UN environment

IUCN

Gender and environment statistics:

Unlocking information for action and measuring the SDGs

MARCH 2019

Disclaimers

The contents of this volume do not necessarily reflect the views of the United Nations Environment Programme or contributing organizations. The designations employed and the presentations do not imply the expressions of any opinion whatsoever on the part of the United Nations Environment Programme or contributory organizations concerning the legal status of any country, territory, city or area or its authority, or concerning the delimitation of its frontiers or boundaries. For general matters relating to the use of maps in publications please go to http://www.un.org/Depts/Cartographic/english/htmain.htm

Mention of a commercial company or product in this publication does not imply endorsement by UN Environment.

Reproduction

This publication may be reproduced in whole or in part and in any form for educational or non-profit services without special permission from the copyright holder, provided acknowledgement of the source is made. UN Environment would appreciate receiving a copy of any publication that uses this publication as a source.

No use of this publication may be made for resale or any other commercial purposes whatsoever without prior permission in writing from the UN Environment. Applications for such permissions with a statement of the purpose and extent of the reproduction, should be addressed to the Director, Communication Division, UNEP, P.O Box 30552, Nairobi, 00100, Kenya.

The use of this information from this publication concerning propriety and products for publicity or advertising is not permitted.

Suggested Citation

UNEP and IUCN. (2018). Gender and environment statistics: Unlocking information for action and measuring the SDGs. UN Environment, Nairobi, Kenya.

Photo Credits

© Images, Maps and Illustrations as specified.

Production

United Nations Environment Programme
P.O. Box 30552, Nairobi, KENYA
Tel: +254 (0)20 762 1234
Fax: +254 (0)20 762 3927
E-mail: uneppub@unep.org

In collaboration with the
IUCN Global Gender Office
– Global Programme on Governance and Rights
1630 Connecticut Ave, NW, 3rd floor
Washington, DC, 20009, USA
http://www.genderandenvironment.org/
http://www.iucn.org
Email: Gender@iucn.org

UN Environment promotes environmentally sound practices globally and its own activities. This report is printed on paper from sustainable forests including recycled fibre. The paper is chlorine free and the inks vegetable-based. Our distribution policy aims to reduce UN Environment's carbon footprint.

Gender and environment statistics:

Unlocking information for action and measuring the SDGs

UN environment

IUCN

Foreword

Just as women and men have different access to education, economic opportunities and free time in many parts of the world, they also relate to the environment differently. In particular, there is a strong gender dimension in how people access land and natural resources, engage in environmental management and encounter vulnerability to environmental challenges.

The report shows exactly how environmental issues can impact women more severely. For example, pregnant and lactating women face greater threats from the pollution of air and water. They are also more at risk from the vector and water-borne diseases that are expected to increase in a changing climate.

Understanding such links between the environment and gender, and the inequalities inherent therein, is an essential first step to allowing all genders to contribute to and benefit from sustainable development. But there are currently major gaps in this area. The United Nations Statistical Commission has adopted a Minimum Set of Gender Indicators. However, these indicators focus on social issues, economic empowerment and political engagement. They leave the environment out of the picture.

This report seeks to provide a framework to measure the nexus between gender and the environment. It proposes 18 gender-environment indicators for inclusion in the wider set of gender indicators, across the focal areas of right to land, natural resources and biodiversity; access to food, energy, water and sanitation; climate change, sustainable production and consumption, and health; and women in environmental decision making at all levels.

The report also proposes specific ways that the links between gender and environment could be considered in the Sustainable Development Goals. Through understanding the differences between women and men, we can design better policy interventions to address their particular challenges, and harness their particular strengths. I hope that this report, which can be used and refined by all concerned parties, will provide a starting point for a more gender-equitable relationship with our environment.

