

Background

The United Nations' first Sustainable Development Goal (SDG) is to **eradicate poverty** in all its forms worldwide. One of the targets under this goal (Target 1.4) is to ensure that all people, particularly the poor and vulnerable, have equal rights to economic resources, basic services, ownership and control over land and other property, inheritance, natural resources, and appropriate new technology and financial services, including microfinance, by 2030.

To measure progress towards this target, the UN has selected **Indicator 1.4.1**, which involves tracking the proportion of the population living in households with **access to basic services per country**. *Table 1* shows the related SDG indicators, and we will only use indicators 6.1.1 and 6.2.1.

*Table 1: The UN SDG indicators related to target 1.4.1 from the [Metadata on SDGs Indicator 1.4.1](#)
Indicator category: Tier II report*

Access to	Related SDG indicators
Basic drinking water services	6.1.1 Proportion of the population using safely managed drinking water services
Basic sanitation services	6.2.1 Proportion of the population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water
Basic hygiene services	6.2.1 Proportion of the population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water
Waste collection	11.6.1 Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities
Mobility and transport	9.1.1 Proportion of the rural population who live within 2 km of an all-season road 11.2.1 Proportion of the population that has convenient access to public transport, by sex, age, and persons with disabilities
Modern energy	7.1.1 Percentage of the population with access to electricity 7.1.2 Percentage of the population with primary reliance on clean fuels and technology
ICT	5.b.1 Proportion of individuals who own a mobile telephone, by sex 9.c.1 Proportion of the population covered by a mobile network, by technology
Education	4.1.1 Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex
Health	3.7.1 Proportion of women of reproductive age (aged 15 – 49 years) who have their need for family planning satisfied with modern methods 3.8.1 Coverage of essential health services

Data model

The database **access_to_basic_services** includes more than 1,000 records and ten columns. The data model, including the column names, data types, feature descriptions, and whether or not the feature requires a value for every row (marked as NOT NULL) is included in *Table 2*.

Table 2: The data model for the access_to_basic_services database.

Column name	Data type	Feature description	Marked as NOT NULL
Region	VARCHAR(32)	The region of a country and continent.	
Sub_region	VARCHAR(25)	The sub-region of a continent.	
Country_name	VARCHAR(37)	The country name.	True
Time_period	INTEGER	The year each metric was determined.	True
Pct_managed_drinking_water_services	NUMERIC(5,2)	The percentage of the population with access to managed drinking water services.	
Pct_managed_sanitation_services	NUMERIC(5,2)	The percentage of the population with access to managed sanitation services.	
Est_population_in_millions	NUMERIC(11,6)	The estimated population size in millions.	
Est_gdp_in_billions	NUMERIC(8,2)	The estimated Gross Domestic Product (GDP) in billions of US dollars.	
Land_area	NUMERIC(10,2)	The size of the country in km^2	
Pct_unemployment	NUMERIC(5,2)	The percentage of the population not working or studying but actively seeking employment.	