly with the Ministry of Labour and Social Protection to enhance the impact of cash transfer on child poverty and other child-related outcomes.

UNICEF efforts to make sure every child has an equitable chance in life focused on five areas: child poverty and public finance for children, social protection, gender equality, children with disabilities, and adolescents.

Child poverty and public finance for children

In 2019, UNICEF continued to work with governments to monitor child poverty and respond with social and economic policies that protect children from the multiple effects of poverty. In 65 countries, routine measurement and reporting on multidimensional child poverty were established and 73 countries have routine measurement and reporting on monetary child poverty. In 28 countries, child poverty is addressed by specific policies and programmes.

These child poverty measurements helped direct focus and resources into areas and sectors with the highest number of deprived children (as in Ghana, Panama and Zambia) and influenced national poverty reduction efforts, including increasing social protection coverage for children (as in Malaysia, where the flagship social protection scheme increased benefits to children). In Kazakhstan, for example, UNICEF worked with the government to expand a social assistance programme to reach more than 1.5 million children, up from around 363,000 previously.

Social protection

UNICEF-supported cash transfer programmes reached more than 51 million children in 2019, including more than 8 million in humanitarian settings. In Thailand, UNICEF backed the expansion of the Child Support Grant, now covering more than 1 million children and expected to cover an additional 0.8 million, or half the population under age 6, by 2024. This expansion is a strategic investment that ensures the well-being of vulnerable children and families. As of 2019, 47 countries had strong or moderately strong social protection systems and nine had national cash transfer programmes capable of responding in a crisis.

Gender equality

In 2019, UNICEF addressed harmful, discriminatory gender norms, roles and practices with targeted support from the Global Thematic Fund for Gender Equality, which receives contributions from the Governments of Canada and Luxembourg. In addition, programming was underway in 120 countries that focused on: gender-responsive school curricula, positive parenting for fathers, gender equality training for frontline workers and multisectoral interventions to address gender norms linked to harmful practices.



Adolescents

Article 12 of the Convention on the Rights of the Child enshrines participation as a fundamental human right. Participation is about being informed, involved and having an influence on decisions and matters that affect one's life – in private and public spheres.

The over 4 million adolescents involved with civic engagement in 2019 came from 113 countries, 2.6 million of them were in India. Of the 4 million, 440,000 were adolescents from 24 countries impacted by conflict or disaster. Thirty-four countries reported the establishment of 41 'appropriate' policies – 30 multi-sectoral and 11 sectoral policies – that support the development of adolescents. Additionally, 31 per cent of UNICEF country offices routinely engaged adolescents in the creation and evaluation of programming – and at least half were girls from marginalized backgrounds.

Children with disabilities

In 2019, UNICEF reached 1.7 million children with disabilities, across 142 countries through disability inclusive development and humanitarian programmes. In emergency contexts, 36 per cent of UNICEF country offices systematically included children with disabilities in their response efforts such as the construction of 48 disability-accessible classrooms in two Kenyan refugee camps and accessible temporary learning spaces for nearly 1,400 children and adolescents with disabilities in Indonesia. Globally, over 138,000 children with disabilities were provided with assistive devices and products. This includes 13,722 children with disabilities provided with hearing aids, walking sticks, wheelchairs and braille equipment, and 124,287 children with disabilities reached with emergency kits such as the School-in-a-Box and recreation kits containing adapted products to engage children with disabilities.

TOP RESULTS

97 countries routinely measured and reported on child poverty (monetary and/or multidimensional).

1.7 million children with disabilities received UNICEF support.

More than 51 million children benefited from cash transfer programmes supported by UNICEF, including over 8 million in emergency settings.

4 million adolescents were involved in civic engagement initiatives supported by UNICEF.

UNICEF and the Kingdom of the Netherlands signed a partnership, PROSPECTS, to provide education and child protection for children on the move in eight countries, together with the World Bank and the International Finance Corporation, UNHCR and ILO.

Cross-cutting priority:

Humanitarian Action



At the Al-Nasser school in Beit Boos, a suburb on the outskirts of Yemen's capital, Sana'a, more than 1,600 children attend classes in two shifts.

As many nearby schools have closed – educational casualties of war – Al-Nasser bustles with activity. And in 2019, Al-Nasser even added a new offering for students: a computer lab with 11 laptops and access to a wide world of information.

The computer lab “means Yemenis can become part of the international community,” said Abdul Rahman Al Sharjabi, an Education Officer with UNICEF. “They might look for a field of study that will help this country.”

In Yemen, UNICEF and partners have collaborated with the Yemen Ministry of Education to pay teacher salaries, rehabilitate schools, provide water and sanitation facilities, and improve the quality of education. By bolstering education in times of crisis, UNICEF and partners are addressing immediate humanitarian needs while laying the foundation for achieving longer-term development goals.

The top resource partners for such assistance in 2019 were the United States, UNOCHA, the United Kingdom, the European Commission and Germany.



A student at the Al-Nasser school in Yemen learns in a new computer lab. Five years of armed conflict have imposed multiple dangers on children including severe acute malnutrition, poor sanitation, displacement, lack of safe water and exposure to preventable diseases. But children's education and futures are also at risk. In 2019, efforts to bolster the education system included initiatives that afforded 253,406 children access to education and provided basic education materials for 676,200 students.

© UNICEF Yemen/Fuad

Indeed, in 2019, UNICEF and partners continued to emphasize the importance of connecting humanitarian, development and peace initiatives. This effort requires partnerships that build sustainable and resilient institutions in health care, education, child protection, and water and sanitation. But it also means improving the coordination and response to humanitarian needs.

And the need is great.

Around the world, 1 in 45 people (nearly 168 million) required urgent humanitarian assistance in 2019. And 149 million children lived in high-intensity conflict zones.

In 2019, UNICEF responded by providing assistance in 281 humanitarian situations in 96 countries.

For example, in 2019:

UNICEF worked with more than 40 civil society organizations to reach over 233,000 children in **South Sudan** with treatment for severe acute malnutrition.

In **Bangladesh**, UNICEF and partners reached 274,000 children with access to education in refugee camps and host committees.

As part of a multisectoral response to the Ebola outbreak in the **Democratic Republic of the Congo**, UNICEF reached 169,784 children with mental health care and psychosocial support and about 33 million people in at-risk populations with communication for development activities.

TOP RESULTS



Reached 39.1 million people with **access to safe water**.

Secured **measles vaccinations** for 43.1 million children aged 6 months to 15 years.

Provided 7.4 million children with **education in emergencies**.

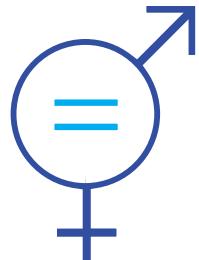
Reached 4.1 million children with **treatment for severe acute malnutrition**.



Health workers stand outside a tent used for cholera treatment at the Macurungo Centre in Beira, Mozambique. Mozambique was affected by two category four cyclones in 2019, which led to severe flooding in the northern region and a subsequent cholera outbreak.

© UNICEF/UN0321069/De Wet

Cross-cutting priority: Gender Equality



**For Pascaline,
football is more
than a just a game.
It is a path to a
better future.**

At 11, Pascaline left school because her family could not afford the fees. So she took to football, sharpening her skills by playing with the boys in the Lacouroussou neighbourhood of Niamey, in Niger, where she lives in a one-room house with a tin roof that rattles with every gust of wind.

The boys laughed at her. But she didn't care.

"Whoever says that football is only for boys, well, my friends and I are proving them wrong," said Pascaline, now 13.

Pascaline's skill on the football pitch caught the eye of a scout for Atcha Academie, a school that combines football with a second chance at education. Pascaline studied hard for the entrance exam and earned admission.

The top partners to gender equality in 2019 were the European Commission, UNDP, the Republic of Korea, Canada and UNFPA.



Pascaline, 13, has a second chance at education thanks to football, hard work and enrollment in the Atcha Academie in Niger, a school that incorporates football as part of an effort to empower girls to pursue their education and succeed in life.

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**The UNICEF
Gender Action
Plan, 2018–2021
focuses on
addressing gender
in all sectors that
affect children's
lives: health,
nutrition, education,
protection,
environment and
poverty**

With the highest rate of child marriage in the world, and an estimated 2.5 million children out of school, Niger presents challenges for girls as they prepare for their futures.

These challenges are mirrored in countries around the world.

Despite decreases in child marriage globally, millions of girls remain at risk. In addition, nearly one in four girls aged 15–19 years is not employed, in education or training. In comparison, the proportion for boys the same age is 1 in 10. And though four out of five girls globally complete primary school, only two out of five complete upper secondary school.

The UNICEF Gender Action Plan, 2018–2021 targets five priority issues for adolescent girls: gender-responsive adolescent health, girls' secondary education, child marriage and early unions, gender-based violence in emergencies, and menstrual health and hygiene.

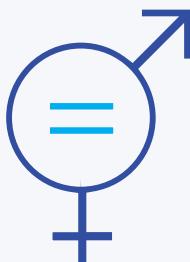
Football tournaments like the one at the Atcha Academie are an example of how UNICEF and partners address multiple challenges that girls face as they build futures for themselves. In addition to the football programme, the Atcha Academie provides children with primary and secondary education, academic and sports equipment and food.

"They gave me a bike, school materials and a football kit to wear for training sessions," Pascaline said. "My life took a turn I didn't expect."

Pascaline's teacher, Garba, says the school retains students and keeps them motivated. Garba understands that football may be the enticement. But it works.

"My students come to all my classes with their homework completed," she said.

TOP RESULTS



Programmes supported by UNICEF reached 5.7 million adolescent girls with **care and interventions to prevent child marriage**.

Programmes that address harmful gender norms were underway in 120 countries, focused on **school curricula; parenting practices; training for frontline workers; and child marriage**.

UNICEF began implementing the **European Union-United Nations Spotlight Initiative**, the world's largest targeted effort to **eliminate violence against women and girls**, in 13 countries in Africa and Latin America, mobilizing US\$36 million for 2019–2020. .

CROSS-CUTTING PRIORITY:
GENDER EQUALITY



LEFT: Girls and women from communities in Egypt where Female Genital Mutilation (FGM) is most prevalent being trained to be community advocates against FGM as part of the project "Safer Communities for Children" currently implemented by UNICEF partner NGO ACDA (Asyut Child and Development Association) within the framework of USAID's Empowering Women and Girls programme and the UNFPA-UNICEF Joint Global FGM Programme.

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LEFT: Ayak, 17, talks with her neighbour in Bor, South Sudan. The mother of a one-year-old baby, Ayak was forced to marry an elder man when she was 15. She suffered serious medical complications during childbirth, and after the delivery she returned to her parents' house and asked to divorce her husband. Now Ayak would like to rejoin school and improve her future expectations. UNICEF estimates 50 per cent of all girls are married before they are 18 in South Sudan.

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Change Strategy:

Winning support for children and young people

In 2019, UNICEF launched an organization-wide initiative to bolster advocacy capacity while continuing to deliver integrated campaign efforts with:

#ChildrenUprooted

on refugee, migrant and internally displaced children

#EarlyMomentsMatter

on early childhood development

#EveryChildALIVE

on child survival

#ChildrenUnderAttack

on UNICEF's humanitarian response in emergencies including conflict

#ENDViolence

on child protection and ending violence against children

UNICEF's ability to deliver results depends on winning support for children and young people from decision makers and the wider public. In 2019, UNICEF used its communication and advocacy prowess to reach, engage and drive change – to engage individuals and become the leading voice, the leading advocate and the leading brand for children and young people.

In 2019, UNICEF reached a record number of individuals with compelling content shared across multiple channels. A 'donate' button on UNICEF's global web channel allowed digital engagement to play a critical role in resource mobilization. And UNICEF's new parenting portal reached more than 1.5 million visitors in 2019.

UNICEF also generated over 125,000 online and over 6,500 pieces in top tier media outlets covering humanitarian issues, campaigns and regular development issues.

TOP RESULTS

Child-focused policy changes occurred in 136 countries.

UNICEF's **base of supporters grew** to 96 million, with more than 81 million digital supporters, 1.2 million volunteers and 8.2 million donors.

The **30th anniversary of the Convention on the Rights of the Child** was marked with the participation of 181 countries and governments, civil society organizations, UNICEF Goodwill Ambassadors, the private sector and young people.



In 2019, a makeshift graveyard of 3,758 backpacks representing the number of children who died because of conflict in the previous year was installed at the United Nations Headquarters in New York and won the attention of world leaders, including the United Nations Secretary-General. It reached more than 400 media outlets and inspired more than 300,000 engagements on social media, attracting an audience of up to 1.1 billion. The installation won the People's Voice Award and Best Cause Related Campaign at the 2020 Webby awards.

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Change Strategy:

Partnerships

Partnerships are central to the results that UNICEF delivers for every child in over 190 countries and territories.

In addition to providing foundational funding resources, public and private sector partners are critical to UNICEF's efforts to innovate, break down market barriers, explore new areas of growth and advocate for the rights of every child, playing a key role in influencing policy to leverage resources for children beyond UNICEF.

Despite the many partnership achievements in 2019, challenges remain for Regular resources funding to allow UNICEF the flexibility to respond quickly, innovate, bridge gaps in humanitarian emergencies, and work towards accelerated results.

PUBLIC PARTNERSHIPS

UNICEF's 137 government partners, along with intergovernmental organizations and inter-organizational arrangements, contributed the bulk of the resources funding UNICEF's work. The three largest contributors in 2019 were the Governments of the United States, the United Kingdom and Germany.

- The Government of the United States provided US\$743 million in overall funding and was the largest contributor to flexible Regular resources.
- The United Kingdom provided US\$494 million in critical support for programmes, especially in emergencies, and signed a multi-year agreement that allows for flexible and reliable action for children in need.
- Germany contributed US\$464 million with continued growth in unearmarked, core funding, which allows UNICEF to maintain presence on the ground where most needed.
- The European Union contributed US\$382 million in 2019 that provided quality education for more than 500,000 children in Jordan, Lebanon and Turkey; improved service delivery and contributed to the well-being of refugee Rohingya children in Bangladesh; and helped fight malnutrition in the Sahel region of western Africa.
- The Netherlands signed its first three-year core and global thematic humanitarian contributions in 2019. In 2019, Estonia made its inaugural contribution to UNICEF's global innovation work and further strengthened cooperation in Georgia.



Asma'a, 6, plays with friends in a kindergarten class in the Za'atari Refugee Camp for Syrian refugees in Jordan. The kindergarten class and other quality education opportunities are provided in partnership with the Jordan Ministry of Education with support from the Governments of Australia, Canada, Ireland, the United Kingdom and the United States.

© UNICEF/UN0297825/Herwig

In addition:

- In 2019, UNICEF was recognized as a lead World Bank Partner for investments in human capital and expanded partnerships in Latin America, Africa and Asia, including for education, health, nutrition, social protection and WASH.
- The Nordic partners (Denmark, Finland, Iceland, Norway and Sweden) provided strategic and high-quality funding for programmes focusing on child protection, education, WASH and humanitarian assistance for the most vulnerable children worldwide. Norway and Sweden remained the top two resource partners to UNICEF's Thematic Funding.
- Global Programme Partnerships contributed US\$356 million in 2019. UNICEF received Global Fund support for the national tuberculosis (TB) control programme and elimination of malaria in the Democratic People's Republic of Korea.
- The Government of Japan recognized UNICEF's key roles in ensuring a polio-free Africa, building on their US\$33 million contribution for UNICEF since 2017.
- Support from the Republic of Korea increased to nearly US\$44 million with cross-sectoral, multi-year funding for areas including innovation, gender and climate change.

TOP RESULTS

In 2019, UNICEF's **137 government partners**, along with **intergovernmental organizations and inter-organizational arrangements**, contributed US\$4.7 billion. Partnerships with the **private sector** continued to grow in significance, contributing US\$1.5 billion, and increasingly mobilizing programmatically.

An estimated 34.25 million children were reached by **programmatic and advocacy interventions involving business** in 2019, contributing to results in all of UNICEF's programme areas.

Partnerships with the **World Bank** expanded to more countries than ever with almost US\$400 million in joint projects implemented by UNICEF in 2019. UNICEF and the **Islamic Development Bank** financed child-related SDGs in member countries through the Global Muslim Philanthropy Fund for Children.

Financial contributions from **corporate partners** increased to US\$201 million in 2019, more than 20 per cent in growth compared to US\$167 million raised in 2018.

Ninety-seven country offices and 20 National Committees reported working with **3,101 businesses and business platforms** to mobilize resources, skills and assets, secure support for advocacy on children's issues, and address business impact on children in the workplace, marketplace and community.

UNICEF philanthropy partners contributed US\$185 million in 2019. Contributions from Major Donors have doubled in the past five years, thanks to the generosity of donors and UNICEF's innovative approach.

PRIVATE SECTOR PARTNERSHIPS

The Business for Results (B4R) initiative gained significant momentum in 2019. The initiative aims at maximizing the power of business and markets for children by fostering a global capacity-building and culture-change programme; strengthening coordination and leadership learning engagements with business partners; and incorporating business as a stakeholder in the development of programme strategies.

Child Rights and Business

UNICEF's child-rights focused approach to business identifies the impact of business on children and works with governments and influencers of business behaviour for regulatory, policy and infrastructural action.

- ▶ Argentina, Canada, Colombia, Ecuador, Indonesia, Malaysia, Mexico, Thailand, the Philippines and Uruguay were among offices working with governments to develop regulation on issues such as labelling, marketing and taxation of obesogenic foods.
- ▶ New partnerships with the World Benchmarking Alliance and institutional investors expanded the range of child rights criteria included in environmental, social and governance (ESG) assessments.

Corporate partnerships

In 2019, UNICEF and partners reached an estimated 15 million children worldwide and raised US\$201.3 million, 21 per cent more than 2018 and exceeding the planned US\$190 million target. This was made possible partly thanks to:

- ▶ Renewed partnership with the LEGO Foundation for a \$28 million five-year commitment focused on playful parenting and learning through play in South Africa.
- ▶ New six-year \$12.5 million partnership with AstraZeneca to reach young people and help prevent non-communicable diseases.
- ▶ Renewed support from Takeda with \$9 million contribution to UNICEF Venture Fund, bringing overall value of the partnership from \$9 million to \$22.5 million.
- ▶ Global work with UNILEVER expanded through a new three-year partnership with Dove to help 10 million young people (especially girls) in Brazil, India and Indonesia to gain self-esteem and body confidence.

Foundation partnerships

In 2019, UNICEF mobilized US\$152 million from foundation partners in support of programmes that will shift the needle for children around the world.

- ▶ UNICEF and The Bill & Melinda Gates Foundation advanced work to contain and eradicate polio, strengthened collaboration around health and nutrition in Africa, and established the framework for a multi-year joint investment to accelerate results across priority countries.
- ▶ UNICEF and The Power of Nutrition signed a new US\$100 million joint investment to implement effective, evidence-based and sustainable programmes in 11 countries in sub-Saharan Africa and Asia with the highest levels of stunting and infant malnutrition.
- ▶ A new US\$30 million co-investment partnership with The Rockefeller Foundation will focus on reducing maternal and child mortality in India and Uganda by applying data science to better deploy life-saving health tools.

Philanthropy partners

Results for children could not be achieved without the engagement and support of major donors and membership and faith-based organizations partners, such as:

- ▶ Rotary International, which continues to be a leader in the Global Polio Eradication Initiative and provided more than US\$64.6 million.
- ▶ Latter-day Saint Charities, which supports early childhood development needs of refugees in the Democratic Republic of the Congo, Kenya, Sudan and Uganda with nearly US\$15 million contributed to date, and is a partner in UNICEF's global effort to eliminate maternal and neonatal tetanus.
- ▶ Zonta International, the only private-sector donor to focus on ending child marriage, made a \$2 million commitment.

Change Strategy:

Innovation

**As the world changes,
so do the challenges
facing children,
their families and
communities.**

**In 2019, UNICEF
responded by
embracing innovation
as a change strategy
for accelerating
results in priority
programme areas.**

As recommended by the 2019 Evaluation of Innovation in *UNICEF Work: Synthesis Report*, the UNICEF Office of Innovation drafted a new vision and strategy, initiated structural changes and introduced a portfolio management approach to its work. And throughout 2019, the office worked with partners around the world to leverage diverse streams of financing to scale up ongoing innovations, build on new ideas and search the horizon for inspiration.

Scale up: U-Report

UNICEF has pioneered scalable innovation including UPSHIFT, a programme underway in 21 countries that empowers young people to identify and address challenges in their communities, encouraging them to become social entrepreneurs. Another hallmark innovation is U-Report, a free social messaging tool that empowers young people to engage with and speak out on issues that matter to them. In 2019, U-Report:

- Launched in 15 new countries
- Added nearly 2.5 million new users – a 56 per cent increase from 2018
- Reached a milestone of 9 million active users in 67 countries.

Mid-term: drones

Building on its ongoing innovations in drone technology for humanitarian and development efforts, the UNICEF Office of Innovation worked in 2019 with more than 15 companies, universities and research centres and the Government of Malawi to test drone technology in a corridor established for humanitarian work.

The work in Malawi is just one example of how the UNICEF Office of Innovation works with partners on using drones for good. In addition, UNICEF, through Venture Fund investments, supports the use of drones in Vanuatu, Kazakhstan and Sierra Leone in multiple efforts: for example, for enterprises that supply vaccines and provide emergency responses and health-care initiatives. In addition, UNICEF has also worked with governments and partners to develop a regulatory framework and global recommendations on how to safely use drones for humanitarian missions.



In 2019, the UNICEF Office of Innovation worked towards the launch of the African Drone and Data Academy in January 2020. The academy prepares students – including Tadala Makuluni, above – to become drone pilots and tech entrepreneurs. The academy, a partnership with Virginia Tech and the Malawi University of Science and Technology, responds to the growing need for trained drone experts in the region.

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RIGHT: Pupils participating in a pilot multimedia learning programme in Jordan. Internet connectivity is a critical factor in reducing inequalities and ensuring that all children have access to information, opportunity and choice.

© UNICEF/UN0299604/Herwig



Long-term: GIGA

Among the long-range innovations, UNICEF and the International Telecommunications Union in 2019 launched a global initiative to connect every school to the internet and every young person to information, opportunity and choice. The initiative, GIGA, begins with efforts in Central Asia, Eastern Africa and the Eastern Caribbean.

TOP RESULTS

Launch of the **UNICEF Cryptocurrency Fund**, the first in the United Nations, which allows for contributions to be collected and used in cryptocurrency.

Testing and creation of new highly specialized tents, officially launched in January 2020 to provide shelter for children displaced by conflict or disaster; the tents meet more than 1,000 specialized requirements and can be used for learning, play and child protection, nutrition and services.

Announcement of five global winners of the GenU Youth Challenge, a partnership with Generation Unlimited, UNICEF and UNDP that **provided seed money to 80 youth-led projects in 16 countries**; the winning projects included an application that delivers low-cost learning materials.

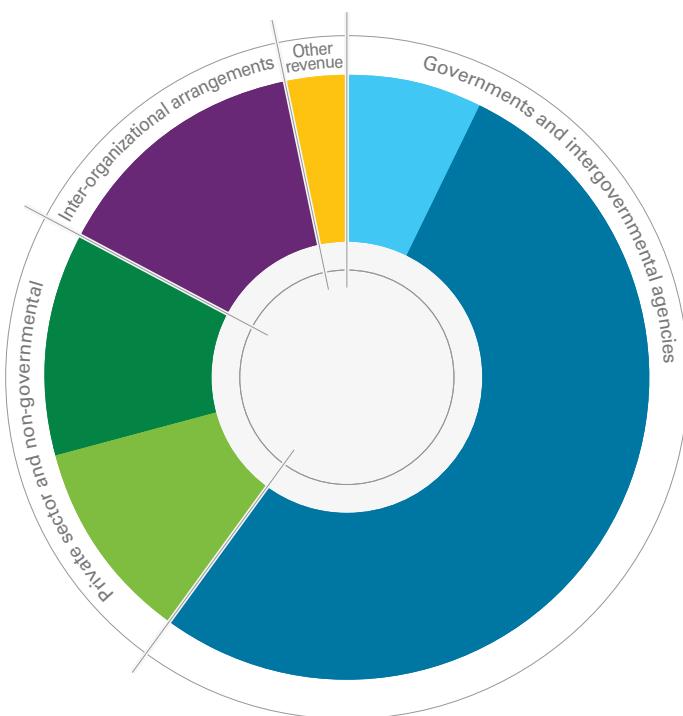
Financials and Stewardship

Funded entirely by voluntary contributions, UNICEF is committed to ensuring that every dollar goes as far as possible to save and improve children's lives.

As one of the world's largest buyers of life-saving supplies for children, UNICEF is in a unique position to negotiate the lowest prices and deliver value for money. Transparency around funding sources and how UNICEF spends its resources is fundamental to achieving results for children and young people.

Total UNICEF revenue by source and funding type, 2019*

(in US dollars)



Total funding: \$6,412 million

Governments and intergovernmental agencies

Regular resources:	\$480 million	7%
Other resources:	\$3,368 million	53%

Private sector and non-governmental organizations

Regular resources:	\$695 million	11%
Other resources:	\$766 million	12%

Inter-organizational arrangements

Other resources:	\$897 million	14%
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Other revenue**

Other revenue:	\$206 million	3%
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* The figures for 2019 are provisional and are subject to audit.

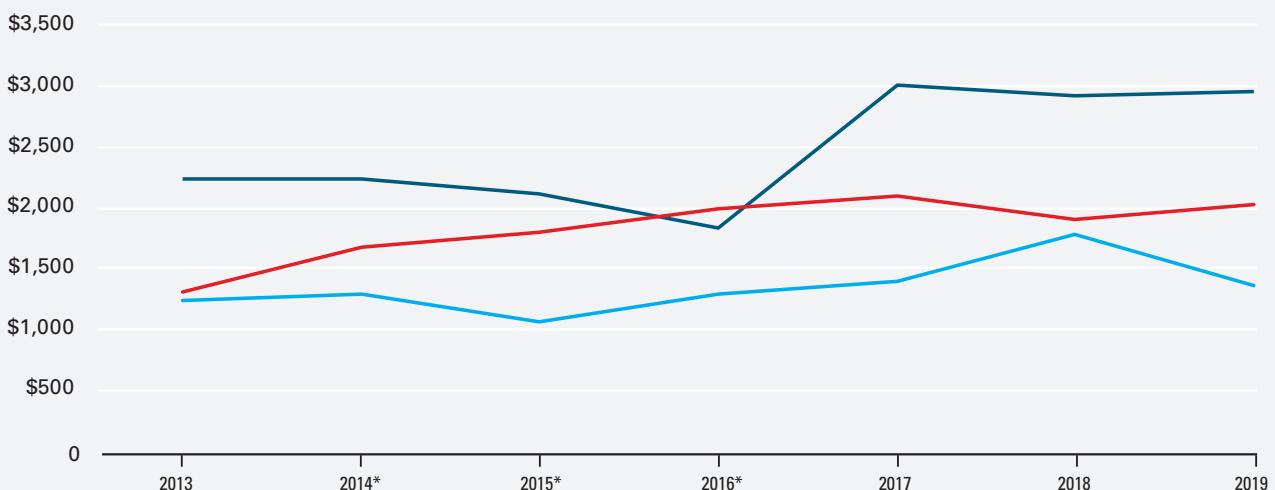
** Other revenue includes revenue from investments, procurement and other sources.

Note: Numbers may not add up because of rounding.

UNICEF revenue, 2013–2019

(in millions of US dollars)

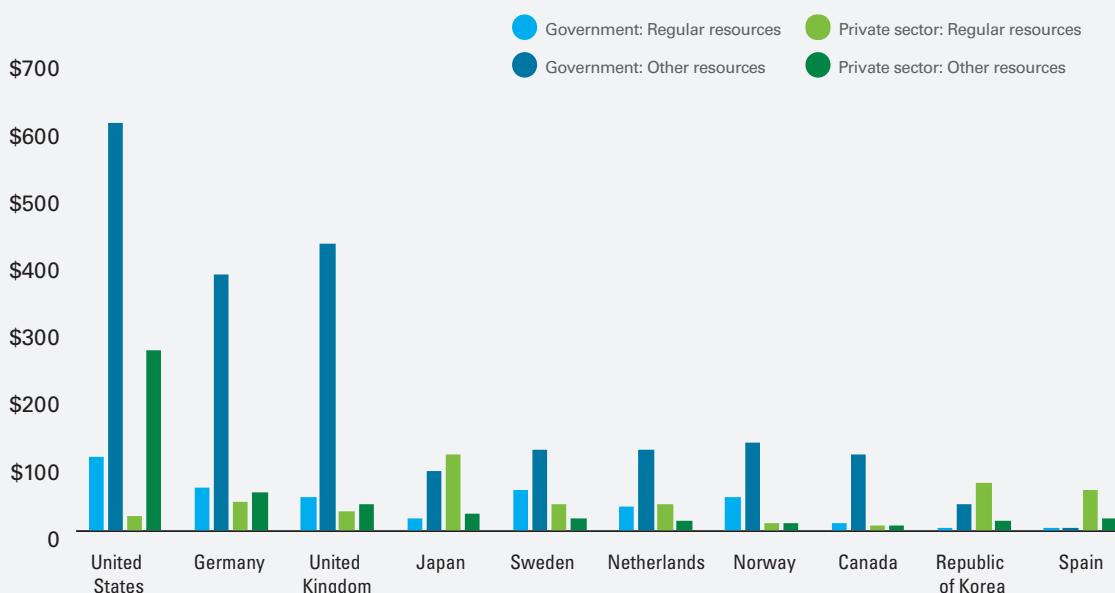
- Regular resources
- Other resources (regular)
- Other resources (emergency)



* 2014–2016 revenue figures have been restated to reflect UNICEF's 2017 revenue recognition policy.

Top 10 countries, contributions received by donor and funding type, 2019*

(in millions of US dollars)



* Includes contributions received from governments and UNICEF National Committees; excludes intergovernmental, non-governmental, inter-organizational and pooled funds contributions.

Top 20 partners to regular resources by contributions received, 2019

(in millions of US dollars)

COUNTRY	REGULAR RESOURCES
Japan (NC*)	118
United States	113
Republic of Korea (NC)	74
Germany	67
Spain (NC)	64
Sweden	63
United Kingdom	52
France (NC)	52
Norway	52
Germany (NC)	43
Sweden (NC)	42
Netherlands (NC)	39
Italy (NC)	39
Netherlands	37
United Kingdom (NC)	28
United States (NC)	21
Switzerland	20
Japan	19
Belgium	17
Belgium (NC)	16

* National Committee for UNICEF

Thematic contributions received, 2017–2019

(in millions of US dollars)

OUTCOME AREAS	2017	2018	2019
Health	16	13	14
HIV and AIDS	13	9	7
Nutrition	17	7	16
Education	87	100	84
Child protection	27	29	34
WASH	33	66	32
Safe and clean environment	—	1	1
Social inclusion	5	6	9
Gender equality	1	1	3
Humanitarian	164	154	145
Total	363	386	345

Note: Numbers may not add up because of rounding.

Multi-year regular resources partners, 2016–2019

(revenue* in millions of US dollars)

DONOR COUNTRY NAME	PERIOD	REVENUE*				MULTI-YEAR AGREEMENT**
		2016	2017	2018	2019	
Sweden	4 years (2018–2021)	—	—	294	—	295
United Kingdom	3 years (2018–2020)	—	—	122	18	140
Netherlands	3 years (2019–2021)	—	—	—	110	110
Belgium	4 years (2017–2020)	—	72	(1)	(1)	70
Australia	5 years (2016–2020)	16	49	(3)	(1)	61
Switzerland	4 years (2018–2021)	—	—	61	—	61
Canada	4 years (2018–2021)	—	—	48	1	49
New Zealand	3 years (2019–2021)	—	—	—	12	12
Qatar	2 years (2019–2020)	—	—	8	—	8
Total		16	121	529	141	805

* Revenue is recognized, for the most part, in the year the agreement is signed and amounts in other years represent revaluation due to exchange rate fluctuations.

** Revenue data exclude write-downs.

Note: Numbers may not add up because of rounding.

Top 30 resource partners by contributions received, 2019

(in millions of US dollars)*

PARTNER	REGULAR RESOURCES	OTHER RESOURCES		TOTAL
		Regular	Emergency	
United States	113	89	541	743
United Kingdom	52	198	244	494
Germany	67	282	116	464
World Bank Group	—	384	14	398
European Commission	—	224	157	382
United States (NC**)	21	242	36	299
Office for the Coordination of Humanitarian Affairs (OCHA)***	—	—	271	271
Norway	52	94	43	188
Sweden	63	75	48	187
Gavi, the Vaccine Alliance	—	160	—	160
Netherlands	37	102	21	159
Japan (NC)	118	18	9	145
Canada	12	79	40	131
Japan	19	26	66	111
Germany (NC)	43	28	30	101
United Nations Development Programme (UNDP)****	—	70	19	89
Republic of Korea (NC)	74	15	0	89
Spain (NC)	64	10	7	82
United Nations Development Group Joint Programmes	—	78	—	78
Saudi Arabia	1	2	66	69
France (NC)	52	11	5	68
United Kingdom (NC)	28	26	13	66
Sweden (NC)	42	11	8	61
United Arab Emirates	1	2	56	58
Netherlands (NC)	39	11	3	54
Global Partnership for Education	—	52	—	52
Denmark	9	23	14	46
Republic of Korea	4	30	10	44
Italy (NC)	39	2	2	44
Switzerland	20	11	12	43

* Contributions received in cash and in kind.

** National Committee for UNICEF.

*** Contributions received from the Office for the Coordination of Humanitarian Affairs include \$142.1 million related to the Central Emergency Response Fund and \$128.6 million related to other sources, including \$104.4 million of pass-through contribution from Saudi Arabia and United Arab Emirates.

**** Contributions received from the United Nations Development Programme include \$31 million related to joint programmes and One Fund.

Note: Numbers may not add up because of rounding.

Private foundations, major donors and membership and faith-based organizations contributing \$100,000 or more to UNICEF programmes in 2019

Abdul Aziz Al Ghurair Foundation	Fondation Botnar	Kin Bing Wu	Christopher and Crystal Sacca
Mr. Ahmad Al Abdulla	Fondation Maßvoll Stiftung	KINGOLD Group	Prince Al-Waleed bin Talal bin
AJA Foundation	Mikko FRANCK	Klemens Hallmann and Barbara Meier	Abdulaziz al Saud
The Ajram Family Foundation	The Fred Hollows Foundation	Kiwanis International	Catherine Scheufele
The Alkek and Williams Foundation	Fundación Leo Messi	Dr. David Kung	Pooja Bhandari and Caesar Sengupta
Mr. Mohammed Al Ansari	G. Barrie Landry, Landry Family Foundation	Kwok Foundation	Frank and Wendy Serrino
The Andan Foundation	The Gaden Phodrang Foundation	Peter and Deborah Lamm	Barbara and Edward Shapiro
Mr. Terry Anderson	Dolores R. Gahan	Latter-day Saint Charities	Ms. Daphne W. Smith
Bainum Family Foundation	The Garrett Family Foundation	Learning for Well-being Foundation	Mr. and Mrs. Cyrus W. Spurlino
Jim and Donna Barber	Gates Philanthropy Partners	Leonardo Maria del Vecchio	Ewout Steenbergen
Mr. and Ms. Paula H. Barbour	GHR Foundation	Elena Likhach	Stichting de Lichtboei
Bezos Family Foundation	Jackie and Mike Bezos	Dr. Nabil Malak	Klaus und Gertrud Conrad Stiftung
BF&HAPPY	Ms. Kaia Miller Goldstein and Mr. Jonathan Goldstein	Bob and Tamar Manoukian	Klaus-Friedrich-Stiftung
The Bill & Melinda Gates Foundation	Jürgen B. Harder	Margaret A. Cargill Philanthropies	Tanlaw Foundation
Susan and Dan Boggio	Helaina Foundation	Mastercard Foundation	Mr. Bernard Taylor
Bruce and Jina Veaco Foundation	Henderson Warmth Foundation & Lee Shau Kee Foundation	John W. McNear	Ms. Julie Taymor
The Charles Engelhard Foundation	CHENGMEI Charity Foundation	Morris Braun Foundation	Byron and Tina Trott
The Child & Tree Fund	The Child & Tree Fund	Charles, Jamie and Lucy Meyer	United Nations Foundation
Children's Investment Fund Foundation	Children's Investment Fund Foundation	National Philanthropic Trust	Hallie Vanderhider
Chin Family Foundation	Chin Family Foundation	Nenäpäivä Foundation	Wellcome Trust
Conrad N. Hilton Foundation	Conrad N. Hilton Foundation	The New Venture Fund	The Wilson Family Foundation
Dining for Women	Dining for Women	Oak Foundation	Angel Woolsey
Direct Aid	Direct Aid	The One Foundation	Dr. Hu Xiang
Dubai Cares	Dubai Cares	Pacific Leading Limited	Ng Sze Ying
Steve and Margaret Eaton	Steve and Margaret Eaton	Ms. Erica Packer	Ms. Wang Ying
Educate a Child (EAC), a programme of the Education Above All Foundation	Educate a Child (EAC), a programme of the Education Above All Foundation	Andrea Panconesi, LUISAVIAROMA	Yip Foundation
Mr. and Mrs. Michael R. Eisenson	Mr. and Mrs. Michael R. Eisenson	Paul G Allen Family Foundation	Youri Djorkaeff Foundation
Eva Ahlström Foundation	Eva Ahlström Foundation	Power of Nutrition	Zonta International
FIA Foundation	FIA Foundation	Radiohjälpen	
Stefan Findel and Susan Cummings-Findel	Stefan Findel and Susan Cummings-Findel	The Rockefeller Foundation	
		Alejandro G. Roemmers	
		The Rotary Foundation of Rotary International	

Corporate sector alliances contributing \$100,000 or more to UNICEF programmes in 2019

MULTI-COUNTRY ALLIANCES		Norwegian Air Shuttle ASA	Adolf Würth GmbH & Co. KG	U CO-OP Consumer	Thailand
Amadeus IT Group		Novo Nordisk A/S	BASF Foundation / BASF SE	Co-operative Society	Central Group
Arm Ltd		Novo Nordisk Foundation	H & M Hennes & Mauritz	Mexico	CP Group through CP
AstraZeneca		Pandora	Deutschland	Banco Santander	Foundation
Beko		Philips Foundation	Hugo Boss AG	Essity	Sansiri Public Company Limited
Big Hit Entertainment		Primark	Ingka Group / IKEA	Impresos de Seguridad Signal	True Corporation Public
BT Group		Procter & Gamble (Pampers)	Deutschland GmbH & Co. KG	Kimberly Clark Mexico	Company Limited
CCC		Royal DSM	United Internet for UNICEF	Liomont Laboratories	United Kingdom
Change for Good [Aer Lingus (Ireland), American Airlines (United States), Asiana Airlines (Republic of Korea), Cathay Pacific (Hong Kong, China), Cebu Pacific Air (Philippines), easyJet (United Kingdom), Hainan Airlines (China), Japan Airlines (Japan), Qantas Airways Ltd. (Australia)]		Samsung SAP SE	Foundation	Nationale Postcode Loterij	Clarks
Chloé		Takeda Pharmaceutical	1 in 11	TUI Care Foundation	Clipper Ventures Plc
Clé de Peau Beauté		Company Limited	ITP Media	GlaxoSmithKline (GSK)	London Stock Exchange Group
Cubus AS		Telenor Group	Linkmedia	DNB	Manchester United Football Club
DLA Piper		The Walt Disney Company	Majid Al Futtaim	KIWI Norge AS	Marks and Spencer Group Plc
Ethical Tea Partnership		Tik Tok	Marriott	Paraguay	People's Postcode Lottery
Facebook, Inc.		Unilever	Hong Kong	ITAIPU BINACIONAL	Petroleum Experts Limited
Fundación FC Barcelona		Volvo	Sunshine Forever Limited	Philippines	The 2019 ICC Cricket World Cup
Gardena GmbH			India	Concentrix Corporation	
Garnier			Sun Foundation	Portugal	
Gina Tricot AB			Angola	Allianz	Twinings
Google			Indonesia	South Korea	Vitality
H & M Hennes & Mauritz AB		(MPT)	Australia	BGF Retail	United States
H&M Foundation		Samsung	Easy Welfare	SM Entertainment	Amazon
Hallmark Cards, Inc.		The Resource Foundation	Fondazione Generali The	Spain	American Express Global Business Travel
Henkel AG & Co. KGaA		(Johnson & Johnson)	Human Safety Net	Abertis	
ING		Ministério Público do Trabalho	Brazil	Banko Santander	Apple Matching Gifts Program
Johnson & Johnson, Inc.			Japan	El Corte Inglés	Astellas Global Health
Kimberly-Clark Corporation			AEON 1% Club Foundation	Forletter	Foundation
L'Occitane			CONSUMERS CO-OPERATIVE	Foxy	Becton Dickinson
LEGO Foundation			KOBE	Fundación Aquae	Pharmaceutical Systems
LEGO Group			Consumers' Co-operative Mirai	Garnier	Etc Labs
Les Mills			Co-op Deli Consumers'	Henkel	Georgia-Pacific LLC
LIXIL Corporation			Co-operative Union	Hoteles Amigos	Global Impact
Louis Vuitton Malletier			COOP SAPPORO	Iberia	Hasbro
Marriott International			Fuji Television Network, Inc.	Multiplica	IKEA US Retail
Meliá Hotels International			(FNS Charity Campaign)	Starwood	Jefferies LLC
Microsoft			Teck Resources Ltd.	Telefonica	L'Oréal USA: Giorgio Armani
Millicom			China	IDOM Inc.	Fragrances
MMG Limited			Honda Motor Co., Ltd.	We Are Water	Niantic, Inc.
Moncler			ITOHAM FOODS Inc.	Sweden	Priceline Group
MSC Foundation			Japanese Consumers'	AB Pictura	
Nokia Oyj			Co-operative Union	Boråstapeter	Prudential Financial
Nordic Choice Hotels AS			Japanet Holdings Co., Ltd.	Brynäs IF	Qatalyst Partners
			MUFG Bank, Ltd.	Companies for Malawi	S&P Global Foundation
			Oriental Land Co., Ltd.	NCC AB	S'well
			Saraya Co., Ltd.	Operation Dagsverke	Starbucks
			SL Creations Co., Ltd.	Radiohjälpen	Target Corporation
			Sumitomo Mitsui Banking	Sandvik Coromant	The UPS Foundation
			Corporation	Svenska PostkodLotteriet	Visa Inc
			Société des Eaux de Volvic	Switzerland	WWE
			Sumitomo Mitsui Card	ALDI SUISSE AG	
			Company, Ltd.	Roche Employee Action and	
				Charity Trust	

Top 20 National Committee donors, 2019

(revenue* in millions of US dollars)

COUNTRY	REGULAR RESOURCES**	OTHER RESOURCES	TOTAL
United States	11	280	292
Japan	128	35	164
Germany	49	56	104
Republic of Korea	76	15	91
United Kingdom	29	50	78
Spain	60	16	76
France	46	15	61
Sweden	36	20	57
Netherlands	39	15	53
Denmark	6	42	48
Italy	37	4	42
Norway	9	11	21
Switzerland	4	16	20
Hong Kong, China	13	5	18
Finland	13	3	16
Belgium	14	2	16
Canada	9	7	15
Australia	5	6	11
Portugal	7	3	10
Poland	8	1	9

* National Committee ranking is based on revenue amounts in order to be comparable to fundraising plans that are also revenue based.