Joyce Msuya,
Acting Executive Director, UN Environment

Table of contents

List of tables

Acknowledgements

Acknowledgements

Core drafting team

Expert Consultation on Gender and environment statistics

Design and layout

Acronyms

ADB	Asian Development Bank
BMI	Body Mass Index
BPfA	Beijing Platform for Action
BRS	Basel, Rotterdam and Stockholm Conventions
BRS-GAP	BRS Gender Action Plan
CAUTAL	Classification of Activities for Time-Use for Latin America and the Caribbean
CBD	Convention on Biological Diversity
CEDAW	Convention on the Elimination of all forms of Discrimination Against Women
COP	Conference of the Parties
DHS	Demographic and Health Survey
DRM	Disaster Risk Management
DRR	Disaster risk reduction
EGI	IUCN's Environment and Gender Information platform
EHRD	Environmental Human Rights Defenders
EMIS	Education Management Information System
EU	European Union
FAO	United Nations Food and Agriculture Organisation
FUGs	Forest user groups
GAP	Gender Action Plan
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GEF	Global Environment Facility
GGEO	Global Gender and Environment Outlook
GFN	Global Footprint Network
GID-DB	Gender, Institutions and Development Database
GIS	Geographic Information Systems
HETUS	Harmonised European Time Use Survey
HIES	Household Income and Expenditure Survey
HLG-PCCB	High-Level Group for Partnership, Coordination, and Capacity-Building for the 2030 Agenda for Sustainable Development
IAEG-GS	Inter-Agency Expert Group-Gender Statistics
IAEG-SDGs	Inter-Agency Expert Group-SDGs
ICATUS	International Classification of Activities for Time Use Statistics
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
INEGI	Mexico's National Institute of Statistics and Geography

IPCC	Inter-Governmental Panel on Climate Change
IPU	Inter-Parliamentary Union
ISTAT	Italian National Institute of Statistics
IUCN	International Union for Conservation of Nature
IUCN GPGR	IUCN Global Programme on Governance and Rights
JMP	Joint Monitoring Programme
KNBS	Kenya National Bureau of Statistics
Lao PDR	Lao People's Democratic Republic
LSB	Lao Statistics Bureau
LSMS	Living Standards Measurement Survey
LSMS-ISA	LSMS Integrated Surveys on Agriculture
LWPG	Lima Work Programme on Gender
MDGs	Millennium Development Goals
MEA	Multilateral Environmental Agreement
MICS	Multiple Indicator Cluster Survey
MoFA	Ministry of Foreign Affairs
NCAW	Lao National Commission for the Advancement of Women and Mother-Child
NGOs	Non-governmental organisations
NTFPs	Non-timber forest products
NSEDP	Lao PDR's National Socio-Economic Development Plan
OECD	Organisation for Economic Co-operation and Development
OIEWG	Open-ended Intergovernmental Expert Working Group
PAN	Pesticide Action Network
POPs	Persistent Organic Pollutants
RRI	Rights and Resources Initiative
SCP	Sustainable Consumption and Production
SDGs	Sustainable Development Goals
SEforALL	Sustainable Energy for All
SIGI	Social Institutions and Gender Index
SISTAN	Italy's National Statistics System
SNIEG	Mexico's National System for Statistical and Geographical Information
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNELAC	United Nations Economic Commission for Latin America and the Caribbean
UNFCCC	United Nations Framework Convention on Climate Change
UN-HABITAT	United Nations Human Settlements Programme
UNICEF	United Nations Children's Fund
UNISDR	United Nations Office for Disaster Risk Reduction

UNSD	United Nations Statistics Division
USAID	United States Agency for International Development
WASH	Water, Sanitation and Hygiene
WB	World Bank
WCA	FAO's World Programme for the Census of Agriculture
WEDO	Women's Environment and Development Organization
WHO	World Health Organization
WOCAN	Women Organizing for Change in Agriculture and Natural Resource Management
WWAP	United Nations World Water Assessment Programme

Executive Summary

Gender equality and women's empowerment are globally recognised priorities, matters of fundamental human rights, and prerequisites for sustainable development (IUCN, 2018; World Economic Forum, 2015). Understanding the gender-environment nexus is not only key to understanding social and environmental inequities and barriers to sustainable development, but to unlocking options for transformative action, as well.

Data gaps at this nexus, however, are persistent. Limited collection, dissemination and application of gender-environment statistics, including at national level, affects decision makers' and practitioners' knowledge and capacity to develop and adopt well-informed and effective policies and programming at all levels (UN Environment, 2016). The International Union for Conservation of Nature (IUCN) and UN Environment are collaborating to develop an enhanced understanding of and enabling environment for gender-environment statistics, particularly to identify specific indicators that can gather necessary information and strategies for national action as stakeholders work toward meeting the Sustainable Development Goals (SDGs).

To meet this objective, this report first considers the current landscape of data at the gender-environment nexus. This report then outlines the key issues and associated indicators used for tracking and analysing those issues, organized around four priority areas:

A. Right to land, natural resources and biodiversity;

B. Access to food, energy, water and sanitation;

C. Climate change, sustainable production and consumption, and health and well-being; and

D. Women in environmental decision making at all levels.

Enabling conditions are examined for gathering gender-environment data and information at national level, including as identified through action research conducted in Lao People's Democratic Republic (Lao PDR), Kenya and Mexico. Drawing on gaps and opportunities identified in the current data landscape and the enabling conditions from action research, this report presents recommended gender-environment indicators, as well as for actions that should be taken by national statistical systems to enhance gender-environment statistics.