** Regular resources excludes Other contributions.

Note: Numbers may not add up because of rounding.

Top 10 National Committees by advocacy contribution to children, 2019

(revenue in US dollars)

COUNTRY	ADVOCACY CONTRIBUTION
Netherlands	3,913,336
United Kingdom	3,863,581
Japan	3,285,474
Germany	3,137,874
France	2,794,909
Spain	2,386,358
United States	1,966,528
Switzerland	1,804,067
Italy	1,732,580
Canada	1,690,314

Total UNICEF revenue by source of funding, 2019

(in US dollars)

OVERVIEW							
	Regular resources		Other resources		Other Contributions***		
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector	Total
1. Countries*	477,384,483	653,611,519	2,795,279,617	725,013,434	2,437,083	40,737,029	4,694,463,165
2. Intergovernmental agencies	22,324	–	572,091,853	–	–	–	572,114,177
3. Non-governmental organizations	–	457,582	–	41,857,852	–	–	42,315,434
4. Inter-organizational arrangements	83	–	896,762,803	–	234,525	–	896,997,411
5. Other revenue**	–	–	–	–	–	–	206,380,755
Total	477,406,890	654,069,101	4,264,134,273	766,871,285	2,671,608	40,737,029	6,412,270,941

* Includes contributions from governments, National Committees and country offices–private sector.

** Other revenue includes revenue from investments, procurement and other sources.

*** Contributions for specific management activities.

Note: Numbers may not add up because of rounding.

1. DONOR COUNTRIES AND AREAS*

	Regular resources		Other resources		Other contributions **		
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector	Total
Countries	477,384,483	653,611,519	2,795,279,617	725,013,434	2,437,083	40,737,029	4,694,463,165
Afghanistan	67,853	–	12,245,185	–	–	–	12,313,038
American Samoa	–	–	1,382,452	–	–	–	1,382,452
Andorra	28,419	441,376	8,975	280,497	–	–	759,268
Angola	180,000	–	–	1,200,000	–	–	1,380,000
Argentina	155,000	3,990,997	–	14,252,352	–	6,720,074	25,118,422
Armenia	120,790	–	–	24,000	–	–	144,790
Australia	(509,903)	4,935,927	22,795,411	6,326,126	–	–	33,547,560
Austria	1,217,292	3,151,195	5,884,523	550,665	–	–	10,803,676
Azerbaijan	25,000	–	–	–	–	–	25,000
Bangladesh	100,249	–	23,168,952	115,506	–	–	23,384,707
Barbados	195,575	–	–	–	–	–	195,575
Belarus	–	–	–	211,700	–	–	211,700
Belgium	(849,198)	13,808,657	5,393,708	2,189,619	–	–	20,542,785
Benin	24,124	–	356,989	–	–	–	381,113
Bhutan	13,118	–	–	–	–	–	13,118
Bolivia (Plurinational State of)	165,000	4,038	225,000	82,541	–	–	476,579
Brazil	1,770,153	1,504,825	–	7,650,770	–	3,038,663	13,964,412
Bulgaria	78,500	67,755	198,000	817,538	–	269,589	1,431,382
Burkina Faso	–	–	3,954,665	–	–	–	3,954,665
Burundi	–	–	584,782	–	–	–	584,782
Cabo Verde	350,000	–	–	–	–	–	350,000
Cameroon	–	–	36,673,114	–	35,441	–	36,708,555
Canada	1,174,049	8,747,305	172,540,690	6,581,542	–	–	189,043,587
Central African Republic	44,000	–	4,461,639	–	–	–	4,505,639
Chad	54,160	–	6,608,562	–	–	–	6,662,722

Total UNICEF revenue by source of funding, 2019, continued

	Regular resources		Other resources		Other contributions **		Total
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector	
Chile	77,000	3,588,252	—	3,291,269	—	2,068,170	9,024,691
China	1,837,811	1,053,668	13,000,000	11,489,695	—	1,715,862	29,097,036
Colombia	—	2,128,596	—	4,048,427	—	2,646,126	8,823,149
Comoros	70,000	—	—	—	—	—	70,000
Congo	748,450	—	172,224	—	—	—	920,674
Costa Rica	18,997	—	—	5,061	—	—	24,058
Côte d'Ivoire	12,600	—	3,324,371	—	—	—	3,336,971
Croatia	7,387	533,607	50,000	2,587,949	—	886,451	4,065,394
Cyprus	11,100	58,816	112,500	—	—	—	182,416
Czech Republic	—	2,767,191	2,159,162	765,616	—	—	5,691,968
Democratic People's Republic of Korea	130,070	—	—	—	—	—	130,070
Democratic Republic of the Congo	343,411	—	32,109,191	—	—	—	32,452,602
Denmark	8,717,517	5,950,949	51,766,676	41,650,892	—	—	108,086,034
Dominican Republic	88,000	—	—	537,834	—	—	625,834
Ecuador	600	670,340	—	4,556,249	—	860,544	6,087,733
Egypt	—	—	—	854,778	—	—	854,778
Equatorial Guinea	104,305	—	—	—	—	—	104,305
Estonia	166,667	—	742,424	—	—	—	909,091
Ethiopia	285,246	—	5,000,000	—	—	—	5,285,246
Fiji	96,668	—	—	—	—	—	96,668
Finland	6,050,605	13,033,855	22,250,792	3,454,964	—	—	44,790,216
France	3,881,978	45,672,745	15,994,065	14,870,823	—	—	80,419,611
Gabon	89,452	—	—	—	—	—	89,452
Georgia	155,000	—	—	—	—	—	155,000
Germany	67,023,330	48,789,901	390,280,243	55,709,436	—	74,000	561,876,911
Ghana	148,512	—	—	—	—	—	148,512
Guatemala	—	—	—	44,560	—	—	44,560
Guinea	350,000	—	(52,803)	—	—	—	297,197
Guinea-Bissau	621,000	—	2,972,855	—	—	—	3,593,855
Haiti	864	—	6,540,529	—	—	—	6,541,393
Honduras	25,779	—	—	44	—	—	25,824
Hong Kong, China	—	13,109,450	—	5,210,654	—	—	18,320,104
Hungary	3,012,832	527,134	—	48,313	—	—	3,588,279
Iceland	1,061,569	3,965,255	2,873,126	115,083	—	—	8,015,033
India	895,038	350,021	2,466,794	5,890,351	—	975,694	10,577,899
Indonesia	254,970	1,470,519	—	5,629,576	—	2,310,000	9,665,065
Iran (Islamic Republic of)	—	—	—	134,498	—	—	134,498
Iraq	48,785	—	—	—	—	—	48,785
Ireland	8,181,818	2,722,772	9,146,348	3,468,671	—	—	23,519,609
Israel	—	—	—	22,802	—	—	22,802
Italy	4,967,880	37,478,298	12,770,528	4,284,686	—	—	59,501,391
Japan	19,364,117	128,105,488	93,718,228	35,466,167	—	—	276,654,000
Jordan	802,963	—	—	—	—	—	802,963
Kazakhstan	218,542	—	1,800,000	—	—	—	2,018,542
Kenya	150,000	—	11,285,000	—	—	—	11,435,000
Kuwait	200,000	2,869	35,882,654	6,695	—	—	36,092,219
Kyrgyzstan	55,000	—	—	—	—	—	55,000
Lao People's Democratic Republic	—	—	442,282	—	—	—	442,282
Lesotho	120,000	—	98,700	—	—	—	218,700
Liechtenstein	25,025	—	—	—	—	—	25,025
Lithuania	16,502	—	—	4,770	—	—	21,272

Total UNICEF revenue by source of funding, 2019, continued

	Regular resources		Other resources		Other contributions **		Total
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector	
Luxembourg	3,282,276	1,078,210	17,351,624	2,084,605	—	—	23,796,715
Madagascar	—	—	4,771,479	—	—	—	4,771,479
Malawi	—	—	2,066,804	—	—	—	2,066,804
Malaysia	284,000	8,494,432	100,000	4,843,768	—	6,475,223	20,197,422
Mali	33,500	—	2,958,259	—	—	—	2,991,759
Malta	—	—	27,778	—	—	—	27,778
Mauritania	20,610	—	—	—	—	—	20,610
Mexico	214,000	1,641,593	—	5,817,292	—	2,476,837	10,149,721
Monaco	28,539	—	175	—	—	—	28,713
Mongolia	90,408	—	—	1,037,069	—	—	1,127,477
Montenegro	22,194	—	34,000	—	—	—	56,194
Morocco	99,146	—	2,999,850	—	—	—	3,098,996
Mozambique	7,500	—	500,000	—	—	—	507,500
Myanmar	43,346	329	3,751,668	—	—	—	3,795,343
Namibia	120,000	—	—	—	—	—	120,000
Netherlands	110,334,460	38,526,730	251,005,084	14,677,294	—	—	414,543,568
New Zealand	12,135,869	1,330,900	1,380,983	3,222,333	—	—	18,070,085
Nicaragua	40,156	—	—	210	—	—	40,366
Niger	4,000	—	32,135,055	—	—	—	32,139,055
Nigeria	1,758,911	694	32,908,036	177,783	—	—	34,845,424
North Macedonia	—	—	—	65,909	—	—	65,909
Norway	51,480,123	9,244,863	78,291,405	11,448,823	—	—	150,465,214
Oman	167,739	—	1,500,000	—	—	—	1,667,739
Pakistan	—	—	677,471	—	—	—	677,471
Panama	723,184	21,432	350,000	835	375,000	—	1,470,451
Paraguay	—	—	—	2,861,270	—	—	2,861,270
Peru	—	651,462	—	1,845,217	—	1,062,817	3,559,497
Philippines	49,085	865,950	—	3,116,181	—	1,687,366	5,718,581
Poland	—	7,976,756	202,171	1,489,635	—	—	9,668,563
Portugal	44,643	7,186,409	—	2,650,812	—	—	9,881,863
Republic of Korea	3,802,249	76,237,001	40,014,433	14,670,131	—	—	134,723,814
Republic of Moldova	57,000	—	—	—	—	—	57,000
Romania	50,000	164,197	(3,964)	919,159	—	389,689	1,519,081
Russian Federation	1,000,000	—	12,270,248	—	—	—	13,270,248
Sao Tome and Principe	19,500	—	—	—	—	—	19,500
Saudi Arabia	1,096,700	15,360	55,000,000	2,425,664	—	—	58,537,724
Senegal	398,500	—	—	—	—	—	398,500
Serbia	51,000	9,985	3,815,863	712,943	—	323,295	4,913,086
Sierra Leone	384,000	—	642,950	—	—	—	1,026,950
Singapore	50,000	184,600	—	11,074	—	—	245,674
Slovakia	11,416	86,481	111,483	89,643	—	—	299,022
Slovenia	30,400	915,342	45,662	373,472	—	—	1,364,876
Somalia	435,700	—	300,000	—	—	—	735,700
South Africa	—	—	—	477,534	—	—	477,534
South Sudan	—	—	17,733,070	—	—	—	17,733,070
Spain	550,055	60,214,040	5,009,491	15,746,167	—	—	81,519,753
Sri Lanka	15,630	—	—	17,834	—	—	33,464
Sudan	259,800	—	—	—	—	—	259,800
Sweden	400,727	36,235,409	138,960,651	20,487,104	—	—	196,083,891
Switzerland	29,646	4,478,982	39,511,594	15,984,717	2,026,642	—	62,031,582
Tajikistan	32,400	—	3,171,656	—	—	—	3,204,056
Thailand	474,208	4,855,115	—	11,115,529	—	4,140,839	20,585,691
Timor-Leste	100,000	—	—	—	—	—	100,000
Togo	26,000	—	—	—	—	—	26,000

FINANCIALS AND STEWARDSHIP

Total UNICEF revenue by source of funding, 2019, *continued*

	Regular resources		Other resources		Other contributions **		Total
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector	
Trinidad and Tobago	15,000	—	—	—	—	—	15,000
Tunisia	16,108	—	—	—	—	—	16,108
Turkey	54,835	1,967,693	—	408,058	—	—	2,430,586
Turkmenistan	71,746	—	—	—	—	—	71,746
Uganda	469,000	—	7,583,419	332,500	—	—	8,384,919
United Arab Emirates	671,670	372,419	56,995,366	7,144,556	—	—	65,184,012
United Kingdom	17,832,467	28,732,328	345,626,427	49,504,334	—	—	441,695,556
United Republic of Tanzania	22,000	—	—	—	—	—	22,000
United States	132,500,000	11,156,508	627,281,738	280,448,120	—	1,350,000	1,052,736,366
Uruguay	72,450	1,964,132	—	1,935,864	—	1,265,364	5,237,811
Uzbekistan	310,000	—	—	—	—	—	310,000
Viet Nam	34,254	10,578	—	—	—	—	44,832
Zambia	257,520	—	—	—	—	—	257,520
Zimbabwe	—	—	10,320,777	—	—	—	10,320,777
Other	12,358	359,560	—	2,297	—	428	374,643
Revenue Adjustments	(55,118)	226	(15,511,621)	2,434,980	—	—	(13,131,532)
Total	477,384,483	653,611,519	2,795,279,617	725,013,434	2,437,083	40,737,029	4,694,463,165

* Includes contributions from governments and UNICEF National Committees.

** Contributions for specific management activities.

Note: Numbers may not add up because of rounding. Negative amounts against countries, for the most part, are due to revaluation.

2. INTERGOVERNMENTAL AGENCIES

Regular resources	European Commission	22,324
	Subtotal	22,324
Other resources	European Commission	353,373,654
	Gavi, the Vaccine Alliance	135,798,903
	Global Financing Facility	1,008,880
	The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)	1,778,242
	Global Partnership for Education	52,302,317
	Nutrition International	9,021,220
	UNITAID	966,442
	Revenue Adjustments	(17,842,194)
	Subtotal	572,091,853
	Total	572,114,177

3. NON-GOVERNMENTAL ORGANIZATIONS

Regular resources	Other	457,582
	Subtotal	457,582
Other resources	Clinton Health Access Initiative	5,578,089
	Education Cannot Wait Fund	30,870,702
	End Violence Fund	4,951,479
	Other	457,582
	Revenue Adjustments	—
	Subtotal	41,857,852
	Total	42,315,434

FINANCIALS AND STEWARDSHIP

Total UNICEF revenue by source of funding, 2019, continued

4. INTER-ORGANIZATIONAL ARRANGEMENTS

Regular resources	United Nations Development Group joint programmes	83
	Subtotal	83
	Food and Agriculture Organization of the United Nations (FAO)	6,501,940
	International Labour Organization (ILO)	3,145,698
	International Organization for Migration (IOM)	13,409,738
	Office for the Coordination of Humanitarian Affairs (OCHA)	270,195,160
	The United Nations Educational, Scientific and Cultural Organization (UNESCO)	30,000
	United Nations Department of Peacekeeping Operations	2,560,329
	United Nations Development Group joint programmes	77,525,858
	United Nations Development Programme (UNDP)	96,377,016
	United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)	621,692
	United Nations High Commissioner for Refugees (UNHCR)	2,651,613
	United Nations Mine Action Service (UNMAS)	110,000
Other resources	United Nations Mission in Kosovo	103,030
	United Nations Mission for Ebola Emergency Response (UNMEER)	77,209
	United Nations Office for Project Services (UNOPS)	33,803,658
	United Nations Population Fund (UNFPA)	36,909,106
	United Nations Programme on HIV/AIDS	6,891,900
	United Nations The Resident Coordinator Office	72,000
	United Nations Trust Fund for Human Security (UNTFHS)	208,025
	World Bank Group	332,468,667
	World Food Programme (WFP)	10,050,674
	World Health Organization (WHO)	6,990,201
	<i>Revenue Adjustments</i>	(3,940,711)
	Subtotal	896,762,803
Other contributions	United Nations Department of Peacekeeping Operations	234,525
	Subtotal	234,525
	Total	896,997,411

5. OTHER REVENUE*

Total	206,380,755
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GRAND TOTAL

	6,412,270,941
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* Other revenue includes revenue from investments, procurement and other sources.
Note: Numbers may not add up because of rounding.

For every child

Whoever she is.

Wherever he lives.

Every child deserves a childhood.

A future.

A fair chance.

That's why UNICEF is there.

For each and every child.

Working day in and day out.

In more than 190 countries and territories.

Reaching the hardest to reach.

The furthest from help.

The most excluded.

It's why we stay to the end.

And never give up.



for every child

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Supply Annual Report 2018

Creating Shared Value



Cover photo: Aranza, a 1 year old Venezuelan, plays in a UNICEF-supported Child Friendly Space in Rumichaca, Ecuador, where she received a sanitation kit and other supplies

Young girls wash their hands and cool off at an EU-funded, UNICEF-supported water point in Togwajaale, Somaliland. The town's first ever clean and sustainable water system provides potable water for 70,000 people



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UNICEF global procurement statistics



Totul, 5 years old, displays a drawing on his chalkboard during a class at a pre-primary school in Bangladesh. UNICEF has an early childhood development kit available for procurement, which includes items to encourage the development and social interaction of children.

Creating shared value

Procuring supplies for children is not as simple as buying products off the shelf: it requires a complex orchestration of efforts among many partners. The business sector is one key partner that UNICEF has worked closely with over the years to conceptualize, produce and deliver supplies – creating shared value for children, together. This report highlights many examples of where engagement with the business sector has contributed to the health, safety and well-being of children and their families.

Shared value can derive from different engagement modalities, such as philanthropic and corporate social responsibility, market shaping, product innovation and strategic procurement. For UNICEF, creating shared value means maximizing impact for children and their families. For businesses, this approach also provides a portal for entering new markets, supporting local economies and fostering sustainability.

In 2018, UNICEF procured \$3.486 billion worth of goods and services from over 11,000 businesses. Behind these figures are an array of strategies employed to achieve shared value for children. For example, by analysing and publicly sharing market information, UNICEF fosters competition, promotes fair pricing and influences investments. UNICEF also engages directly with businesses and governments to improve supply chains so that supplies of assured quality reach children where and when they need them.

While the report highlights many of these achievements, it also draws attention to the opportunities where further value can be created for children and young people. Together, we can do more to:

Strengthen our collaborations. Each year UNICEF convenes industry consultations in areas such as vaccines, medicines, sanitation and nutritional products. In 2018 UNICEF convened 11 forums, bringing together nearly 1000 participants from governments, suppliers and other partners. These platforms provide a critical opportunity to discuss strategic directions and alignment and better understand industry challenges and market perspectives, with the common goal of achieving results for children.

Embark on new innovations. Over the years, collective efforts have achieved much progress in safeguarding the health and well-being of children. Yet there are many areas where gaps remain. UNICEF and partners are working to identify, develop and, most importantly, scale new products targeting areas of unmet need for children. For instance, UNICEF worked with suppliers to modify the design of latrines used during emergencies so that they are accessible for children with impaired mobility.

Foster healthy markets. The development of a product is not enough – a sustainable market must also be in place for that product to reach children. UNICEF works with partners to optimize markets for existing products, and shape markets for new ones. For example, UNICEF is mobilizing stakeholders to address the Sustainable Development Goal of ending open defecation by 2030. Together, we hope to catalyse change in local markets to promote self-sustaining supply and demand chains for household toilets and sanitation services.

As the world celebrates the 30th anniversary of the *Convention on the Rights of the Child*, this is a critical moment for UNICEF to further leverage the strengths and capacities of business as a change agent for children. Through innovative thinking, hard work and close engagement, these collaborations will continue to drive results for every child.

Eteva Kadilli, Director, UNICEF Supply Division

Creating Shared Value

A boy in southern Afghanistan plays with a ball after being vaccinated against polio



Fit-for-purpose products through the decades

For more than seventy years, UNICEF has worked with governments and engaged with businesses and partners to develop products and deliver them at scale, so that as many children as possible can benefit. In more recent years, UNICEF's impact on children's lives has been enhanced by guiding research and development, encouraging innovation to solve identified problems and supporting more local production.

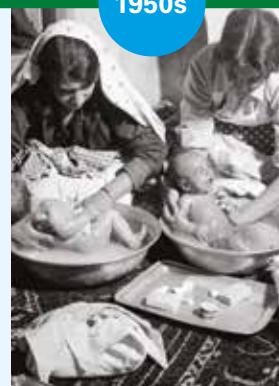


1940s

The essentials

UNICEF was founded in December 1946 at the United Nations General Assembly. In the immediate aftermath of the Second World War, the organization procured basic survival essentials such as milk and clothing for children affected by the conflict. The mass purchase of these basic off-the-shelf products marked the beginning of UNICEF's engagement with business. All children were treated equally, establishing from the outset that UNICEF was there to help every child.

Photo: Children in the Philippines receive milk after the Second World War



1950s

The midwifery kit

In a small village in the Philippines in the 1950s, a UNICEF midwife who was training local midwives became frustrated that new supplies had to be ordered one by one from Manila. Wouldn't it be easier if all the materials needed by one midwife could be supplied in a pre-packaged, complete kit? She passed her idea on to her supervisor and the UNICEF midwifery kit was created soon after.

Photo: Midwives in Iran bathe new-borns



1970s

Water pumps

A hand-powered water pump can make clean drinking water available by drawing it from underground. In 1975, UNICEF, WHO and the Government of India recognized the need for a better pump than was available on the market. By 1984 after extensive UNICEF engagement with the industry to promote product development, 36 companies were producing 100,000 of the new pumps every year. Today, the India Mark II and III are the most widely used hand pumps in the world.

Photo: Boy in India at water pump

Fit-for-purpose products through the decades

Backpacks

When children have the opportunity and the right supplies to succeed in school, their personal development and mental well-being benefit. UNICEF's iconic school backpack provides them with all the space they need to carry books, food and personal items. The product specifications are adaptable to local needs and context. Recent developments have strengthened the quality of the bags and made them more durable and long-lasting.

Photo: Girls in Guatemala with new backpacks



1980s

Oral rehydration salts

Oral rehydration salts (ORS) and zinc are a cost-effective treatment for childhood diarrhoea, a leading cause of death in children under five. In the 1980s, UNICEF launched a major effort to expand the use of ORS to save children's lives. UNICEF suppliers have been required since 2006 to offer an ORS formula with adjusted salt concentrations to improve its effectiveness. In 2014, UNICEF further enhanced diarrhoea treatment by co-packaging ORS with zinc, which reduces the disease's severity.

Photo: A child in China receiving ORS

Vaccine vial monitors

UNICEF procures billions of doses of life-saving vaccines each year, all of which need to be kept within a temperature range to maintain potency. The vaccine vial monitor (VVM) is a small circle that is placed or printed on a vaccine vial and changes colour as it is exposed to heat. Health workers rely on the monitors to determine whether a vaccine will still be potent and effective. Since 2004, VVMs have become part of UNICEF's minimum standards for all vaccine purchases. By fully adopting this technology, UNICEF has helped health workers all over the world make informed decisions about the viability of the vaccines they are administering.

Photo: Vial of polio vaccine with VVM in Ghana



1990s

School-in-a-box

One of UNICEF's most well-known products is the School-in-a-box, the idea for which came from a staff member. It was first used after the Rwandan genocide to quickly provide the tools to support learning. It contains a range of essential school supplies for a teacher and 40 children, each of whom receive their own notebook, slate, pen and pencil. The inside lid of the box can be used as a blackboard. For the latest iteration of the box, UNICEF has worked with business to apply Universal Design principles to help children with disabilities: for example, by adding tactile features to globes and plasticised posters, a magnifying glass to rulers, and teaching clocks with braille.

Photo: A woman opening a School-in-a-box in Nigeria



Ready-to-use therapeutic food

UNICEF first procured this life-saving nutritional paste from just one supplier in 2000, the originating manufacturer. A strategic decision was then taken to support new market entrants so that the base of suppliers meeting UNICEF quality standards would expand to support capacity increase, including close to beneficiaries. By the end of 2018, nearly two thirds of the volume of the ready-to-use therapeutic food procured by UNICEF came from countries where UNICEF implements programmes. This has reduced the time it takes to reach children, potentially contributed to local economies and established a more sustainable market with a reduced carbon footprint for this strategic product (see page 18).

Photo: A child in Chad eating RUTF

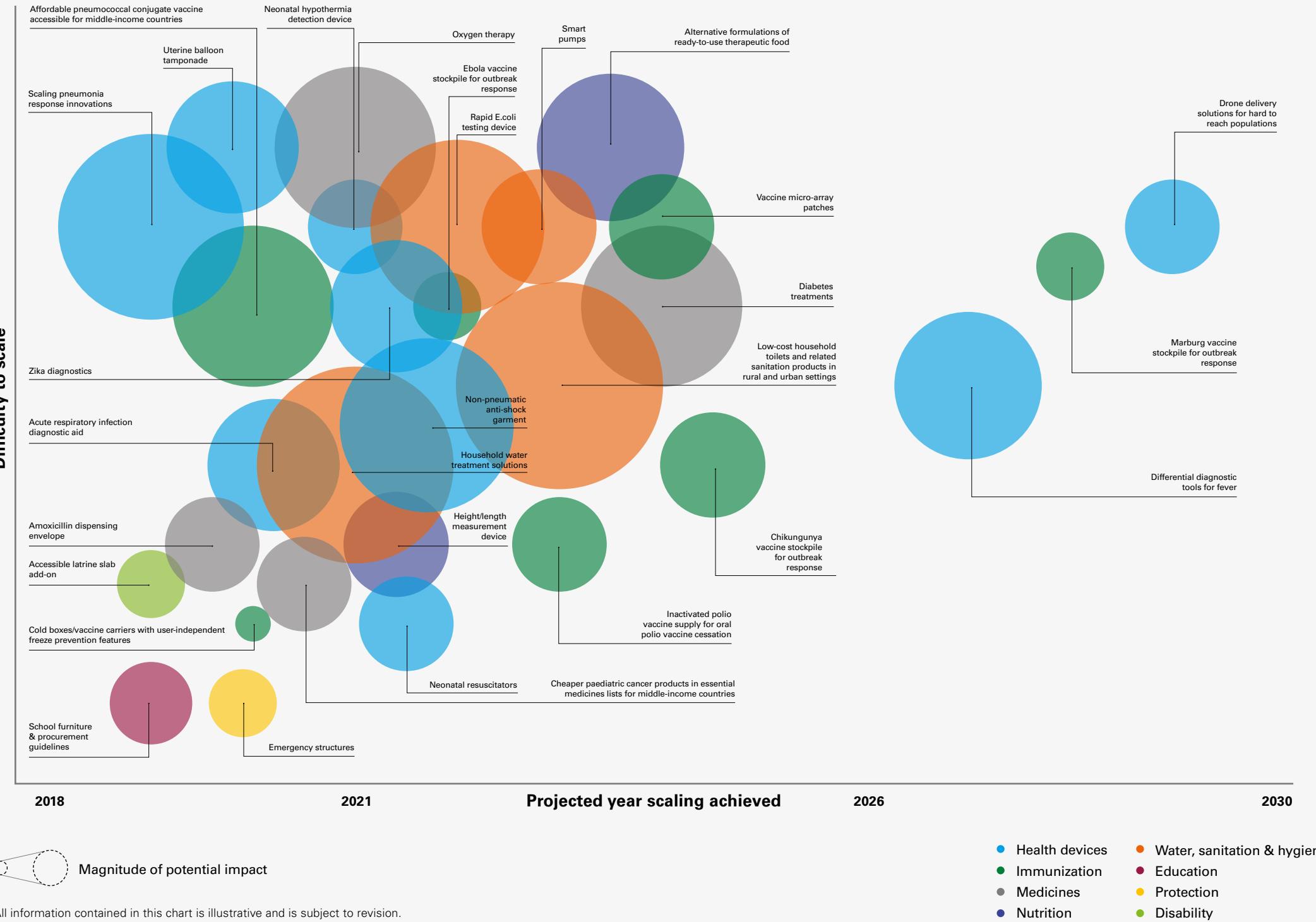


Personal protective equipment

The 2014–2016 Ebola outbreak in west Africa resulted in nearly 30,000 people being infected and caused more than 10,000 deaths. Response personnel in the affected countries wore personal protective equipment (PPE) to prevent the spread of the disease. UNICEF convened a two-day PPE industry consultation in 2015 to consider ways to make the equipment safer. As a result of the discussions, manufacturers improved product designs in real time, while the outbreak was ongoing. Improvements included tighter weaving to stop the virus from entering clothing.

Photo: Health workers wearing PPE in Sierra Leone

WHICH SUPPLY TARGETS COULD HAVE THE BIGGEST IMPACT FOR CHILDREN?



Products & markets futures

UNICEF leverages the strengths of public and private sector partners to drive results for children through product innovation and scale-up.

Children and young people need access to a range of products that are designed to meet their needs for health, safety and well-being at various stages of life. The chart on the left shows a selection of products that UNICEF is trying to encourage businesses to bring to market or scale up to better address those needs. The list is not exhaustive and many of these products and projects are interlinked.

The timeline considers the organization's aspirations but also challenges that need to be resolved such as overcoming scientific, legal and commercial hurdles. In dealing with these challenges, UNICEF draws on its long experience in influencing markets and driving innovation to assess the difficulty of achieving each target.

Have a look at the targets. UNICEF welcomes input from any potential supplier or partner that can advance the rights of children and young people. If you have an idea or product and are interested in helping UNICEF and others create shared value for children, please email us at innovateforchildren@unicef.org.

Turning inspiration into reality: From plastic waste to classrooms

In Côte d'Ivoire, UNICEF is facilitating an innovative project to build classrooms from bricks of recycled plastic. While this started as a pilot partnership to construct 30 classrooms, the project is now being scaled up nation-wide. Joining forces and leveraging strengths, UNICEF, business and the Government innovated together to develop solutions for children and the community with high-quality school facilities – creating local jobs and recycling plastic waste.

UNICEF identified this innovative use of non-recycled plastic to create building materials and pursued the opportunity to use them in school construction. A company had developed a method of making building bricks out of non-PVC plastic waste using a 'building-block' design that reduces production costs and makes the bricks more affordable and easier to assemble than traditional methods. UNICEF worked with

the company to establish a pilot project to test the material's suitability for the construction of long-lasting classrooms.

In May 2018, the first classroom was ready, with the work completed in just five days. With the success of the project, the Government allocated land to establish a local brick production facility and donors confirmed funding. UNICEF provided special contracting to help the company establish

local production in Côte d'Ivoire. In the next phase, a projected 528 classrooms will be built and reach approximately 26,000 students.

This project is a good example of sharing investments and developing solutions to create value for children together. The brick manufacturer is extending its market access and providing a social good. The Government is receiving support to develop educational infrastructure.

Turning inspiration into reality



EXPECTED PROJECT IMPACT

Children and teachers outside one of the newly constructed classrooms made from recycled plastic in Abidjan, Côte d'Ivoire



Material lasts
50 YEARS
longer than traditional bricks



40%
cost savings compared with traditional bricks



Contributes to a
CLEANER ENVIRONMENT



EMPLOYMENT OPPORTUNITIES
for local communities

Creating solutions for children and others with impaired mobility in emergencies

Constantin, 18, sits in a wheelchair at a transition centre in the Democratic Republic of the Congo, which neighbours Angola. The new latrine slab add-ons can help children like him, and others with mobility issues, use latrines safely in emergencies



UNICEF procures flat plastic latrine slabs to be used in the construction of temporary sanitation facilities during emergencies. However, to ensure that these facilities are accessible for children with disabilities, and others with mobility challenges, businesses were encouraged to develop modified designs for equitable latrine access.

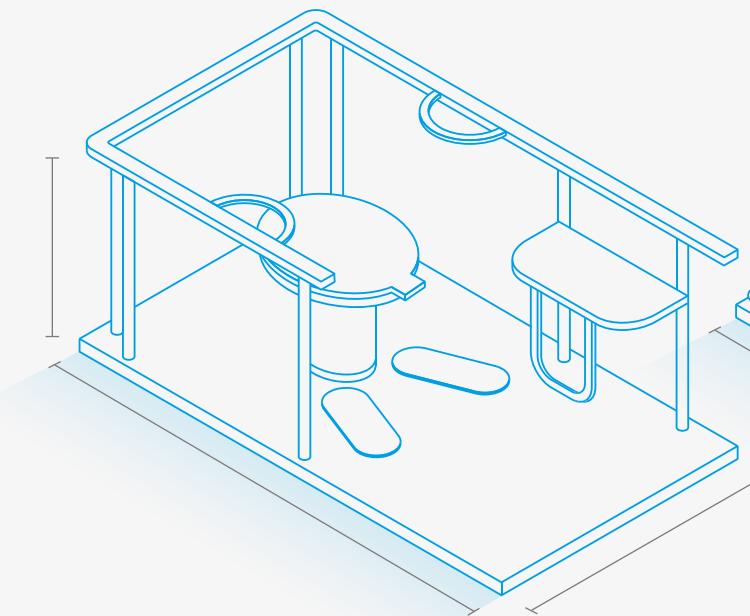
UNICEF communicated broad product requirements to potential suppliers in 2017 and received five prototype proposals from interested businesses. Following a rigorous evaluation process, two designs were selected and then tested in Angola. Both designs feature a modified seat with handrails that can be placed over the plastic slab – allowing users to sit and stabilize themselves while using the latrine.

The trials were conducted in March 2018. Listening to the reactions of target users and observing their response are essential aspects of testing.

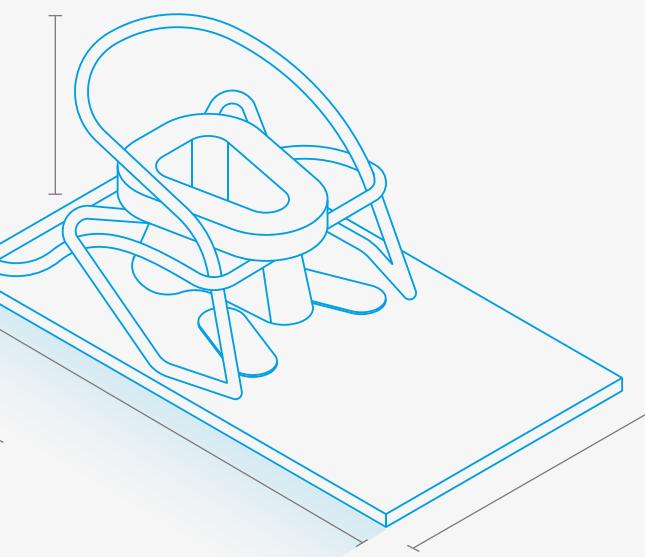
ILLUSTRATIONS OF THE TWO ACCESSIBLE LATRINE SLAB ADD-ONS BEING TESTED

These illustrations show how each business has taken a different approach to the product's design. Testing with end users is essential to fine tune the designs to better meet the needs of children with disabilities.

Design 1



Design 2



Special care must also be taken to ensure that the design is culturally acceptable and easy to use.

In this case, the feedback from users and those who assembled and cleaned the latrine slabs included recommendations to modify the handrail and seat designs to be more comfortable, to strengthen their durability and stability and to improve

guidance for installation and cleaning. Thanks to the engagement of the target users and community the designs have now been improved and in 2019 additional trials will take place at refugee camps in Bangladesh.

The guidance provided by UNICEF helped businesses to modify their products to be more fit-for-purpose. Children

with disabilities and others living under emergencies will benefit from having an accessible and dignified way to use latrines. UNICEF will include the final designs in its Supply Catalogue by 2020.

Creating shared value through market influencing

In 2000, the development of a new product – ready-to-use therapeutic food (RUTF) – revolutionized the treatment of children suffering from severe acute malnutrition worldwide. To scale up programmes, UNICEF used its convening power with other key actors to lead a range of interventions to achieve a healthy market, with international and local production of quality assured products.

IMPACT OF MARKET SHAPING 2006-2018

2018

Local procurement of RUTF increased from **6% to 65%**

The average price of RUTF decreased by **14%**

2006

RUTF will bring a severely malnourished child back to health in six to eight weeks. It contains all the core nutrients a child needs – carbohydrates and fats, proteins and vitamins – combined in a soft paste. It does not need to be cooked or mixed with water, it can be eaten directly from the sachet and it requires no refrigeration.

In the early 2000s, UNICEF had been working with global partners to develop the community-based management approach to malnutrition for non-complicated cases of severe acute malnutrition as an alternative to facility-based treatment. This accelerated demand for RUTF. Initially procurement was only possible

from the original supplier based in France, but demand was rising and transport costs were high, especially when the product needed to be airlifted during an emergency. The supplier established a franchisee network that started with a second manufacturing plant in Niger. This second company was approved as a UNICEF supplier in 2006.

Together with partners, UNICEF established quality standards and requirements for both manufacturing facilities and the product itself. New suppliers were encouraged to enter the market, mostly by providing them with technical guidance on how to meet the quality standards

UNICEF RUTF LOCAL AND GLOBAL SUPPLIER BASE IN 2018



This map does not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers.

and by improving visibility on procurement needs.

As the number of suppliers grew, competitive tendering, long-term arrangements and strategic awarding of contracts were used to support the development of a healthy market.

In recent years, UNICEF's strategic approach has focused on supporting the development of a local supplier base for RUTF. Where products are manufactured closer to the children that need them, supply chains become more efficient and have an improved environmental impact (e.g. shorter lead times, lower shipping costs and a lower carbon footprint).

A bonus is the potential contribution to local economies.

In 2018, UNICEF procured RUTF from 20 suppliers, 17 of which were based in programme countries, representing 65 per cent of the procurement volume. The average weighted price decreased by nearly 14 per cent between 2006 and 2018.

Looking forward, new formulations are being developed, using alternative ingredients that may better suit local availability for some ingredients and user preferences, as well as reducing production costs further.

The value created through this approach has been

multifaceted. Through strategic engagement with the industry, the implementation of sound procurement approaches, and support to the development of the regulatory and normative framework for RUTF, UNICEF shaped the development and expansion of the RUTF market. This included developing a significant supplier base in programme countries and a dramatic increase in production capacity. Businesses have been able to enter the market, meet higher quality standards and become exporters. And most importantly, children are being better served by an essential and quality assured product that is produced close to where it is most needed.

Sanitation market shaping to bridge supply and demand

UNICEF has increasingly played a role in influencing global markets to procure products that improve living conditions for children. Today, a new market shaping approach aims to help develop self-sustaining supply and demand chains for household toilets and sanitation services, by catalysing change in local markets – independently of UNICEF's procurement.

UNICEF is working to enable access to adequate and equitable sanitation for children and their families and to end open defecation by 2030 – a key target of the Sustainable Development Goals. One barrier hindering progress is that sanitation systems and products are often not adequately available or affordable in local markets, especially for the poor and marginalized. In addition, local markets depend on the efficiency of national markets, and often on regional networks as well. Often, such markets are ‘fragmented’, meaning that no single entity

has enough influence to move the industry in a new direction. Therefore, major collective efforts are required to accelerate progress.

It is in this context that UNICEF launched its Sanitation Market Shaping Strategy in 2018 to support the development of healthy and sustainable local markets for household toilets and sanitation services. A healthy market will help ensure that basic, safely-managed sanitation is available to all populations. UNICEF is building on its market shaping expertise and leveraging its convening power to stimulate local sanitation markets, working with businesses and governments to identify and remove market barriers and catalyse market improvements.

In November 2018, UNICEF convened a landmark regional Sanitation Industry Consultation in Abuja, Nigeria. This brought together key stakeholders to collectively identify solutions to make toilets and sanitation services more affordable and

accessible for households in west Africa. (In Nigeria alone 46.5 million people practise open defecation.) Government agencies, financial institutions and more than 30 local and international sanitation product manufacturers attended from Côte d'Ivoire, Ghana and Nigeria.

The consultation identified opportunities to improve the functioning of local, national and regional markets. These included reducing fragmentation in the markets by working collectively for change, increasing transparency through improving market information flows and offsetting some of the risks that suppliers face to incentivize their active market participation.

Based on this dialogue, UNICEF is moving forward in collaboration with the individual countries, industry and partners to design country-specific market shaping interventions. These may include new procurement and financing mechanisms; strengthened supply chains; enhanced ways to bridge

WHAT WILL IT TAKE TO GET THERE?

UNICEF is using a new approach in market shaping to facilitate local markets and catalyse change to help build self-sustaining supply and demand chains. The elements of this approach are illustrated here:



demand and supply; and the development of a market environment more conducive to the needs of the population.

By leveraging UNICEF's expertise and local presence, we convene

the right players and together help drive change. We can then learn, refine and develop modalities to address other markets worldwide so that they can respond adequately to the needs of local populations.

Leveraging the power of business relationships to curb a measles outbreak

Vaccine procurement is a continuous balancing act. It requires observation of a disease's trajectory, data-driven forecasting and decisive action when needed. Essential to this is vaccine availability, enhanced by strong relationships with manufacturers.

UNICEF supplies vaccines to reach nearly half of the world's children under five years old. Over the last five decades the measles vaccine has become widely available. Global deaths from the disease fell by 80 per cent during the period 2000–2017 alone.

But the threat from the disease has not gone away. In 2017, there were approximately 110,000 measles-related deaths globally, even though the disease is preventable through vaccination. Most of these victims were children: on average, 300 die from measles-related illnesses every day.

In 2018, an outbreak of measles in Georgia caused more than 2,200 men, women and children

to be infected over the course of the year. Insufficient levels of immunization against the disease contributed to the outbreak.

Consequently, there was a sudden increased demand for the vaccine, which Georgia's routine immunization stock was insufficient to meet. UNICEF was then able to support the Government by procuring emergency doses on its behalf. The terms of an existing long-term arrangement with a vaccine manufacturer meant that UNICEF could secure access to 100,000 doses to meet the unforeseen demand. The strong relationship with the manufacturer was instrumental in ensuring a rapid response.

Leveraging the power of business relationships to curb a measles outbreak



A child at the Tbilisi polyclinic #10 undergoing routine immunization in Georgia. UNICEF's procurement for the measles outbreak supported the expansion of routine immunization

As countries strengthen their health systems and implement routine immunization, the risk of the disease is lowered. However, when immunization coverage rates are not as high as they should be, populations can become vulnerable to outbreaks. As a result of lower coverage rates, even populations in some middle- and high-income countries with developed health systems have recently become vulnerable to a measles resurgence.

Because measles is highly contagious, vaccination coverage within a population should be at least 95 per cent and involve two doses of measles-containing vaccine. But as populations benefit from immunization,

the incidence of a disease becomes rarer and people may forget that it remains a threat. The subsequent uncertainty in demand can be challenging for countries trying to forecast necessary stock levels for their programmes.

Uncertainty in demand can also impact the planning of production capacity for manufacturers. If a manufacturer overproduces, there is a risk of waste and increased costs. If it underproduces, sufficient doses of vaccine may not be available to respond to an outbreak such as the one in Georgia.

Good forecasting accuracy can also contribute to the sustainable reductions in vaccine prices.

When manufacturers are confident of the accuracy of expected vaccine needs, they can achieve efficiencies in their production lines and reduce costs.

UNICEF works with vaccine suppliers continuously as part of its vaccine security strategy, so that surges in demand can be prepared for and responded to quickly. By continuing to work closely with businesses on the supply side and support governments to deliver their immunization programmes on the demand side, UNICEF and partners are leading efforts to protect children from this preventable disease.

End-to-end visibility and stock management in the supply chain

Monitoring and visibility along the entire supply chain is necessary to ensure that essential products reach children who need them.

Ensuring therapeutic food is available when a child needs it

Health facilities in Malawi were experiencing stock-outs of key nutrition products, such as ready-to-use therapeutic food to treat severe acute malnutrition. The categorization of these products as food rather than *therapeutic* food meant that they were not forecasted, delivered or monitored. To address this, the Government integrated nutrition products into the national health supply chain system.

The Ministry of Health transferred responsibility for therapeutic food from nutrition focal points at health facilities to district pharmacists, to be managed and dispensed like any other health product. UNICEF supported the Government to improve monitoring and reporting.

Management of the products along the supply chain has now

improved. Health facilities have greater product availability due to improved supply chain monitoring and visibility. The percentage of facilities reporting through the national system has increased from 76 per cent to over 90 per cent. The Government and partners now have the necessary data to identify districts or facilities that may need closer monitoring or follow-up to prevent stock-outs, leakage or overstocking.

Visibility for Vaccines platform

The Visibility for Vaccines online platform is a stock monitoring tool that visualizes vaccine stocks, orders and forecasts at country and sub-country level. Developed by UNICEF for use by countries, it supports immunization managers and vaccine supply chain managers at ministries of health to take informed decisions, so that the right amounts of the right

vaccines reach children in a timely manner.

By sharing vaccine pipeline and stock information, the tool enables governments to identify risks of stock-out or overstocking and to liaise with partners to take preventive action. The user-friendly graphical interface together with the detailed data, help users interpret information quickly and accurately and enable them to more effectively communicate calls for action to stakeholders.

In 2018, the platform has continued to gain traction: 28 countries were using it, an increase of 50 per cent over the previous year. This includes Myanmar and Afghanistan which are using the system at sub-national level. UNICEF is supporting 13 additional countries with their preparations for adopting the platform in 2019.

Desire, two years old, at home with her mother Alinafe in Balaka district in Malawi. Desire was attending a UNICEF-supported therapeutic feeding centre to treat her for severe acute malnutrition



Responding to Emergencies

A UNICEF convoy heading to internally displaced persons camps north-east of Bambari in Central African Republic. UNICEF provides health, nutrition, water and sanitation, and education supplies to children and their families affected by the conflict





UNICEF on the front lines

UNICEF supply and logistics operations were essential to the organization's humanitarian response in 2018. Goods were delivered to 53 countries and territories facing emergencies, reaching a global procurement value of \$412.6 million, of which \$151.3 million was locally procured.

Protracted conflict and displacement continued to affect populations across the Middle East, Africa and Southeast Asia, while disasters, disease outbreaks and economic instability impacted countries in these and other regions. When responding to an emergency, UNICEF works with governments, partners and suppliers to ensure that children and families receive the goods, services and support they need to survive and recover.

Each emergency is unique and requires a tailored supply and logistics response.

In Bangladesh, UNICEF's support was adjusted over the course of the year to develop an effective supply chain and vary the types of supplies needed during the monsoon or dry seasons. In some countries affected by conflict, a minimum of services may continue to function. For example, in the Syrian Arab Republic the availability of local suppliers enabled UNICEF to procure over 50 per cent of necessary supplies from within the country itself. In Yemen, UNICEF oversaw a direct cash transfer programme to supplement the income of vulnerable families.

UNICEF emergency response requires very different approaches, even within the same region – depending on contextual characteristics such as the type of emergency, access, capacity, security and logistical complexities on the ground.

ACHIEVING SAVINGS BY PRE-POSITIONING SUPPLIES

The pre-positioning of supplies (procuring and storing them in advance of an expected need or potential risk) is critical to supporting countries facing ongoing crises and at risk of future emergencies. In South Sudan, the rainy season poses additional challenges when the country's dirt roads become almost impassable. This leaves air freight, and sometimes boats, as the only reliable means of moving supplies. Pre-positioning supplies during the dry season reduces transport costs for their uninterrupted delivery to children affected by conflict and displacement.

By pre-positioning food, medicines and other critical supplies in South Sudan, UNICEF saved \$12 million between 2016 and 2018. These savings were achieved by conducting detailed analysis, the earliest possible planning and the timely procurement of supplies in anticipation of seasonal challenges to road travel.

PERCENTAGE OF GLOBAL PROCUREMENT VALUE OF EMERGENCY SUPPLIES IN 2018



UNICEF supply response in emergencies in 2018

In 2018, these emergencies required UNICEF-wide mobilization of a supply response beyond in-country capacity. This map shows the three largest commodity groups by value procured for each emergency, demonstrating how different contexts required different responses. The total procurement value includes all commodity groups and services. On the subsequent pages, a snapshot of the needs and the UNICEF supply response is described for each emergency.

Bolivarian Republic of Venezuela migration crisis

3 largest product groups by value:

- \$3.4 million Diagnostic test kits
- \$2.3 million Nutrition supplies
- \$2.3 million Vaccines/biologicals

\$13.1 million total procurement
\$12.4 m international | **\$0.7 m** local

Nigeria

3 largest product groups by value:

- \$14.2 million Nutrition supplies
- \$5.6 million Medical equipment
- \$2 million Water & sanitation

\$26.9 million total procurement
\$22.2 m international | **\$4.7 m** local

Central African Republic

3 largest product groups by value:

- \$2 million Nutrition supplies
- \$2 million Vaccines/biologicals
- \$1.5 million Shelter/field equipment

\$8.9 million total procurement
\$6.9 m international | **\$2 m** local

Syrian Arab Republic and the sub-region

3 largest product groups by value:

- \$17.7 million Education supplies
- \$13.1 million Vaccines/biologicals
- \$12.7 million Clothing and footwear

\$91.3 million total procurement
\$46.7 m international | **\$44.6 m** local

Democratic Republic of the Congo

3 largest product groups by value:

- \$0.9 million Water & sanitation
- \$0.8 million Shelter/field equipment
- \$0.4 million Medical equipment

\$7.7 million total procurement
\$4 m international | **\$3.7 m** local

Iraq

3 largest product groups by value:

- \$10.1 million Water & sanitation
- \$5.1 million Clothing and footwear
- \$2.5 million Education supplies

\$23.4 million total procurement
\$2.2 m international | **\$21.2 m** local

UNICEF's supply response was unique and adapted to the needs on the ground in each of these situations.

Bolivarian Republic of Venezuela migration crisis

In 2018, UNICEF established an emergency logistics operation in Venezuela to prepare for an expected worsening of the situation. The new arrangements included local customs clearance services for both sea and air, rental of warehouse facilities and contracting of in-country transportation for supplies. UNICEF also responded in neighbouring countries such as Brazil, Colombia, Ecuador and Peru to accommodate Venezuelan refugees.



Democratic Republic of the Congo

Among various other emergencies, the country faced two Ebola outbreaks in 2018, one of which was the world's second-largest. To help reduce transmission of this deadly virus, UNICEF shipped chlorine for cleaning and hand washing, non-contact infrared thermometers to track fever and other specialist equipment for Ebola treatment centres, to a total value of \$3.1 million. Previous analysis of key supplies required for Ebola response allowed UNICEF to make proactive decisions to procure and pre-position essential products in advance of a possible further spread of the outbreaks.

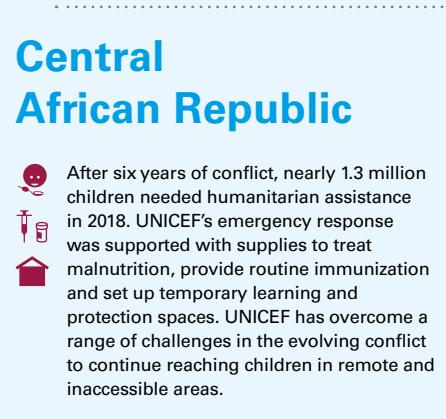
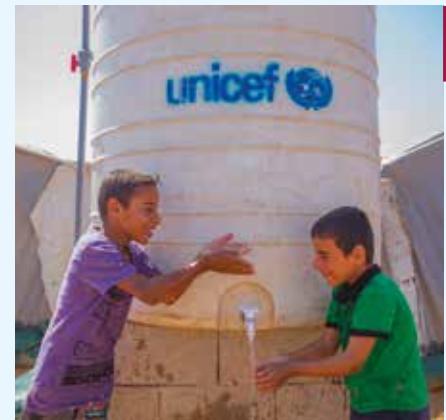


Nigeria

Levels of insecurity and hostilities in the conflict in Nigeria's Northeastern State increased in 2018, putting children at risk of violence, malnutrition and displacement. Despite this, UNICEF was able to deliver water and sanitation supplies and medical equipment, as well as RUTF to reach 200,000 children affected by malnutrition. UNICEF provided capacity building to strengthen the national supply chain system and to more efficiently reach vulnerable children with supplies.

Central African Republic

After six years of conflict, nearly 1.3 million children needed humanitarian assistance in 2018. UNICEF's emergency response was supported with supplies to treat malnutrition, provide routine immunization and set up temporary learning and protection spaces. UNICEF has overcome a range of challenges in the evolving conflict to continue reaching children in remote and inaccessible areas.

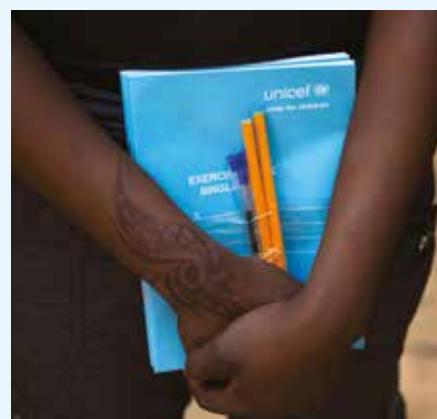


Iraq

UNICEF provided critical support to 4 million returnees, 1.7 million internally displaced persons and approximately 300,000 refugees from other countries with a wide range of products procured throughout the year. These included water, sanitation and hygiene items, clothes for the winter season and education supplies such as prefabricated classrooms and education kits.

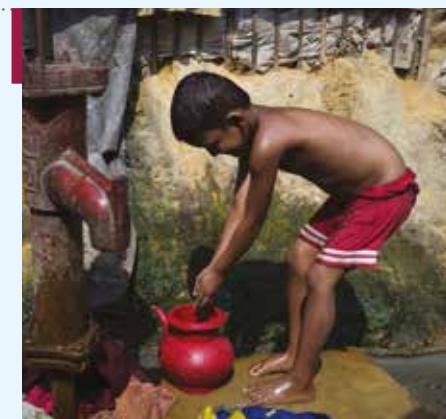
Bangladesh

In 2018, more than 730,000 Rohingya, including approximately 400,000 children, were living in refugee camps in Bangladesh, after escaping persecution and violence across the border in Myanmar. Throughout the year, UNICEF supported both displaced children and those from host communities with a range of supplies. Crucial to the success of the operation was forward planning to prepare for logistical challenges caused by the changing seasons (see page 38).



Yemen

The conflict in Yemen continues to be the largest humanitarian crisis in the world with 22 million people affected, half of whom are children. In 2018, UNICEF chartered 15 flights for the urgent delivery of immunization, water and sanitation, and nutrition supplies. A cash transfer project has reached nearly 9 million Yemenis since its inception in August 2017, giving them unconditional choice over their daily purchases, in lieu of direct aid that can be challenging to deliver (see page 36).



Indonesia

The September 2018 earthquake and tsunami off Sulawesi island affected more than 375,000 children in and around Pula city. UNICEF supported the Government-led response by using small aircraft to bring internationally procured supplies as close as possible to those in need. The Government then delivered them to the affected area. A strong in-country supply chain and Government pre-positioning quickly reduced the need for UNICEF support.



South Sudan

The world's youngest country has been suffering from ongoing instability and conflict. In 2018, UNICEF procured 10.2 million doses of oral polio vaccine for South Sudan, along with other key supplies such as nutrition products and education kits. Pre-positioning of supplies in advance of the rainy season was crucial to their timely delivery in all regions of the country, with \$12 million in savings achieved. (see page 29).



Ethiopia, Kenya and Somalia

Seasonal climate-related floods and droughts exacerbated acute food insecurity, malnutrition and water shortages in Ethiopia, Kenya and Somalia. In response, UNICEF worked closely with partners to deliver nearly 2,740 metric tonnes of RUTF for the treatment of severe acute malnutrition, as well as essential medical and water and sanitation supplies. Lead times for the RUTF delivery were optimized by procuring 98 per cent of the product from suppliers in the region.



Syrian Arab Republic: Supporting local markets during conflict

With the conflict in the Syrian Arab Republic continuing into its eighth year, UNICEF has developed sustainable solutions to deliver supplies to children by working with local businesses that continue to operate.

In 2014, UNICEF in the Syrian Arab Republic began looking for more local solutions to its emergency procurement needs. At the time, most emergency supplies were coming in through neighbouring countries such as Jordan and Lebanon. The cost of importing products was increasing, as were the lead times for delivery, with goods sometimes delayed in customs.

Although everyday life had been severely affected by the war, many companies were still in business, specializing in areas such as textiles and food processing – sectors the country has long been strong in – and which were also directly relevant to UNICEF's humanitarian goals. Supply staff started to consider small-scale local procurement of winter clothes and hygiene

products, and this ultimately grew into more diverse commodities.

A new approach to procurement
Market research conducted within the country led to the updating of a database of qualified local suppliers. Businesses were identified which could deliver in the quantities and quality required.

The move towards local procurement quickly transformed the supply chain. Since 2015, over 50 per cent of UNICEF's total procurement for the country has been consistently local. The items concerned include essentials such as water, sanitation and health supplies, hygiene kits, and education supplies such as

school bags. For the 2018–2019 winter season, warm clothes were procured from five local companies and distributed throughout the country, to reach more than half a million children.

UNICEF is now delivering supplies to vulnerable children more than twice as quickly as before the shift to increased local procurement. Moreover, the suitability of the supplies has been strengthened. For example, the specifications for winterization and hygiene kits were adjusted to better meet local needs and preferences.

Through targeted sessions with the smaller local businesses on procurement procedures and quality requirements, UNICEF has strengthened the smaller enterprises' ability to compete

Syrian Arab Republic: Supporting local markets during conflict

Children gather as UNICEF supplies are unloaded from a vehicle forming part of a joint UNICEF, United Nations and Syrian Arab Red Crescent convoy of 46 trucks transporting food aid for 27,500 people, as well as health and nutrition supplies, in Douma, Eastern Ghouta, Syrian Arab Republic



with larger textile companies and become approved suppliers.

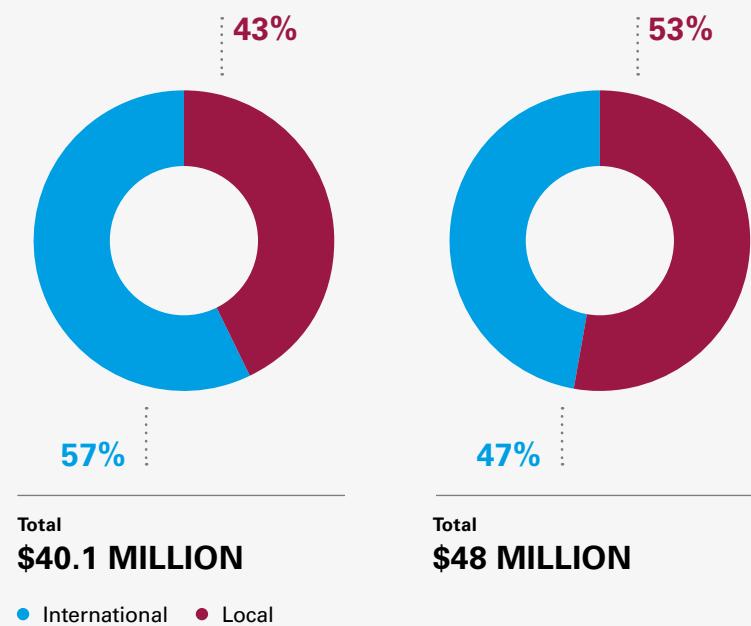
Local procurement also strengthens long-term development for communities. Support for the economic activity of small-scale suppliers through the conflict will help in the recovery of local communities once the conflict is over.

eVoucher programme contributes to local procurement

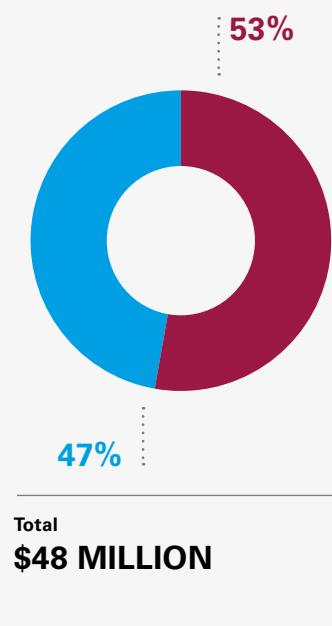
A new eVoucher scheme using electronic smart cards topped up with credit is also supporting local procurement. The programme gives parents the freedom to choose what products to buy for their children from a preselected list, so they can purchase shoes and clothes in the correct sizes and with choice of colour and style. In Aleppo, for example, 24 shops have been pre-approved for the programme. This is not only empowering for children and their families but also sustains local suppliers by supporting demand. In 2018 the project reached 28,000 children and is set to expand further in 2019.

LOCAL PROCUREMENT IN THE SYRIAN ARAB REPUBLIC NOW COMPRISSES MORE THAN 50 PER CENT OF TOTAL PROCUREMENT

2014



2018



● International ● Local

Yemen: Implementing a cash transfer project

UNICEF has established a cash transfer project in Yemen to reach nearly one third of the population. The project complements the direct delivery of supplies and empowers recipients to make purchasing decisions based on their own needs.

The humanitarian crisis in Yemen is affecting 22 million people, half of them children. More than two million people are internally displaced, and many businesses and Government offices have closed. More than one million public sector employees are without work or income. Prices for imported goods have become prohibitively high and the local currency, the rial, has dropped to one quarter of its pre-conflict value. Still, local markets for basic necessities have continued to function to varying extents, especially in safer parts of the country.

In addition to procuring and delivering vaccines and other

medical, health and nutrition supplies, UNICEF has also implemented a cash transfer project to balance some of the challenges in delivering aid, such as procurement, importation and logistics. The cash transfers are unconditional, meaning that families can use them as they choose. Families can buy the type of food, clothes and medicine they need, or pay school fees for their children. Some have invested in goods needed to establish small businesses such as bread making or sewing.

The programme is funded by the World Bank's International Development Association and

co-financed by the Government of the United States, with UNICEF as the executing agency. In 2018 the project successfully delivered two disbursement cycles, benefiting more than 1.4 million families – nearly 9 million Yemenis. Each household received an average of 15,000 rials per disbursement.

The recipients of the cash are the people who were previously served by the Yemen Social Welfare Fund. The project helps to preserve the country's own social protection system and support families who were already identified as extremely vulnerable before the conflict. It thus helps maintain a base

Yemen: Implementing a cash transfer project



A family from Amran Governorate in Yemen share lunch. This family used money received through the emergency cash transfer project to purchase food

support system to rebuild from when the conflict ends.

The design of the project identified and managed risks before and throughout the implementation. Included in the design were measures to ensure that participants' safety and data would be secured. Measures were taken to prevent risk and detect fraud, and to ensure the safety of those delivering the cash. Systems were also put in place to address grievances and deal with allegations of fraud.

UNICEF's expertise in sourcing, vetting and contracting local service providers led to the contracting of two commercial

banks which rely on their local affiliates – including bank branches, local shops and mobile teams – to disburse the cash. They operate more than 1,000 payment sites across the country. To enable the service providers and participants to access these sites during ongoing conflict, UNICEF relies on local contractors to inform communities of the project, liaise with authorities and help ensure smooth implementation locally.

Monitoring has consistently shown that families spend the cash quickly to address immediate needs. Nine out of ten purchased food, one in four used the cash to cover the cost

of medical consultations and medicines, and one in five paid back debts.

In Yemen, giving the most vulnerable children and their families unconditional access to cash is a direct and effective way of helping them to subsist during the conflict. It also contributes to sustaining local markets, which will be key to rebuilding the society in the future.

Bangladesh: Establishing a rapid supply and logistics system

In response to a massive displacement of Rohingya refugees from Myanmar to Bangladesh in 2017–2018, UNICEF quickly set up an emergency logistics and supply chain to ensure that supplies reached children and their families.

When thousands of people began crossing the border from Myanmar daily, UNICEF responded rapidly to set up a system to deliver supplies to children and their families in the affected areas.

A large warehouse was needed to receive the hundreds of tonnes of aid arriving by sea and air. There, the supplies could be divided into smaller loads for onward distribution. A warehouse facility was identified in Chittagong – the nearest large Bangladeshi city, five hours' drive from the refugee camps of Cox's Bazar. A wide range of vehicles were used, including tuk-tuks, the three-wheeled rickshaws commonly driven throughout Asia.

A crucial element of the operation's success was close coordination with the Government of Bangladesh to meet the specific needs of vulnerable children. For example, diseases can spread rapidly in the confines of a crowded refugee camp. To address the pressing emergency in the camps, the Government exceptionally reallocated vaccines from its routine immunization programmes. UNICEF then took action to replenish this stock with funding from Gavi, the Vaccine Alliance, quickly delivering extra vaccines so that Bangladesh's routine immunization programme would not be disrupted.

In addition to the 9.1 million vaccines and many other life-

saving products, in 2018, UNICEF procured 862,700 education kits, including School-in-a-box kits to ensure children's continued access to learning. By the end of the year, more than 70 per cent of the children in the camps were regularly attending classes. The types of supplies distributed also depended on changing conditions on the ground. For instance, during the winter months, UNICEF distributed winter clothing and blankets to children and their mothers.

Towards the end of 2018 annual heavy monsoon rains were expected to cause transport delays as roads became impassable or damaged. Flooding would also increase the risk of the spread of waterborne

Bangladesh: Establishing a rapid supply and logistics response

Two community health workers take their vaccine carriers on a tuk-tuk in Ramu, a rural sub-district of Cox's Bazar, Bangladesh. They do this four times per week, before walking as many as ten kilometres to vaccinate children in remote rural areas



KEY EMERGENCY SUPPLIES PROCURED FOR BANGLADESH IN 2018

9.1 MILLION doses of vaccines

17.9 MILLION water purification tablets to treat

89.6 MILLION litres of water

862,700 education kits

137 metric tonnes of ready-to-use therapeutic food

74,500 hygiene kits

RESPONDING TO EMERGENCIES 39

Supply Community and Partnerships

Three children in Mongolia play outside the newly opened mobile 'ger' (traditional nomadic tent) kindergarten in Bayankhongor Province. The UNICEF-funded kindergarten provides pre-primary education for more than 20 children in the nomadic herder community.



The UNICEF Supply Community – turning strategies into results

With a strong sense of professional belonging, members of the UNICEF Supply Community work together every day with an array of strategies to accelerate results for children through the provision of supplies.

UNICEF is continuously evolving to ensure that the right supplies reach children at the right time at an affordable price. To improve its supply and logistics function, the organization has developed a set of Global Supply Strategies which go far beyond procurement and delivery. A global community of staff with diverse backgrounds, nationalities and high levels of technical expertise is essential to turning these strategies into results for children.

Members of the UNICEF Supply Community bring a wealth of experience from both the private and public sectors. They have expertise in procurement and contracting for services, and logistics – including international transport and in country

distribution and warehousing, and emergency preparedness and response. They deal with commodities like vaccines and pharmaceuticals, medical supplies and equipment, nutrition and education products, bed nets, and water and sanitation products.

Leveraging its skills and professional experience, the Community has also excelled in evolving strategic areas such as product innovation and market shaping, national supply chain system strengthening, financing and domestic resource mobilization, evidence gathering and data monitoring.

The following pages provide examples of the work done by UNICEF staff around the world

at all stages of the supply chain to employ strategies to achieve results. In collaboration with communities, businesses, governments and other United Nations agencies, the Supply Community strengthens the way UNICEF and partners work together to make a difference for children.

With its culture of knowledge exchange, continuous professional development and its passion, the Community maintains a steady focus on getting the supplies to the children who need them.



Students at Miya Central Primary School, Bauchi State, Nigeria. UNICEF is supporting the local campaign 'Every Child in School' to advocate for better and wider access to basic education and is supporting children with education supplies

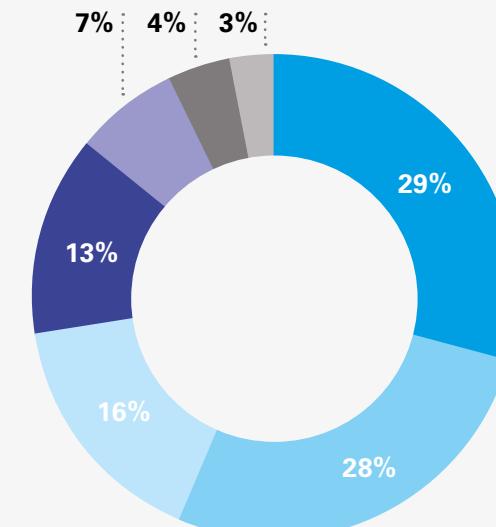
SUPPLY COMMUNITY

1,102 staff of 135 nationalities in 169 offices across 102 countries and territories

57% male

43% female

WHERE DOES THE SUPPLY COMMUNITY WORK IN UNICEF PROGRAMME COUNTRIES?



- West and Central Africa
- East and Southern Africa
- Middle East and North Africa
- South Asia
- East Asia and Pacific
- Europe and Central Asia
- Latin America and the Caribbean

Members of the UNICEF Supply Community speak about how they are applying the ten Global Supply Strategies in their work.



Tarek Alakri and Ali Abdallah

Supply & Procurement Officer and Logistics Officer – Syrian Arab Republic

"Faced with a constantly-evolving humanitarian supply chain in a complex emergency, our Supply team in the Syrian Arab Republic introduced a business-partnership approach to get supplies to children through cash-based services in collaboration with a range of local vendors. Through the e-Voucher programme, parents can use electronic smart cards charged with credit to freely choose from an agreed list of

items which products to buy for their children, with an option to negotiate better prices. It has been inspiring to see how our work has empowered families to act for themselves, upholding their dignity and increasing the programme's effectiveness. We felt this project was one of the most complex to implement, but the positive response from the families has made the team's efforts worthwhile."



Sviatlana Kavaliova

Procurement Services and Financing Specialist – Europe and Central Asia Region

"The region I work in is unique since it is made-up largely of middle-income countries graduating from international donor support. Our team and I work with governments and partners to strengthen national capacities and ensure that these countries' health supply financing, procurement and supply chain systems are optimal. This includes strengthening capacity in quantification and forecasting, supply budgeting and planning, reliable data management and the development of partnerships for effective functioning of supply systems. In this way we incorporate nearly all Global Supply Strategies into our work. One of our flagship results is focused on supporting governments in achieving 95 per cent of national diphtheria/pertussis/tetanus vaccine coverage with at least 80 per cent of children immunized with the three doses required in every district. Achieving results like these and being part of a team that finds solutions and is results oriented is what makes my work so exciting and rewarding."

Kyaw Myo Aung
Supply Officer – Myanmar

"UNICEF is working with partners in Myanmar to identify and implement simplifications to business operations, reduce duplication and improve efficiency across the United Nations system by chairing the Procurement Working Group. Using UNICEF's strategy for science of delivery, our main priority is to establish a common vendor roster via long-term arrangements so that agencies can make informed selections of service modalities and achieve greater value for money when procuring goods and services. Over the course of 2018, our team completed a range of LTAs for common use in Myanmar, including for hygiene kits, transportation services, cash disbursement and event management. It is good to know that thanks to our efforts, we are able to work more closely together with other United Nations agencies to deliver products and services to children across Myanmar."



Amarachi Eboh
Supply and Procurement Associate – Nigeria

"In my position I help ensure that the supplies and services procured by the Nigeria Country Office meet the highest standards of quality. We recently contracted a vendor to conduct audits of the national cold chain and vaccine delivery system, and to monitor the vaccine stock management system. I helped evaluate proposals from vendors to ensure that the technical specifications required for the job were met. Finding the right vendor for this work was critical to strengthen national supply chain systems and make sure that active vaccines reach children and keep them healthy."



Chengetanai Mangoro
Supply Specialist (Procurement Services) – Eastern and Southern Africa Region

"The changing financing landscape places greater emphasis on domestic resources for supplies for children. As UNICEF continues to innovate and evolve to ensure that children continue to access supplies, working with countries to mobilize domestic resources for supplies is a new and challenging field. Progress has been made with countries in identifying the strategic importance of procurement services to maximize the utilization of domestic resources. The greatest reward has been seeing country office colleagues engage proactively with government counterparts and supply financing mechanisms so that resources are used more efficiently."



Imtiaz Ali
Procurement Services Associate – Pakistan

"In 2018, I was deployed to Kashmir to conduct a pre-assessment of cold chain and supply readiness in preparation for a national measles vaccination campaign. It was a great learning experience to monitor the deployment of Cold Chain Equipment Optimization Platform equipment in remote and conflict-affected areas in preparation for the campaign. I visited more than 150 health facilities and used the Rapid Pro application to capture data on site readiness and vaccines delivered. More than 50 per cent of cold chain equipment was obsolete and many health facilities were using domestic fridges for vaccine storage. Deployment of cold chain equipment enhanced storage capacity, significantly increasing our ability to reach 95 per cent of children with vaccines. Last-mile end user monitoring increased my understanding of the new platform as an entry point for national supply chain systems strengthening and to address equity and systems design."

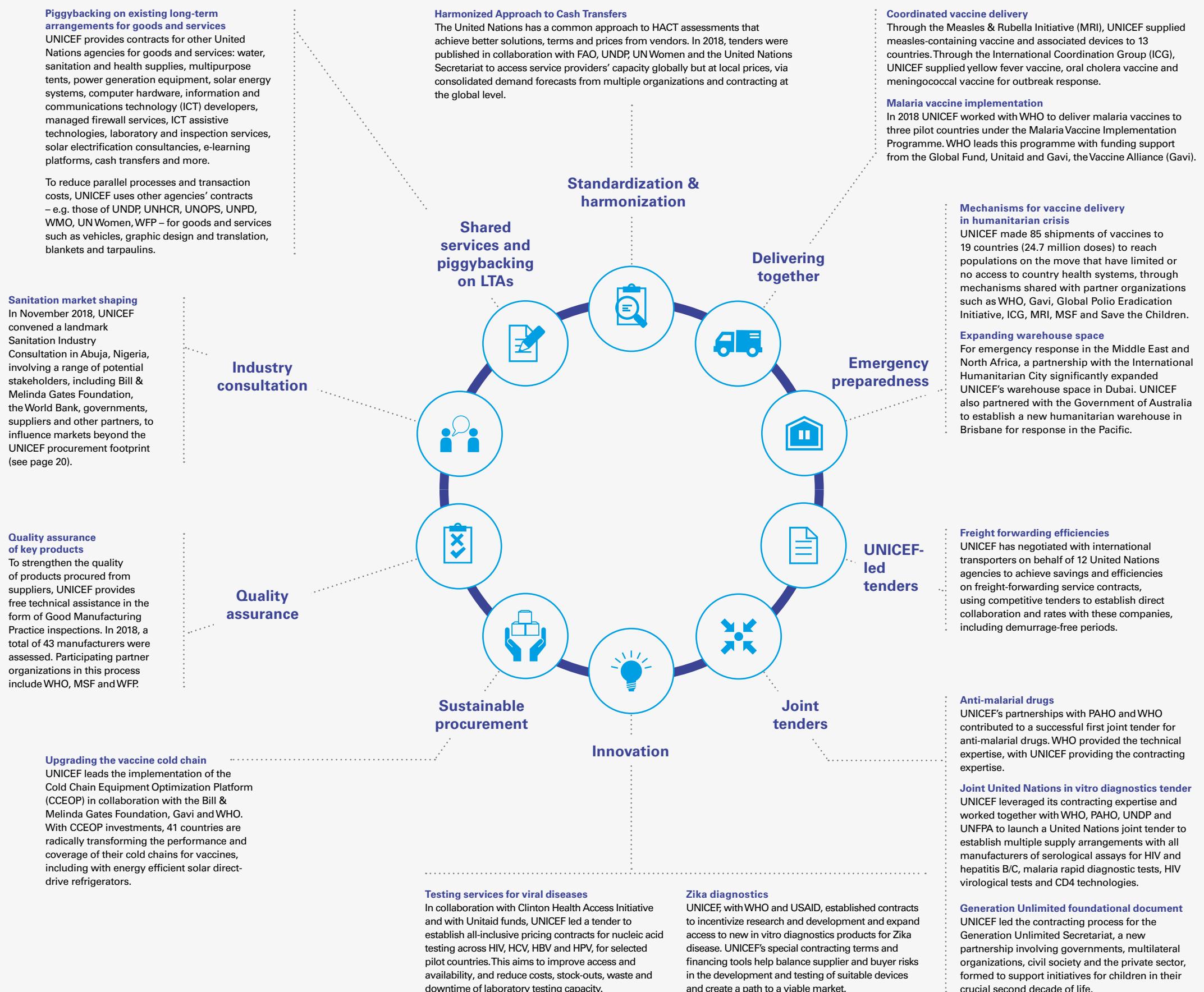


Procurement in collaboration

To deliver results for children, UNICEF collaborates with a wide range of partners at all stages of the supply chain and across its key products and services groups. Collaboration improves efficiency and achieves solutions that are fit-for-purpose, offer value for money and provide long-term sustainability.

UNICEF engages with United Nations agencies and other partners to communicate needs, draw on expertise, and share information, technical knowledge and contracts to ensure that the right supplies reach children. The strengths of partners are leveraged towards strategic objectives and result in operational efficiencies.

Children in Madagascar play at a water pump installed by UNICEF and partners to provide access to drinking water



UNICEF Supply partnerships

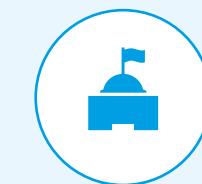
UNICEF's commitment to accelerate the rights of children through supply and logistics can only be achieved in cooperation and partnerships with other humanitarian and development organizations and governments, and with the expertise and guidance of academia, businesses and civil society. UNICEF Supply's key partners in 2018 included:

Arad, ten years old, from Iran, receives winter boots during a UNICEF-led distribution of winter clothes to refugee and migrant children in Adasevci and Principovac reception centres in Serbia



United Nations family

- Food and Agriculture Organization of the United Nations (FAO)
- High-Level Committee on Management Procurement Network (HLCM PN)
- International Organization for Migration (IOM)
- Joint United Nations Programme on HIV/AIDS (UNAIDS)
- Medicines Patent Pool (MPP)
- Pan American Health Organization (PAHO)
- The World Bank (WB)



Donor governments and international financial institutions

- African Development Bank (AfDB)
- Global Affairs Canada (formerly CIDA)
- Centers for Disease Control and Prevention (CDC), United States
- Department for International Development (DFID), United Kingdom
- European Commission's Humanitarian Aid and Civil Protection (ECHO)
- Islamic Development Bank (IDB)



Academia, foundations and businesses

- Bill & Melinda Gates Foundation (BMGF)
- Chemonics
- Clinton Health Access Initiative (CHAI)
- Developing Countries Vaccine Manufacturers Network (DCVMN)
- HP Inc.
- International Federation of Pharmaceutical Manufacturers & Associations (IFPMA)



Civil society

- Action Contre la Faim (ACF)
- East Europe and Central Asia Union of People Living with HIV (ECUO)
- Elizabeth Glaser Pediatric AIDS Foundation (EGPAF)
- Humanitarian Innovation Fund (HIF)-Elrha

- African Leaders Malaria Alliance (ALMA)
- African Network for Drugs and Diagnostics Innovation (ANDI)
- African Society for Laboratory Medicine (ASLM)
- Coalition for Epidemic Preparedness Innovations (CEPI)
- Eastern Mediterranean Public Health Network (EMPHNET)
- Foundation for Innovative New Diagnostics (FIND)



Health and supply chain partnerships

- United Nations Development Programme (UNDP)
- United Nations Framework Convention on Climate Change (UNFCCC)
- United Nations Global Logistics Cluster
- United Nations Global Service Centre (UNGSC)
- United Nations Global WASH Cluster
- United Nations Humanitarian Response Depot (UNHRD)
- United Nations Office for Project Services (UNOPS)

- International Humanitarian City (IHC), Dubai
- Japan International Cooperation Agency (JICA)
- Kreditanstalt für Wiederaufbau (KfW), Germany
- President's Malaria Initiative (PMI), United States
- United States Agency for International Development (USAID)

- John Snow, Inc. (JSI)
- la Caixa Foundation
- London School of Hygiene & Tropical Medicine
- Lugano University (Università della Svizzera Italiana)
- Norwegian Airlines
- Panalpina
- Schmidt Futures

- International Committee of the Red Cross (ICRC)
- International Federation of Red Cross and Red Crescent Societies (IFRC)
- International Rescue Committee (IRC)
- Learn4Dev
- Médecins sans Frontières (MSF)

- Gavi, the Vaccine Alliance (Gavi)
- Global Diagnostics Working Group
- Global Drug Facility
- Global Financing Facility
- Global Polio Eradication Initiative (GPEI)
- Innovation to Impact (I2I)
- Interagency Supply Chain Group
- Learning Network for Countries in Transition (LNCT)
- Measles & Rubella Initiative (MRI)
- Medicines for Malaria Venture

- United Nations Office for the Coordination of Humanitarian Affairs (OCHA)
- United Nations System Staff College (UNSSC)
- United Nations Population Fund (UNFPA)
- United Nations Procurement Division (UNPD)
- United Nations Refugee Agency (UNHCR)
- United Nations Relief and Works Agency for Palestine Refugees (UNRWA)
- World Food Programme (WFP)
- World Health Organization (WHO)

- United States Department of Agriculture (USDA)
- United States Office of the Global AIDS Coordinator (OGAC)
- The United States President's Emergency Plan for AIDS Relief (PEPFAR)

- The LEGO Foundation
- The UPS Foundation
- United Nations Foundation
- United States Pharmacopeial Convention (USP)
- University of Copenhagen
- University of Oxford

- Nutrition International
- Oxfam
- PATH
- Population Services International (PSI)
- Save the Children International
- VillageReach
- World Vision International

- People that Deliver (PtD)
- Pharmaceutical Inspection Co-operation Scheme (PIC/S)
- Roll Back Malaria (RBM) Partnership
- The Alliance for Malaria Prevention (AMP)
- The Global Fund
- Unitaid

Achieving Results in 2018

A girl in Abidjan, Côte d'Ivoire, celebrates World Children's Day, at Gesco primary school. The children danced, jumped and enjoyed the day to celebrate their right to play

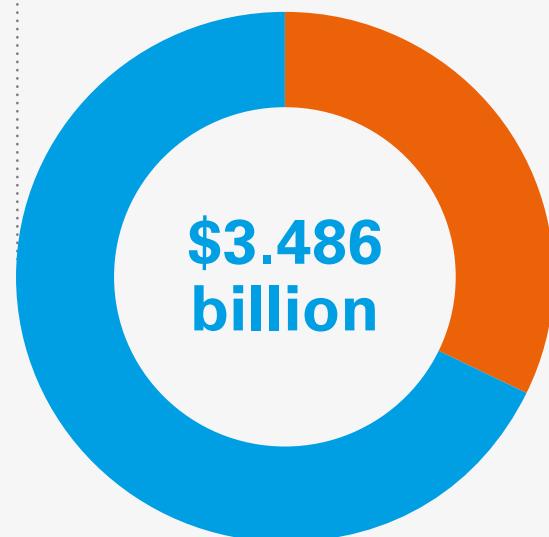


Procurement overview 2018

In 2018, UNICEF's supply and logistics function directly procured more than **\$3.486 billion** worth of goods and services for children in **150** countries and areas. UNICEF managed a total of \$641.9 million worth of supplies via its in-country warehouses.