Entry points for strengthening the gender-environment nexus in existing data frameworks

To build understanding of the current landscape of data at the gender-environment nexus, this report discusses two relevant international data frameworks in detail: the framework for the Minimum Set of Gender Indicators from the IAEG-GS, and the framework of indicators under the SDGs. The Minimum Set of Gender Indicators, considered the leading international list of gender indicators, addresses many of the critical areas of concern of the Beijing Platform for Action (BPfA); however, the critical area on Women and Environment is not explicitly covered, save for an indicator on agricultural land tenure (UNSD, 2017c). This presents an opportunity to build awareness and integrate environmental issues in the work of IAEG-GS and national statistics systems. Next, the adoption of the SDGs in 2015 brought renewed

attention to the importance of interlinked action across sectors, including advancing gender equality as a cross-cutting issue. SDG indicators, however, are not as interlinked. Countries' commitment to the SDGs provides a prime environment to enhance the development, collection, application and dissemination of gender-environment statistics. In fact, countries will not meet their targets without doing so.

To address the gaps in current international data frameworks, IUCN and UN Environment developed a list of 18 gender-environment indicators across the four priority areas mentioned above, with specific recommendations for IAEG-GS, national statistics systems and the international community of actors working to advance the use of data in understanding the gender-environment nexus. The following table includes a sample of proposed indicators specifically recommended for inclusion within the Minimum Set of Gender Indicators.

PRIORITY AREA A: RIGHT TO LAND, NATURAL RESOURCES AND BIODIVERSITY

(a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure *(This is the same as SDG 5.a.1)*

PRIORITY AREA B: ACCESS TO FOOD, ENERGY, WATER AND SANITATION

Proportion of population using safely managed drinking water services, by type of household *(This is based on but modified from SDG 6.1.1)*

Time spent collecting water for household consumption, by sex *(New recommendation)*

PRIORITY AREA C: CLIMATE CHANGE, SUSTAINABLE CONSUMPTION AND PRODUCTION, HEALTH & WELL-BEING

Number of deaths, missing persons and directly affected persons attributed to hydrometeorological disasters per 100,000 people, by sex *(This is based on but modified from SDGs 1.5.1, 11.5.1 and 13.1.1)*

PRIORITY AREA D: WOMEN IN ENVIRONMENTAL DECISION-MAKING

Heads of environmental ministries, by sex, by sector *(New recommendation)*

Enabling conditions for measuring the gender-environment nexus

A strong enabling environment for national statistics systems is essential to complement and make use of indicators to measure the gender-environment nexus, as these systems are ultimately responsible for collecting, analysing and disseminating data, including for measuring progress toward the SDGs. In order to identify characteristics of a national level enabling environment for measuring the gender-environment nexus, IUCN and UN Environment, in partnership with governments and key stakeholders, conducted action research in three pilot countries: Lao PDR, Kenya and Mexico. Through the action research, IUCN and UN Environment identified several key factors for an effective enabling environment for national statistics systems, including presence (and awareness) of national gender equality and gender mainstreaming laws, mandates and policies; coordination and cooperation among ministries; and cross-sectoral and -institutional capacity for both understanding and applying statistics for action at the gender-environment nexus.

CROSS-AGENCY COLLABORATION AND CAPACITY BUILDING—SNAPSHOT FROM MEXICO

Mexico's statistical system is participatory and inclusive, with gender equality considerations reflected in and mainstreamed throughout the system's structure. Cross-agency and cross-sectoral collaboration are priorities in Mexico, with committees to facilitate knowledge-sharing spaces and help to shed light onto specific themes such as gender and the SDGs, which contributes to national efforts to measure the gender-environment nexus.

To support national statistics systems in their efforts to measure sustainable development efforts, including to advance gender equality, this research recommends utilising sex-disaggregated indicators to measure the gender-environment nexus within existing mechanisms, such as household surveys. The relatively simple step of disaggregating information, which is still not always done, especially related to environmental issues, can deliver enormous insight into the diverse daily lives of women and men. Time-use surveys, as seen in Mexico, are a useful tool to better understand gender-differentiated roles and responsibilities and illustrate existing gender-differentiated time burdens. Information gathered can be analysed and applied to enhance policymaking and programming targeted across sectors and at the gender-environment nexus.