TOTAL VALUE OF GOODS AND SERVICES

Goods	\$2.378 billion
Services	\$1.108 billion

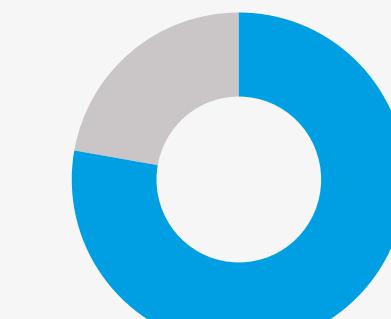


Globally, emergency supplies worth **\$412.6 million** were procured in **53** countries and areas.

PROCUREMENT SERVICES

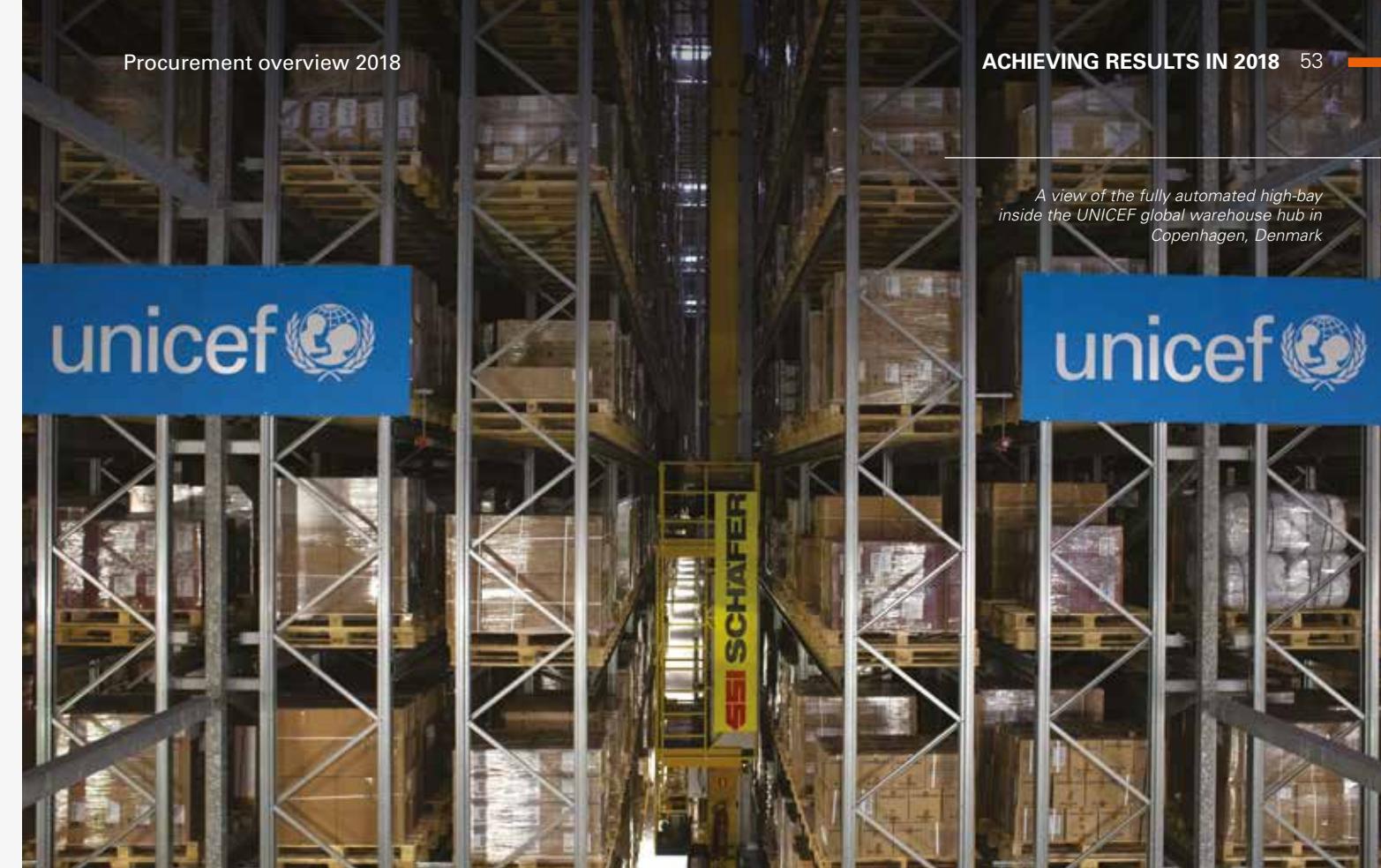
UNICEF provided
\$1.536 billion
worth of procurement services to:

- **88** self-financing governments
- Gavi, the Vaccine Alliance in **67** countries
- United Nations agencies in **41** countries
- Civil society organizations in **28** countries
- **20** countries financed by the Global Fund
- **9** countries financed by the World Bank and other development banks
- International funding agencies in **4** countries



of UNICEF procurement of goods was in collaboration with other United Nations agencies.

A view of the fully automated high-bay inside the UNICEF global warehouse hub in Copenhagen, Denmark

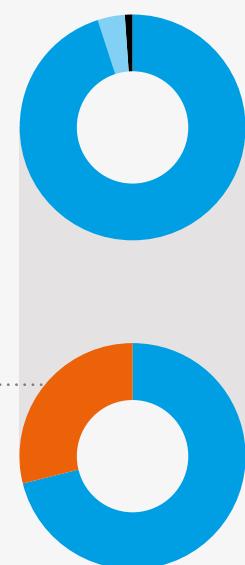


GLOBAL WAREHOUSE HUBS

UNICEF's supply and emergency kit-packing operation has been headquartered in Copenhagen since 1963. Today, it is home to the world's largest humanitarian warehouse with state-of-the-art, automated workflows. To provide a global supply response, UNICEF also operated warehouse hubs in Dubai and Panama. These warehouses enable UNICEF to strategically position supplies, so they are readily available and cost-effective to transport when and where needed.

\$111 million
global warehouse hub throughput

- Copenhagen \$105.1 million
- Dubai \$4.9 million
- Panama \$92,500



185,400
total kits were packed

Kits shipped from:

Copenhagen	161,000
Dubai	16,100
Panama	260

UNICEF's major commodity groups

UNICEF procured **\$2.378 billion** worth of goods in 2018. The eight highest value commodity groups appear on these pages with some of the most common items procured within each group listed.

\$1.453 BILLION

VACCINES/BIOLOGICALS

2.36 billion doses of vaccines procured for 99 countries, to reach 45 per cent of the world's children under five years old

\$183.9 MILLION

NUTRITION SUPPLIES

47,760 tonnes of ready-to-use therapeutic food, 65 per cent of which was sourced in programme countries

517.7 million vitamin A treatments

122.4 million deworming tablets

197 million sachets of multiple micronutrient powder

876.5 million iron and folic acid tablets

\$124 MILLION

PHARMACEUTICALS

26.8 million amoxicillin pneumonia treatments for infants, reaching 38 countries

4.8 million packs of antiretroviral medicine to treat 116,000 adults and 79,000 children with first-line therapy for one year in 38 countries

19.2 million artemisinin-based combination therapy malaria treatments

331.3 million cotrimoxazole tablets (treats a range of bacterial infections, including pneumonia and bronchitis)

56.4 million sachets of oral rehydration salts (includes 22.4 million co-packaged ORS/zinc)

1.1 million treatments for seasonal malaria chemoprevention to protect 266,500 children

7 million courses of sulfadoxine-pyrimethamine chemoprevention to protect 2.35 million pregnant women

\$117.3 MILLION

WATER & SANITATION SUPPLIES

1.26 billion water purification tablets and chlorination/flocculation sachets, which could treat 30.8 billion litres of water

3.7 million hygiene kits

739,400 water tanks

\$106 MILLION

MEDICAL SUPPLIES AND EQUIPMENT

78,000 health kits for 58 countries

787.6 million immunization syringes

7.9 million safety boxes

5.3 million HIV rapid diagnostic tests, including 1.7 million HIV/Syphilis Combo diagnostic tests

10.5 million malaria rapid diagnostic tests to 22 countries

UNICEF's major commodity groups



\$77.9 MILLION

COLD CHAIN EQUIPMENT

Includes **\$54.3 million** in solar powered systems

\$57.4 MILLION

EDUCATION SUPPLIES

4.5 million schoolbags for 58 countries

84,000 education kits for 62 countries:

- **39,700** standard classroom kits
- **20,500** country-specific education kits
- **22,200** recreation kits
- **1,600** early childhood development kits

\$25.9 MILLION

BED NETS

13.3 million long lasting insecticidal nets to 30 countries

Children in Bamyan, Afghanistan, often walk long distances to school. UNICEF provides support for quality education and teacher training, as well as supplying children with learning materials, school bags and stationery

Services

In 2018, UNICEF's procurement of services reached a value of **\$1.108 billion**. The six largest categories account for 62 per cent of the total value of contracting for services.

MAJOR SERVICES GROUPS

 **\$183.3 MILLION**

LOCAL TECHNICAL WORKFORCE FOR PROGRAMME EXECUTION

This includes human resources working in-country to share expertise within partner governments, to work in social mobilization campaigns and as temporary labour for programmes.

 **\$133.8 MILLION**

RESEARCH, SURVEYS, MONITORING AND EVALUATION SERVICES

Programmatic research and surveys, market and supply chain analysis and research, monitoring and evaluation of programme implementation.

 **\$118.3 MILLION**

CONSTRUCTION SERVICES

Designing, planning, engineering, monitoring and other services supporting construction works.

Key programme areas supported include water and sanitation (e.g. water supply, sewage systems, latrines) and education (e.g. schools, classroom rehabilitation, children's facilities).

 **\$101.2 MILLION**

FINANCE AND INSURANCE SERVICES

This includes the management of the procurement of supplies directly by beneficiaries via cash transfers to them—one of the procurement modalities used by UNICEF depending on the context.

 **\$80.6 MILLION**

INTERNATIONAL FREIGHT SERVICES

Globally, UNICEF managed a total freight volume of 59,850 cubic metres of freight by air and 15,870 twenty-foot equivalent units by sea and/or truck.

 **\$71.3 MILLION**

IN-COUNTRY LOGISTICS AND WAREHOUSING SERVICES

Support to programmes includes: road cargo transport, storage, local aircraft charters and customs brokerage and clearance services, as well as warehousing services.

Country of supplier and region of use

Country of supplier and region of use

Countries from which procurement exceeded \$20 million (based on country of invoice)
(in \$ millions)

India	529.6
United States	485.5
Belgium	380.5
France	190.4
Yemen	130.8
Denmark	123.4
Pakistan	111.2
United Kingdom	91.8
Netherlands	71.3
China	68.9
Republic of Korea	59.2
Kenya	53
Luxembourg	49.4
Nigeria	48
Russian Federation	47.2
Syrian Arab Republic	44.1
Lebanon	41.9
South Sudan	39.4
Afghanistan	38.1
Democratic Republic of the Congo	36.7
Germany	36.3
Ethiopia	35.6
South Africa	34.3
Singapore	33.7
Bangladesh	30.3
Jordan	30
Switzerland	29.8
Indonesia	29.7
Turkey	28.9
Iraq	28.2
Niger	22.8
Sudan	22



Children in Kyrgyzstan attend a festival organized by UNICEF for Disaster Risk Reduction month to accompany the handing over of water and sanitation equipment to the Government to enhance emergency response capacity

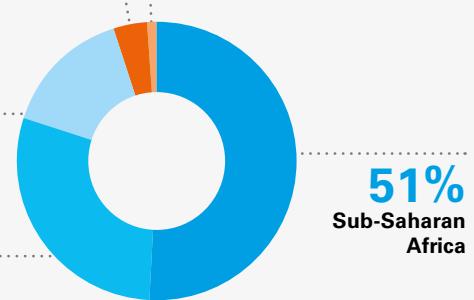
Where UNICEF supplies were used

1%
Central & South America and the Caribbean

4%
Central & Eastern Europe

15%
Middle East & North Africa

29%
Asia



Savings overview 2018

UNICEF achieved a total of \$351.2 million worth of savings for UNICEF donors and partners in 2018, exceeding our 2018 target by more than \$91 million.

To provide longer-term visibility on levels of demand for essential products, UNICEF used strategic procurement, price and information transparency, special contracting terms and multi-year arrangements. Partner collaborations such as joint forecasting and coordinated procurement were strengthened through these activities. This enabled suppliers to plan and scale up production, increasing the availability of affordable supplies for every child.

In 2017 UNICEF projected \$690 million in price savings for strategic supplies over the period 2018–2021, and achieved savings of \$351.2 million in 2018

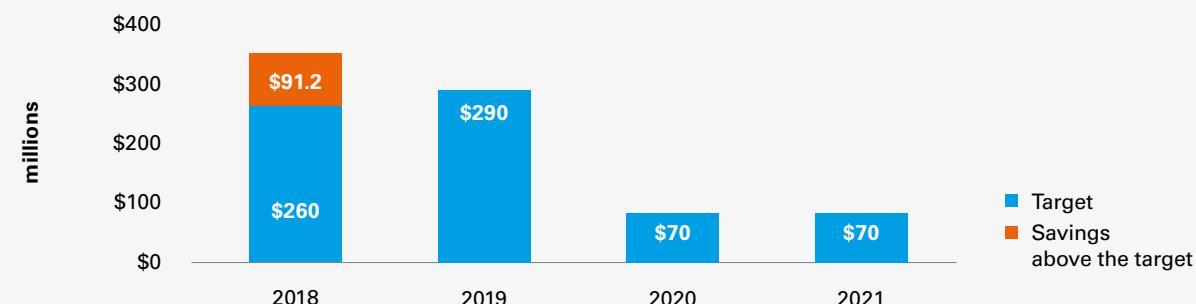
alone. These projections and the 2018 figure are lower than those achieved in the period 2012–2017. Over the previous years, UNICEF worked with suppliers to realize significant price reductions, particularly on childhood vaccines. Prices were brought to more affordable levels and products made more available by working together to shape some of these strategic product markets. Today, UNICEF is increasingly shifting its focus from price savings to a more holistic procurement impact. This will consider both savings and other value elements such as social and environmental impact, with the objective of ensuring sustained availability and

accessibility of strategic supplies for children.

In 2018, UNICEF collaborated with 12 other United Nations agencies to identify leading practices in defining and quantifying procurement impact, and to agree on a shared approach across agencies. This approach is expected to enable UNICEF to measure – beyond price considerations – its ability to harness the power of markets and reduce market barriers that prevent children from accessing essential supplies. This includes considerations such as quality, availability, acceptability, competition, adaptability and delivery as value-added.

Savings overview 2018

Savings targets and results (2018–2021)



Savings by product in 2018

Rotavirus vaccine \$3.7 million	Inactivated poliovirus vaccine \$87.8 million	Safe immunization devices (Auto-disable syringes & safety boxes) \$650,500	Children's winter clothing, local, Middle East \$15 million
Partners: Gavi, the Vaccine Alliance (Gavi), WHO, suppliers	Partners: BMGF, Gavi, Global Polio Eradication Initiative, WHO, suppliers	Partners: Gavi, Measles & Rubella Initiative (MRI), WHO, suppliers	Partners: suppliers <i>See story on page 34</i>
Pentavalent vaccine \$97.2 million	Amoxicillin dispersible tablets \$4.6 million	Bed nets \$913,800	Freight services, handling fee \$1.5 million
Partners: Bill & Melinda Gates Foundation (BMGF), Gavi, WHO, suppliers	Partners: WHO, United Nations Commission on Life-Saving Commodities for Women and Children, suppliers	Partners: African Leaders Malaria Alliance, The Global Fund, the Roll-Back Malaria Partnership, Alliance for Malaria Prevention, Unitaid, United Nations Special Envoy for Malaria, UNDP, USAID, DFID, WHO, the World Bank and suppliers	Partners: United Nations agencies, suppliers
Pneumococcal vaccine \$79.5 million	Antiretroviral medicines \$1.3 million	Iron-containing supplements \$212,600	Hygiene kits, local, Middle East \$3 million
Partners: BMGF, Gavi, WHO, AMC donors, suppliers	Partners: Global Fund, WHO, UNAIDS, Medicines Patent Pool, suppliers	Partners: Nutrition International, suppliers	Partners: suppliers
Human papillomavirus vaccine \$50.1 million	Tents \$1.2 million	Insurance brokerage \$541,600	
Partners: BMGF, Gavi, suppliers	Partners: suppliers	Partners: United Nations agencies, suppliers	

Procurement approaches used

- UNICEF long-term arrangements (LTAs)
- Strategic procurement
- Special contracting
- Leveraging partnerships (e.g. coordinated forecasts and/or procurement, sharing LTAs)
- Price transparency
- Other (e.g. reduced material cost)

Annexes: UNICEF global procurement statistics

Annex 1

UNICEF procurement by country/area of invoice and US\$ value, aggregating local, country-to-country and international procurement

61

Annex 2

UNICEF procurement by country/area, supplier and category, giving separate US\$ values for local, country-to-country and international procurement (orders with a combined value of over US\$100,000)

63

Annex 3a

Destination countries/areas for UNICEF procured commodities, aggregating local, country-to-country and international procurement

114

Annex 3b

Destination countries/areas where services were used, aggregating local, country-to-country and international procurement

116

Annex 4

Number of companies invited to bid by Supply Division for international procurement and responses received, by country/area

118

Local

Goods and services procured by country offices for local delivery and subject to the principle of competitive bidding from local suppliers

Country-to-country

Goods and services procured on behalf of another country, or international procurement by country or regional offices, and subject to the principle of competitive bidding

International

Goods and services procured by Supply Division, or by country offices through Direct Order arrangements, or by other headquarter divisions, and subject to the principle of international competitive bidding

You can view a list of contracts awarded (at or above the value of \$100,000) by Supply Division at:
http://www.unicef.org/supply/index_27009.html

For further information on UNICEF's work in markets essential to secure the rights of children, visit:
https://www.unicef.org/supply/index_102742.html

Annex 1

UNICEF procurement by country/area of invoice and US\$ value, aggregating local, country-to-country and international procurement

Country/area	Value (\$)
Afghanistan	38,134,915
Albania	383,657
Algeria	1,115,135
Angola	7,602,592
Antigua and Barbuda	29,507
Argentina	12,407,223
Armenia	451,561
Australia	6,318,723
Austria	2,299,665
Azerbaijan	267,327
Bangladesh	30,295,106
Barbados	229,653
Belarus	791,698
Belgium	380,529,761
Belize	306,476
Benin	2,295,069
Bhutan	161,203
Bolivia (Plurinational State of)	2,349,977
Bosnia and Herzegovina	877,541
Botswana	582,392
Brazil	5,940,539
Bulgaria	302,143
Burkina Faso	12,560,845
Burundi	11,110,141
Cambodia	1,219,120
Cameroon	7,348,951
Canada	12,920,647
Central African Republic	3,920,587
Chad	8,834,330
Chile	5,074,493
China	68,928,818
Colombia	9,278,240
Comoros	1,121,245
Congo	1,238,724
Costa Rica	222,154
Côte d'Ivoire	15,788,265
Croatia	990,923
Cuba	388,490
Cyprus	5,103,964
Czechia	871,984
Democratic People's Republic of Korea	1,368,790
Democratic Republic of the Congo	36,681,059
Denmark	123,387,130
Djibouti	858,853
Dominica	41,839
Dominican Republic	404,425
Ecuador	2,040,194
Egypt	10,371,732
El Salvador	559,592
Equatorial Guinea	251,658
Eritrea	2,657,096
Estonia	129,494
Eswatini	254,703
Ethiopia	35,596,084
Fiji	897,623
Finland	870,348
France	190,435,280
Gabon	183,200
Gambia	327,770
Georgia	1,275,344
Germany	36,347,427
Ghana	4,075,430
Greece	8,232,250
Guatemala	950,336
Guinea	4,237,376
Guinea-Bissau	922,051
Guyana	297,468
Haiti	5,910,163
Honduras	550,677
Hungary	571,956
India	529,566,016
Indonesia	29,674,586
Iran (Islamic Republic of)	918,457
Iraq	28,206,979
Ireland	7,598,190
Israel	956,497
Italy	11,611,605
Jamaica	264,336
Japan	10,186,041
Jordan	30,047,955
Kazakhstan	1,855,195
Kenya	53,009,139
Kiribati	54,415
Kyrgyzstan	1,004,150
Lao People's Democratic Republic	1,259,414
Latvia	62,337
Lebanon	41,856,098
Lesotho	4,193,069

Country/area	Value (\$)
Liberia	3,142,157
Libya	2,415,874
Lithuania	336,250
Luxembourg	49,387,038
Madagascar	15,753,099
Malawi	11,830,704
Malaysia	8,251,499
Maldives	364,086
Mali	9,971,913
Malta	1,105,298
Mauritania	2,417,689
Mauritius	686,711
Mexico	6,245,746
Mongolia	301,155
Montenegro	193,009
Morocco	2,228,699
Mozambique	3,000,579
Myanmar	9,425,781
Namibia	449,793
Nepal	4,561,200
Netherlands	71,339,556
New Zealand	483,204
Nicaragua	957,316
Niger	22,805,918
Nigeria	47,966,248
North Macedonia	581,495
Norway	3,085,239
Oman	272,312
Pakistan	111,223,966
Panama	1,596,806
Papua New Guinea	3,085,448
Paraguay	621,613
Peru	2,975,832
Philippines	5,580,470
Poland	466,131
Portugal	388,203
Republic of Korea	59,174,743
Republic of Moldova	408,255
Romania	2,220,800
Russian Federation	47,242,913
Rwanda	2,216,868
San Marino	9,770
Sao Tome and Principe	72,983
Saudi Arabia	94,865
Senegal	4,625,016
Serbia	1,048,763
Sierra Leone	5,693,534
Singapore	33,743,189
Slovakia	1,238,854

Country/area	Value (\$)
Slovenia	1,834,571
Solomon Islands	27,143
Somalia	10,654,877
South Africa	34,332,278
South Sudan	39,412,223
Spain	9,362,319
Sri Lanka	1,067,903
State of Palestine	13,366,701
Sudan	22,026,043
Suriname	98,605
Sweden	5,607,140
Switzerland	29,751,015
Syrian Arab Republic	44,061,404
Tajikistan	1,300,899
Thailand	9,580,108
Timor-Leste	1,246,229
Togo	2,106,064
Trinidad and Tobago	111,088
Tunisia	1,922,179
Turkey	28,887,308
Turkmenistan	89,698
Uganda	16,020,595
Ukraine	6,619,163
United Arab Emirates	14,409,308
United Kingdom	91,777,118
United Republic of Tanzania	10,452,946
United States	485,483,552
Uruguay	1,926,170
Uzbekistan	3,414,676
Vanuatu	121,690
Venezuela (Bolivarian Republic of)	485,532
Viet Nam	363,562
Yemen	130,835,149
Zambia	3,496,995
Zimbabwe	16,889,085

Annex 2

UNICEF procurement by country/area of invoice, supplier and category, giving separate US\$ values for local, country-to-country and international procurement (orders with a combined value of over US\$100,000)

Supplier	Products/Services	Local	Country-to-country	International
AFGHANISTAN				
Afghan Diamond Logistic Services Co	Shelter/Field Equipment	193,640		
Afghan Winner Logistics Services	Local Technical Workforce for Programme Execution	4,807,908		
Afghanistan Center for Excellence	Communications, Design and Printing	114,497		
Ahmad Mukhtar Construction Unit	Construction Services	478,857		
Ahmad Printing Press	Printing	158,526		
Aina Media and Culture Center	Communications, Design and Printing	150,996		
Artlords	Communications, Design and Printing	1,340,250		
ASIX Afghanistan	Information and Communication Technology Services	244,368		
Assess Transform Reach Consulting	Research, Surveys, Monitoring and Evaluation Services	436,929		
Atiqullah Hussain Khil Ltd	Shelter/Field Equipment, Water and Sanitation	535,291		
AYA Architectural and Engineering Co	Construction Services	302,349		
Azizi Bank	Finance and Insurance Services	215,095		
Bahadur Saheb Zada Ltd	Clothing and Footwear, Education Supplies, Medical Supplies and Equipment, Shelter/Field Equipment	1,192,262		
Bahar Waheed Construction Company	Construction Services	426,752		
Baheer Computer and Printing	Printing	876,748		
DAF Advertisement Services	Communications, Design and Printing	309,406		
Danish Printing Press	Printing	1,066,802		
Dual Core Construction Co	Construction Services	248,559		
FKH Media	Public Relations and Fundraising	292,407		
Gain Margin Financial Services	Travel, Food and Lodging	312,019		
Golden Galaxy Construction Co	Construction Services	298,481		
Gurbat Abdullah Construction Co	Construction Services	227,339		
H and A Media Llc	Identification and Signage	115,467		
IDG Security (Afghanistan) Ltd	Safety and Security Services	2,044,803	917,680	
Lapis Ltd	Communications, Design and Printing, Public Relations and Fundraising	1,302,986		
M Aryoubi Store	Clothing and Footwear, Identification and Signage, IT and Office Supplies, Power Generation, Shelter/Field Equipment, Water and Sanitation	263,841		
Mhawala Main Account	Finance and Insurance Services	502,298		
National Fuel Corporation Ltd	Fuel and Lubricants, Others	813,945		
New Jabel Saraj Transport	In-Country Logistics and Warehousing Services	631,590		
Nishat Brothers Construction and Conex Company	Construction Services	345,049		
Organization for Community Coordination and Development	Local Technical Workforce for Programme Execution	671,922		
PACT Communications	Research, Surveys, Monitoring and Evaluation Services	137,122		
Red Sea Logistic Services	Clothing and Footwear	274,079		
Research Inputs and Development Action	Research, Surveys, Monitoring and Evaluation Services	115,095		
ROSHD Afghan Logistic Services	Identification and Signage, Water and Sanitation	273,197		
SAFI Engineering Ltd	Medical Supplies and Equipment	103,174		
Salim Jawid Transport and Logistics Services Co	Local Technical Workforce for Programme Execution	9,046,754		

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Sayara Ls Research Csc	Research, Surveys, Monitoring and Evaluation Services	311,738			
Senan Construction Co	Construction Services	448,684			
Shakib Nawid Ltd	Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Nutrition, Water and Sanitation	863,588			
Shams Omar Fazli Logistics Co Ltd	In-Country Logistics and Warehousing Services	162,491			
The Welfare Association for the Development of Afghanistan	Local Technical Workforce for Programme Execution	1,522,197			
Toyota Habib Gulzar Motors Ltd	Business Administration Services	113,277			
Waheed Zia Construction Co	Construction Services	440,905			
Zala Education and Social Organisation for Afghan Women	Finance and Insurance Services, Travel, Food and Lodging	370,763			
ALGERIA					
Epe Gt Sidi Fredj	Travel, Food and Lodging	266,468			
Papetrie Sarah	Education Supplies, Others	201,790			
ANGOLA					
AI2N-Integrated Management Solutions Lda	In-Country Logistics and Warehousing Services	101,404			
Bai Operações Caixa	Finance and Insurance Services	1,655,061			
Banco Millenium Atlântico	Finance and Insurance Services	1,913,083			
Banco Sol	Finance and Insurance Services	519,013			
Barloworld Equipamentos Angola Lda	Power Generation	107,487			
Graphic Systems Lda	Printing	177,387			
Guarda Segura	Safety and Security Services	149,345			
Imprimarte	Printing	253,884			
Instituto Nacional da Criança INAC	Facility Maintenance and Repair, Real Estate Services	166,667			
ISENTA Comunicação e Imagem Lda	Communications, Design and Printing, Printing	149,513			
Publirinde Brindes Publicitarios	Printing	177,132			
SLC Servico De Logistica E Carga SA	In-Country Logistics and Warehousing Services	130,473			
Sociedade de Gestão Proj Inter Intersismet	Research, Surveys, Monitoring and Evaluation Services	250,000			
ARGENTINA					
Cat Technologies Argentina SA	Public Relations and Fundraising	637,578			
Contact Center y Recovery SA	Public Relations and Fundraising	401,309			
DP Argentina SA	Communications, Design and Printing, Printing	104,882			
Exo SA	IT and Office Supplies	192,800			
Face To Face Latam SA	Public Relations and Fundraising	2,971,151			
Laboratorio Pyam SA	Water and Sanitation		1,088,389		
Miniature SRL	Communications, Design and Printing	83,088		50,000	
Mundial SA	Communications, Design and Printing, Printing	202,766			
Naortech IT Solutions SRL	Public Relations and Fundraising	34,001		159,170	
Natandy SA	Public Relations and Fundraising	111,840			
Organización Coordinadora	In-Country Logistics and Warehousing Services	548,459			
Proa Consulting para OSC SA	Public Relations and Fundraising	1,711,376			
SHM Fundraising SRL	Public Relations and Fundraising	728,880			
Soluciones de Contacto SA	Public Relations and Fundraising	932,543			
Sur Emprendimientos Tecnológicos SRL	Research, Surveys, Monitoring and Evaluation Services		385,612		
Tarjeta Naranja SA	Public Relations and Fundraising	112,249			
TTS Viajes SA	Travel, Food and Lodging	149,578			
AUSTRALIA					
Australian Council for Educational Research	Research, Surveys, Monitoring and Evaluation Services	2,681,452			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Codan Ltd	Communication Equipment				102,184
Coffey Services Australia Pty Ltd	Research, Surveys, Monitoring and Evaluation Services				371,660
Digital Ninjas Pty Ltd	Public Relations and Fundraising				164,364
International WaterCentre Pty Ltd	Research, Surveys, Monitoring and Evaluation Services				126,203
Moerk Water Solutions Asia-Pacific Ltd	Water and Sanitation				365,870
Nossal Institute Ltd the University of Melbourne	Information and Communication Technology Services				164,124
Nylon Studios Pty Ltd	Communications, Design and Printing				187,700
Pageup People Pty Ltd	Information and Communication Technology Services				773,823
Peter Muir Consulting Pty Ltd	Research, Surveys, Monitoring and Evaluation Services				113,363
Plan International Australia	Water and Sanitation Related Services				117,096
Sustineo Pty Ltd	Research, Surveys, Monitoring and Evaluation Services				284,928
The Conscience Organisation Pty Ltd	Research, Surveys, Monitoring and Evaluation Services				184,980
The University of Sydney Financial Services Division	Research, Surveys, Monitoring and Evaluation Services				244,363
AUSTRIA					
Amex Export Import GmbH	Medical Supplies and Equipment				458,797
Sandoz GmbH	Pharmaceuticals				1,510,835
VWR International GmbH	Medical Supplies and Equipment, Water and Sanitation				310,812
BANGLADESH					
Acme Enterprise	IT and Office Supplies, Medical Supplies and Equipment, Water and Sanitation				444,665
Acumen Architects and Planners Ltd	Construction Services				154,225
Anwar Landmark Ltd	Construction Services				2,829,465
Axis Design Consultants Ltd	Construction Services				177,143
BRAC CDM	Travel, Food and Lodging				291,390
Brac University	Research, Surveys, Monitoring and Evaluation Services				112,903
Build Asia	Construction Services				982,522
CBT Nutrition Nipsom	Research, Surveys, Monitoring and Evaluation Services				128,220
Centre for Injury Prevention and Research	Local Technical Workforce for Programme Execution				355,058
Chaytara Rice and Flour Mill	Water and Sanitation				353,499
Desh Media	Printing				127,909
Design Plus Ltd	IT and Office Supplies, Medical Supplies and Equipment				203,655
Dhaly Construction Ltd	Construction Services				1,926,930
Environment and Infrastructure Management	Construction Services, Water and Sanitation Related Services				288,898
Eskayef Bangladesh Ltd	Pharmaceuticals				205,980
Evergreen Printing and Packaging	Education Supplies, Printing				188,340
Expressions Ltd	Communications, Design and Printing, Travel, Food and Lodging				230,280
Flora Ltd	Communication Equipment, Information and Communication Technology Services, IT and Office Supplies, Power Generation, Printing, Water and Sanitation				242,215
Fourth Dimension	Construction Services				404,273
G4S Secure Solutions Bangladesh Pvt Ltd	Local Technical Workforce for Programme Execution, Safety and Security Services				946,091
Global Brand Pvt Ltd	IT and Office Supplies				108,890
Hello Rent a Car Ltd	Travel, Food and Lodging				204,483
Helvetas Swiss Intercooperation	Research, Surveys, Monitoring and Evaluation Services				556,298
Hema Enterprises	Facility Maintenance and Repair				152,129
Hoque Enterprise	Water and Sanitation				260,879

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Jahan Enterprise	Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Nutrition, Water and Sanitation	246,659		1,410	
Kuehne + Nagel Ltd	In-Country Logistics and Warehousing Services	249,765			
Laser Scan Ltd	Medical Supplies and Equipment, Water and Sanitation	387,093			
Link In Ltd	Construction Services	419,477			
Logitech Computers	Clothing and Footwear, Communication Equipment, IT and Office Supplies, Medical Supplies and Equipment, Printing, Water and Sanitation	188,610			
Magnum Engineering and Construction Ltd	Construction Services	1,914,816			
Megapower Engineering Ltd	Power Generation, Water and Sanitation	169,410			
Modern Graphics Stationery Supply	Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Nutrition, Printing, Shelter/Field Equipment, Water and Sanitation	1,184,568			
Navana Toyota 3S Center	Transport	276,106			
Orchid Printers	Education Supplies, Printing	403,177		136,896	
Partex Furniture Industries Ltd	IT and Office Supplies	133,714		299	
Pleiades Construction and Consulting Ltd	Construction Services	495,473			
Prince Trade International	Education Supplies, Shelter/Field Equipment, Water and Sanitation	307,910			
Priyanka Printing and Publications	Education Supplies, Printing	124,188			
Pulse Construction Pvt Ltd	Construction Services	675,859			
Renata Ltd	Nutrition, Pharmaceuticals	84,157		1,043,632	
RFL Plastics Ltd	Education Supplies, Nutrition, Warehousing, Water and Sanitation	516,584			
Rise Up Labs	Information and CommunicationTechnology Services	290,752			
Robi Axiata Ltd	Information and CommunicationTechnology Services, IT and Office Supplies	251,168			
Rohan Fashion	Clothing and Footwear, Water and Sanitation	377,018			
Ruposhi Bangla Hotel	Real Estate Services			498,211	
SRTrade International	Education Supplies	135,182			
Salvation Logistics Ltd	In-Country Logistics and Warehousing Services	597,376			
SBTel Enterprises Ltd	Communication Equipment, IT and Office Supplies	196,584			
Sherpa Power Engineering Ltd	Communication Equipment, Facility Maintenance and Repair, Power Generation, Water and Sanitation	976,109			
Sonargaon Hotel	Travel, Food and Lodging	78,571		33,083	
Square Pharmaceuticals Ltd	Pharmaceuticals	16,219		84,155	
Steelmark Building Ltd	Construction Services	439,977			
Surch	Research, Surveys, Monitoring and Evaluation Services	457,632			
Team Creative	Research, Surveys, Monitoring and Evaluation Services	142,271			
Team Engine Ltd	Research, Surveys, Monitoring and Evaluation Services	102,202			
BELARUS					
RT Projects	Information and CommunicationTechnology Services			292,700	
BELGIUM					
Alpinter SA NV	Shelter/Field Equipment, Water and Sanitation			4,798,910	
Becton Dickinson International	Medical Supplies and Equipment			8,865,891	
Bolloré Logistics Belgium NV	International Freight			9,836,373	
Cigna International Health Services	Finance and Insurance Services			238,475	
GlaxoSmithKline Biologicals SA	Vaccines/Biologicals			348,142,192	
Health Research for Action (HERA)	Research, Surveys, Monitoring and Evaluation Services			284,569	
Insites Consulting NV	Research, Surveys, Monitoring and Evaluation Services			227,002	

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Institute of Tropical Medicine	Research, Surveys, Monitoring and Evaluation Services				110,277
Janssen Pharmaceutica NV	Pharmaceuticals				2,600,183
Michiels Fabrieken NV	Nutrition				2,690,959
MSF Supply Scrl-Cv	Nutrition, Pharmaceuticals				284,630
Purna Pharmaceuticals NV	Pharmaceuticals				1,567,825
Social Policy Research Institute	Research, Surveys, Monitoring and Evaluation Services				109,210
Transtec NA	Research, Surveys, Monitoring and Evaluation Services				107,558
Vivium SA- New Pv Assurance	Real Estate Services				107,368
BENIN					
Imprimerie Gutenberg	Communications, Design and Printing, Printing				149,083
Imprimerie Nomade	Education Supplies, Printing				262,299
Multi Services Assistance	Safety and Security Services				203,630
BOLIVIA (PLURINATIONAL STATE OF)					
Agencia de Viajes y Turismo	Travel, Food and Lodging				247,264
Cooperativa de Servicios Públicos Montero Ltda	Water and Sanitation Related Services				239,000
BOSNIA AND HERZEGOVINA					
Communis Media DOO	Travel, Food and Lodging				162,075
BOTSWANA					
Brastorne Enterprises	Communications, Design and Printing				115,172
Devon Investments (Pty) Ltd	Real Estate Services				108,263
BRAZIL					
Bio Manguinhos	Vaccines/Biologicals				362,405
By Side Face To Face Serviços Administrativos Ltda	Public Relations and Fundraising				792,764
Estilo Telemarketing e Consultoria Ltda	Public Relations and Fundraising				1,807,308
Flex Gestão de Relacionamentos SA	Public Relations and Fundraising				109,373
Fundação Para o Desenvolvimento Científico e Tecnológico em Saúde FIO	Research, Surveys, Monitoring and Evaluation Services				110,302
ID Publicidade E Propaganda Ltda	Public Relations and Fundraising				306,609
IlhaSoft Tecnologia da Informação Ltda	Information and CommunicationTechnology Services				8,351 254,998
Ppr Profissionais de Pulicidade Reunidos SA	Communications, Design and Printing				335,894
Sollo Brasil Servicos de Call Center	Public Relations and Fundraising				299,962
Visão de Administração e Construção Lt	Facility Maintenance and Repair				117,819
BURKINA FASO					
AMD	Research, Surveys, Monitoring and Evaluation Services				45,430 298,949
Atelier de Soudure Wend-Panga	Education Supplies, In-Country Logistics and Warehousing Services, IT and Office Supplies, Printing, Transport, Water and Sanitation				112,782
BERA	Water and Sanitation Related Services				100,037
EGCE SARL	Construction Services				414,248
Eng Entreprise Nouvelle	Construction Services				411,078
Eniam-Bâtiment SARL	Education Supplies, IT and Office Supplies				114,009 2,118
Entreprise de Gardiennage	Safety and Security Services				235,819
Entreprise Générale de Services Hydrauliques et du Bâtiment	Construction Services				190,524
FGZTrading	Clothing and Footwear, Communications, Design and Printing, Education Supplies, Identification and Signage, Printing				171,492
General Prestation et Service	Construction Services				322,536
Hydrass Burkina	Construction Services				814,964

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Innofaso SA	Nutrition	5,452,790			
Institut Supérieur des Sciences	Research, Surveys, Monitoring and Evaluation Services	202,238			
ISSP Projet de Recherche	Research, Surveys, Monitoring and Evaluation Services	125,882			
Karal International	Construction Services	185,874			
Media'Stat - Burkina Faso	Communications, Design and Printing, IT and Office Supplies, Printing, Water and Sanitation	380,716			
Saat SA	Water and Sanitation Related Services	134,507			
Sogli Pangueba Mohamed	Real Estate Services	149,191			
Tembalk SARL	Construction Services	411,221			
Temfor	Water and Sanitation Related Services	133,633			
BURUNDI					
BRA Manufacturing SURL	Construction, Education Supplies, Medical Supplies and Equipment, Nutrition, Printing, Shelter/Field Equipment, Staff Supplies, Water and Sanitation	154,063			
BGBS Solutions	Construction, Education Supplies, IT and Office Supplies, Printing, Shelter/Field Equipment	115,797			
Bolloré Africa Logistics	In-Country Logistics and Warehousing Services	327,744			
Camebu	In-Country Logistics and Warehousing Services	125,187			
Cocogel	Construction Services	1,215,690			
Cofoumat	Construction Services	318,083			
Dac	Construction Services	1,309,246			
Delta Construction SA	Construction Services	810,668			
ECL	Construction Services	254,571			
EEPMM	Construction Services	121,147			
Estragechy	Construction Services	864,819			
Etret	Construction Services	664,662			
Ets Ndikumana Evariste	Education Supplies, IT and Office Supplies, Others	147,099			
Hope Design	Identification and Signage, Printing	401,695			
Interpetrol	Fuel and Lubricants	120,579			
Maison Electro Xerographic Mex	Education Supplies, Facility Maintenance and Repair, IT and Office Supplies, Printing	402,478			
Niyizonkiza Ernest	Clothing and Footwear, Construction, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Others, Printing, Shelter/Field Equipment, Staff Supplies, Water and Sanitation	179,047			
Nziraguhindwa Jean Pierre	In-Country Logistics and Warehousing Services, Travel, Food and Lodging	573,536			
Progimmo SA	Real Estate Services	575,328			
Seber	Construction Services	893,102			
Tramwex	Travel, Food and Lodging	380,300			
Utema Travhydro	Water and Sanitation	301,289			
CAMBODIA					
Havas Champagne Co Ltd	Communications, Design and Printing	119,416			
Hongkong Land Premium Investments	Real Estate Services	269,040			
CAMEROON					
Accenture SARL	Travel, Food and Lodging	120,574			
Afronet International SARL	Construction Services	169,166			
CGC Cam China Geo Engineering in Cameroon	Water and Sanitation Related Services	263,463			
Dak Services	Safety and Security Services	411,594			
Damco	In-Country Logistics and Warehousing Services	497,510	178,032		
Ets 2Er	Water and Sanitation Related Services	151,151			
Ets Structures	Water and Sanitation Related Services	416,903			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
ETS Studio Design Graphic	Printing				163,486
Institut de Formation et de Recherche Demographiques	Research, Surveys, Monitoring and Evaluation Services				200,457
Intellect Consulting SARL	Construction Services				222,209
Kalfrelec SARL	Facility Maintenance and Repair				394,423
Lmt Group Axess SA	Information and Communication Technology Services				103,193
Maison du Plastic	Nutrition				318,493
MTA	In-Country Logistics and Warehousing Services, Others				171,501
Oversee Advising Group	Research, Surveys, Monitoring and Evaluation Services				204,283
Prima Dee Lite Plastics Pvt Ltd	Water and Sanitation				128,353
Société Camerounaise de Raffi. Maya and Co SA	Water and Sanitation				255,705
Société Snob's Bazar Center SA	IT and Office Supplies, Nutrition, Printing, Shelter/Field Equipment, Water and Sanitation				133,384
Sol Solution Afrique Centrale	Water and Sanitation Related Services				263,963
TOTAL	Fuel and Lubricants, Others, Power Generation				126,765
CANADA					
Accucaps Industries Ltd	Pharmaceuticals				616,167
Ada Consultants Inc	Research, Surveys, Monitoring and Evaluation Services				172,820
Calibrate Solutions Inc	Research, Surveys, Monitoring and Evaluation Services				124,725
Consol Giving Inc	Public Relations and Fundraising				9,900
Deloitte LLP	Research, Surveys, Monitoring and Evaluation Services				370,900
Dundex	Local Technical Workforce for Programme Execution				1,442,852
Echidna Corp	Information and Communication Technology Services				191,550
Ellicom	Information and Communication Technology Services				452,074
Goss Gilroy Inc	Research, Surveys, Monitoring and Evaluation Services				114,985
Hootsuite Media Inc	Communications, Design and Printing				105,257
International Centre for Disability	Research, Surveys, Monitoring and Evaluation Services				193,980
Intervax	Vaccines/Biologicals				6,396,113
Le Groupe-Conseil Baastel Itée	Research, Surveys, Monitoring and Evaluation Services				104,710
Mother and Child Care and Research	Research, Surveys, Monitoring and Evaluation Services				150,000
Nutricorp International	Pharmaceuticals				364,760
OpenText Corp	Information and Communication Technology Services, IT and Office Supplies				156,492
Universalia Management Group	Research, Surveys, Monitoring and Evaluation Services				181,545
Voto Mobile	Communications, Design and Printing, Research, Surveys, Monitoring and Evaluation Services				324,009
CENTRAL AFRICAN REPUBLIC					
Alpha Constructions	Construction Services				136,006
Bolloré Africa Logistics Centrafrique	In-Country Logistics and Warehousing Services				211,108
Colalu	Education Supplies, Nutrition				382,210
Complexe Scolaire International Galaxy	Travel, Food and Lodging				158,827
Groupe Sylva SARL	Construction Services, Transport				173,173
GSM Construction SARL	Construction Services, Travel, Food and Lodging				128,797
La King Security Service	Safety and Security Services				130,610
Power's Sécurité	Safety and Security Services				113,104
Tradex Centrafrique SA	Fuel and Lubricants				205,231
CHAD					
Association Tchadienne pour la Promotion des Entreprise en Forages	Water and Sanitation Related Services				110,600
Aubaine Graphic	Education Supplies, Identification and Signage, IT and Office Supplies, Others, Printing				224,533

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
CFAO Motors	Transport, Water and Sanitation	223,169			
Deloitte Tchad	Finance and Insurance Services	144,891			
Ecomaf	Construction Services	237,131			
Entreprise Ab-Derwe	Construction Services, Fuel and Lubricants, In-Country Logistics and Warehousing Services, Transport, Water and Sanitation	322,096			
Ets Fils Djambo SARL	Travel, Food and Lodging	300,968			
Ets Algawane Commerce Generale	Clothing and Footwear, Construction Services, Education Supplies, Facility Maintenance and Repair, Identification and Signage, IT and Office Supplies, Medical Supplies and Equipment, Shelter/Field Equipment, Transport, Water and Sanitation	205,974			
Ets Chema- Cherif Malik	Clothing and Footwear, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Transport, Water and Sanitation	141,104			
Ets Mahamat Moussa Djoko	Education Supplies, IT and Office Supplies, Printing, Shelter/Field Equipment, Water and Sanitation	306,684			
Ets Moustapha Ali	Communication Equipment, Education Supplies, IT and Office Supplies, Printing, Warehousing	127,776			
Garantie Sécurité Privée	Safety and Security Services	245,509			
Geyser SA	Construction Services	239,854			
Groupe Almabroukh	Travel, Food and Lodging	608,096			
Imprimerie Du Tchad	Communications, Design and Printing	110,135			
Ledger Plaza N'Djamena	Travel, Food and Lodging	107,547			
Magic Graphics SARL	Clothing and Footwear, Communications, Design and Printing, Identification and Signage, IT and Office Supplies, Printing	108,137			
Malack SARL	Construction Services, IT and Office Supplies, Medical Supplies and Equipment	190,156			
Mosaic International	In-Country Logistics and Warehousing Services	266,268			
NECOBAG	Construction Services	185,969			
Preston International	Fuel and Lubricants, Transport	105,266			
Sanimex	In-Country Logistics and Warehousing Services	200,365			
SARL Ingénierie Design Construction	Construction Services	161,873			
Sci Wouri Les Residences Wouri	Real Estate Services	389,359			
Sebc Sa/Ca	In-Country Logistics and Warehousing Services, IT and Office Supplies	171,038			
STAT	In-Country Logistics and Warehousing Services	453,025			
CHILE					
Innovación Social y Fundraising SP	Public Relations and Fundraising	2,020,185	140,000		
Más Cerca Call Center SA	Public Relations and Fundraising	205,371			
Pontificia Universidad Católica de Chile	Research, Surveys, Monitoring and Evaluation Services	100,619			
Proa Chile Spa	Public Relations and Fundraising	804,992			
Recursos Fernando Cáceres Bofill Ei	Public Relations and Fundraising	843,087			
CHINA					
A Andrews & Co Ltd	Communication Equipment, IT and Office Supplies, Medical Supplies and Equipment, Water and Sanitation	48,761	688,885		
Alimama.Com	Public Relations and Fundraising	167,264			
Anhui Tiankang Medical Products Co	Medical Supplies and Equipment		2,490,733		
AUCMA Co Ltd	Cold Chain Equipment		161,499		
B&F International Trade	Education Supplies		1,286,595		
Baidu.comTimes	Public Relations and Fundraising	199,168			
Beijing DDB Needham Advertising Co Ltd	Public Relations and Fundraising	1,627,688			
BJ Housing Service Corporation for Diplomatic Missions	Real Estate Services, Travel, Food and Lodging	163,139			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Chengdu Institute of Biological Products	Vaccines/Biologicals				679,102
Child Frontiers Ltd	Research, Surveys, Monitoring and Evaluation Services			641,888	89,581
Dandong Huayi Economic Trade Corp	Medical Supplies and Equipment, Water and Sanitation			294,143	
Dandong Jili Trading Co Ltd	Clothing and Footwear, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Shelter/Field Equipment, Transport, Water and Sanitation	495		689,731	
Dandong Jinhui Trade Co Ltd	Education Supplies, Medical Supplies and Equipment, Water and Sanitation			761,960	
Dandong Zhongwei Industrial Trading Corp	IT and Office Supplies, Medical Supplies and Equipment, Transport, Water and Sanitation			344,841	
Euro Suisse International Ltd	Communication Equipment, Education Supplies				413,585
Fosun Pharmaceutical Distribution Jiangsu Co Ltd	Pharmaceuticals				326,046
Gemini Global Ltd	Education Supplies, Identification and Signage				3,169,995
Group M Shanghai Advertising Co Ltd Beijing Branch	Public Relations and Fundraising			1,480,259	
Guangzhou Yuexiu District Cheng Zha Tian Kong Social Work Service Center	Research, Surveys, Monitoring and Evaluation Services			127,045	
Guerbet Asia Pacific Ltd	Pharmaceuticals				186,111
Guilin Pharmaceutical Co Ltd	Pharmaceuticals				3,282,350
Haier Medical and Laboratory Products Co Ltd	Cold Chain Equipment, Facility Maintenance and Repair			19,884	6,304,112
Hangzhou Cereals Oils and Foodstuffs Import and Export	Education Supplies, Identification and Signage, IT and Office Supplies, Printing, Water and Sanitation			161,350	4,549,616
Hangzhou Howell Industrial Co Ltd	Education Supplies, Identification and Signage, IT and Office Supplies, Water and Sanitation				1,146,572
ITI Co (Shanghai) Ltd	Education Supplies, Medical Supplies and Equipment			4,396	319,977
Jinhua Fengyun Import and Export Trade Co	Clothing and Footwear, Communication Equipment, Education Supplies, IT and Office Supplies, Others			100,172	
Jinhua Longtai Import and Export Trading	Education Supplies, Identification and Signage, IT and Office Supplies, Water and Sanitation			2,181,250	5,411,155
Lightning Stone Brand Consultant	Public Relations and Fundraising			115,575	
Moneray International Ltd	Medical Supplies and Equipment				470,774
Ningbo Binbin Stationery Co Ltd	Education Supplies, IT and Office Supplies			2,608,859	189,753
North China Pharmaceutical Co	Pharmaceuticals				1,701,512
Peak International Trade (Tianjin)	Communication Equipment, Medical Supplies and Equipment, Others, Power Generation, Transport, Warehousing			4,165,042	1,842,125
Qingdao Narising International Trade Co Ltd	Medical Supplies and Equipment				827,502
Qingdao Te Mai Pu Industrial Equipe	Cold Chain Equipment			104,060	
Reyoung Pharmaceutical Co Ltd	Pharmaceuticals				4,944,907
Sagaci Research Ltd	Research, Surveys, Monitoring and Evaluation Services				127,750
Shanghai Lika Plastic Pallet Manufacturing Co Ltd	Transport				394,963
Shenzhen Zhijun Medical and Pharmaceutical Trading Co Ltd	Pharmaceuticals				144,000
Tianjin Yorkool International	Bednets/Insecticides				4,092,502
Top SourcesTrading Ltd	Education Supplies, Identification and Signage				219,882
Wuyi Anbo Medical Equipment Manufacturing Co Ltd	Medical Supplies and Equipment				1,988,316
Xinjiang International Economic Cooperation Corp	Clothing and Footwear, Communication Equipment, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Water and Sanitation			262,327	50,503
Xinyuan Prime Technology Ltd	Public Relations and Fundraising			164,200	
Yangzhou Daintybird Funeral	Medical Supplies and Equipment				225,105

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Zhejiang E-Bang Outsourcing and Trade Co Ltd	Education Supplies				1,946,230
Zhejiang Medicines and Health	Medical Supplies and Equipment	166,339		93,116	
COLOMBIA					
21 Capital Management SAS	Public Relations and Fundraising	450,110			
Agencia Pandi	Communications, Design and Printing	176,264			
CI Colvazca Ltd	Communication Equipment, Education Supplies, IT and Office Supplies, Printing			273,275	
Comercializadora y Distribuidora de Productos Para el Hogar Codigar Sas	Education Supplies, Others, Printing, Transport	215,433			
Consucol SAS	Research, Surveys, Monitoring and Evaluation Services	501,712			
Corporación Mixta Para la Investigación y Desarrollo de la Educación Corpoeduc	Communications, Design and Printing			132,848	
Danone Baby Nutrition Colombia SAS	Nutrition			188,130	
Digital 57 SAS	Public Relations and Fundraising	133,738			
Digitos y Diseños Industria Gráfica	Printing			204,267	
Econometría SA	Research, Surveys, Monitoring and Evaluation Services			233,842	830,015
Empresa de Obras Sanitarias de la Provincia de Obando Empoobando ESP	Water and Sanitation Related Services	111,317			
Ese Hospital Jorge Cristo Sahium Vi del Rosario	Research, Surveys, Monitoring and Evaluation Services	124,758			
Ficonpaz Fundación Instituto para la Construcción de La Paz	Consultancy Services			156,017	
Global Fundraising SAS	Public Relations and Fundraising	160,759			
International Fundraising Colombia SAS	Public Relations and Fundraising			774,480	
Netbangers	Communications, Design and Printing	206,101			
PHD Colombia SAS	Public Relations and Fundraising	258,481			
Proyectos y Construcciones Cuellar	Facility Maintenance and Repair			489,294	
Ravess Colombia SAS	Public Relations and Fundraising	156,743			
Somos Sostenibles SAS	Public Relations and Fundraising	191,869			
Ventas y Servicios SA	Public Relations and Fundraising	1,522,678			
COMOROS					
Abasse Cheikh SARL	IT and Office Supplies, Transport	144,918			
Alcamar Immobilier	Construction Services	148,519			
Comores Informatique Service	Education Supplies, IT and Office Supplies	236,216			
CONGO					
SDV Congo	In-Country Logistics and Warehousing Services	108,170			
CÔTE D'IVOIRE					
Abeda SARL	Construction Services	452,523			
Agence Charlestown Location	Others, Travel, Food and Lodging	280,907	323		
Auditeurs Associés en Afrique	Finance and Insurance Services	152,205			
Batiment Travaux Publics	Construction Services, Facility Maintenance and Repair	468,348			
Bolloré Africa Logistics Ci	In-Country Logistics and Warehousing Services	1,353,412			
CMBTP	Construction Services	439,796			
Conceptos Plásticos Côte d'Ivoire	Water and Sanitation	5,002,791			
Diabate Ibrahima (Diabate Location)	Travel, Food and Lodging	132,680			
Enterprise 2 AA Services	Travel, Food and Lodging	218,443			
Entreprise E Imprim	Communications, Design and Printing, IT and Office Supplies, Printing	140,178			
Entreprise Isfod SARL	Research, Surveys, Monitoring and Evaluation Services	172,684			
Entreprise Kablan A Simone	Construction Services, Facility Maintenance and Repair	224,473			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Ephata Entreprise	Water and Sanitation Related Services				161,708
Grafica Ivoire	Clothing and Footwear, Communication Equipment, Education Supplies, IT and Office Supplies, Printing, Shelter/Field Equipment, Water and Sanitation				676,733
Group 4 Securicor	Safety and Security Services				147,264
Hooda Graphics	Communications, Design and Printing, IT and Office Supplies, Printing				104,182
Ingenierie Conseils et Prestations	Construction Services				324,843
MTN Ci	Communication Equipment, Communications, Design and Printing, Facility Maintenance and Repair, Safety and Security Services				324,177
Nouvelle Société Publicité et Promotion par l'Objet	Communications, Design and Printing				134,090
Synergie Expertise SARL	Research, Surveys, Monitoring and Evaluation Services				82,711 119,740
CUBA					
Empretur	Travel, Food and Lodging				128,816
CYPRUS					
Camp Operating Group Ltd	Travel, Food and Lodging				127,760
Remedica Ltd	Pharmaceuticals				4,976,204
CZECHIA					
Papirny Brno AS	Education Supplies, Printing				216,153
SVOS Spol Sro	Transport				580,394
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA					
Hongkong Miaoxin International Trading Co Ltd	Clothing and Footwear, Printing, Water and Sanitation				344,072
Korea Diplomatic Corps Friendship Import Corp	Fuel and Lubricants				115,486
Korea EurasiaTrading Co	Fuel and Lubricants, In-Country Logistics and Warehousing Services, IT and Office Supplies, Water and Sanitation				652,820
DEMOCRATIC REPUBLIC OF THE CONGO					
Airtel Congo RDC Sa (Celtel Congo)	Information and Communication Technology Services				263,662
Assistance Globale pour l'Idéal Santé	Water and Sanitation Related Services				149,689
Association pour la Promotion des Vulnérables et d'Appui à la Mobilisation des Actions Communautaires	Water and Sanitation Related Services				115,740
AT Services	In-Country Logistics and Warehousing Services				136,074
Bilem Impressions	Communications, Design and Printing, Printing, Water and Sanitation				216,078
Bolloré Africa Logistics Pva	In-Country Logistics and Warehousing Services				1,155,741
Castor Networks RDC SARLU	Information and Communication Technology Services				112,050
Congo Broadband Network SARL	Information and Communication Technology Services				140,000
Delta Protection	Safety and Security Services				162,210
Engen DRC	Fuel and Lubricants, Medical Supplies and Equipment				156,973
Ets Lofils	In-Country Logistics and Warehousing Services, Real Estate Services				2,004,687
Ets Mtk Fils	In-Country Logistics and Warehousing Services				106,203
Ets Alkam Mbaji Mayi	Fuel and Lubricants				120,330
Ets Badjembe Okonda	In-Country Logistics and Warehousing Services				1,726,330
Ets Beng Press	Printing				221,177
Ets Kivu Motor	Facility Maintenance and Repair, Power Generation, Transport				204,684
Ets La Comète	In-Country Logistics and Warehousing Services				102,323
Ets Mk Service	Transport				163,942
Ets Mwenge	In-Country Logistics and Warehousing Services				392,797
Fonds de Développement des Services de Santé	Research, Surveys, Monitoring and Evaluation Services				327,495

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Forcier Consulting LLC	Research, Surveys, Monitoring and Evaluation Services	213,430	28,520		
Génie de Construction du Kasai	Construction Services	308,672			
Getraco	Water and Sanitation, Water and Sanitation Related Services	1,016,469			
Go Shop	Construction Services, Facility Maintenance and Repair, Safety and Security Services	721,656			
Gomair	In-Country Logistics and Warehousing Services	361,014			
Graphic Systems	Communications, Design and Printing, IT and Office Supplies, Printing	216,156			
Groupe Transport Multimodal	In-Country Logistics and Warehousing Services	1,314,633			
HP Gauff Ingenieure GmbH And Co Kg	Water and Sanitation Related Services	196,650			
Human Dignity in the World	Facility Maintenance and Repair	510,378			
Hydraulique pour Développement Rurale Congo	Water and Sanitation-Related Services	172,713			
Immotex Congotex	Real Estate Services	1,085,750			
Innovative Hub for Research in Africa SARL	Research, Surveys, Monitoring and Evaluation Services	539,275			
Instaprint	Identification and Signage, Printing	721,741			
Iyakin	Construction Services, Water and Sanitation Related Services	191,147			
Lav Business- Services	Communication Equipment, IT and Office Supplies, Water and Sanitation	100,360			
Magenta Protection and Gardiennag	Safety and Security Services	268,458			
Maison ML	In-Country Logistics and Warehousing Services, Medical Supplies and Equipment, Water and Sanitation	618,307			
Maison Shambo	In-Country Logistics and Warehousing Services, Travel, Food and Lodging	149,100			
Okapi Logistique	In-Country Logistics and Warehousing Services	210,755			
Prodimpex	Identification and Signage, In-Country Logistics and Warehousing Services, IT and Office Supplies, Power Generation, Shelter/Field Equipment, Transport, Water and Sanitation	1,707,410			
Programme de Recherche et d'Appui au Développement Communautaire Pradec	Water and Sanitation Related Services	465,100			
Quincaillerie Atlas de Secteur	IT and Office Supplies, Medical Supplies and Equipment, Power Generation, Staff Supplies, Water and Sanitation	551,606			
Quincaillerie Galaxy	Education Supplies, Medical Supplies and Equipment, Others, Printing, Shelter/Field Equipment, Staff Supplies, Water and Sanitation	141,569			
Quing Mat	Construction, IT and Office Supplies, Medical Supplies and Equipment, Printing, Staff Supplies, Water and Sanitation	300,647			
Salama Shop	Education Supplies, Medical Supplies and Equipment, Others, Staff Supplies, Water and Sanitation	140,306			
Secofic SARL	Finance and Insurance Services	548,285			
Services Air	In-Country Logistics and Warehousing Services	3,936,350			
Société Stefa SARL	Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Printing, Shelter/Field Equipment, Staff Supplies, Water and Sanitation	395,863			
Sodeico SPRL	Local Technical Workforce for Programme Execution	7,196,936			
Trasco	Water and Sanitation Related Services	358,400			
UAC SPRL	Education Supplies, IT and Office Supplies, Nutrition, Shelter/Field Equipment, Warehousing	320,159			
United States Contracting and Trading	Communication Equipment, Education Supplies, IT and Office Supplies, Power Generation, Water and Sanitation	118,965			
Vodacom Congo (RDC) SPRL	Information and Communication Technology Services	124,080			
DENMARK					
AJ Vaccine A/S	Vaccines/Biologicals	179,280			
Ambu A/S	Medical Supplies and Equipment	1,332,310			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Atea A/S	Communication Equipment, Information and Communication Technology Services, IT and Office Supplies, Transport				676,735 9,162,275
Baltic Control Ltd Aarhus	Quality Assurance, Laboratory and Inspection Services				154,284 224,236
Boss Co ApS	IT and Office Supplies				106,815 119,134
Canon Danmark A/S	IT and Office Supplies, Transport				14,316 310,084
Copenhagen Global A/S	Cold Chain Equipment, Transport				1,401,400
Damco International A/S	International Freight				16,266,844
Danimex Communication A/S	Communication Equipment, IT and Office Supplies, Transport				52,197 723,505
Danish Refugee Council	Finance and Insurance Services				100,769
Danoffice ApS	IT and Office Supplies, Transport				231,956 1,497,815
Dege Consult ApS	Research, Surveys, Monitoring and Evaluation Services				103,681
Fresenius Kabi	Pharmaceuticals				863,441
Gemini Koncept Huset A/S	Identification and Signage				117,007
H Jessen Jürgensen A/S	Cold Chain Equipment				571,547
Jacobsen Catering Service ApS	Travel, Food and Lodging				151,941
Johns Gram-Hanssen A/S	In-Country Logistics and Warehousing Services, Power Generation, Water and Sanitation				87,502 58,496
Jytas Projekt III ApS	Facility Maintenance and Repair, Real Estate Services				884,503
Kjaer Group A/S	Transport				1,247,475
Kjøller and Krogh A/S	Facility Maintenance and Repair				307,580
Kronlein Import and Export Agencies	Nutrition				794,428
Kuehne + Nagel A/S	In-Country Logistics and Warehousing Services, International Freight				1,955,152 20,605,625
Lekapharm A/S	Pharmaceuticals				718,775
Missionpharma A/S	Medical Supplies and Equipment				758,959
Panalpina Denmark	International Freight				3,327,143
Personale-Service Humanizer ApS	Local Technical Workforce for Programme Execution				957,530
Peter Justesen Co A/S	Communication Equipment, IT and Office Supplies				116,312 400,860
Scan Global Logistics A/S	In-Country Logistics and Warehousing Services, International Freight				656,182 30,612,603
Select Sport A/S	Education Supplies				251,009
SSI Schäfer A/S	Facility Maintenance and Repair, IT and Office Supplies				2,636,057
Vestfrost A/S	Cold Chain Equipment, Facility Maintenance and Repair				21,644,390
DJIBOUTI					
Papeteri-Bureautique-Informatique S	Communication Equipment, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment				317,973
DOMINICAN REPUBLIC					
Vinema SRL	Construction, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment				126,078
ECUADOR					
Amgccs Comunicaciones Amg Contact Solutions	Public Relations and Fundraising				100,000
Byphone CIA Ltd	Public Relations and Fundraising				129,351
Global Fundraising Sac	Public Relations and Fundraising				160,000
Negocios Trade Hunter CIA Ltda	Public Relations and Fundraising				170,308
EGYPT					
Arx Egypt	IT and Office Supplies, Printing				903,513
Bakier Stationery	Clothing and Footwear, Education Supplies, Medical Supplies and Equipment				445,730
Bee Media Productions	Communications, Design and Printing				203,768
Center for Development Services	Local Technical Workforce for Programme Execution				211,727
Contrade Engineers and Contractors	Construction Services				299,770

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Educational Supplies Co	IT and Office Supplies	2,239,029			
Egypt S Generations	Research, Surveys, Monitoring and Evaluation Services	139,167			
El Zanaty and Associate LLC	Research, Surveys, Monitoring and Evaluation Services	130,473			
Electronic System Co Ltd	Safety and Security Services	237,000			
Express Media Express Media	Communications, Design and Printing	582,697			
Hama Film Production	Communications, Design and Printing	704,586			
International Audio Visual Egypt	Communication Equipment	447,336			
M Press for Supplies	Clothing and Footwear, Education Supplies, Printing	304,950			
Mohamed Helmy Atia Elfeky	Clothing and Footwear, Shelter/Field Equipment	478,954			
Nablico	IT and Office Supplies	415,115			
Online for Supplies	Communication Equipment, IT and Office Supplies	277,536			
Team Young and Rubicam	Communications, Design and Printing	110,668			
The Family Hub	Research, Surveys, Monitoring and Evaluation Services	153,960			
EL SALVADOR					
Interalia Ltda de CV	Real Estate Services	110,000			
ERITREA					
Africa Car Rental	Travel, Food and Lodging	986,942			
Lilo Transport Plc	Business Administration Services, In-Country Logistics and Warehousing Services	312,907			
Red Cross Society of Eritrea	Real Estate Services	269,897			
Warsa Enterprises Plc	Safety and Security Services	629,719			
ESTONIA					
Foundation Innove	Local Technical Workforce for Programme Execution	110,039			
ETHIOPIA					
Abem Industries Plc	Water and Sanitation	418,940			
ABH Services Plc	Research, Surveys, Monitoring and Evaluation Services	812,987			
Adiamat EthiopiaTour and Travel Agency	Travel, Food and Lodging	243,152			
AdiamatTrading Plc	Water and Sanitation Related Services	1,823,270			
Argon Trading	Communication Equipment, Education Supplies, IT and Office Supplies, Nutrition, Others, Shelter/Field Equipment, Water and Sanitation	297,967			
Atlantic FreightTransport	In-Country Logistics and Warehousing Services, Others	223,684			
Bags Family Construction	Shelter/Field Equipment	153,053			
BDS Center for Development	Research, Surveys, Monitoring and Evaluation Services	582,148			
Beminet Printing Press Plc	Printing	122,558			
Betelehem Admasu Gebre	Water and Sanitation	128,507			
Central Printing Press Plc	Education Supplies, Printing	162,684			
Dereje Epherem Nuder Construction	Construction Services	2,177,466			
Diligent Construction Plc	Construction Services	1,046,992			
Dtwins Consulting Engineers Plc	Construction Services	190,039			
Edomias International Plc	Facility Maintenance and Repair	146,678			
Elixir Research and Consultancy Plc	Research, Surveys, Monitoring and Evaluation Services	360,102			
Eternal Media and Promotion Plc	Communications, Design and Printing	115,569			
Falcon Printing Enterprise Plc	Others, Printing	153,843			
FE Engineering Plc	Water and Sanitation Related Services	265,670			
Helena Soap Factory	Clothing and Footwear, IT and Office Supplies, Medical Supplies and Equipment, Nutrition, Shelter/Field Equipment, Staff Supplies, Water and Sanitation	423,540			
Hilina Enriched Foods Plc	Nutrition, Printing	6,819,344			
JMBS Import	Water and Sanitation	281,141			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
LendoTour Travel and Car Rent	Travel, Food and Lodging				529,582
Lonadd Consultancy Plc	Local Technical Workforce for Programme Execution				3,046,691
Lot Trading Plc	Water and Sanitation				163,293
Makib Construction	Construction Services				421,044
Maky TX Trading	Communication Equipment, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Printing, Water and Sanitation				377,430
Mandhana Industries Plc	Water and Sanitation				353,484
Mekonnen Seid Private Freight	In-Country Logistics and Warehousing Services				138,494
Meseret Mekonnen Pvt Ent	Clothing and Footwear, Medical Supplies and Equipment, Nutrition, Power Generation, Shelter/Field Equipment, Staff Supplies, Water and Sanitation				278,802
Ministry of Communication and Information Technology	Information and Communication Technology Services				142,015
Moenco	Business Administration Services, Transport				109,748
New Generation Logistics and HR Management Plc	Local Technical Workforce for Programme Execution				157,014
Nobi General Business Plc	Clothing and Footwear, Water and Sanitation				202,772
Oasis Abyssinia Plc	Clothing and Footwear, IT and Office Supplies, Medical Supplies and Equipment, Shelter/Field Equipment, Water and Sanitation				552,881
Region 5 Transport and Construction	In-Country Logistics and Warehousing Services, Travel, Food and Lodging				1,202,094
Rehobot Printers Plc	Education Supplies, Printing				242,372
Rift Valley WaterTechnology Plc	Water and Sanitation				407,079
RotoTanks Plc	Water and Sanitation				321,494
Sab Drilling and Water Works Plc	Water and Sanitation Related Services				287,913
Sahilemariam Zergawbul Contractor	Construction Services				780,070
SAK Business and Personal Development	Research, Surveys, Monitoring and Evaluation Services				1,498,359
Selam Development Consultants	Research, Surveys, Monitoring and Evaluation Services				156,768
Team Construction Engineering	Construction Services				964,750
UN Economic Commission for Africa	Communications, Design and Printing, Printing, Real Estate Services, Travel, Food and Lodging				312,693
Variety Electro Mechanical Engineer	Construction Services, Water and Sanitation Related Services				1,154,024
Wagwago Trading Plc	Water and Sanitation Related Services				1,742,555
FJJI					
Williams Gosling Ltd	In-Country Logistics and Warehousing Services				117,892
FINLAND					
Porkka Finland Oy	Cold Chain Equipment, Facility Maintenance and Repair				700,812
FRANCE					
Artemis SARL	Printing				352,265
Cayambe Partners	Research, Surveys, Monitoring and Evaluation Services				944,914
Centre International	Local Technical Workforce for Programme Execution				1,030,294
Cepheid HBDC	Medical Supplies and Equipment				1,714,857
G Feron e de Clebsattel SA	IT and Office Supplies, Shelter/Field Equipment				79,929
Hydroconseil	Research, Surveys, Monitoring and Evaluation Services				1,101,072
IECTelecom	Communication Equipment, Information and Communication Technology Services				101,453
International SOS (Assistance) SA	Local Technical Workforce for Programme Execution				232,995
Labaronne-Citaf SAS	Water and Sanitation				332,515
Laboratoire Renaudin	Pharmaceuticals				513,030
LMS World WaterTreatment	IT and Office Supplies, Medical Supplies and Equipment, Warehousing, Water and Sanitation				40,326
					313,294

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Michel Lafon Publishing SA	Printing			124,575	
Milipore	Water and Sanitation			395,241	
Nutriset SAS	Nutrition			51,557,814	
OECD	Research, Surveys, Monitoring and Evaluation Services			249,635	
Novacom Services SA	Communication Equipment, Information and Communication Technology Services	177,324		12,200	
Sanofi Pasteur	Vaccines/Biologicals			124,041,210	
Sanofi Winthrop Industrie	Pharmaceuticals			1,241,574	
Silliker SAS	Quality Assurance, Laboratory and Inspection Services			135,280	
Sofip Export	Education Supplies, IT and Office Supplies	11,093		755,857	
Sofreco	Research, Surveys, Monitoring and Evaluation Services			618,020	
Spengler SAS	Medical Supplies and Equipment			181,270	
Vergnet Hydro	Water and Sanitation			770,959	
Zhendre SA	Cold Chain Equipment, Facility Maintenance and Repair	7,936		663,215	
GEORGIA					
Curatio International Foundation	Research, Surveys, Monitoring and Evaluation Services			180,500	
The Universal Consulting	Business Administration Services	324,293			
GERMANY					
B Braun Melsungen AG	Pharmaceuticals			359,869	
Center for Evaluation and Development	Research, Surveys, Monitoring and Evaluation Services			119,900	
Chempatex Medizinische	Medical Supplies and Equipment, Nutrition			2,486,805	
Farmingtons Automotive GmbH	IT and Office Supplies, Transport			1,516,369	
Fleischhacker GmbH & Co KG	Medical Supplies and Equipment, Water and Sanitation	32,252		3,295,837	
Gauff GmbH and Co Engineering KG	Water and Sanitation Related Services			309,808	
GFA Consulting Group GmbH	Consultancy Services			155,624	
Gitec Consult GmbH	Construction Services			494,196	
GLORIA HuG GmbH	Water and Sanitation			202,828	
Helm Medical GmbH	Medical Supplies and Equipment			2,390,888	
Hyserve GmbH & Co KG	Water and Sanitation			216,175	
KBI Kunststoffbeutel Produktions GmbH & Co	Pharmaceuticals			513,085	
KD Medical GmbH Hospital Products	Medical Supplies and Equipment			9,389,604	
Lomapharm Rudolf Lohmann GmbH KG	Pharmaceuticals			5,403,401	
Mannheimer Zentrum fur Evaluation	Research, Surveys, Monitoring and Evaluation Services			282,069	
Maycoach and Co	Local Technical Workforce for Programme Execution, Research, Surveys, Monitoring and Evaluation Services	129,133		87,900	
Promens Packaging GmbH	Water and Sanitation			789,993	
Rotexmedica GmbH	Pharmaceuticals			184,091	
Sachsen Wasser GmbH	Local Technical Workforce for Programme Execution			1,381,916	
Sanavita Pharmaceuticals GmbH	Medical Supplies and Equipment			743,300	
Seca GmbH & Co KG	Nutrition			3,001,394	
Smurfit Kappa GmbH	Warehousing			725,979	
Smurfit Kappa Wellpappenwerk Waren	Warehousing			128,042	
Speedliner Mobility GmbH	Transport			693,610	
Tintometer GmbH	Water and Sanitation			329,083	
Veolia Water Technologies	Water and Sanitation			144,574	
GHANA					
Buck Press Ltd	Printing	138,219			
Calprint Ltd	Printing	165,045			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Law and Development Associates	Research, Surveys, Monitoring and Evaluation Services			207,406	
Lowe Lintas Ghana	Communications, Design and Printing			156,616	
Ogilvy Ghana Ltd	Communications, Design and Printing			171,302	
Publicis West Africa	Communications, Design and Printing			273,494	
Royal Crown Press Ltd	Printing			206,198	
STB McCann	Communications, Design and Printing			660,520	
Tilmak Complex Ltd	Construction Services			114,574	
Toyota Ghana Ltd	Transport			107,827	
University of Ghana	Research, Surveys, Monitoring and Evaluation Services			103,780	
GREECE					
Demo SA Pharmaceutical Industry	Pharmaceuticals				7,769,371
National and Kapodistrian University of Athens (Nkua)	Local Technical Workforce for Programme Execution				100,582
University of Thessaly Research Committee	Research, Surveys, Monitoring and Evaluation Services				130,353
GUATEMALA					
EDYMA SA	Real Estate Services				175,667
GUINEA					
AMA Guinée	In-Country Logistics and Warehousing Services				205,723
Areeba Guinée	Information and Communication Technology Services				165,777
Compagnie de Geo-Ingénierie de Chine	Construction Services, Water and Sanitation Related Services				736,827
Entreprise de Construction et Prest	Construction Services				423,263
LAGUIPRES-SARL International Prestation	Safety and Security Services				109,254
Palma Guinée Sheraton	Travel, Food and Lodging				143,175
Société Mahmoud Akrah SARL	Real Estate Services				101,707
Zatco GC SARL	Construction Services, In-Country Logistics and Warehousing Services, IT and Office Supplies, Water and Sanitation Related Services				213,657
HAITI					
Firmeco	Construction Services				346,350
Guynemer Développement Groupe	Research, Surveys, Monitoring and Evaluation Services				105,724
Haiti International Forwarding	In-Country Logistics and Warehousing Services				135,432
Isteah	Communications, Design and Printing				252,000
Klean-X SA	Facility Maintenance and Repair				100,465
Marcoren Construction	Construction Services				433,993
Meds and Food for Kids in Haiti	In-Country Logistics and Warehousing Services, Nutrition, Transport				927,039
PAP Sécurité Services	Safety and Security Services				529,200
Petrogaz Haiti SA	Facility Maintenance and Repair				281,589
Planconsult	Construction Services				368,554
Preble Rish Haiti SA	Construction Services				381,130
Raj Engineering	Construction Services				114,054
Total Haiti SA	Fuel and Lubricants				102,856
HONDURAS					
ANED Consultores	Research, Surveys, Monitoring and Evaluation Services				159,899
Cocatel, S de RI	Communication Equipment				183,386
INDIA					
Advantage Services	Travel, Food and Lodging				126,253
Ajanta Pharma Ltd	Pharmaceuticals				3,055,276
Ajay Industrial Corp	Water and Sanitation				854,400