Conclusions

As this paper examines, collection and dissemination of national level gender-environment statistics offers an opportunity to shine a light on a set of interlinked issues that can either undermine or accelerate progress toward sustainable development. These statistics advance global understanding of gender gaps and help to tell a story of transformation—connecting the dots on how realising women's rights and advancing gender equality unlock opportunities for more effective and equitable outcomes across the environmental and sustainable development sphere, and vice versa. They not only reinforce the importance of an intersectional approach, as the SDG framework aims to drive, but they give clues to strategies and actions required to operationalize that approach.

© Craig Schuler | Shutterstock

1

Priority issues in terms of measuring gender and the environment

Chapter 1: Priority issues in terms of measuring gender and the environment

Introduction

Gender equality and women's empowerment are globally recognised priorities, matters of fundamental human rights and social justice, and prerequisites for sustainable development (IUCN, 2018; World Economic Forum, 2015). Time and time again, understanding the gender-environment nexus has proven to be key to understanding social and environmental inequities and barriers, as well as unlocking opportunities to overcome persistent challenges of sustainable development. While the global policy framework connecting gender-environment issues has progressed, especially in more recent years, with numerous gender-responsive strategies at multiple levels transforming development outcomes across sectors, a persistent gap still exists: data. This paper explores the existing knowledge on and strategies to close the data gap at the gender-environment nexus.

Policy makers rely on data to develop efficient and effective evidence-based policies, strategies and programmes. Disaggregated data collection, analysis and application is therefore essential. Now, while the global community is prioritising action toward meeting the interlinked Sustainable Development Goals (SDGs), information across sectors and issues is even more important—revealing where both progress and barriers aid or limit impact in multiple spheres.

Data at the nexus of gender and environment issues (herein referred to commonly as gender-environment data) allows for a realistic, context-specific understanding of people's daily lives, the barriers and constraints they face, and the opportunities that may or may not be available to them, especially related to sustainable, equitable management of natural resources. This information is essential to be able to understand the problems facing a community; to develop appropriate policies, programmes and initiatives to address those challenges; and to measure progress toward achieving goals. This data is also essential for contextualising barriers to sustainable development and identifying key stakeholders and actors—including often-overlooked potential agents of change such as women and marginalised communities—who can and should be involved in policy development and implementation.

This paper explores some of these promising practices, which could be influential not only for other countries' strategies but for the global sustainable development community as a whole. Measuring the gender-environment nexus is key to developing evidence-based policies and programmes to support gender equality. Developing indicators and employing them for data and information collection at all levels will provide for an accurate understanding of the current status of gender equality across

environmental sectors, as well as propel the strategies and opportunities necessary to effectively track progress on the SDGs. Some countries are demonstrating leadership in this area, especially recalling the international policy frameworks that recognise and require disaggregated data and information, putting enabling conditions in place for action.

Background

Gender statistics and sex-disaggregated data allow for evidence-driven policy development and implementation to foster greater gender equality (UNECE, 2010). To advance gender equality and environmental sustainability, which are essential for safeguarding human rights and well-being for women and men around the world, data gaps related to the gender-environment nexus need to be identified and filled; this requires efforts and cooperation at various levels, including national statistical systems, donor organisations and United Nations (UN) agencies, as well as academics, non-governmental organisations (NGOs) and civil society. At the same time, enhanced gender equality, particularly increased opportunities for women to meaningfully contribute toward sustainable development, has been shown to propel better sustainable development results (UN, n.d.; UN Women, 2014a; WEF, 2013).

Both devoted to environmental action and with strong gender equality mandates, the International Union for Conservation of Nature (IUCN) and UN Environment are collaborating to develop an enhanced understanding of and enabling environment for gender and environment statistics, particularly at national level. This paper picks up on a key finding of UN Environment's 2016 Global Gender and Environment Outlook (GGEO), which showed that gender gaps and inequalities, such as inequitable land tenure and women's reduced access to energy, water and sanitation facilities, negatively impact human and environmental well-being (UN Environment, 2016). It further notes, "In the absence of such data [gender-environment statistics], environmental analyses remain inadequate and partial, and establishing baselines, monitoring progress and assessing outcomes is almost impossible" (UN Environment, 2016).