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
AOV International	Cold Chain Equipment			122,021	
Apex International	Cold Chain Equipment			102,760	
Aquaplus Water Purifiers Pvt Ltd	Others, Water and Sanitation	153,705			
Ashirbad Infrastructure Services and Facilities Management Pvt Ltd	Facility Maintenance and Repair, IT and Office Supplies	529,257			
Asian Hotels (North) Ltd	Travel, Food and Lodging	103,917			
Aurobindo Pharma Ltd	Pharmaceuticals			1,485,587	
Australian Council for Educational Research	Research, Surveys, Monitoring and Evaluation Services	184,546			
Avalon Information Systems Pvt Ltd	Information and Communication Technology Services	138,594			
Bace Marketing Pvt Ltd	Business Administration Services	133,127			
Bharat Biotech International Ltd	Business Administration Services, Vaccines/Biologicals			38,104,645	
Bharti Airtel Ltd	Information and Communication Technology Services	118,405			
Blow Kings	Cold Chain Equipment, Water and Sanitation			1,640,328	
Cadila Pharmaceuticals Ltd	Pharmaceuticals			919,043	
Calibre Chemicals Pvt Ltd	Nutrition			480,560	
Cipla Ltd	Cold Chain Equipment, Pharmaceuticals			818,764	
Clinical Development Services Agency	Research, Surveys, Monitoring and Evaluation Services	300,708			
Compact India Pvt Ltd	Nutrition			3,970,816	
Corporate Housekeeping Services	Facility Maintenance and Repair	187,723			
Cox and Kings Ltd	Travel, Food and Lodging	369,374			
CreativeID Communication Pvt Ltd	Communications, Design and Printing	206,349			
Datamatics Global Services Ltd	Information and Communication Technology Services			1,172,745	
DGM India Internet Marketing	Public Relations and Fundraising	249,087			
Dhanush InfoTech Pvt Ltd	Information and Communication Technology Services	261,020			
Dull Boy Jack Productions	Communications, Design and Printing	254,472			
Embee Software Pvt Ltd	Information and Communication Technology Services	153,142			
Emcure Pharmaceuticals Ltd	Pharmaceuticals			731,190	
Ernst & Young Pvt Ltd	Research, Surveys, Monitoring and Evaluation Services	443,535			
E-Zest Solutions Ltd	Information and Communication Technology Services			1,144,278	
FDC Ltd	Pharmaceuticals			1,023,900	
Feedback Foundation Trust	Local Technical Workforce for Programme Execution	356,047			
Fountainhead Solutions Pvt Ltd	Communications, Design and Printing, IT and Office Supplies, Printing	189,163	90,858		
G4S Secure Solutions (India)	Safety and Security Services	372,595			
Galentic Pharma (India) Pvt Ltd	Pharmaceuticals			1,371,091	
GfK Mode Pvt Ltd	Research, Surveys, Monitoring and Evaluation Services	1,021,889			
Gland Pharma Ltd	Pharmaceuticals			402,840	
Gobananas	Travel, Food and Lodging	120,890			
Grasshoppers India Pvt Ltd	Communications, Design and Printing	190,329			
Green Signal Bio Pharma Pvt Ltd	Vaccines/Biologicals			1,863,936	
Haffkine Bio-Pharmaceutical Corp	Vaccines/Biologicals			10,975,580	
Hetero Labs Ltd	Cold Chain Equipment, Pharmaceuticals			4,029,240	
Hindustan Syringes and Medical	Medical Supplies and Equipment			7,332,237	
ICE Integrated Conference	Travel, Food and Lodging	151,942			
IIHMR University	Research, Surveys, Monitoring and Evaluation Services	617,487	2,804		
IMRB International	Research, Surveys, Monitoring and Evaluation Services	1,729,754			
INDEBO India Pvt Ltd	Travel, Food and Lodging	290,917			
Indeed Communications Pvt Ltd	Clothing and Footwear, Communications, Design and Printing, Travel, Food and Lodging	123,492			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Ipcia Laboratories Ltd	Pharmaceuticals				1,402,071
IPE Global Pvt Ltd	Local Technical Workforce for Programme Execution, Research, Surveys, Monitoring and Evaluation Services	6,167,380	532,121		
J Mitra and Co Ltd	Medical Supplies and Equipment			109,828	
Kaapro Management Solutions Pvt Ltd	Local Technical Workforce for Programme Execution	742,591			
Kaira District Co-operative	Nutrition			1,753,579	
Kido Enterprises	Education Supplies			371,091	
Kitchen Essential	Nutrition, Water and Sanitation			576,910	
Larsen and Toubro Ltd	Real Estate Services	105,140			
Macleods Pharmaceuticals Ltd	Pharmaceuticals			3,173,624	
MBI Kits International	Nutrition	776	187,010		
Medhavi Professional Services Pvt Ltd	Communications, Design and Printing	158,995			
Medopharm	Pharmaceuticals			5,481,408	
Meera and Ceiko Pumps Pvt Ltd	Water and Sanitation			131,252	
Mepro Pharmaceuticals Pvt Ltd	Pharmaceuticals			1,516,839	
Metamorphosis Film Junction	Communications, Design and Printing	185,834			
Micro Labs Ltd	Pharmaceuticals			4,557,755	
Milan Laboratories (India) Pvt Ltd	Pharmaceuticals			122,395	
Mylan Laboratories Ltd	Pharmaceuticals			8,243,478	
Narang Medical Ltd	Medical Supplies and Equipment			621,328	
Network for Engineering and Economics Research and Management	Research, Surveys, Monitoring and Evaluation Services	691,840			
New Dilip & Company	Identification and Signage	339,194			
New Model Impex Pvt Ltd	Communications, Design and Printing	193,398			
Nikhil Offset	Communications, Design and Printing	407,685	3,458		
Nilkamal Ltd	Cold Chain Equipment			205,411	
Nuflower Foods and Nutrition Pvt Ltd	Nutrition			2,359,084	
Nutrivita Foods Pvt Ltd	Nutrition			2,819,007	
Ogilvy & Mather Pvt Ltd	Communications, Design and Printing	611,825			
Okay Call Centre Pvt Ltd	Public Relations and Fundraising	126,552			
Piramal Enterprises Ltd	Nutrition, Pharmaceuticals			1,698,246	
Population Council India	Research, Surveys, Monitoring and Evaluation Services	1,497,866			
Pragati Development Consulting	Local Technical Workforce for Programme Execution	5,245,699			
Pratibha Press and Multimedia Pvt Ltd	Communications, Design and Printing, Identification and Signage, Printing	183,542			
PricewaterhouseCoopers Pvt Ltd	Research, Surveys, Monitoring and Evaluation Services			125,505	
Primove Infrastructure	Local Technical Workforce for Programme Execution, Water and Sanitation	592,252			
R K Swamy BBDO Pvt Ltd	Communications, Design and Printing	199,113			
RB Lamination Industries Pvt Ltd	Communications, Design and Printing, Printing	117,163			
Result Service Pvt Ltd	Public Relations and Fundraising	102,889			
Ricoh India Ltd	Information and Communication Technology Services	107,389			
RN Laboratories Pvt Ltd	Pharmaceuticals			237,854	
Romsons International	Medical Supplies and Equipment			254,404	
Roots Advertising Services Pvt Ltd	Communications, Design and Printing	115,606			
Rouge Communications	Communications, Design and Printing	448,019	81,019	29,412	
Sagar Electricals	Cold Chain Equipment			327,257	
Serum Institute of India Ltd	Business Administration Services, Vaccines/Biologicals			307,810,207	
Shantha Biotechnics Ltd	Vaccines/Biologicals			44,715,532	
Shobikaa Impex Pvt Ltd	Bednets/Insecticides			2,696,283	

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Sigma Research And Consulting Pvt Ltd	Research, Surveys, Monitoring and Evaluation Services	638,480			
Sirmaxo Chemicals Pvt Ltd	Pharmaceuticals			1,136,081	
Span Pumps Pvt Ltd	Water and Sanitation			431,150	
SPC Management Services	Local Technical Workforce for Programme Execution	2,791,330			
Sports Land Overseas Pvt Ltd	Education Supplies, Identification and Signage			183,288	
SRL Ltd	Quality Assurance, Laboratory and Inspection Services	2,739,470			
Strategic Alliance Management Services Pvt Ltd	Local Technical Workforce for Programme Execution	4,235,829			
Strides Arcolab Ltd	Pharmaceuticals			2,155,370	
Sun Pharmaceutical Industries Ltd	Pharmaceuticals			498,772	
Sutures India Pvt Ltd	Medical Supplies and Equipment			165,042	
Syrex Infoservices India	Public Relations and Fundraising	263,296			
Techno Relief Overseas India Pvt Ltd	Shelter/Field Equipment, Water and Sanitation	10,813		145,012	
The Visual House	Communications, Design and Printing	195,683			
Thinktel Solutions India Pvt Ltd	Public Relations and Fundraising	1,717,101			
Tulip Diagnostics Pvt Ltd	Medical Supplies and Equipment			472,728	
Uncommonsense Films Pvt Ltd	Communications, Design and Printing	123,682			
United Poly Engineering Pvt Ltd	Medical Supplies and Equipment			211,799	
INDONESIA					
Child Frontiers Ltd	Research, Surveys, Monitoring and Evaluation Services	99,530	364,075		
Cv Intan Pasthika	Education Supplies, IT and Office Supplies	279,268			
Estetika Surya Pesona PT	Communications, Design and Printing	113,033			
Officepro	IT and Office Supplies, Water and Sanitation	210,907			
PT Bio Farma (Persero)	Vaccines/Biologicals			24,626,838	
PT Duta Mitra Alam Citra	Education Supplies	165,319			
PT Gandewa Pramanya Arta	Education Supplies, Printing	310,586			
PT Jakarta Land	Real Estate Services	348,201			
PT Karyaputra Suryagmilang	Public Relations and Fundraising	266,890			
PT Mahkota Mas Insan Persada	Information and Communication Technology Services	230,854			
PT Santulita Vikasa	Research, Surveys, Monitoring and Evaluation Services	184,585			
PT Telemarketing Indonesia	Public Relations and Fundraising	133,002			
Seameo Recfon	Research, Surveys, Monitoring and Evaluation Services	206,084			
Yayasan Lembaga Mitra Lingkungan	Research, Surveys, Monitoring and Evaluation Services	137,899			
Yayasan Pelangi Maluku	Research, Surveys, Monitoring and Evaluation Services	149,061			
IRAN (ISLAMIC REPUBLIC OF)					
BadrTech Electric Co	IT and Office Supplies	164,112			
Barin Pendar Co	Facility Maintenance and Repair	203,166			
IRAQ					
4Stin Construction Co	Water and Sanitation Related Services	105,870			
Al Adham Engineering Services Co Ltd	Education Supplies, Facility Maintenance and Repair, IT and Office Supplies, Water and Sanitation	652,385			
Al Raneen for General Contracts Ltd	Water and Sanitation	908,990			
Al Rasol Company	Construction Services	969,893			
Al Sami General Trade Co Ltd	Local Technical Workforce for Programme Execution, Safety and Security Services	2,393,468			
Al-Mansour Hotels Company	Travel, Food and Lodging	132,680			
Al-Taj Al-Murasa'A Co	In-Country Logistics and Warehousing Services	164,174			
Asiahawala for Non-Banking Financial Services Co Ltd	Finance and Insurance Services	1,142,319			
Avrest Co	Construction Services, Education Supplies	2,032,873			
Babylon Warwick Hotel	Travel, Food and Lodging	182,090			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Bawan Co	Construction Services, Shelter/Field Equipment, Water and Sanitation			187,732	
Baz Co	Water and Sanitation			590,692	
Belad Al Nasser Co	Clothing and Footwear, Cold Chain Equipment, Construction Services, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Nutrition, Printing, Shelter/Field Equipment, Warehousing, Water and Sanitation			1,109,852	
Beza Co	Staff Supplies, Water and Sanitation, Water and Sanitation Related Services			2,163,860	
Burj Al Amjad Co	Water and Sanitation Related Services			126,760	
Busriyan Co	Construction			196,200	
Dan Print Company	Printing			486,232	
Dubai Co for General Contracts	Water and Sanitation			2,227,230	
Galiawa Group	IT and Office Supplies, Nutrition, Shelter/Field Equipment	88,251		47,952	
Haji Hashim Printing Press	Printing			357,380	
Jwanishaar Co Const Road Bridge Ltd	Construction Services			733,529	
Kurds Ngo	Construction Services			148,642	
Loeloea Dejla Co	Construction Services, Water and Sanitation Related Services			379,424	
Mardeen Printing Press	Printing			215,591	
Maziland Company for Reconstruction and Housing Ltd	In-Country Logistics and Warehousing Services, Real Estate Services			264,825	
Naor Heet Co	Construction Services			108,763	
Power Men Co	Facility Maintenance and Repair			230,550	
Qimmat Al Riyada Co	Water and Sanitation Related Services			335,800	
Ronq Co	Construction Services			115,270	
Salar Prefab	Construction, Staff Supplies, Warehousing, Water and Sanitation			1,888,600	
Sayd Farhad Co	Water and Sanitation Related Services			1,177,299	
Seamax Company	Agriculture, Clothing and Footwear, Power Generation, Printing, Water and Sanitation			100,058	
Shad Co	In-Country Logistics and Warehousing Services, Water and Sanitation Related Services			711,659	
Sharany Company	Water and Sanitation Related Services			1,236,047	
Shorsh Sinjawe Co	Construction, Water and Sanitation			197,550	
Stin Company for General Trading	Clothing and Footwear, Nutrition, Pharmaceuticals, Water and Sanitation			401,586	
Taif Albark General Trading Co Ltd	Water and Sanitation			485,500	
Tareek Altebr Co	Construction Services			261,564	
Transition International	Research, Surveys, Monitoring and Evaluation Services			587,731	
Zereen Co Bakr Salo	Education Supplies, IT and Office Supplies, Shelter/Field Equipment, Staff Supplies, Water and Sanitation			434,205	
IRELAND					
Alere International Ltd	Medical Supplies and Equipment			3,750,869	
Amdipharm Ltd	Pharmaceuticals			576,000	
Facebook Ireland Ltd	Public Relations and Fundraising			151,863	
Medentech Ltd	Water and Sanitation			2,253,328	
Ovelle Ltd	Pharmaceuticals			563,616	
SRI Executive Search	Local Technical Workforce for Programme Execution			199,000	
ISRAEL					
Julie Pudlowski Consulting	Communications, Design and Printing	76,400		653,550	
ITALY					
Alfasigma SpA	Pharmaceuticals			184,022	
Arca Pumps and Energy SRL	Water and Sanitation			125,075	
Beltapharm SpA	Pharmaceuticals			539,815	

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Biologici Italia Laboratories SRL	Pharmaceuticals				177,898
Caprari SpA	Water and Sanitation				282,220
Coelmo SRL	Power Generation, Water and Sanitation				572,915
Continuum SRL	Local Technical Workforce for Programme Execution			108,291	
Fazzini SRL	Medical Supplies and Equipment, Nutrition		29,534	514,003	
Ferrino and Co SpA	Shelter/Field Equipment				717,917
Fondazione Penta Onlus	Information and Communication Technology Services			107,500	
Fulton Medicinali SpA	Pharmaceuticals				671,012
Industria Farmaceutica Galenica Senese SRL	Pharmaceuticals				550,913
INTEGRA AES SRL	Construction Services			152,800	
Intersos	Local Technical Workforce for Programme Execution			795,004	
Intertek Italia SpA	Quality Assurance, Laboratory and Inspection Services		1,555	322,687	
L Molteni and C Dei Fratelli Alitti Società Di Esercizio SpA	Pharmaceuticals				169,247
Lattanzio Monitoring and Evaluation SRL	Research, Surveys, Monitoring and Evaluation Services			100,960	
Nuova Industrie Biscotti Crich SpA	Nutrition				2,290,077
Pharmatex Italia SRL	Pharmaceuticals				1,621,265
Planet SRL	Communications, Design and Printing, Information and Communication Technology Services			113,030	
Saponerie M Fissi SpA	Water and Sanitation				165,466
World Food Programme	Construction Services, In-Country Logistics and Warehousing Services, Real Estate Services	279,367	11,146		
JAMAICA					
Jamaica Property Co Ltd	Real Estate Services			154,228	
JAPAN					
J Gerber & Co (Japan) Ltd	Transport				4,733,566
Japan BCG Laboratory	Vaccines/Biologicals, Warehousing				2,413,080
K Arano & Co Ltd	Transport		46,953	575,318	
Shimadzu Corporation International Marketing Division	Medical Supplies and Equipment			159,600	
Sumitomo Chemical Co Ltd	Bednets/Insecticides				2,069,500
Toyota Motor Corp	Transport				100,360
JORDAN					
Aesop Marketing	Communications, Design and Printing		451,412		
Al Munshed Group	Finance and Insurance Services			1,139,229	
Al Quds Education Training & Consultancy	Local Technical Workforce for Programme Execution		1,363,088		
Al Wabel Recruitment Agency	Local Technical Workforce for Programme Execution			380,920	
Alderah Contracting Co	Water and Sanitation Related Services		333,470		
Al-Wasita for Support Services	Facility Maintenance and Repair	150,282	15,226		
Archiarts	Communications, Design and Printing		361,146		
Business Development Center	Local Technical Workforce for Programme Execution		4,786,536		
Economic & Social Association of Retired Servicemen & Veterans	Local Technical Workforce for Programme Execution		1,486,864		
Efrah & Emrah for Toys & Educational Supplies	Education Supplies, IT and Office Supplies, Printing, Shelter/Field Equipment		140,469		
First Technical Support Company	Clothing and Footwear, In-Country Logistics and Warehousing Services		118,494		
General Computers & Electronics Co	Information and Communication Technology Services, IT and Office Supplies	209,373	76,360		

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Ibrahim Zabaneh Engineering	Construction Services, Facility Maintenance and Repair, Information and Communication Technology Services				218,989
IMDAD	Travel, Food and Lodging, Water and Sanitation Related Services				2,083,192
Insan for Training and Development	Research, Surveys, Monitoring and Evaluation Services				180,862
Institute for Family Health Noor Al-Hussein Foundation	Safety and Security Services				172,227
Integrated Services Indigenous Solutions	Research, Surveys, Monitoring and Evaluation Services				1,173,246
Izzat Marji Group	Facility Maintenance and Repair				200,862
Jordan Modern Oil & Fuel Services	Fuel and Lubricants, Others, Water and Sanitation Related Services				814,970
Jordan Pioneer for Metal Industry	Construction Services				254,563
Kuehne + Nagel Jordan	In-Country Logistics and Warehousing Services			246,037	23,775
Marriott Amman	Travel, Food and Lodging				127,973
Mazen Al Awadi and Partners Co	Construction Services				158,233
Mid Contracting Co	Water and Sanitation Related Services				1,501,420
Mindset	Research, Surveys, Monitoring and Evaluation Services				714,452
Naser Irshaidat and Sons Contracting	Water and Sanitation Related Services				365,649
Prefabricated Buildings Co	Construction Services				129,802
PricewaterhouseCoopers Jordan	Finance and Insurance Services			182,651	135,750
Satellite Car Company (Budget)	Facility Maintenance and Repair, Others, Transport, Travel, Food and Lodging			222,814	
Scorpion for Defence and Security	Safety and Security Services				555,138
Shark for Security and Armed Protection	Safety and Security Services			272,573	73,417
Site Group for Services & Well Drilling Co	Water and Sanitation Related Services				883,086
Smart Systems Ltd	Communication Equipment, IT and Office Supplies			250,220	2,189
Specialized Co for Trade Services	Clothing and Footwear, In-Country Logistics and Warehousing Services, Shelter/Field Equipment, Water and Sanitation			1,503,263	919,364
Yousef Bashiti and Sons Co	Agriculture, Clothing and Footwear, Construction, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Nutrition, Shelter/Field Equipment, Transport, Water and Sanitation			303,377	4,425
KAZAKHSTAN					
GlaxoSmithKline Kazakhstan Llp	Pharmaceuticals				1,426,810
KENYA					
Aga Khan Foundation Kenya	Information and Communication Technology Services			126,380	
Awale Enterprises Ltd	In-Country Logistics and Warehousing Services			635,456	4,393
Baker Tilly Merali's	Finance and Insurance Services			4,550	400,042
Bitz IT Consulting Ltd	Information and Communication Technology Services			175,511	
Charles Kabuthu CK & Partners	Finance and Insurance Services				129,418
Davis & Shirtliff Ltd	Water and Sanitation				115,386
Deloitte Consulting Ltd	Finance and Insurance Services			78,816	144,380
Diamond Chemicals Ltd	Water and Sanitation				39,652
Energy 4 Impact	Research, Surveys, Monitoring and Evaluation Services				449,933
EXP Momentum Ltd	Communications, Design and Printing				209,581
Insta Products (EPZ) Ltd	Nutrition				22,975,917
Intersos	In-Country Logistics and Warehousing Services				184,191
KPMG Kenya	Finance and Insurance Services, Research, Surveys, Monitoring and Evaluation Services			19,200	188,750
Kuehne + Nagel Ltd	In-Country Logistics and Warehousing Services				874,523
La Femme Engineering Services Ltd	Construction Services				1,143,481
					264,643

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
MDF Training and Consultancy Eastern Southern Africa	Research, Surveys, Monitoring and Evaluation Services			279,975	
Mogadishu Stars General Trading LLC	In-Country Logistics and Warehousing Services			1,911,629	
Munshiram International Business Machines Ltd	Education Supplies, IT and Office Supplies	210,877			
Nation Media Group Ltd	Communications, Design and Printing	220,720			
Ona Kenya Ltd	Research, Surveys, Monitoring and Evaluation Services	19,875	470,271	31,900	
PricewaterhouseCoopers Ltd	Finance and Insurance Services	248,539		2,500	
Ramco Printing Works Ltd	Identification and Signage, IT and Office Supplies, Printing	93,600		16,530	
Reliefline Kenya Ltd	Water and Sanitation	162,071			
Researchcare Africa Ltd	Research, Surveys, Monitoring and Evaluation Services			305,992	
Rhoem Investment Ltd	Finance and Insurance Services			326,999	
Royal Media Services Ltd	Communications, Design and Printing	355,195			
Safari Park Hotel	Travel, Food and Lodging	134,747			
Samuel Hall East Africa Ltd	Research, Surveys, Monitoring and Evaluation Services			226,798	
SMEC International Pty Ltd	Construction Services			971,514	
Somkan Trading Co Ltd	In-Country Logistics and Warehousing Services			248,349	
Spartan Relief Services Ltd	Education Supplies, Shelter/Field Equipment, Water and Sanitation	157,693		758,270	
Techno Relief Services Ltd	Education Supplies, Identification and Signage, Medical Supplies and Equipment, Nutrition, Others, Shelter/Field Equipment, Water and Sanitation	1,440,538		2,926,241	
Tertiary Consulting Engineers Ltd	Construction Services	121,699			
The Standard Group Ltd	Communications, Design and Printing	211,930			
Tribe Hotel Ltd	IT and Office Supplies, Travel, Food and Lodging	220,915		911	
Tsavo Wild Design and Interior Ltd	Construction Services	312,830			
Universal Corp Ltd	Pharmaceuticals			5,648,995	
UNON	Communications, Design and Printing, Printing, Real Estate Services	356,990		444,420	
Victoria Furnitures Ltd	Education Supplies, IT and Office Supplies	117,215		3,887	
Wante Contractors Ltd	Construction Services	835,357			
Wood Products Kenya Ltd	Education Supplies	123,876			
World Food Programme (Somalia)	In-Country Logistics and Warehousing Services, Real Estate Services			413,713	
KYRGYZSTAN					
Event M Ltd	Travel, Food and Lodging	214,445			
Public Relations Center Ltd	Travel, Food and Lodging	247,429			
LAO PEOPLE'S DEMOCRATIC REPUBLIC					
NSV Computer	Communication Equipment, Communications, Design and Printing, IT and Office Supplies, Printing, Water and Sanitation	101,526			
LEBANON					
Agility Logistics Lebanon SAL	In-Country Logistics and Warehousing Services	179,750			
Al Madar	Water and Sanitation Related Services	1,627,042			
Al Moustafa for Trading and Contracting	Water and Sanitation Related Services	1,894,590			
Al Oula International Co SARL	Water and Sanitation Related Services	1,314,221			
Al Rawan for General Contracting and Trading SARL	Water and Sanitation Related Services	3,185,792			
All Transport Agency	In-Country Logistics and Warehousing Services	174,000		8,112	
American University of Beirut	Research, Surveys, Monitoring and Evaluation Services	150,450		134,975	
Antonios Projects SAL	Facility Maintenance and Repair, Real Estate Services	1,079,453			
Arab Printing Press SAL	Education Supplies, IT and Office Supplies, Printing	146,703		2,057	1,186,789

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Arison	Water and Sanitation Related Services				1,124,142
Berytus Construction and Development	Construction Services, Facility Maintenance and Repair				136,309
Bou Chalhoub Industrial and Commercial Establishment	Water and Sanitation				104,500
Bureau Technique pour le Développement SAL	Construction Services, Water and Sanitation Related Services				377,500
Business Services Office SARL	Local Technical Workforce for Programme Execution				350,648
Butec Property Management (BPM) SAL	Facility Maintenance and Repair				137,200
Connecting Research to Development	Research, Surveys, Monitoring and Evaluation Services				141,485
Dar El Kotob SAL	Printing				11,635
Engineer Elie Maalouf Co SAL	Construction Services				497,944
Fairco International SAL	Education Supplies, IT and Office Supplies, Printing				483,053
Gezairi Transport SAL	In-Country Logistics and Warehousing Services				352,809
Gilar SARL	Education Supplies, IT and Office Supplies				370,926
H&C Leo Burnett	Communications, Design and Printing				358,115
Haddad Enterprises	Clothing and Footwear, Water and Sanitation				26,468
Hattab Bros Engineering Est	Water and Sanitation Related Services				2,159,180
Haykal Plast SARL	Water and Sanitation				279,020
Huseini for Engineering Contracting	Water and Sanitation Related Services				298,250
Imar General Contracting	Construction Services				706,301
Infopro	Research, Surveys, Monitoring and Evaluation Services				238,250
Medco	Fuel and Lubricants				1,633,548
Memac Ogilvy	Communications, Design and Printing				165,460
Multitech SARL	Communication Equipment, Information and Communication Technology Services, IT and Office Supplies, Power Generation				134,002
Obeid for Pumps Est	Water and Sanitation Related Services				2,448,987
Parallel Contracting SAL	Water and Sanitation Related Services				2,071,386
Permanent Peace Movement	Local Technical Workforce for Programme Execution				136,924
Professional Printing Solutions	Communications, Design and Printing, Identification and Signage, IT and Office Supplies, Printing				177,183
Professional Security SARL	Safety and Security Services				333,404
Purple Martin SAL	Local Technical Workforce for Programme Execution				1,328,668
Spectrum Engineering Consultants	Construction Services				356,400
Task Engineering Contractor	Construction Services				1,451,337
Telesupport International SAL	Public Relations and Fundraising				298,837
Trad Engineering and Contracting Est	Water and Sanitation Related Services				2,431,076
Treali for Trading and Contracting	Water and Sanitation Related Services				1,800,110
World Engineering & Technology	Construction Services, Research, Surveys, Monitoring and Evaluation Services				755,610
Younes Bros SARL	Power Generation, Water and Sanitation				467,520
LESOTHO					
G4S Secure Solutions Lesotho	Finance and Insurance Services				367,729
Maseru Pumps & Plastics Pty Ltd	Water and Sanitation Related Services				239,012
SIQ Lesotho Pty Ltd	Research, Surveys, Monitoring and Evaluation Services				2,979,100
LIBERIA					
Eagle Construction and Investment Co	Construction Services				115,498
Jafreca Construction Co Inc	Construction Services				155,680
Kiazawe Construction	Construction Services				148,050
Kingdom Business Inc	Construction Services				135,524
Lion Stationery Store	Education Supplies, Facility Maintenance and Repair, IT and Office Supplies, Printing, Water and Sanitation				110,565

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Ma-Zommo Construction Co	Construction Services	327,060			
PetroTrade Inc	Fuel and Lubricants	242,875			
Safeway Cargo Handling SVC Inc	In-Country Logistics and Warehousing Services	134,024			
Sheriam Credit Union and Development	Construction Services	135,400			
LIBYA					
Al Naizak Al Muthi for Contracting	Construction Services	188,970			
Albatana Co	Construction Services	227,980			
Awaset Al Madina Co	Construction Services	202,522			
Engineers Consatium Co	Construction Services	139,829			
Insib Pumping Engineering Llc	Water and Sanitation	163,600			
Nomadia Company for General Contracting and Electrical Works	Construction Services	288,485			
United Delta Co	Construction Services	470,395			
LITHUANIA					
PPMI Group UAB	Research, Surveys, Monitoring and Evaluation Services	336,250			
LUXEMBOURG					
Dometic SARL	Cold Chain Equipment, Facility Maintenance and Repair	36,000	48,444,157		
Dupont de Nemours SA	Medical Supplies and Equipment		160,069		
Proman SA	Research, Surveys, Monitoring and Evaluation Services	431,812	308,692		
MADAGASCAR					
3A Madagascar	Facility Maintenance and Repair, Finance and Insurance Services	116,880			
Badri	Education Supplies, IT and Office Supplies, Printing, Water and Sanitation	127,374			
Bushproof	Others, Water and Sanitation, Water and Sanitation Related Services	215,759			
China Geo-Engineering Corp	Water and Sanitation Related Services	133,461			
Cominor	IT and Office Supplies	121,313			
DesignTech	Facility Maintenance and Repair, Water and Sanitation	281,048			
Ecoprim	Education Supplies, Printing	279,076			
EGC Fanilo Probat	Water and Sanitation Related Services	255,798			
E-Mendrika	Education Supplies, Printing	196,302			
Entreprise 3F	In-Country Logistics and Warehousing Services, IT and Office Supplies	157,601			
Entreprise Générale de Construction	Construction Services	123,142			
First Immo	In-Country Logistics and Warehousing Services	213,466			
Global Technologies	Communication Equipment	159,789			
Mega Print	Printing	122,419			
Mye	Printing	133,168			
Plascom	Others, Water and Sanitation	670,437			
Société JB	Business Administration Services, Nutrition	672,194	6,395,960		
Société Malgache de Transformation	Water and Sanitation	143,766			
Someca	Facility Maintenance and Repair, Water and Sanitation	275,718			
Sun and Sons SARL	Construction Services	166,011			
Toky Tours- Ramaromanana Claude	In-Country Logistics and Warehousing Services, Travel, Food and Lodging	214,168			
Trans-Niaina / Jr Tours	Travel, Food and Lodging	156,285			
MALAWI					
Airtel Malawi Ltd	Information and Communication Technology Services, Real Estate Services	316,339			
Apex Rent a Car	Travel, Food and Lodging	199,616			
Aquabor International Ltd	Water and Sanitation Related Services	463,098			

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Avis Rent A Car	Travel, Food and Lodging				150,818
Capital Printing Press	Communications, Design and Printing, Printing				103,231
China Gansu Engineering Corp Ltd	Water and Sanitation Related Services				688,454
Country Wide Car Hire	Travel, Food and Lodging				112,984
Design Printers	Communications, Design and Printing, IT and Office Supplies, Printing				139,017
FISD Ltd Co	Facility Maintenance and Repair, Water and Sanitation Related Services				507,141
Hallmark Creations Ltd	Education Supplies, Identification and Signage, IT and Office Supplies				191,037
Kabros Building Contractor	Construction Services				232,724
Kajala Construction Co	Water and Sanitation Related Services				179,252
Keiretsu Construction	Water and Sanitation Related Services				328,240
Lilongwe Mechanical Development	Clothing and Footwear, Construction, Staff Supplies, Transport, Water and Sanitation				120,454
M & G Industries	IT and Office Supplies, Medical Supplies and Equipment				1,169,649
MaikhandaTrust	Research, Surveys, Monitoring and Evaluation Services				597,503
Mozagua Malawi Ltd	Water and Sanitation Related Services				132,391
Project Peanut Butter	Nutrition				479,564
Puma Energy Malawi Ltd	Fuel and Lubricants				285,088
SDV Malawi Ltd	In-Country Logistics and Warehousing Services				633,745
Valid Nutrition	Nutrition				2,798,740
MALAYSIA					
Adecco Staffing & Outsourcing Sdn Bhd	Public Relations and Fundraising				295,037
Berjaya Registration Services Sdn Bhd	In-Country Logistics and Warehousing Services				249,808
Daythree Business Services Sdn Bhd	Public Relations and Fundraising				170,642
Deloitte Risk Advisory Sdn Bhd	Research, Surveys, Monitoring and Evaluation Services				119,050
DM Analytics Sdn Bhd	Research, Surveys, Monitoring and Evaluation Services				121,433
Hoffset Printing Sdn Bhd	Communications, Design and Printing				266,590
Kelly Services Malaysia Sdn Bhd	Public Relations and Fundraising				776,252
MEP Meeting and Exhibition Planners	Travel, Food and Lodging				322,097
MV Marketing & Consultancy (M) Sdn Bhd	Public Relations and Fundraising				163,801
SG Global Support Services Sdn Bhd	Public Relations and Fundraising				569,008
SM Pharmaceuticals Sdn Bhd	Pharmaceuticals				791,833
SM Unique Mailing Services Sdn Bhd	In-Country Logistics and Warehousing Services				221,246
Symphony Bpo Solutions Sdn Bhd	Public Relations and Fundraising				318,974
Uts Marketing Solutions Sdn Bhd	Public Relations and Fundraising				1,893,916
MALI					
Agence Mali Management	Facility Maintenance and Repair, Local Technical Workforce for Programme Execution, Safety and Security Services				760,256
Assist Sas	Facility Maintenance and Repair				125,460
Bureau Sahélien d'Hydraulique	Water and Sanitation Related Services				133,486
Chic Afrique	Construction Services				456,155
Compagnie Malienne de Papier	Education Supplies, IT and Office Supplies				131,898
Edak SARL	Facility Maintenance and Repair				188,269
Entreprise de Construction Kidal	Construction Services				275,825
Entreprise Nouvelle de Construction SARL	Water and Sanitation Related Services				226,900
Ese Korobara et Associés Eka SARL	Construction Services				204,071
Geotechnologie Service pour le Développement	Construction Services				968,874

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Graphique Industrie	Communications, Design and Printing, Education Supplies, Printing	292,598			
Groupement Hydroconseil Cefad	Research, Surveys, Monitoring and Evaluation Services	202,515			
Groupement Seeba SARL Vergnet	Construction Services	679,272			
Librairie Papeterie Du Soudan	Education Supplies, IT and Office Supplies, Printing	131,296			
M2CI	Finance and Insurance Services	157,918			
Projet Production Internationale Mali	Facility Maintenance and Repair, Medical Supplies and Equipment	110,397			
SDV	In-Country Logistics and Warehousing Services	258,064			
Société Malienne du Commerce	In-Country Logistics and Warehousing Services	147,600			
STB Mali	Water and Sanitation Related Services	233,758			
Voolinks	Research, Surveys, Monitoring and Evaluation Services	2,996,670			
MALTA					
Palm City Ltd	Real Estate Services, Safety and Security Services	1,079,698			
MAURITANIA					
Bureau d'Assistance et de Conseil en Santé	Research, Surveys, Monitoring and Evaluation Services	169,851			
Damco Mauritanie SA	In-Country Logistics and Warehousing Services	101,449			
Groupement ELMA CDS	Construction Services	470,487			
Mauritano Suisse Sécurité	Safety and Security Services	314,166			
Mauritel SA	Communications, Design and Printing	104,335			
Salsebil SARL	Water and Sanitation Related Services	287,543			
Somiba TP	Construction Services	103,575			
Star Oil Mauritania	Fuel and Lubricants	115,847			
MAURITIUS					
Buffalo Bicycle Ltd	Transport	383,831			
Pegasys Ame	Research, Surveys, Monitoring and Evaluation Services	236,935			
MEXICO					
Atecpor de México SA de CV	Consultancy Services	439,936			
Caramelo Digital SA de CV	Public Relations and Fundraising	230,371			
DAP Latinoamerica SA de CV	Public Relations and Fundraising	948,819			
Ecco Servicios de Personal	Public Relations and Fundraising	223,149			
Equipo Latinoamericano de Desarrollo	Public Relations and Fundraising	257,301			
Instituto Nacional de Salud Pública	Research, Surveys, Monitoring and Evaluation Services	118,374			
Internacional Farmacéutica SA de CV	Medical Supplies and Equipment	322,855			
Investigación en Salud y Demografía	Research, Surveys, Monitoring and Evaluation Services	103,208			
Koch Overseas de México SA de CV	Others, Printing, Travel, Food and Lodging	236,219			
Multi Market Services Communication	Public Relations and Fundraising	186,739			
Print LSC Communications S de RL de CV	Public Relations and Fundraising	163,705			
Smart Center SA de CV	Public Relations and Fundraising	395,622			
MONGOLIA					
IT Zone Co Ltd	IT and Office Supplies	126,554			
MOROCCO					
Consensus Com	Communications, Design and Printing, Travel, Food and Lodging	148,986			
Consulting and Development Bureau d'Études	Research, Surveys, Monitoring and Evaluation Services	143,008	54,665		
EC Consulting	Research, Surveys, Monitoring and Evaluation Services	100,047			
Finactu International	Research, Surveys, Monitoring and Evaluation Services	358,742			
La Nouvelle Société Avant Scene SA	Travel, Food and Lodging	460,682			
Quadri Com	Communications, Design and Printing, Printing	318,312			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
MOZAMBIQUE					
Central Gráfica	Printing				187,163
Eurosis Consultoria e Formação em Gestão	Research, Surveys, Monitoring and Evaluation Services				185,744
Forcier Moçambique Lda	Research, Surveys, Monitoring and Evaluation Services	16,377		187,027	
Minerva Print Sociedade Unipessoal	Communications, Design and Printing, Printing	202,459			
Movicargo Lda	In-Country Logistics and Warehousing Services	124,904			
Nut Solutions Ei	Communications, Design and Printing, Education Supplies, Identification and Signage, Printing	124,164			
Pixel Comunicação e Imagem	Printing	104,816			
Sertormec	Communication Equipment	275,535			
Unibasma Lda	IT and Office Supplies, Medical Supplies and Equipment	252,826			
MYANMAR					
Basin International Ltd	Clothing and Footwear, Construction, Education Supplies, Identification and Signage, Medical Supplies and Equipment, Nutrition, Printing, Staff Supplies, Water and Sanitation	808,921			
Civil Solution Consultants Ltd	Construction Services	148,500			
Eternal Victory	Construction, Education Supplies	356,989			
Family Mandalar Co Ltd	Construction Services	203,227			
IngyinYagon Trading Co Ltd	Medical Supplies and Equipment, Water and Sanitation	301,288			
Khin Aye Myat Phyu Construction Co	Construction Services	369,811			
Khine Yan Naing Co Ltd	Water and Sanitation Related Services	270,887			
Kyaw SuThway Travels and Tours Co Ltd	Travel, Food and Lodging	507,813			
Leo Exera Ltd	Safety and Security Services	279,764			
Mahar Swe Advertising Co Ltd	Printing	382,092			
Max D Group	IT and Office Supplies	171,502			
May Yu Aha Lin Raung Co Ltd	Construction Services	206,594			
Mega Global Green Automation Co Ltd	Facility Maintenance and Repair	198,468			
Mega United Brothers Logistics Co Ltd	In-Country Logistics and Warehousing Services	255,686			
Moe Kaung Kin Offset	Printing	208,071			
Myanmar Housing Development Co Ltd	Construction Services	170,095			
Myanmar Pipes & Accessories Co Ltd	Water and Sanitation	619,339			
Original Great Popular Co Ltd	Medical Supplies and Equipment	118,116			
Oway Travels and Tours Company Ltd	Travel, Food and Lodging	386,588			
Pann Taing Thit Co Ltd	Facility Maintenance and Repair, In-Country Logistics and Warehousing Services	115,839			
Pyae Sanda Co Ltd	Construction Services	173,796			
The Best Business Buddy Co Ltd	Travel, Food and Lodging	587,021			
TheintTheint Aung Co Ltd	Facility Maintenance and Repair	154,158			
U Myat Aung Transport Co Ltd	In-Country Logistics and Warehousing Services	179,526			
NEPAL					
Garud Securities Pvt Ltd	Safety and Security Services	111,969			
Gauri Parbat Nirman Sewa Pvt Ltd	Construction Services	471,475			
Health Research and Social Development Forum	Research, Surveys, Monitoring and Evaluation Services	126,018			
Hotel Del Annapurna	Travel, Food and Lodging	130,389			
Jhankar Multiple Concern Pvt Ltd	Education Supplies, Medical Supplies and Equipment, Water and Sanitation	175,089			
Max Media Pvt Ltd	Communications, Design and Printing	164,148			
National Institute of Psychology	Education Supplies, Medical Supplies and Equipment	188,204			
Nepal Shipping and Air Logistics P Ltd	In-Country Logistics and Warehousing Services	103,401			