This echoed a key take-away message from IUCN's Environment and Gender Information (EGI)[1] pilot-phase report about just how large the data gaps truly are at the intersection of gender and environmental issues: "Information about women's role[s] and access in environment-related sectors is not comprehensively collected and reported. Sex-disaggregated data with broad country coverage in sectors such as forestry, agriculture, water, energy, marine, disasters, infrastructure, etc., does not exist" (IUCN, 2013). This paper aims to consider specific strategies to support countries in efforts to close data gaps at the gender-environment nexus.

---

[1] In its initial phase, the EGI (then called the Environment and Gender Index) was a composite index ranking 73 countries against 27 indicators in six categories, uniquely focused at the gender-environment nexus. Since 2013, IUCN's EGI efforts have aimed to support closing these data gaps through building new datasets and producing new knowledge products on topics such as women in environmental decision-making processes; however, data has been most often accessible at international level (e.g., delegations to conferences of Parties of Rio Conventions) and not at national level.

Objective

The objectives of this report are multi-fold: first, research explores the current landscape of data at the gender-environment nexus, and specifically the importance of developing, collecting, analysing and disseminating gender-environment information and data for meeting the SDGs. Key issues and associated indicators are organised around four priority areas:[2]

A. Right to land, natural resources and biodiversity;
B. Access to food, energy, water and sanitation;
C. Climate change, sustainable production and consumption, and health and well-being
D. Women in environmental decision making at all levels.

This report then presents enabling conditions at national level, including through action research conducted in three partner countries: Lao People's Democratic Republic (Lao PDR), Kenya and Mexico. Including the suggestions garnered via action research in the three case-study countries, a list of recommended indicators to measure issues at the nexus of gender and environment is presented and discussed. In addition to exploring lessons learned and challenges to closing data gaps, recommendations for building on best and promising practices comprise the final chapter, with main ideas geared toward national statistics systems as well as inter-agency UN expert groups.

This report, and the recommendations within, has been developed for use across multiple sectors and by a diverse array of actors, including national statistics offices; statistics experts who work on gender or SDG topics, including the UN Inter-Agency Expert Groups on Gender Statistics (IAEG-GS) and SDGs (IAEG-SDGs); gender-environment experts at international and national level; UN agencies and other organisations working on data collection, particularly on the SDGs; and academia and civil society working in these areas.

© Cezary Wojtkowski | Shutterstock

---

2 Priority Areas A-C are outcomes of UN Environment's GGEO, with Priority Area D included as a new addition for this research, derived from IUCN's experience with the EGI.

Methodology

This report presents a broad, and likely not exhaustive, scope of research on this topic, including and informed by three country missions. The methodology of this research project included multiple components:

- Desk research included a review of international indicator frameworks, commonly utilised surveys and data collection methodologies, and research into countries' statistical systems, particularly focusing on the three case study countries;
- UN Environment and IUCN participated in the IAEG-GS meeting in October 2017, including by presenting on the importance of the gender-environment nexus for inclusion in gender statistics;

- An expert consultation including 12 experts from various UN organisations, international NGOs, academics and country representatives was convened to inform desk research, action-research missions and eventual recommendations;
- In-country missions were conducted in and case studies developed on Lao PDR, Kenya and Mexico, consisting of key informant interviews and two-day knowledge-sharing workshops to enhance understanding of capacity on the gender-environment nexus and develop a deeper understanding of current data collection at national level *(see Annex IV-VI for country case studies)*; and
- Results, lessons learned and challenges were analysed and recommendations developed.

The 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development aims to eradicate poverty while shifting the world toward a sustainable and resilient path (UN, 2015a). Building on considerable progress gained toward meeting Millennium Development Goals, as well as important lessons learned, the 2030 Agenda and its set of 17 SDGs recognise important interlinkages, including the need for integrated action advancing gender equality and women's empowerment across goals and to meet all goals. As stated by the UN (2015):

The 17 Sustainable Development Goals and 169 targets… demonstrate the scale and ambition of this new universal Agenda. They seek to build on the Millennium Development Goals and complete what they did not achieve.

They seek to realise the human rights of all and to achieve gender equality and the empowerment of all women and girls. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.

The SDGs are a key priority for many countries and organisations, including especially the UN agencies—such as UN Environment—that are custodians of specific SDG indicators. For many stakeholders invested in sustainable development, from international to grassroots levels, they infuse new energy, partnerships and strategies toward tackling persistent problems; they provide a new blueprint for action.
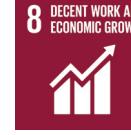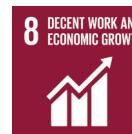
Priority areas and the SDG framework

This research organised key issues into four priority areas, as indicated above and in Table 1. The organisation of priority areas anchor interlinked issues within the framework of the SDGs, highlighting gender entry points and recommending key indicators for further consideration. Recognising the important overlap of topics included within and across the priority areas—that is, for example, that enhanced food security is not possible without action across numerous goals and cannot occur in silo (IUCN, 2017)—is also a guiding principle of this research, drawing again on the SDGs framework. In complement, topics and types of indicators beyond the scope of the SDG framework, per se, are also included in later chapters as recommendations for further study.

The following sections offer brief overviews of key issues per priority sector, with the next chapter going into greater detail.

Table 1: SDGs related to priority areas

PRIORITY AREA	RELEVANT SDGs			
A. Right to land, natural resources and biodiversity	1 NO POVERTY	5 GENDER EQUALITY	14 LIFE BELOW WATER	15 LIFE ON LAND
B. Access to food, energy, water and sanitation	2 ZERO HUNGER	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY
C. Climate change, sustainable production and consumption and health and well-being	1 NO POVERTY	3 GOOD HEALTH AND WELL-BEING	5 GENDER EQUALITY	8 DECENT WORK AND ECONOMIC GROWTH
	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	
D. Women in environmental decision making at all levels	4 QUALITY EDUCATION	5 GENDER EQUALITY	8 DECENT WORK AND ECONOMIC GROWTH	10 REDUCED INEQUALITIES

Right to land, natural resources and biodiversity

Many communities worldwide directly depend on natural resources to sustain their livelihoods. A total 1.6 billion people depend on forests, for example, with those forests supporting 80per cent of terrestrial biodiversity (IUCN, 2018b). Forest-dependent communities are inextricably linked with and dependent upon a healthy forest, relying not only on the natural resources of the forest but also on biodiversity required for a healthy forest ecosystem (The REDD Desk, n.d.). In many cases, however, there are persistent restrictions imposed on access to and governance of these natural resources, which may disproportionately impact certain marginalised communities, including women and indigenous peoples, limiting them from gaining equitable benefits.

Having equal rights to land and natural resources is key, particularly as extractive industries benefit from the lack of rights of indigenous peoples and women who heavily depend on these natural resources for securing their livelihoods and the well-being of their families and communities. In some cases, these industries prevent community members from accessing their ancestral territories and bring along many negative impacts, including an increase on gender-based violence (GBV) and human rights violations against Environmental Human Rights Defenders (EHRD), many of whom are women (Jenkins, 2014; Knox, 2017).

Security of land tenure for women has been shown to be critical for women's social, economic and political empowerment—including positively contributing to the prosperity of their families and communities. Yet, widespread inequalities exist when it comes to the right to own, use and control land around the world. While women have equal land rights by law in

37per cent of the 160 countries on which data were collected, in more than half of the 160 countries, legal land rights are not followed in practice, as customary, traditional and religious practices still prevent access and control for women (OECD, 2014a). It is also important to recognise that legal rights are just one part of the equation for land ownership. In some cases, women may have equal rights to inherit, own and manage land but, due to various sociocultural and other barriers, they are unable to fully realise these rights.

In addition to gender inequalities regarding rights to land, women are also faced with barriers affecting access to and usage rights for renewable resources such as water, as well as extractive resources such as minerals, metals, timber and oil and gas. In many cases, rights over these natural resources are inevitably linked to land rights. Although there has been progress in decreasing women's barriers in access to land and assets, some key rights related to inheritance, economic activity and household decision-making remain unrealised, with sociocultural norms being difficult to shift.

Access to and use of food, energy, water and sanitation

Women and men tend to have different roles and responsibilities related to the use, management and conservation of natural resources. These roles vary greatly from country to country, region to region. Women often contribute to their family, community and society with unequal access to, control over and benefit from resources. This inequality often exists in a context of discrimination and unequal power relationships. Understanding how gender inequalities relate to the environment sector requires achieving a better analysis of accessibility, patterns of use, knowledge and skills regarding conservation and sustainable use of natural resources.

Women are responsible for the production and processing of a significant proportion of food in developing countries, yet food and nutrition security of women and girls is often compromised because cultural and social norms give preference to men and boys; as a result, women and girls often eat last and eat least (UN Environment, 2016). In addition, agricultural productivity for women farmers is often lower compared to male farmers due to inequalities in access to land and agricultural inputs such as fertilisers, pesticides and seeds (UN Women, UNDP, UNEP, & WB, 2015; FAO, 2011). Closing the gender gap in agriculture, a pattern documented worldwide and one which means women have less access to productive resources, financial capital and advisory services than men, will improve agricultural productivity and food and nutrition security of women and girls – which is outlined under SDG 2 to achieve food security and improved nutrition and promote sustainable agriculture. Closing the gender gap is essential to increase women's and men's resilience to the effects of climate change, particularly on agricultural production decline and biodiversity loss.