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
New Era Pvt Ltd	Research, Surveys, Monitoring and Evaluation Services	115,087			
Om Surgical Concern Pvt Ltd	Medical Supplies and Equipment	202,154			
People2People P Ltd	Local Technical Workforce for Programme Execution	218,430			
Sitara Carriers Pvt Ltd	In-Country Logistics and Warehousing Services	125,487			
Sparklink Enterprises Pvt Ltd	Travel, Food and Lodging	212,803			
NETHERLANDS					
Abbvie Logistics BV	Pharmaceuticals			6,877,333	
Acacia Water	Research, Surveys, Monitoring and Evaluation Services	952,293			
ACT for Performance	Research, Surveys, Monitoring and Evaluation Services	539,007			
Autocar International BV	Cold Chain Equipment, Transport	94,400	206,818		
Bedatadriven	Information and Communication Technology Services, IT and Office Supplies	100,098			
Bilthoven Biologicals BV	Vaccines/Biologicals			33,151,938	
BMB Mott Macdonald BV	Research, Surveys, Monitoring and Evaluation Services	144,360			
EditCompany VOF	Communications, Design and Printing			112,916	
IDA Foundation	Pharmaceuticals			2,700,090	
Imres BV	Medical Supplies and Equipment, Pharmaceuticals			918,325	
IRC International Water and Sanitation Centre	Water and Sanitation Related Services	325,169			
Maastricht Graduate School of Governance	Research, Surveys, Monitoring and Evaluation Services	352,732			
Merck Sharp & Dohme BV	Pharmaceuticals			589,054	
Philips Medical Systems Nederland	Medical Supplies and Equipment			273,022	
Royal Tropical Institute	Research, Surveys, Monitoring and Evaluation Services	132,566			
Stichting IEA Secretariaat Nederland	Research, Surveys, Monitoring and Evaluation Services	873,660			
Stichting Simavi	Research, Surveys, Monitoring and Evaluation Services	339,400			
Svizera Europe BV	Medical Supplies and Equipment			267,110	
The Medical Export Group BV	Consultancy Services, Medical Supplies and Equipment, Water and Sanitation	287,840	20,610,702		
Transition International	Research, Surveys, Monitoring and Evaluation Services	193,248			
Van Oostveen Medical (Romed)	Medical Supplies and Equipment			137,194	
NEW ZEALAND					
Pacific Island Productions Ltd	Communications, Design and Printing			150,000	
World Vision New Zealand	Research, Surveys, Monitoring and Evaluation Services			145,395	
NICARAGUA					
Ingenieria Especializada y Construcción	Facility Maintenance and Repair	206,910			
PBS Nicaragua SA	Communications, Design and Printing, Printing	158,615			
NIGER					
ADS Niger	Nutrition, Shelter/Field Equipment, Water and Sanitation	136,386			
Bureau Nigerien de Ingénierie et Conseils	Research, Surveys, Monitoring and Evaluation Services, Water and Sanitation Related Services	393,582			
El Moctar Oumarou Taffa	Clothing and Footwear, Communication Equipment, Shelter/Field Equipment, Water and Sanitation	108,415			
EMY International	Clothing and Footwear, Communication Equipment, Nutrition, Shelter/Field Equipment, Water and Sanitation	354,478			
Entreprise Baana	Water and Sanitation Related Services	259,705			
Entreprise Ibrahim Maman di Malami	Construction Services	170,481			
Entreprise Maïga Halidou Aboubacar	In-Country Logistics and Warehousing Services	138,606			
Entreprise Sidi Amar Inalher	Water and Sanitation Related Services	483,604			
Gadnet Sécurité	Safety and Security Services	764,473			
Ima Automobiles Niger SARL	Transport	137,679			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
I-Media Agence de Communication	Education Supplies, Identification and Signage, Printing, Water and Sanitation			208,859	
Imprimerie Dep Fast	Communications, Design and Printing, Printing			202,378	
Kaocen Copy Service	Communications, Design and Printing, Printing			421,255	
Librairie Addax	Education Supplies, IT and Office Supplies, Others, Printing			186,225	
Librairie Nigemat	Education Supplies, IT and Office Supplies, Printing			251,216	
Mell Plus Informatique	Communication Equipment, IT and Office Supplies, Safety and Security Services			144,030	
Mondial International Air Services	Facility Maintenance and Repair, Shelter/Field Equipment, Water and Sanitation			110,201	
Mondial Trading Services	Clothing and Footwear, Water and Sanitation			116,436	
Niger Aplitec	In-Country Logistics and Warehousing Services			105,513	
Niger Telecoms	Information and Communication Technology Services			159,063	
Nouvelle Imprimerie du Niger	Communications, Design and Printing, Printing			319,158	
Oriba Petroleum	Fuel and Lubricants			133,423	
Seydou Abdoulaye	In-Country Logistics and Warehousing Services			164,755	
Société de Transformation Alimentaire	Nutrition			13,615,781	350,922
Société Multicom SARL	Education Supplies, IT and Office Supplies, Printing			303,496	
Total Niger	Fuel and Lubricants			217,582	
Unis Niger	Water and Sanitation			217,287	
NIGERIA					
Abeystaph Globalink Ltd	Clothing and Footwear, Communications, Design and Printing, Identification and Signage, Printing			1,593,281	
Advalue Limited	Others, Printing			263,839	
Akintola Williams Deloitte	Local Technical Workforce for Programme Execution			20,676,338	
Albarka Drainage and Cleaning Services Ltd	Water and Sanitation Related Services			538,870	
Amizam Integrated Resources Ltd	In-Country Logistics and Warehousing Services			279,385	
Anamme Nigeria Enterprises	Research, Surveys, Monitoring and Evaluation Services			151,829	
Bakems Nigeria Ltd	Education Supplies, Warehousing, Water and Sanitation			338,491	
Billions Global Concepts Limited	Education Supplies, Printing			833,720	
Binani Printing Press	Others, Printing			536,625	
Bolloré Africa Logistics Nigeria Ltd	In-Country Logistics and Warehousing Services			1,760,645	
Brand Coolstem Values Ltd	Construction Services			166,652	
Centre for Communication Programs	Communications, Design and Printing			130,188	
Chi Pharmaceuticals Ltd	Pharmaceuticals				577,065
Dabs Nutritional Products Ltd	Nutrition			987,855	
Daily Need Distributors Ltd	Water and Sanitation			157,621	
Damco Logistics Ltd	In-Country Logistics and Warehousing Services			2,739,147	
De Lawmaco Company	Clothing and Footwear, Communication Equipment, Others, Printing, Water and Sanitation			370,728	
EAE Global Construction Nigeria Ltd	Construction Services			149,945	
Eaglenet Logistics Services Ltd	In-Country Logistics and Warehousing Services			368,774	
El Hanan Ventures Ltd	Construction Services			112,719	
Etco Nigeria Ltd	Information and Communication Technology Services			292,493	
Genero Engineering Ltd	Construction Services			936,531	
Great Treasures Investment Ltd	Clothing and Footwear, Identification and Signage, IT and Office Supplies, Medical Supplies and Equipment, Nutrition, Others, Printing, Water and Sanitation			1,537,158	
Greenvile Atlantic Services Ltd	Water and Sanitation Related Services			208,171	
Hippo Logistics Ltd	In-Country Logistics and Warehousing Services			277,591	
IDF Consult Ltd	Construction Services			583,915	

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Imrad Projects Ltd	Facility Maintenance and Repair, Water and Sanitation Related Services	179,834			
Jibzib Global Concept	Construction Services, Water and Sanitation Related Services	162,385			
Kilme Metine Co Ltd	Construction Services, Water and Sanitation Related Services	139,739			
Knightsbridge Ltd	In-Country Logistics and Warehousing Services	516,218			
Ladi General Services Ltd	In-Country Logistics and Warehousing Services	170,598			
Lanosa Global Services Ltd	Water and Sanitation Related Services	230,426			
Loriku Logistics & Procurement Ltd	In-Country Logistics and Warehousing Services	135,586			
Macgreco International Nigeria	Education Supplies	621,668			
Marvelous Mike Press Ltd	Communications, Design and Printing, Printing	303,225			
Mediasavvy Communications Ltd	Others, Printing	139,308			
Perfect Printers Ltd	Education Supplies, Printing	347,655			
Petra Digital Press	Education Supplies, Identification and Signage, Others, Printing, Water and Sanitation	503,048			
PricewaterhouseCoopers	Finance and Insurance Services	122,871			
Printway Limited	Clothing and Footwear, Others, Printing	296,350			
Robfem Designs Ltd	Communications, Design and Printing, Printing	118,250			
Robilor Integrated Services Ltd	Construction Services	468,265			
Salco Ltd	Water and Sanitation	371,374			
School Kits Ltd	Medical Supplies and Equipment, Nutrition, Water and Sanitation	717,930			
Source Water Ltd	Construction Services	519,927			
TLS Excel Resources Ltd	Clothing and Footwear, Communication Equipment, Education Supplies, Identification and Signage, Others, Printing	165,165			
Topstep Nigeria Ltd	Facility Maintenance and Repair	186,498			
Valeto Global Services Ltd	Others, Water and Sanitation	284,286			
Vodacom Business Africa Nigeria Ltd	Information and Communication Technology Services	115,538			
Yellow Brick Road Ltd	Communications, Design and Printing	242,954			
Zanch International Ltd	Information and Communication Technology Services, IT and Office Supplies, Water and Sanitation	129,511			
NORWAY					
GC Rieber Compact A/S	Nutrition	1,545,737			
Laerdal Medical A/S	Education Supplies, Medical Supplies and Equipment, Printing	42,382	400,502		
OB Wilk A/S	IT and Office Supplies, Warehousing		111,620		
The Campbell Collaboration	Research, Surveys, Monitoring and Evaluation Services		119,000		
University of Oslo	Research, Surveys, Monitoring and Evaluation Services		613,959		
W Giertsen Energy Solutions A/S	Communication Equipment, Shelter/Field Equipment		222,089		
PAKISTAN					
AAN Associates	Research, Surveys, Monitoring and Evaluation Services	220,231			
Aga Khan University	Research, Surveys, Monitoring and Evaluation Services	134,631			
Agha Jee Printers	Printing	600,694			
Agility Logistics Pvt Ltd	In-Country Logistics and Warehousing Services	307,782			
AH Printers	Communications, Design and Printing, Identification and Signage, Printing	122,683			
Amson Vaccines and Pharma Pvt Ltd	Medical Supplies and Equipment		939,059		
Apex Consulting Pakistan	Communications, Design and Printing, Research, Surveys, Monitoring and Evaluation Services	909,190			
Aqua Enterprise	Communication Equipment, Communications, Design and Printing, Education Supplies, IT and Office Supplies, Printing	120,232			
Ask Development Pvt Ltd	Local Technical Workforce for Programme Execution	3,398,010			
Black Box Sound	Communications, Design and Printing	129,926			
Buraq Surgical Corp	Medical Supplies and Equipment		176,353		

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Capri Medicals	Facility Maintenance and Repair				323,656
Chip Training and Consulting Pvt Ltd	Local Technical Workforce for Programme Execution				31,999,561
Dai Pakistan Pvt Ltd	Research, Surveys, Monitoring and Evaluation Services				1,693,701
Diamond Printing Press	Communications, Design and Printing, Identification and Signage, Printing				246,312
Embassy of France Islamabad	Real Estate Services				260,417
Empowerment Thru Creative Integration Pvt Ltd	Local Technical Workforce for Programme Execution				385,523
Ernst & Young Ford Rhodes	Finance and Insurance Services				253,282
Eycon Pvt Ltd	Research, Surveys, Monitoring and Evaluation Services				688,017
Faizan Tradelinks	Communication Equipment, Education Supplies, IT and Office Supplies, Water and Sanitation, Water and Sanitation Related Services				230,824
Falcon Surgical Co Pvt Ltd	Medical Supplies and Equipment				397,941
Freelance Business International	Communication Equipment, Communications, Design and Printing, Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Printing, Water and Sanitation				406,535
Haris Enterprises Pvt Ltd	Safety and Security Services				839,419
Health and Nutrition Development Society	Research, Surveys, Monitoring and Evaluation Services				248,757
Human Design Studios	Communications, Design and Printing				365,267
Innovative Development Organization	Information and Communication Technology Services				201,746
Insight Solutions	Communications, Design and Printing				546,642
Institute of Rural Management	Local Technical Workforce for Programme Execution				389,250
Interflow Communications Pvt Ltd	Communications, Design and Printing				1,499,767
Khursheed Printers (Pvt) Ltd	Printing				438,721
Micromerger Pvt Ltd	Research, Surveys, Monitoring and Evaluation Services				4,424,463
Midas Communications Pvt Ltd	Communications, Design and Printing				2,108,538
Munir Brothers	Communication Equipment, IT and Office Supplies				445,656
Mystic Tours Pvt Ltd	Travel, Food and Lodging				626,660
Nauroze Goods Forwarding Agency	In-Country Logistics and Warehousing Services				148,525
Nayab Kokar Construction Co	Construction Services				1,054,471
Pak Icon Construction Pvt Ltd	Construction Services				537,534
Prime Services	Communications, Design and Printing				1,252,921
Quick Process	Communications, Design and Printing, Education Supplies, Identification and Signage, Printing				1,241,650
Right to Play	Research, Surveys, Monitoring and Evaluation Services				156,620
Shaco Enterprises	IT and Office Supplies, Water and Sanitation				243,432
Shagufta Shaheen	Real Estate Services				127,249
Shirazi Trading Co Pvt Ltd	Education Supplies, IT and Office Supplies				100,186
Sky Solutions	Education Supplies, Medical Supplies and Equipment				166,382
Spirit Solutions	Education Supplies, Facility Maintenance and Repair, Identification and Signage, IT and Office Supplies, Medical Supplies and Equipment, Shelter/Field Equipment				149,000
Standard Chartered Bank	Finance and Insurance Services				4,767,857
Strengths Innovations	Communications, Design and Printing, Education Supplies, Printing				231,123
Super Soft Computers	Communication Equipment, IT and Office Supplies				429,745
Tameer-E-Khalaq Foundation	Research, Surveys, Monitoring and Evaluation Services				1,705,716
UBC Convertec Pvt Ltd	Communications, Design and Printing, Printing				241,566
United Human Resource Services Pvt	Facility Maintenance and Repair				188,323
Weitek Consultants	Communications, Design and Printing				473,584
WFP Pakistan Imprest Account	In-Country Logistics and Warehousing Services				221,991

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
White Rice Communications	Research, Surveys, Monitoring and Evaluation Services	290,895			
ZebTrading Corp	Identification and Signage, IT and Office Supplies	280,262			
Zia Masood Kiani & Co	Local Technical Workforce for Programme Execution	2,097,520			
PANAMA					
Gadan Panama SA	Communication Equipment, Construction, Education Supplies	469,555			
Uniglobe L'alianXa Travel Network SA	Education Supplies, Transport, Travel, Food and Lodging	290,574			
PAPUA NEW GUINEA					
Bizprint	Communications, Design and Printing, Education Supplies, Identification and Signage, Printing	197,935			
Brian Bell & Co Ltd	Communication Equipment	147,096			
Guard Dog Security Pom Ltd	Safety and Security Services	1,262,040			
LD Express Ltd	In-Country Logistics and Warehousing Services	341,814			
National Superannuation Fund Ltd	Real Estate Services	217,447			
Pacific Star Pty Ltd	Communications, Design and Printing, Others, Printing	134,865			
PERU					
Apoyo Consultoría Sac	Research, Surveys, Monitoring and Evaluation Services	119,022			
Enacción SAC	Consultancy Services	202,844			
Global Sales Solutions Line SL Sucursal en Peru	Public Relations and Fundraising	172,786			
Personnel Advantage SAC	Local Technical Workforce for Programme Execution	155,142			
The International Fundraising Peru SAC	Public Relations and Fundraising	1,141,265	459,145		
PHILIPPINES					
Alliance for Improving Health Outcomes Inc	Local Technical Workforce for Programme Execution	228,724			
Appco Direct International	Public Relations and Fundraising	1,335,924			
Asia Society for Social Improvement and Sustainable Transformation	Public Relations and Fundraising	85,738	39,525		
Asian Institute of Journalism	Research, Surveys, Monitoring and Evaluation Services	141,853			
Contrade Integrated Depot Inc	Education Supplies	601,990	193,892		
Drake Business Services Asia	Public Relations and Fundraising	109,364			
Fuld and Company Philippines Inc	Research, Surveys, Monitoring and Evaluation Services	218,711			
Gem Stationery Inc	Medical Supplies and Equipment, Others, Water and Sanitation	175,789			
McCann Worldgroup Philippines Inc	Communications, Design and Printing, Public Relations and Fundraising	126,790			
Nuworks Interactive Labs Inc	Public Relations and Fundraising	149,230			
Pilipinas Teleserv Inc	Public Relations and Fundraising	125,789			
Strategia Development Research Institute Inc	Research, Surveys, Monitoring and Evaluation Services	120,937			
University of the Philippines Los Banos Foundation Inc	Research, Surveys, Monitoring and Evaluation Services	159,156			
POLAND					
Warsaw Pharmaceutical Works Joint Stock	Pharmaceuticals	258,457			
PORTUGAL					
Futurvida Lda	Cold Chain Equipment	292,888			
REPUBLIC OF KOREA					
Eubiologics Co Ltd	Vaccines/Biologicals	21,498,404			
Green Cross Corp	Vaccines/Biologicals	607,500			
LG Chem Ltd	Vaccines/Biologicals	28,507,764			
LG Life Sciences Ltd	Vaccines/Biologicals	305,074			
Standard Diagnostics Inc	Medical Supplies and Equipment	8,185,554			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
REPUBLIC OF MOLDOVA					
Asociația Obștească Centrul Analitic Independent EXPERT - GRUP	Construction Services, Research, Surveys, Monitoring and Evaluation Services	113,914			
ROMANIA					
Best Travel Solutions SRL	Travel, Food and Lodging	107,846			
CommonThread Communications Inc	Local Technical Workforce for Programme Execution	166,000			
Infomed Fluids SRL	Pharmaceuticals	738,019			
McCann Profesional Communication SRL	Communications, Design and Printing	129,801			
Nordlogic Software	Information and Communication Technology Services	402,600			
RUSSIAN FEDERATION					
FSBSI Chumakov FSC R&D IBP	Vaccines/Biologicals	46,813,025			
Gaz Group Commercial Vehicles LLC	Transport	213,302			
RWANDA					
Agespro Security	Safety and Security Services	113,162			
City Press Ltd	Printing	266,420			
Mashirika Performing Arts & Media Co Ltd	Communications, Design and Printing	134,388			
University of Rwanda Consultancy Service	Research, Surveys, Monitoring and Evaluation Services	155,434			
SENEGAL					
Centre Excellence pour la Santé Mère Enfant UCA	Local Technical Workforce for Programme Execution	117,227			
Institut Pasteur de Dakar	Vaccines/Biologicals	2,029,373			
Keur Mame Ousmane SARR SUARL	Education Supplies	112,678			
King Fahd Palace Hotel	Travel, Food and Lodging	150,515			
Polykrome	IT and Office Supplies, Others, Printing, Transport	455,676	13,569		
Radisson Blu Hotel	Travel, Food and Lodging	109,192			
SIERRA LEONE					
AFCOM SL Ltd	Information and Communication Technology Services	159,657			
Altitude Logistics Company	In-Country Logistics and Warehousing Services	162,905			
City Plaza SL Ltd	IT and Office Supplies	209,946			
Emmans Transport & General Services	In-Country Logistics and Warehousing Services	298,309			
Excellent Government Printing Department	Communications, Design and Printing, IT and Office Supplies, Printing	130,222			
Hayat Autotech Auto Center	Business Administration Services	245,829			
International Freight forwarders	In-Country Logistics and Warehousing Services	102,200			
Jam Cast Production	Communications, Design and Printing	147,322			
Kings Production Sierra Leone Ltd	In-Country Logistics and Warehousing Services	842,822			
National Petroleum (SL) Ltd	Fuel and Lubricants	217,687			
Project Peanut Butter	Nutrition	437,557			
Rolaan Enterprises	Communications, Design and Printing, Printing	124,433			
Salfaida Construction & Trading Enterprise	Construction Services, Facility Maintenance and Repair	173,750			
Sea & Land Services Ltd	In-Country Logistics and Warehousing Services, Others	522,721			
Sulaimatu Enterprises	Education Supplies, Printing	138,703			
Wingin Heavy Duty Machine Co SL Ltd	Water and Sanitation Related Services	284,791			
SINGAPORE					
BE Vaccines Pte Ltd	Vaccines/Biologicals	31,952,523			
Herman Miller Asia Pte Ltd	IT and Office Supplies	185,766			
Iqvia Solutions Asia Pte Ltd	Local Technical Workforce for Programme Execution	107,200			

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Redington Distribution Pte Ltd	IT and Office Supplies			484,097	
Savex Singapore Pte Ltd	IT and Office Supplies			214,900	
Strides Pharma Global Pte Ltd	Pharmaceuticals			413,417	
TUV SUD Psb Pte Ltd	Quality Assurance, Laboratory and Inspection Services			198,763	
Wealth X Pte Ltd	Business Administration Services			115,062	
SLOVAKIA					
Monarflex Sro	Water and Sanitation			220,331	
PKP Bardejov Sro	Nutrition			1,015,323	
SLOVENIA					
Sandoz Pharmaceuticals Dd	Pharmaceuticals			1,832,219	
SOMALIA					
Afrah Construction Co Ltd	Water and Sanitation Related Services	314,639			
Aw-Maxamed Construction Co	Construction Services	205,228			
Beder Electronics Co	Communication Equipment	103,500			
Beder Printing House	Education Supplies, Identification and Signage, IT and Office Supplies, Printing	219,283			
Brisk Health Care Ltd	Others, Water and Sanitation	385,095			
Bubal Investments Co Ltd	Water and Sanitation Related Services	203,780			
Centre for Cons Research & Dev Ent	Research, Surveys, Monitoring and Evaluation Services	253,545			
Descon Engineers & Architects	Construction Services	117,725			
Duguf Enterprise Security Service	Safety and Security Services	208,320			
Eagle Advertisement & Media Agency	Communication Equipment, Communications, Design and Printing	264,450			
Forcier Consulting	Research, Surveys, Monitoring and Evaluation Services	184,783			
Furqan Trading and Transportation Co	In-Country Logistics and Warehousing Services	2,341,465			
Himilo Relief & Development	In-Country Logistics and Warehousing Services	232,494			
International Maritime Shipping Services	Construction Services, In-Country Logistics and Warehousing Services	451,812			
Mandher Relief & Development	Finance and Insurance Services, In-Country Logistics and Warehousing Services	149,588			
North Eastern Transporters Co	In-Country Logistics and Warehousing Services	155,438			
Physical Risk Solutions	Safety and Security Services	449,970			
Saafi Logistics Company	Water and Sanitation Related Services	126,360			
Saaid Construction Company	Construction Services	109,500			
Sahal Logistics Solution Mohamed Ahmed	In-Country Logistics and Warehousing Services	326,282			
Smart Engineering and Contractors Co	Construction Services	239,763			
Somali Engineering Services Co Ltd	Water and Sanitation Related Services	270,000			
Terre Solidali Onlus	Local Technical Workforce for Programme Execution	488,484			
Wardi Relief & Development Initiatives	In-Country Logistics and Warehousing Services	182,397			
Weheliye General Trading Company	In-Country Logistics and Warehousing Services	131,010			
SOUTH AFRICA					
Bayer Pty (Ltd)	Bednets/Insecticides			848,624	
Beyond Wireless Technology Pty Ltd	Cold Chain Equipment, Facility Maintenance and Repair			127,757	
Cambridge University Press South Africa Pty Ltd	Printing	1,106,593			
Class Act Educational Services	Research, Surveys, Monitoring and Evaluation Services	132,931			
Control Chemicals Pty Ltd	Water and Sanitation	465,919	25,303		
Cornerstone Economic Research	Research, Surveys, Monitoring and Evaluation Services	331,638			
Daeta International Trading Cc	Communication Equipment, Education Supplies, IT and Office Supplies, Others, Printing, Transport	262,730			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Diva Nutritional Products Pty Ltd	Nutrition				10,061,486
DSM Nutritional Products South Africa Pty Ltd	Nutrition				2,704,225
Economic Policy Research Institute	Local Technical Workforce for Programme Execution, Research, Surveys, Monitoring and Evaluation Services			1,769,070	122,390
Fundraising That Works Pty Ltd	Public Relations and Fundraising			134,386	
GC Rieber Compact South Africa	Nutrition				9,210,158
Khulisa Management Services	Research, Surveys, Monitoring and Evaluation Services	229,393			
Korn Ferry Pty Ltd	Local Technical Workforce for Programme Execution			548,700	
Lasec Diagnostics Pty Ltd	Medical Supplies and Equipment				161,481
LTE Medical Solutions	Medical Supplies and Equipment			100,378	
Mothers To Mothers	Local Technical Workforce for Programme Execution	463,763			
Muz Creations	Communication Equipment, Education Supplies, Information and Communication Technology Services, IT and Office Supplies	119,932	243,491		
Oxford University Press ORBIS	Printing			303,514	
OZMIK Property Investments	Real Estate Services	287,818			
Pearson Education Africa Pty Ltd	Printing			1,151,280	
Rooftop Video Productions CC	Communications, Design and Printing	6,466	59,747	366,610	
Sole Technologies	Communication Equipment, IT and Office Supplies			161,283	
Supersport International Pty Ltd	Local Technical Workforce for Programme Execution	249,691			
The Relevance Network	Research, Surveys, Monitoring and Evaluation Services	102,990			
The Training Room Online Pty Ltd	Research, Surveys, Monitoring and Evaluation Services	238,780			
SOUTH SUDAN					
Afri Ventures Ltd	Communication Equipment, Facility Maintenance and Repair, IT and Office Supplies	133,205			
Ametal Africa Ltd	Construction Services, IT and Office Supplies	163,470			
Ammars Company Ltd	Water and Sanitation Related Services	987,135			
Ap-Tech Contractors	Communication Equipment, Education Supplies, IT and Office Supplies, Power Generation, Shelter/Field Equipment, Transport, Water and Sanitation	151,530			
Bright Horizon Communication Ltd	Communication Equipment, Facility Maintenance and Repair, IT and Office Supplies	125,275			
Canaction Enterprise Ltd	Construction, Construction Services, IT and Office Supplies, Shelter/Field Equipment, Warehousing			720,661	
Centuries General Trading & Supply	Communication Equipment, IT and Office Supplies, Printing	133,925			
Classique Homes Int Ltd	Real Estate Services, Water and Sanitation Related Services	3,510,650			
Davis & Shirtliff Ltd	Water and Sanitation Related Services	178,324			
Freight In Time South Sudan Ltd	In-Country Logistics and Warehousing Services	152,617			
Ganesh Printer Co Ltd	Clothing and Footwear, Education Supplies, Identification and Signage, IT and Office Supplies, Printing	1,664,822			
GTTrading & Investment Co Ltd	Education Supplies, Printing, Water and Sanitation	2,450,697			
Juba Catering Services Ltd	Facility Maintenance and Repair	1,598,364			
Juba Supplies & Maintenance Ltd	Facility Maintenance and Repair, Identification and Signage, IT and Office Supplies, Medical Supplies and Equipment	970,408			
Lalibela Construction & Logistics Co Ltd	Water and Sanitation Related Services			100,000	
LJ Relief and Investment Co Ltd	Cold Chain Equipment, Communication Equipment, Education Supplies, IT and Office Supplies, Nutrition, Shelter/Field Equipment, Transport, Water and Sanitation	146,512			
Logistics Link Ltd	In-Country Logistics and Warehousing Services			339,326	
Luqman Petroleum Co Ltd	Fuel and Lubricants, Warehousing			279,367	
MTN South Sudan	Information and Communication Technology Services	156,504			
Northeast Mechatronic Equipment SS Co Ltd	Power Generation, Water and Sanitation	102,093			

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
PG3 Logistics & Graphics	In-Country Logistics and Warehousing Services			170,180	
Reliefline Africa Ltd	Clothing and Footwear, Communication Equipment, IT and Office Supplies, Medical Supplies and Equipment, Warehousing, Water and Sanitation	1,670,179			
Sabastar General Trading Co Ltd	Construction Services	12,629,901			
Sun ShineTe Company Ltd	Construction Services	398,074			
Superior Enterprises	Water and Sanitation Related Services	784,095			
The Great Ruaha Drilling (SS) Ltd	Water and Sanitation Related Services	123,845			
Tinnapa Construction and Food Supplies	Water and Sanitation Related Services	101,672			
Trojan Enterprises SS Ltd	In-Country Logistics and Warehousing Services		2,871,667		
Universal Printers Co Ltd	Communications, Design and Printing, Identification and Signage, Medical Supplies and Equipment, Printing	293,511			
Warehousing & Logistics Co Ltd	In-Country Logistics and Warehousing Services	449,680			
Warrior Security Services	Safety and Security Services	1,393,030			
Yabsera Company Ltd	Water and Sanitation Related Services		243,846		
Zeregaber General Trading Ltd	Clothing and Footwear, Cold Chain Equipment, Communication Equipment, Education Supplies, Fuel and Lubricants, IT and Office Supplies, Medical Supplies and Equipment, Nutrition, Others, Power Generation, Shelter/Field Equipment, Staff Supplies, Transport, Warehousing, Water and Sanitation	2,720,695			
SPAIN					
Barna Import Medica SA	Medical Supplies and Equipment		949,575		
Cartay Productos de Acogida SL	Water and Sanitation		714,648		
Fresno Servicios Sociales	Research, Surveys, Monitoring and Evaluation Services	127,076			
Goizper Sociedad Cooperativa Limitada	Water and Sanitation		840,516		
Jomipsa	Education Supplies, Water and Sanitation		3,493,138		
Laboratorio Aldo-Unión SA	Pharmaceuticals		978,682		
Leitmotiv Sociedad Cooperativa Andaluz de Interés Social	Research, Surveys, Monitoring and Evaluation Services	205,081			
Redondo y García SA	Communication Equipment, Power Generation	32,249	1,368,738		
Trama TecnoAmbiental SL	Facility Maintenance and Repair	88,556	18,045		
SRI LANKA					
Evergreen Printers	Printing	157,154			
STATE OF PALESTINE					
Abd Al Rahman Yaseen & Sons	Facility Maintenance and Repair	145,964			
Abu Fulan Co for General Contracting	Construction Services	135,898			
Atalla Electrical Co for Trading and Industry	Construction Services	381,936			
Esmael Alawa & Sons Co	Water and Sanitation	327,045			
Masoud & Ali and Partners Contracting Co	Construction Services	10,194,425			
Shannan Son's Company	Water and Sanitation Related Services	639,864			
Shawa Contracting & General Trade Co	Water and Sanitation Related Services	226,372			
SUDAN					
Ahmed Salih for Culture and Industry Inputs	Printing	118,111			
Al Canar Development Co Ltd	Education Supplies, Medical Supplies and Equipment	508,818			
Al Hadaf Services Co	Safety and Security Services	306,488			
Alfaraa Engineering and Reconstruction Works	Construction Services	154,491			
Darhamra for Engineering and Contracting	Construction Services	1,153,789			
Ezzadin Ibrahim Ahmed Enterprise	Water and Sanitation Related Services	114,651			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Faith Organics Import & Export	Education Supplies, Printing, Shelter/Field Equipment, Water and Sanitation			1,283,081	
Golden Arrow Co Ltd	Transport			1,455,150	
Ibn Omer Abu Gussaissa for Integrated Solutions Co Ltd	Water and Sanitation Related Services			174,560	
Kenana Sugar Co Ltd	Construction Services			160,000	
Makki Transport Company	In-Country Logistics and Warehousing Services			198,782	
Megatrade Co Ltd	Construction Services			555,083	
New Life Printing Press	Identification and Signage, Printing			173,621	1,202
Samil Industrial Co	In-Country Logistics and Warehousing Services, Nutrition			8,738,834	
Sudan Shipping Line Co Ltd	In-Country Logistics and Warehousing Services			283,875	
Sudapost	In-Country Logistics and Warehousing Services			422,150	
Switch Engineering & Trading Co	Power Generation			228,991	
T for Engineering and Contracting	Water and Sanitation Related Services			109,000	
Tagran for Engineering & Contracting	Construction Services			356,500	
Tawfig Soap Factory	Water and Sanitation			189,287	102,000
Technology of Submersible Pumps	Water and Sanitation			162,300	
Top Care for Cleaning	Facility Maintenance and Repair			188,992	
United Integrated Solutions	Education Supplies			1,710,320	
WIJ for Development and Services Co	Construction Services			230,598	
SWEDEN					
BIAB International AB	Education Supplies, Identification and Signage, IT and Office Supplies, Medical Supplies and Equipment, Printing, Water and Sanitation				3,399,151
Hemocue AB	Medical Supplies and Equipment				641,652
Smurfit Kappa Lagamill AB	Medical Supplies and Equipment				760,787
Smurfit Kappa Sverige AB	Medical Supplies and Equipment				475,700
Victoria Scandinavian Soap AB	Water and Sanitation				137,242
SWITZERLAND					
Architectural Pioneering Consultant	Construction Services				522,215
Berlinger & Co AG	Cold Chain Equipment, Facility Maintenance and Repair				1,540,883
Bureau Van Dijk Electronic Publishing	Information and Communication Technology Services				142,234
De Wild Consulting GmbH	Local Technical Workforce for Programme Execution				283,560
DSM Nutritional Products Europe Ltd	Nutrition				282,741
EF Language Learning Solutions Ltd	Information and Communication Technology Services				267,134
Fondation Antenna Technologies	Water and Sanitation Related Services				367,518
GroundWork LLC	Research, Surveys, Monitoring and Evaluation Services				1,009,526
Hoffmann-La Roche Ltd	Pharmaceuticals				102,217
Intertrade International SA	Nutrition				157,920
Iqvia AG	Research, Surveys, Monitoring and Evaluation Services				109,277
KPMG	Finance and Insurance Services				349,168
Masimo International SARL	Medical Supplies and Equipment				512,500
Medela AG	Medical Supplies and Equipment				520,356
Multisearch AG	Public Relations and Fundraising				164,889
Novartis Pharma Services AG	Pharmaceuticals				5,164,037
Open Systems AG	Information and Communication Technology Services				3,214,428
PricewaterhouseCoopers AG	Finance and Insurance Services, Research, Surveys, Monitoring and Evaluation Services				134,096
Services Industriels de Genève	Facility Maintenance and Repair				111,111
SwissTropical and Public Health	Research, Surveys, Monitoring and Evaluation Services				443,676

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
TOPNET SA (Ge)	Facility Maintenance and Repair			235,275	
Université de Genève	Research, Surveys, Monitoring and Evaluation Services			129,966	
Vestergaard SA	Bednets/Insecticides			10,425,022	
Wincasa	Real Estate Services			2,334,172	
SYRIAN ARAB REPUBLIC					
Ahmad & Fadi Saffaf Trading Co	Power Generation, Water and Sanitation	255,901			
Al Ajwa Trading Co LLC	Finance and Insurance Services	303,000			
Al Fardose Co	Education Supplies, Printing	142,161			
Al-Dabbousi Trading & Contracting	IT and Office Supplies, Medical Supplies and Equipment, Others, Water and Sanitation	979,580			
Alkusty for Trading Co	Clothing and Footwear	473,199			
Al-Naal LLC	Clothing and Footwear, Education Supplies, Finance and Insurance Services, Shelter/Field Equipment	5,145,907			
Alsaeed for Contracting	Others, Water and Sanitation, Water and Sanitation Related Services	1,504,595			
Baalbaki for Industry & Trade LLC	Construction, Education Supplies, Medical Supplies and Equipment	1,584,214			
Center of International Trade	Finance and Insurance Services, IT and Office Supplies, Water and Sanitation	896,758			
Fakt LLC	IT and Office Supplies, Medical Supplies and Equipment, Water and Sanitation Related Services	117,205			
Four Seasons Hotel Damascus	Real Estate Services, Travel, Food and Lodging	188,433			
George & Samer Ghossen Trading Co	Water and Sanitation	319,510	45,300		
Global Surveys LLC	In-Country Logistics and Warehousing Services	685,027			
Go Green Syria	Clothing and Footwear	1,969,306			
Jairoudieh Engineering LLC	Facility Maintenance and Repair	472,900			
KARDISI Co	Construction Services	179,435			
Khalidoun Awad & Partner Co	Construction, Construction Services, Water and Sanitation	1,291,100			
Khaloud Sirri Halaby Ksh Group	In-Country Logistics and Warehousing Services	110,001			
Khamis and Al-Lail-Sedanah Trading	Education Supplies, IT and Office Supplies, Water and Sanitation	401,425			
Land Transport International	In-Country Logistics and Warehousing Services	113,374			
Maher Mazhar Kahwaji	Clothing and Footwear, Education Supplies, Others, Water and Sanitation	1,055,195			
Majed & Mohamed Al-Zayed Co	Clothing and Footwear, Printing, Shelter/Field Equipment, Water and Sanitation	3,105,857	291,550		
Middle East Hilal Alshaikh	Shelter/Field Equipment, Water and Sanitation	425,203	195,450		
Mohamad Abdul Rahman Al-Habal	In-Country Logistics and Warehousing Services	100,000			
Mohamad Al Hlou	Finance and Insurance Services	178,000			
Mohamad Hussain Obaidi	Printing	350,189			
Mohamad Jaafar Khattab	Water and Sanitation Related Services	5,248,972			
Mohamad Rabia Mhd Deeb Almaydaani	Construction Services, Water and Sanitation Related Services	724,981			
Moon House for Printing	Printing	1,606,817			
Motaz Abdulghane Jeha	Finance and Insurance Services	100,000			
Nader Hamida	Education Supplies, Identification and Signage, IT and Office Supplies, Printing	313,937			
Saker Alsahraa LLC	Clothing and Footwear	958,009			
Salhani Printing Est	Printing	419,113			
Seen Co	Finance and Insurance Services, In-Country Logistics and Warehousing Services	369,948			
Sharikat Omar Sahrij and Abdulrazza	Water and Sanitation Related Services	1,032,125			
Shema Co	Construction Services	301,213			
Specialized Syrian Transportation	In-Country Logistics and Warehousing Services	555,583			

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Tadreeb	Research, Surveys, Monitoring and Evaluation Services			2,069,513	
The Cooperative Productive Manufact Ready Clothes Tricot	Finance and Insurance Services			292,500	
Transporters LLC	In-Country Logistics and Warehousing Services			119,027	
Y2Ad LLC	Communications, Design and Printing			329,668	
TAJIKISTAN					
Llc Idea	Business Administration Services			130,459	
Tibtajhizot Llc	Medical Supplies and Equipment			283,997	
THAILAND					
Appco Ltd	Public Relations and Fundraising			1,176,267	
Education Services and Training Agency	Local Technical Workforce for Programme Execution			159,459	
Faculty of Education Kasetsart University	Research, Surveys, Monitoring and Evaluation Services			295,270	
First Interbusiness Ltd	IT and Office Supplies			109,248	
Health Intervention and Technology Assessment Program Foundation	Research, Surveys, Monitoring and Evaluation Services			130,405	
Omniraise Co Ltd	Public Relations and Fundraising			284,342	
Pimolchai Suksakorn Co Ltd	Nutrition			798,950	
PR Recruitment and Business Management Co Ltd	Local Technical Workforce for Programme Execution, Public Relations and Fundraising			358,045	
Rockworth Public Co Ltd	IT and Office Supplies			239,883	
Scale360 Co Ltd	Communications, Design and Printing			415,197	
SMCCThailand Co Ltd	Construction Services, IT and Office Supplies			3,607,352	
Teledirect Telecommerce (Thailand) Ltd	Public Relations and Fundraising			194,075	
Thantawan Industry Plc	Education Supplies, Medical Supplies and Equipment			279,803	
TIMOR-LESTE					
Telkomcel	Information and Communication Technology Services			120,000	
TOGO					
Distribution Papeteries Africaines	Education Supplies			114,837	
Entreprise Abiki	Water and Sanitation Related Services			101,902	
Genie Batisseur ETS	IT and Office Supplies, Water and Sanitation Related Services			127,382	
Inter-Con Security Systems of Togo	Safety and Security Services			103,963	
Nimba	Printing			157,993	
TUNISIA					
Arab Institute for Human Rights	Local Technical Workforce for Programme Execution			549,562	
Elka Consulting	Research, Surveys, Monitoring and Evaluation Services			140,000	
TURKEY					
2AA TIP Teknolojileri & Bilgi Sistemleri Ltd Sti	Water and Sanitation			210,275	
Adana Ekspres Umumi Nakliyat Ve Tic	In-Country Logistics and Warehousing Services			215,563	
Altan Ozyurt Matbaacilik	Printing			315,694	166,828
Aric Bilg Ofis Mlzm Elktr Ins Tur Gida Hed Esy Tem Hizm Tic Ltd Sti	Facility Maintenance and Repair			145,945	
Ata Kardesler Insaat Mutea Tur	Facility Maintenance and Repair, Real Estate Services			579,053	
Atabay Pharmaceuticals Factory AS	Pharmaceuticals			276,660	
Atapoltrans	Clothing and Footwear			5,091,062	
Basak Matbaacilik Tanitim Hiz Ith Ihr	Printing			161,521	
Ciftcioglu Canta Bekir Ciftci	Education Supplies			8,801,333	
EGE University Measurement and Evaluation Application and Research Center	Research, Surveys, Monitoring and Evaluation Services			209,582	

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Iris Iletisim Cozumleri	Communications, Design and Printing	162,279			
Petek Konut MuteahhitlikYapi & Insaat San & Ltd Sti	Real Estate Services	234,000			
Ram DisTicaret AS	Transport	258,690			
Securitas Guvenlik Hizmetleri AS	Safety and Security Services	219,414			
Serenes Uluslararası Turizm Kongre Organizasyon AS	Travel, Food and Lodging	3,895,701	87,117		
Simetri Egitim Araci Harun Bagci	Education Supplies	187,981	4,707		
Sreo Danismanlik Ltd Sirketi	Research, Surveys, Monitoring and Evaluation Services		508,741		
TandansTeknoloji Analiz Danismanlik	Research, Surveys, Monitoring and Evaluation Services	136,690			
Tekkon Engineering Construction	Water and Sanitation		4,379,650		
Temel Kirtasiye	Education Supplies	134,576			
TNR Prefabrik	Shelter/Field Equipment	247,583			
Tugba Canta San & Tic Ltd Sti	Education Supplies	1,355,125			
UGANDA					
Aavar Engineering Services Ltd	Construction Services	463,187			
Agweru General Merchandise	Construction Services	618,093			
Bolloré Africa Logistics (U) Ltd	In-Country Logistics and Warehousing Services	144,626			
Bunyonyi Safaris Ltd	Travel, Food and Lodging	332,039			
Crestanks	Water and Sanitation	121,789			
Davis & Shirtliff Ltd	Communication Equipment, Water and Sanitation, Water and Sanitation Related Services	754,450			
Express Logistics Group Ltd	In-Country Logistics and Warehousing Services	161,279			
Finn Church Aid	Construction Services	1,142,632			
Fireworks Advertising Uganda Ltd	Communications, Design and Printing	208,237			
Gentex Enterprises Ltd	Water and Sanitation	239,916			
Goodcitizen Company Ltd	Information and Communication Technology Services	229,345			
Hwan Sung Industries Ltd	Medical Supplies and Equipment	104,279			
Imperial Royale Hotel	Travel, Food and Lodging	332,737			
Innovation Africa Ltd	Water and Sanitation Related Services	300,314			
Liverpool School of Tropical Medicine Uganda	Research, Surveys, Monitoring and Evaluation Services	104,511			
Maad Ltd	Communications, Design and Printing	200,460			
MTN Uganda Ltd	Information and Communication Technology Services	173,765			
New Vision Printing & Publishing	Communications, Design and Printing, Identification and Signage, IT and Office Supplies, Printing	257,270	4,497		
Newcom Impex Ltd	Communication Equipment	253,091			
Ntake Bakery Co Ltd	Real Estate Services	486,612			
Ovidian Uganda Ltd	Communications, Design and Printing, Identification and Signage, Printing, Staff Supplies	139,386			
Picfare	Printing		354,310		
Reliefline (Uganda) Ltd	Education Supplies, Shelter/Field Equipment, Water and Sanitation	150,970			
Rotteveel Uganda Ltd	Communications, Design and Printing	141,393			
RoyalTechno Industries Ltd	Water and Sanitation Related Services	515,379			
Shell Uganda	Fuel and Lubricants	478,160			
Sumadhura Technologies Ltd	Water and Sanitation Related Services	486,048			
TBH Holdings Ltd	Communications, Design and Printing	184,319			
Threeways Distribution Ltd	In-Country Logistics and Warehousing Services	162,362			
TMK & Company	Finance and Insurance Services, Research, Surveys, Monitoring and Evaluation Services		203,680		