Women and girls also tend to be the primary energy, water and sanitation managers for households and families in the developing world. As a result of a lack of energy, water and sanitation services, as well as basic infrastructure, women and girls bear the burden of spending time finding and fetching fuel and water (UN Women, 2014a; Sorenson, Morssink, & Campos, 2011.). Additionally, most domestic and care work undertaken by women is unpaid or underpaid (ILO, 2015), leading to social and economic pressures and time poverty.

Climate change, sustainable consumption and production, and health and well-being

According to the Intergovernmental Panel on Climate Change (IPCC) (2018), "Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a *likely* range of 0.8°C to 1.2°C. Global warming is *likely* to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate. *(high confidence)*... Impacts on natural

© Jen Watson | Shutterstock

and human systems from global warming have already been observed *(high confidence)* [original emphasis]."

Existing gender inequalities can be further amplified by the impacts of climate change, thus intensifying the constraints felt by women who rely on agriculture and natural resources for their livelihoods and negatively impacting environmental sustainability and poverty reduction. Fluctuations in the climate and the uncertainties associated with it put additional pressure on both already fragile ecosystems and undervalued and precarious gendered roles and responsibilities in communities. This can result in agricultural work becoming more labour intensive or in communities' need for alternative sources of food and income, which often leads to additional unpaid work for women. Taking action to combat climate change and its impacts is explicit in SDG 13. The UN Framework Convention for Climate Change (UNFCCC) has demonstrated important linkages to gender equality and women's empowerment through recent decisions as well as its 2017 Gender Action Plan (Burns & Patouris, 2014; UNFCCC, 2017).

The impacts of climate change affect the resilience and long-term well-being of entire families and communities. With a special focus on health impacts, for example, women bear disproportionate effects, not least when health facilities and services are unavailable or unaffordable. Numerous health-related effects of climate change impact women more severely than men. Pregnant and lactating women are uniquely vulnerable to increasing vector- and water-borne diseases, e.g. malaria, in the face of a changing climate (UN, 2015b) and increased water salinity affects rates of preeclampsia. Goal 3 of the SDGs highlights the importance of ensuring healthy lives and promoting well-being for all.

With increased population growth and development, the use of chemicals in agricultural and industrial production has intensified. Urbanisation and increased consumption place growing demands on waste management and wastewater treatment. The use of some chemicals and pollutants, such as persistent organic pollutants (POPs), has resulted in environmental degradation and water and air pollution, all of which have gendered impacts on health and well-being. Pregnant and lactating women are, once again, particularly vulnerable when it comes to chemical pollution and POPs, as addressed by the Stockholm Convention (Stockholm Convention, 2009). The Basel, Rotterdam and Stockholm (BRS) Conventions seek to address many of these issues, including through their joint Gender Action Plan (BRS Secretariat, 2016). SDGs 11 and 12 reinforce an urgent need to ensure sustainable consumption and production patterns and to make human settlements inclusive, safe, resilient and sustainable.

Women in environmental decision making at all levels

For the past three decades, governments have established international commitments and mandates *(see Table 2)* to ensure that gender equality and women's empowerment are central to environmental decision-making processes and sustainable development. This policy framework has suggested increased attention to advancing gender equality, and yet, without a mechanism to monitor and measure implementation of these commitments and drive further action, a void has remained in being able to identify real progress (Prebble et al., 2015). Environmental decision-making bodies and leadership positions continue to be heavily male dominated at all levels, despite

national and international agreements on gender equality (Prebble, et al., 2015). Results do not reveal progress across the environmental sector, in any case: in six out of nine decision-making processes analysed, women represent less than one-third of decision makers (IUCN, August 2015).[3]

One such measure that will contribute to a deeper understanding of societal roles and existing (in) equalities is to better understand the ways in which women and men are involved in environmental decision making processes, including at national and subnational levels, and in the implementation of environmental projects. Women's unique voice and agency are essential for the governance of natural resources because of their gender-differentiated and diverse experiences as farmers, fishers, household providers and entrepreneurs. However, their perspectives are often unrecognised in decision-making spheres and their needs unmet in shaping and applying environmental policy. A key barrier to advancing gender equality in the policy arena has

been a gap in information, data and measurement of women's participation in environmental decision-making processes (IUCN, 2015).[4]

Country's statistical mechanisms can enhance data collection on participation and representation in decision making, particularly environmental decision making, at all levels. This is because women's understanding and management of the environment could differ from that of men. Furthermore, due to climate change, gender-differentiated adaptation to climate is important for poverty reduction and environmental management because productivity-driven agricultural output growth has a strong causal impact on poverty reduction. This priority area connects to the SDGs in a few important ways, particularly through SDG target 5.5 to ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life (UN Sustainable Development Knowledge Platform, 2017).