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Universal for General Construction & Trading	Construction Services				168,842
Windle International Uganda	Construction Services				1,540,569
World Point Group	Clothing and Footwear, Communications, Design and Printing, Identification and Signage, IT and Office Supplies, Printing				166,859
Yo! Uganda Ltd	Information and Communication Technology Services				357,536
UKRAINE					
Alc Coagulant	Water and Sanitation				230,205
Arena	Travel, Food and Lodging				321,733
Armaturniy Zavod Admiral LLC	Water and Sanitation				159,789
Construction Machinery Ltd	Transport				503,000
Eurotrubplast Llc	Water and Sanitation				212,143
Gidromontazh 1	Facility Maintenance and Repair, Water and Sanitation				139,097
Interprojekt GmbH LLC	Information and Communication Technology Services				421,845
Llc Gera	Water and Sanitation				495,360
LlcTrade House	Transport				102,800
PRP	Communications, Design and Printing				176,811
Sanofi-Aventis Ukraine LLC	Vaccines/Biologicals				612,684
Sky Trade Ukraine LLC	Education Supplies, Medical Supplies and Equipment, Water and Sanitation				413,503
Skykillers	Communications, Design and Printing				220,374
TOV Kompaniya Gamayun Ltd	Education Supplies, IT and Office Supplies, Medical Supplies and Equipment, Shelter/Field Equipment, Water and Sanitation				105,851
Ukrainian Institute for Social Research	Research, Surveys, Monitoring and Evaluation Services				168,322
UniqueTrading Company Ltd	Transport, Water and Sanitation				296,965
UNITED ARAB EMIRATES					
CTG Global Managed Services	Local Technical Workforce for Programme Execution				2,225,269
Green Flag FZC	Education Supplies, IT and Office Supplies, Printing, Transport				116,949
Grundfos Gulf Distribution FZE	Water and Sanitation				187,064
Kontec Trading LLC	Transport				179,158
Magenta FZC	Communications, Design and Printing				115,469
MPI Middle East FZE	Transport				115,700
NRS International FZCO	Shelter/Field Equipment				1,161,228
NRS Relief FZE	Shelter/Field Equipment, Warehousing, Water and Sanitation				3,018,503
Oki General Trading LLC	IT and Office Supplies, Transport				129,982
Ra International FZCO	Facility Maintenance and Repair, Others, Real Estate Services, Travel, Food and Lodging				1,974,967
Ska International Group Ltd	Safety and Security Services, Travel, Food and Lodging				306,615
Stellar Trading FZE	Communication Equipment, Education Supplies, Identification and Signage, IT and Office Supplies, Medical Supplies and Equipment, Printing, Transport				504,414
Tana Netting FZ LLC	Bednets/Insecticides				2,935,276
Truebell Marketing & Trading LLC	Others, Water and Sanitation				178,733
UNITED KINGDOM					
ACF-UK	Research, Surveys, Monitoring and Evaluation Services				314,936
Aegis Engineering Ltd	Staff Supplies				111,645
Aquaconsult Ltd	Research, Surveys, Monitoring and Evaluation Services				186,227
Arch Chemicals Ltd	Water and Sanitation				511,769
Arete Stories Ltd	Communications, Design and Printing				174,707
Avery Weigh-Tronix Ltd	Nutrition				278,422
AWJ Camera Services	Communications, Design and Printing				111,036
					4,520

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
BBC Media Action	Public Relations and Fundraising		1,196,535	560,794	
Butyl Products Ltd	Water and Sanitation			206,103	
Catalyst IT Europe Ltd	Information and Communication Technology Services			480,985	
CfBT Education Trust	Local Technical Workforce for Programme Execution		468,155		
Chancellor Masters and Scholars of University of Oxford	Research, Surveys, Monitoring and Evaluation Services		357,406		
Charlie Goldsmith Associates	Research, Surveys, Monitoring and Evaluation Services			137,169	
Child Soldiers International	Research, Surveys, Monitoring and Evaluation Services		120,615		
Content & Code Ltd	Information and Communication Technology Services			310,485	
Coram Children's Legal Centre Ltd	Research, Surveys, Monitoring and Evaluation Services		1,854,738		
Cromwell Tools Ltd	Education Supplies, IT and Office Supplies, Medical Supplies and Equipment		99,877	414,912	
Development Pathways Ltd	Consultancy Services, Research, Surveys, Monitoring and Evaluation Services		1,577,726		
DI International Ltd	Research, Surveys, Monitoring and Evaluation Services		26,226	411,418	
Dulas Ltd	Cold Chain Equipment, Facility Maintenance and Repair			5,409,221	
Durbin PLC	Medical Supplies and Equipment, Pharmaceuticals			1,942,626	
Elixir Partners LLP	Information and Communication Technology Services			170,110	
Equal International Consulting Ltd	Research, Surveys, Monitoring and Evaluation Services		136,782		
Evenproducts Ltd	Water and Sanitation			782,256	
Fairey Industrial Ceramics Ltd	Water and Sanitation			513,222	
Greenshields Cowie	In-Country Logistics and Warehousing Services		489,335		
Hameln Pharmaceuticals Ltd	Pharmaceuticals			449,570	
Hattersley Aladdin Ltd	Cold Chain Equipment			145,356	
Hydrachem Ltd	Water and Sanitation			1,537,678	
Imperial College Consultants Ltd	Local Technical Workforce for Programme Execution		234,225		
International Network for the Availability of Scientific Publications	Research, Surveys, Monitoring and Evaluation Services			108,650	
International Organisation Development PARC	Research, Surveys, Monitoring and Evaluation Services		929,712		
IPSOS Mori	Research, Surveys, Monitoring and Evaluation Services		172,800		
Itad Ltd	Research, Surveys, Monitoring and Evaluation Services			1,325,557	
J&D Wilkie Ltd	Staff Supplies			224,534	
Jankel Armouring Ltd	Others, Safety and Security Services, Transport		91,115	798,472	
Jozian Ltd	Information and Communication Technology Services			166,344	
Levin Sources Ltd	Research, Surveys, Monitoring and Evaluation Services		201,908		
Liverpool School of Tropical Medicine	Research, Surveys, Monitoring and Evaluation Services		1,398,284	845,796	
London School of Hygiene and Tropical Medicine	Research, Surveys, Monitoring and Evaluation Services		86,656	184,981	
M&C Saatchi World Services LLP	Research, Surveys, Monitoring and Evaluation Services		114,100		
Malaria Consortium	Research, Surveys, Monitoring and Evaluation Services			757,979	
Mallory International Ltd	Printing			415,555	
Marketing Data Consulting Ltd	Public Relations and Fundraising			214,775	
Matter Solutions Ltd	Business Administration Services			209,070	
Media Measurement Ltd	Research, Surveys, Monitoring and Evaluation Services			836,558	
Medreich Plc	Pharmaceuticals			2,359,496	
Mike Colling & Company Ltd	Public Relations and Fundraising			1,497,141	
Mobile Integrated Solutions Ltd	Medical Supplies and Equipment		638,681		
Mokoro Ltd	Research, Surveys, Monitoring and Evaluation Services		226,116	409,681	
Moore Stephens LLP	Finance and Insurance Services		1,091,222	2,138,134	
Morningside Pharmaceuticals Ltd	Medical Supplies and Equipment, Pharmaceuticals			2,736,431	

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Motherlode Media Ltd	Public Relations and Fundraising				463,505
Mott McDonald Ltd	Research, Surveys, Monitoring and Evaluation Services			603,593	3,222,505
Muso Net Ltd	Local Technical Workforce for Programme Execution				263,859
ORB International Ltd	Research, Surveys, Monitoring and Evaluation Services			389,280	
Overseas Development Institute	Research, Surveys, Monitoring and Evaluation Services			357,745	
Oxford Policy Management Ltd	Research, Surveys, Monitoring and Evaluation Services			4,580,411	2,782,949
Palintest Ltd	Water and Sanitation				489,261
Palladium International Ltd	Research, Surveys, Monitoring and Evaluation Services			294,705	
Redzebra Integrated Insights UK	Local Technical Workforce for Programme Execution				424,006
Remonsys Ltd	Cold Chain Equipment				339,392
Roehampton Corporate Initiative Ltd	Research, Surveys, Monitoring and Evaluation Services			171,343	
Russell Reynolds Associates Ltd	Local Technical Workforce for Programme Execution				282,900
S Brannan & Sons Ltd	Medical Supplies and Equipment				215,838
Salesforce.org EMEA Ltd	Information and Communication Technology Services				124,561
Sheargold Ltd	IT and Office Supplies, Printing, Transport			127,033	
Social Development Direct Ltd	Research, Surveys, Monitoring and Evaluation Services			29,994	119,725
Sollatek UK Ltd	Cold Chain Equipment				178,334
Strategic Agenda LLP	Communications, Design and Printing			17,500	538,931
The Humanitarian Cooperative Ltd	Communications, Design and Printing				228,856
The Save the Children Fund	Research, Surveys, Monitoring and Evaluation Services				1,859,680
Toyota Gibraltar Stockholdings Ltd	Cold Chain Equipment, In-Country Logistics and Warehousing Services, IT and Office Supplies, Transport, Warehousing			1,550,660	16,949,326
TPC Leadership Ltd	Local Technical Workforce for Programme Execution				68,540
Trace2O Ltd	Water and Sanitation				241,718
True Energy Ltd	Cold Chain Equipment, Facility Maintenance and Repair				3,411,182
Tsamota Ltd	Research, Surveys, Monitoring and Evaluation Services			645,493	
University of Cambridge Local Examinations Syndicate	Research, Surveys, Monitoring and Evaluation Services			452,356	
University of Edinburgh	Research, Surveys, Monitoring and Evaluation Services				167,040
Valid International Ltd	Research, Surveys, Monitoring and Evaluation Services				494,239
Vestey Foods UK Ltd	Nutrition				200,393
Willis Ltd	Finance and Insurance Services				2,735,285
WPP 2005 Ltd	Local Technical Workforce for Programme Execution				215,592
Youxia Ltd	Consultancy Services				170,451
Zero30Media Ltd	Communications, Design and Printing				19,821
UNITED REPUBLIC OF TANZANIA					
Bogeta Engineering Ltd	Construction Services			336,184	
Economic and Social Research Foundation	Research, Surveys, Monitoring and Evaluation Services			131,265	
EDI Ltd	Research, Surveys, Monitoring and Evaluation Services			551,958	
Ikemesa Goods Movers Company Ltd	In-Country Logistics and Warehousing Services			132,644	
Jamana Printers Ltd	Clothing and Footwear, Communications, Design and Printing, Education Supplies, Printing			387,630	
Kuehne + Nagel Ltd	In-Country Logistics and Warehousing Services			101,615	
Medical Stores Department	In-Country Logistics and Warehousing Services			147,303	
National Institute for Medical Research Muhimbili Centre	Research, Surveys, Monitoring and Evaluation Services			128,688	
Net Health Ltd	Bednets/Insecticides				2,790,962
Security Group Tanzania Ltd	IT and Office Supplies, Others, Safety and Security Services			211,374	
Step In Ltd	Clothing and Footwear, Education Supplies, Nutrition, Printing, Water and Sanitation			128,507	

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Tamasha Company Ltd	Communications, Design and Printing	151,552			
Tanzania Printers Ltd	Communications, Design and Printing, Printing	123,434			
Tawi Consult Ltd	Communications, Design and Printing	259,241			
The CSR Group Africa Ltd	Research, Surveys, Monitoring and Evaluation Services	129,732			
Top Floor Global Co Ltd	Clothing and Footwear, IT and Office Supplies, Nutrition, Water and Sanitation	1,842,840			
True Vision Production (T) Ltd	Communications, Design and Printing	201,849			
UNITED STATES					
111-115 Castle Road LLC	Facility Maintenance and Repair			451,720	
Access Bio Inc	Medical Supplies and Equipment			413,598	
Acquia Inc	Information and Communication Technology Services, IT and Office Supplies			295,135	
Acumen Solutions Inc	Information and Communication Technology Services			1,420,782	
Ad Boutique Inc	Communications, Design and Printing			296,204	
Advance Solutions Corp	Information and Communication Technology Services			270,750	
Alexander Wolf & Son	Construction Services			308,219	
Alice International Inc	Research, Surveys, Monitoring and Evaluation Services			159,540	
Alliance Sourcing Inc	Information and Communication Technology Services			148,760	
American Institutes for Research	Research, Surveys, Monitoring and Evaluation Services		1,175,966	2,120,847	
AT&T Corporation	Information and Communication Technology Services			194,000	
Atlantic Business Products	Real Estate Services			118,517	
Atlantic Business Systems Inc	Communication Equipment, IT and Office Supplies		21,675	1,992,557	
B&H Foto & Electronics Corp	Communication Equipment, IT and Office Supplies			132,270	
Behavioral Ideas Lab Inc	Research, Surveys, Monitoring and Evaluation Services			135,130	
Big Yellow Taxi	Communications, Design and Printing		13,150	315,075	
Blue State Digital Inc	Information and Communication Technology Services, Public Relations and Fundraising			123,893	
Books of Hope LLC	Printing			430,353	
Boston Consulting Group Inc	Consultancy Services			1,281,000	
BRAC USA Inc	Research, Surveys, Monitoring and Evaluation Services			115,880	
Braintree Global Health	Research, Surveys, Monitoring and Evaluation Services			432,390	
Chemonics International Inc	Research, Surveys, Monitoring and Evaluation Services			1,999,857	
Cisco Systems Inc	Information and Communication Technology Services		25,588	1,903,209	
Citibank NA	Finance and Insurance Services			165,000	
Citrix Systems Inc	Information and Communication Technology Services, IT and Office Supplies			234,040	
Collins Building Services Inc	Facility Maintenance and Repair			294,303	
Community Counselling Service Co LI	Public Relations and Fundraising			126,200	
Community Systems Foundation	Consultancy Services, Research, Surveys, Monitoring and Evaluation Services		527,388	60,554	
Compunnel Software Group Inc	Information and Communication Technology Services			295,480	
Corporation Service Company CSC	Communications, Design and Printing			170,306	
Dalberg Design LL	Research, Surveys, Monitoring and Evaluation Services			119,055	
Dara Inc	Research, Surveys, Monitoring and Evaluation Services			465,455	
Data Science Consulting LLC	Research, Surveys, Monitoring and Evaluation Services			415,700	
Development Gateway	Research, Surveys, Monitoring and Evaluation Services		53,680	55,184	
DialogueDirect Inc	Public Relations and Fundraising			689,944	
Drexel University	Research, Surveys, Monitoring and Evaluation Services			146,441	
Economic Policy Research Institute	Local Technical Workforce for Programme Execution, Research, Surveys, Monitoring and Evaluation Services			774,417	
Edesia	Nutrition			4,688,722	

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Emerging Markets Communications LLC	Information and Communication Technology Services				1,914,739
EntIT Software LLC	Information and Communication Technology Services				417,777
Environmental Systems Research Institute Inc	Information and Communication Technology Services				59,000
Eventique	Communications, Design and Printing				57,110
Facebook	Communications, Design and Printing, Public Relations and Fundraising				103,719
Family Health International 360	Research, Surveys, Monitoring and Evaluation Services				1,967
Florida State University Research Foundation	Research, Surveys, Monitoring and Evaluation Services				98,137
Forrest Solutions	Local Technical Workforce for Programme Execution				192,886
Gartner Inc	Information and Communication Technology Services				503,167
Georgetown University	Research, Surveys, Monitoring and Evaluation Services				800,000
Gimmal LLC	Information and Communication Technology Services				299,434
Global Fleet Sales LLC	Transport				147,656
Graphics Service Bureau Inc	Communications, Design and Printing				1,421,619
Harvard Business Publishing	Local Technical Workforce for Programme Execution				415,351
Health Media Lab	Research, Surveys, Monitoring and Evaluation Services				161,608
Hewlett Packard	Information and Communication Technology Services, IT and Office Supplies				137,680
Hologic Inc	Medical Supplies and Equipment				336,266
ICF Macro Inc	Research, Surveys, Monitoring and Evaluation Services				1,318,632
iDEKO Productions	Communications, Design and Printing				19,921
iMMAP	Research, Surveys, Monitoring and Evaluation Services				242,629
immixTechnology Inc	IT and Office Supplies				208,311
Infosys Public Services Inc	Information and Communication Technology Services				161,662
Innovapptive Inc	Information and Communication Technology Services				428,604
Innovations for Poverty Action	Research, Surveys, Monitoring and Evaluation Services				1,340,372
Intelligenos LLC	Information and Communication Technology Services, Local Technical Workforce for Programme Execution				229,932
Intermedia Survey Institute	Research, Surveys, Monitoring and Evaluation Services				100,542
Ipsos Public Affairs LLC	Communications, Design and Printing, Research, Surveys, Monitoring and Evaluation Services				336,442
John Hopkins University Center for Communication Program	Research, Surveys, Monitoring and Evaluation Services				113,776
John Snow Inc	Information and Communication Technology Services, Local Technical Workforce for Programme Execution				199,796
Johns Hopkins University	Research, Surveys, Monitoring and Evaluation Services				90,000
KPMG LLP	Consultancy Services				123,440
LinkedIn Corporation	Research, Surveys, Monitoring and Evaluation Services				596,622
Maestral International LLC	Information and Communication Technology Services, Local Technical Workforce for Programme Execution				83,403
Mana Nutritive Aid Products Inc	Nutrition				200,287
Management & Development Consulting Inc	Communications, Design and Printing, Local Technical Workforce for Programme Execution				107,850
Mason Technologies Inc	Research, Surveys, Monitoring and Evaluation Services				759,901
Merck & Co Inc	Information and Communication Technology Services, IT and Office Supplies				24,500
Microsoft Corporation	Vaccines/Biologicals				4,144,157
Mindlance Inc	Information and Communication Technology Services				39,499,029
Neocase Software Inc	Information and Communication Technology Services				4,636,591
Nollywood Workshops	Information and Communication Technology Services				373,092
Nyaruka	Information and Communication Technology Services				338,250
					135,721
					1,363,808
					57,000

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Oracle America Inc	IT and Office Supplies				332,574
PCI Media Impact	Communications, Design and Printing, Research, Surveys, Monitoring and Evaluation Services	252,674		137,800	
Pfizer Inc	Vaccines/Biologicals			341,832,113	
Pi Associates LLC	Research, Surveys, Monitoring and Evaluation Services	119,442			
Planson International Corp	Communication Equipment, Information and Communication Technology Services, IT and Office Supplies, Power Generation, Printing, Transport	297,774		3,393,993	
Polycom Inc	Communication Equipment, Information and Communication Technology Services, IT and Office Supplies, Others	53,965		796,867	
Procter & Gamble Co	Water and Sanitation			1,775,983	
Quoin Inc	Information and CommunicationTechnology Services	95,350		1,707,402	
Rain Barrel Communication LLC	Communications, Design and Printing			118,830	
Retractable Technologies Inc	Medical Supplies and Equipment			1,766,400	
RR Donnelley & Sons Company	Printing			1,456,966	
RTI International	Research, Surveys, Monitoring and Evaluation Services	560,051			
SAP America Inc	Information and CommunicationTechnology Services			3,741,360	
ServiceNow Inc	Information and CommunicationTechnology Services			527,760	
SHI International Corp	Communication Equipment, Information and Communication Technology Services, IT and Office Supplies	15,992		618,370	
Smjdata LLC	Research, Surveys, Monitoring and Evaluation Services	160,933			
Softerware Inc	Public Relations and Fundraising	358,188		50,000	
Stratman LLC	Local Technical Workforce for Programme Execution	588,864		278,268	
Sundanzer Refrigeration Inc	Cold Chain Equipment, Facility Maintenance and Repair			5,128,990	
Sungard Availability Services LP	Information and Communication Technology Services			1,748,138	
Swift SCRL	Finance and Insurance Services			109,000	
Sword Group	Information and CommunicationTechnology Services			784,348	
Symantec Corp	Information and CommunicationTechnology Services			106,650	
Tarrytown House Estate & Conference Center	Travel, Food and Lodging			147,425	
The Armored Group LLC	Transport			148,108	
The DevSmart Group LLC	Communications, Design and Printing, Local Technical Workforce for Programme Execution	162,200		262,100	
The George Washington University	Research, Surveys, Monitoring and Evaluation Services			812,919	
The Konterra Group	Research, Surveys, Monitoring and Evaluation Services	208,973			
The Populist Agency Inc	Communications, Design and Printing			323,894	
The University of North Carolina at Chapel Hill	Research, Surveys, Monitoring and Evaluation Services			102,000	
Thinkstep Inc	Information and CommunicationTechnology Services			187,425	
Tides	Research, Surveys, Monitoring and Evaluation Services	261,812			
Time Equities Inc	Real Estate Services			2,676,866	
Tivix Inc	Information and CommunicationTechnology Services			433,319	
Translators Without Borders US Inc	Communications, Design and Printing	154,643			
Trigyn Technologies Inc	Information and CommunicationTechnology Services			128,912	
United Nations Development Corp	Real Estate Services			9,608,910	
University of Pennsylvania	Research, Surveys, Monitoring and Evaluation Services	329,579			
VII Photo Agency LLC	Communications, Design and Printing			263,027	
Villagereach	Consultancy Services, Travel, Food and Lodging	8,684		122,494	
Weber Shandwick	Communications, Design and Printing	24,640		631,409	
White & Case LLP	Information and CommunicationTechnology Services			170,000	
Wisconsin Aluminum Foundry Co Inc	Medical Supplies and Equipment			388,097	

Annexes: UNICEF global procurement statistics

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
URUGUAY					
Esece Sociedad Responsabilidad Ltd	Public Relations and Fundraising				518,786
Meralir SA	Printing				149,041
Synapsis SA	Public Relations and Fundraising				141,242
Teomac SA	Public Relations and Fundraising				386,832
UES SA	In-Country Logistics and Warehousing Services				130,750
UZBEKISTAN					
Ekspert Fikri Ltd	Research, Surveys, Monitoring and Evaluation Services				165,903
Karakalpak Stigal	Construction Services				127,213
Mercury Service Events & Travel	Travel, Food and Lodging				303,728
N Com Central Asia Llc	Facility Maintenance and Repair				161,146
Repair Group PE	Construction Services				432,188
Serdolik Llc	Construction Services				207,860
Triumph Progress Llc	Construction Services				1,150,925
Vitamed Medical Llc	Quality Assurance, Laboratory and Inspection Services				328,367
VENEZUELA (BOLIVARIAN REPUBLIC OF)					
Dupont Química de Venezuela CA	Facility Maintenance and Repair, Real Estate Services				129,409
Toyo Oeste CA	Transport				101,301
Vene Embarques CA	In-Country Logistics and Warehousing Services				120,000
YEMEN					
Abdul Majeed Alwahlani Trading Group	Power Generation				100,579
Al-Adel for General Trading	In-Country Logistics and Warehousing Services, Water and Sanitation				7,347,514
Al-Amal Microfinance Bank	Finance and Insurance Services				27,166,767
Al-Athwari Contracting Center	Construction Services				215,910
Al-Awadhi Furniture & General Service	IT and Office Supplies, Shelter/Field Equipment, Water and Sanitation				10,075,999
Al-Fakhry for General Trading & Agencies	Water and Sanitation				1,563,841
Al-Hadha Furniture & Carpets Co Ltd	IT and Office Supplies				315,575
Alkuraimi Islamic Microfinance Bank	Finance and Insurance Services				46,090,963
Almudafar Medical and General Trading Corp	Medical Supplies and Equipment				260,091
Alnada Center for General Service	Fuel and Lubricants, In-Country Logistics and Warehousing Services				2,372,910
Alnebras Printing Press	Printing				176,525
Al-Sayaghi Printing Press	Clothing and Footwear, Printing				259,203
Arab Furniture Manufacturing Co	IT and Office Supplies				158,948
Awlad Abuhassan Co	In-Country Logistics and Warehousing Services				160,462
Bilal Al-Hubaishi for Trading & Agencies	Water and Sanitation				7,154,003
Dieda Corporation for Drugs and Medical Appliances	IT and Office Supplies, Medical Supplies and Equipment, Shelter/Field Equipment, Water and Sanitation				613,901
Dotnotion	Communications, Design and Printing				268,270
Eco Systems	Others, Water and Sanitation				497,210
Five Star Logistics Co Ltd	In-Country Logistics and Warehousing Services				472,670
Gabreez Production	Communications, Design and Printing				197,030
Gamal Transportation Services	In-Country Logistics and Warehousing Services				502,643
Help Service for Consultants and Telecommunication Services	Communication Equipment, Information and Communication Technology Services, IT and Office Supplies				232,180
Hertz	Travel, Food and Lodging				700
Khaled Nasser Almade	Water and Sanitation Related Services				308,900
					127,969

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Masters for Health and Safety Services	Facility Maintenance and Repair	780,386			
Moore Stephens Yemen	Finance and Insurance Services	712,091			
Multaka Al-Karat for Marketing	Clothing and Footwear, Medical Supplies and Equipment, Water and Sanitation	1,018,976			
Najman Trading and Supplies	IT and Office Supplies	384,000			
Natco Information Technology	IT and Office Supplies	318,541			
National Modern Factory for Office	IT and Office Supplies	988,923			
NYC Engineering	Construction Services	140,478			
Prodigy Systems	Local Technical Workforce for Programme Execution, Research, Surveys, Monitoring and Evaluation Services	5,023,425			
Public Telecommunication Corp	Information and Communication Technology Services	177,450			
Rawafed Al Qima Import	Water and Sanitation	126,655			
Remax Trading and Services	Water and Sanitation	627,120			
Sabafon	Information and Communication Technology Services	200,000			
Safer Yemen Company	Communications, Design and Printing	338,394			
Saleh Yahya Saleh Al Wadai Office for Contracting	Construction Services	131,812			
Sayoon for Medical and Equipment	Medical Supplies and Equipment	193,450			
Stallion Security & Safety Services Ltd	Safety and Security Services	2,315,000			
Tarsheed for General Services	Communication Equipment, IT and Office Supplies, Nutrition	276,231			
Technogate for Technology	Communication Equipment, IT and Office Supplies, Medical Supplies and Equipment	304,545			
Teleyemen	Information and Communication Technology Services	130,600			
Third Party Logistics and Supply	Fuel and Lubricants, IT and Office Supplies, Medical Supplies and Equipment, Water and Sanitation	126,443			
World View for Media Services	Research, Surveys, Monitoring and Evaluation Services	120,000			
Worldlink International	Fuel and Lubricants, In-Country Logistics and Warehousing Services, Shelter/Field Equipment	2,665,032			
Yemen Armored Security & Safety	Safety and Security Services	1,056,000			
Yemen Polling Center	Research, Surveys, Monitoring and Evaluation Services	123,992			
Yemen Production Network for Media	Communications, Design and Printing	204,553			
Yemen Trading and Construction Co Ltd	Medical Supplies and Equipment	658,440			
Yousif Al Majidi for Trading	Others, Water and Sanitation	2,288,607			
ZAMBIA					
Bebrin Investments Ltd	Construction Services	123,406			
Buffalo Bicycles Zambia Ltd	Transport	329,354			
F One Hazida Ltd	Transport	263,158			
Genius Construction Services Ltd	Construction Services	195,354			
Jesmic Investments Ltd	Construction Services	229,298			
New Horizon Printing Press	Clothing and Footwear, Communications, Design and Printing, Education Supplies, Identification and Signage, Printing	114,055			
Priluc Industrial Supplier Ltd	Construction Services	237,993			
Proprint Ltd	Communications, Design and Printing	419,928			
ZIMBABWE					
College Press Publishers	Printing	765,748			
Consultus Services Pvt Ltd	Printing	732,672			
Delma Printers P/L	Printing	155,138			
Deloitte Advisory Services Pvt Ltd	Finance and Insurance Services	217,485			
Directory Publishers	IT and Office Supplies, Printing	107,855			
Econet Wireless	Local Technical Workforce for Programme Execution	3,335,995			
Ernst & Young	Finance and Insurance Services	166,254			

Supplier	Products/Services	Local	Country-to-country	International	Value (\$)
Esgar Products and Investment Company Pvt Ltd	Water and Sanitation				267,228
Fairways Clothing Manufacturers	Clothing and Footwear, Identification and Signage, Printing, Staff Supplies				112,535
First Pack Marketing Pvt Ltd	Education Supplies, IT and Office Supplies, Printing, Warehousing				118,436
Kingsport Investments Pvt Ltd	Clothing and Footwear, Education Supplies, Identification and Signage, Medical Supplies and Equipment, Printing, Shelter/Field Equipment, Staff Supplies				396,864
Manica Bikes Pvt Ltd	Others, Transport				246,793
Metpole Investments Pvt Ltd	Clothing and Footwear, Construction, Medical Supplies and Equipment, Shelter/Field Equipment, Water and Sanitation				259,668
Multiforce Contractors Pvt Ltd	Water and Sanitation Related Services				222,620
Muthengo Development Studies	Research, Surveys, Monitoring and Evaluation Services				167,626
PricewaterhouseCoopers Zimbabwe	Research, Surveys, Monitoring and Evaluation Services				106,807
Priority Projects Consultancy	Printing				3,889,762
Roll Out Ads Pvt Ltd	Information and Communication Technology Services				209,496
Sable Press Pvt Ltd	Printing				139,633
Tzircalle Bros	Water and Sanitation Related Services				810,465
V & W Engineering	Construction, Nutrition, Water and Sanitation				2,033,411
Waverley Plastics P/L	Others, Water and Sanitation				182,677
Willowvale Motor Industries	In-Country Logistics and Warehousing Services				156,788
Zimbabwe Publishing House Pvt	Printing				360,998

Annex 3a

Destination countries/areas for UNICEF procured commodities, aggregating local, country-to-country and international procurement

Country/area	Value (\$)	Country/area	Value (\$)	Country/area	Value (\$)	Country/area	Value (\$)
Afghanistan	87,741,762	Eritrea	14,009,691	Montenegro	118,011	Turkey	17,983,682
Albania	2,704,289	Eswatini	573,273	Morocco	6,954,000	Turkmenistan	7,473,167
Algeria	543,295	Ethiopia	93,498,351	Mozambique	34,742,803	Tuvalu	4,703
Angola	15,254,095	Fiji	5,001,753	Myanmar	28,775,289	Uganda	58,164,180
Antigua and Barbuda	47,982	Gabon	640,210	Namibia	385,203	Ukraine	27,944,591
Argentina	698,760	Gambia	4,418,754	Nepal	12,630,879	United Republic of Tanzania	60,536,625
Armenia	1,425,074	Georgia	2,794,428	Nicaragua	1,257,588	United States (HQ Location)	3,348,764
Azerbaijan	3,190,462	Ghana	30,832,120	Niger	41,533,483	Uruguay	201,217
Bangladesh	85,156,764	Greece	33,350	Nigeria	213,507,721	Uzbekistan	17,329,404
Barbados (Area Office Location)	151,128	Grenada	3,138	North Macedonia	83,851	Vanuatu	400,364
Belarus	379,528	Guatemala	287,017	Oman (Area Office Location)	43,732	Venezuela (Bolivarian Republic of)	6,799,761
Belize	31,848	Guinea	18,664,899	Pakistan	217,602,421	Viet Nam	8,504,906
Benin	11,913,517	Guinea-Bissau	5,700,300	Panama	232,543	Yemen	136,644,813
Bhutan	591,263	Guyana	295,948	Papua New Guinea	9,684,302	Zambia	22,071,572
Bolivia (Plurinational State of)	3,165,850	Haiti	8,038,190	Paraguay	78,046	Zimbabwe	62,593,035
Bosnia and Herzegovina	344,756	Honduras	1,123,801	Peru	6,842,055		
Botswana	726,959	Hungary (HQ Location)	271,608	Philippines	18,315,853		
Brazil	499,578	India	161,496,388	Republic of Moldova	1,214,650		
Bulgaria	12,686	Indonesia	3,946,430	Romania	15,807		
Burkina Faso	40,864,345	Iran (Islamic Republic of)	3,239,267	Rwanda	11,752,006		
Burundi	31,744,884	Iraq	23,843,231	Saint Lucia	3,013		
Cabo Verde	295,559	Italy (HQ Location)	17,944	Samoa	9,234		
Cambodia	6,924,519	Jamaica	33,247	Sao Tome and Principe	468,998		
Cameroon	27,903,430	Japan (HQ Location)	30,227	Saudi Arabia	8,219		
Central African Republic	9,411,846	Jordan	18,865,330	Senegal	31,782,374		
Chad	29,331,153	Kazakhstan	4,421,800	Serbia	235,355		
Chile	213,115	Kenya	40,612,901	Seychelles	208,818		
China	1,073,820	Kiribati	77,095	Sierra Leone	17,871,876		
Colombia	487,079	Kosovo	473,793	Solomon Islands	1,617,042		
Comoros	1,631,314	Kyrgyzstan	4,805,689	Somalia	26,877,519		
Congo	9,113,264	Lao People's Democratic Republic	4,475,939	South Africa	167,881		
Costa Rica	69,807	Lebanon	9,201,191	South Sudan	29,308,150		
Côte d'Ivoire	38,276,316	Lesotho	1,192,526	Sri Lanka	2,334,641		
Croatia	352,305	Liberia	7,373,987	State of Palestine	9,430,445		
Cuba	1,465,220	Libya	4,138,746	Sudan	79,720,838		
Democratic People's Republic of Korea	13,096,133	Madagascar	24,034,733	Suriname	25,629		
Democratic Republic of the Congo	83,886,067	Malawi	25,768,068	Switzerland (HQ Location)	2,423,099		
Denmark (HQ Location)	659,273	Malaysia	84,086	Syrian Arab Republic	48,067,772		
Djibouti	2,434,234	Maldives	346,225	Tajikistan	4,918,106		
Dominican Republic	118,777	Mali	25,750,951	Thailand	807,154		
Ecuador	504,642	Mauritania	5,147,499	Timor-Leste	1,446,800		
Egypt	10,770,988	Mexico	376,291	Togo	8,751,195		
El Salvador	226,339	Micronesia (Federated States of)	41,914	Trinidad and Tobago	72,718		
Equatorial Guinea	382,888	Mongolia	2,229,363	Tunisia	290,071		

Annex 3b

Destination countries/areas where services were used, aggregating local, country-to-country and international procurement

Country/area	Value (\$)	Country/area	Value (\$)	Country/area	Value (\$)	Country/area	Value (\$)
Afghanistan	37,360,744	Equatorial Guinea	249,972	Mozambique	4,600,784	United Republic of Tanzania	9,022,861
Albania	465,642	Eritrea	3,527,407	Myanmar	8,145,841	United States (HQ Location)	64,589,388
Algeria	888,884	Eswatini	332,465	Namibia	778,956	Uruguay	1,830,235
Angola	8,246,574	Ethiopia	32,957,396	Nepal	5,323,372	Uzbekistan	5,071,160
Antigua and Barbuda	6,154	Fiji	2,678,110	Nicaragua	933,319	Vanuatu	102,852
Argentina	9,901,889	Gabon	208,194	Niger	8,702,949	Venezuela (Bolivarian Republic of)	1,116,659
Armenia	457,347	Gambia	310,096	Nigeria	46,176,095	Viet Nam	789,133
Azerbaijan	396,961	Georgia	1,198,237	North Macedonia	656,799	Yemen	102,143,595
Bangladesh	24,956,089	Ghana	5,051,390	Oman (Area Office Location)	773,510	Zambia	4,977,318
Barbados (Area Office Location)	330,942	Guatemala	759,267	Pakistan	115,446,576	Zimbabwe	10,046,737
Belarus	486,816	Guinea	5,376,093	Panama	1,420,487		
Belgium (HQ Location)	1,399	Guinea-Bissau	1,362,769	Papua New Guinea	4,577,817		
Belize	465,151	Guyana	251,730	Paraguay	563,585		
Benin	1,634,625	Haiti	5,432,196	Peru	3,175,950		
Bhutan	164,002	Honduras	436,772	Philippines	6,541,359		
Bolivia (Plurinational State of)	2,230,446	Hungary (HQ Location)	483,478	Republic of Moldova	574,974		
Bosnia and Herzegovina	733,719	India	52,424,714	Romania	900,928		
Botswana	1,014,409	Indonesia	7,043,537	Rwanda	2,633,686		
Brazil	5,130,008	Iran (Islamic Republic of)	853,502	Samoa	3,646		
Bulgaria	362,961	Iraq	21,297,732	Sao Tome and Principe	147,978		
Burkina Faso	7,213,985	Jamaica	224,464	Saudi Arabia	464,452		
Burundi	11,408,171	Japan (HQ Location)	278,854	Senegal	3,788,121		
Cabo Verde	35,692	Jordan	37,723,540	Serbia	450,996		
Cambodia	1,974,333	Kazakhstan	471,854	Seychelles	5,256		
Cameroon	6,536,833	Kenya	12,797,959	Sierra Leone	5,695,820		
Central African Republic	4,920,956	Kiribati	47,676	Solomon Islands	582,656		
Chad	11,338,259	Kosovo	322,557	Somalia	21,625,440		
Chile	4,502,664	Kyrgyzstan	1,461,630	South Africa	3,020,120		
China	5,436,955	Lao People's Democratic Republic	1,750,506	South Sudan	36,420,428		
Colombia	6,980,123	Lebanon	34,829,640	Sri Lanka	617,886		
Comoros	960,758	Lesotho	4,432,971	State of Palestine	12,574,841		
Congo	1,631,063	Liberia	3,384,712	Sudan	10,091,580		
Costa Rica	186,745	Libya	416,376	Switzerland (HQ Location)	16,507,535		
Côte d'Ivoire	10,196,955	Madagascar	6,487,113	Syrian Arab Republic	22,792,669		
Croatia	699,850	Malawi	9,124,994	Tajikistan	1,799,249		
Cuba	483,547	Malaysia	6,660,791	Thailand	10,624,816		
Democratic People's Republic of Korea	1,382,681	Maldives	426,810	Timor-Leste	1,215,444		
Democratic Republic of the Congo	39,995,271	Mali	10,849,645	Togo	1,796,493		
Denmark (HQ Location)	12,602,174	Mauritania	2,402,873	Trinidad and Tobago	4,775		
Djibouti	597,625	Mexico	6,813,929	Tunisia	2,792,508		
Dominican Republic	296,234	Micronesia (Federated States of)	14,738	Turkey	6,718,713		
Ecuador	1,711,115	Mongolia	547,425	Turkmenistan	424,191		
Egypt	4,508,524	Montenegro	379,467	Uganda	14,099,968		
El Salvador	593,215	Morocco	2,403,497	Ukraine	4,130,701		

Annex 4

Number of companies invited to bid by Supply Division for international procurement and responses received, by country/area

Country/area	Number of Invitees	Number of Responses
Australia	6	2
Austria	13	10
Bangladesh	14	6
Belgium	30	16
Bulgaria	3	2
Canada	9	5
China	205	131
Colombia	4	0
Cuba	2	0
Cyprus	7	7
Czechia	3	2
Democratic People's Republic of Korea	1	0
Denmark	116	61
Djibouti	1	1
Estonia	1	1
Ethiopia	1	0
Finland	17	10
France	52	32
Germany	76	38
Ghana	1	0
Greece	2	2
India	183	121
Indonesia	8	4
Iraq	4	0
Ireland	5	4
Israel	5	2
Italy	51	15
Japan	10	5
Jordan	2	1
Kazakhstan	1	1
Kenya	15	10
Lebanon	13	11
Luxembourg	24	22
Malaysia	2	1
Netherlands	82	34
Nigeria	3	3
Norway	18	9
Pakistan	1	0
Poland	1	0
Portugal	7	6
Republic of Korea	21	13
Russian Federation	2	0
Senegal	3	2
Serbia	11	2
Seychelles	4	3
Singapore	5	3
Slovakia	1	1
Slovenia	8	1
South Africa	19	9
Spain	40	18
Sri Lanka	2	1
State of Palestine	1	1
Sweden	16	13
Switzerland	23	12
Thailand	4	1
Tunisia	1	0
Turkey	10	4
Ukraine	2	2
United Arab Emirates	36	17
United Kingdom	153	92
United Republic of Tanzania	1	1
United States	50	29
Uruguay	1	0
Zambia	1	0
Zimbabwe	1	1
TOTAL	1,415	801



Children in Viet Nam peer out of an open doorway

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