Book outline

In the chapters to come, this book will present analytical and policy frameworks for, and examples of, measuring the gender-environment nexus; data and statistics that can be used to measure the priority areas; a discussion and summary of

lessons learned and best and promising practices; and recommendations for international and national stakeholders, including especially national statistics bureaus.

---

3   The prior three priority areas are based on the GGEO categorisation and recommendations for future research. This fourth priority area was not included in the original research outline but emerged based on IUCN GPGR experience in this field and featured as a top priority in national action-research workshops (Prebble, Gilligan & Clabots, 2015; IUCN, 2015; IUCN, 2015b; IUCN, 2015c; IUCN, 2015d).

4   As such, IUCN has prioritised data collection to help close these gaps; for example, the EGI conducted an analysis in 2015 to determine the proportion of men and women leading environmental-sector ministries, finding that 12per cent of the heads of environmental-sector ministries worldwide were women (IUCN, 2015; Prebble et al., 2015).

2

Analytical
and policy
frameworks for
and examples
of measuring
the gender-
environment
nexus

Chapter 2: Analytical and policy frameworks for and examples of measuring the gender-environment nexus

Introduction

For decades, international policy frameworks have been in place recognising women's rights across the environmental sphere and promoting attention to gender-environment linkages, including through human rights, environmental, sustainable development and women's rights and gender equality agreements, mandates and global priorities (Table 2). At national level, governments and their stakeholders are increasingly recognising the need to identify women's rights and gender equality considerations, as well, as will be explored in subsequent chapters. However, there remains a limited collection, use and dissemination of gender-environment statistics, in turn limiting the decision makers' and practitioners' capacity to develop and adopt well-informed and effective policies and programming at national, regional and international level (UN Environment, 2016).

This chapter reviews key international agreements and policy frameworks related to these topics; it then delves into a scoping of data that exists across each key priority area. Linkages to the SDGs are reinforced throughout.

International gender-environment policy framework

It is now arguably well established in the normative international policy sphere that women and men have differentiated roles related to use of, access to, control over and ability to derive benefits from natural resources. Climate change and environmental degradation are also impacting diverse individuals in differentiated fashion, depending not only on their geographical location, but due to age, ethnicity, sociocultural and economic factors and gender, among other factors (IPCC, 2014). While not exhaustive, Table 2 presents key components of the international policy landscape, which is vital to underpinning the argument that gender-environment is not only necessary, but called for repeatedly in international agreements.

Table 2: International Policy Framework

KEY COMPONENTS COMPRISING THE INTERNATIONAL GENDER-ENVIRONMENT POLICY FRAMEWORK INCLUDE:

CEDAW (1979): Gender equality is a human right that is enshrined in a number of declarations and conventions, including the legally binding Convention on the Elimination of All Forms of Discrimination against Women (CEDAW). CEDAW is often considered the international bill of rights for women and is fundamental to advancing gender equality. Signatory governments are bound to take action to promote and protect the rights of women; they agree to include the principle of equality in legislation and ensure it is operationalised throughout their country. In Article 14, special attention is paid to discrimination against rural women, toward ensuring their access and benefits to rural benefit.

BPfA (1995): The Beijing Declaration and Platform for Action (BPfA) includes women and the environment as one of the 12 critical areas for action and encourages governments to collect data on the impact of environmental degradation on women, as well as develop gender-sensitive databases (United Nations, 1995). BPfA is still considered the most comprehensive set of guidelines for the development of gender statistics at the national, regional and global levels (United Nations, 2016).

Agenda 21 (1992): The 1992 Earth Summit, or UN Conference on Environment and Development (UNCED), marked a pivotal moment embedding gender equality considerations in environmental decision-making on the global stage. Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development. The Rio Declaration recognised the important role of women in environmental management and development, and Agenda 21 called for, among many other things, sex-disaggregated data and gender-sensitive databases (United Nations Sustainable Development, 1992). While not legally binding, Agenda 21 (UNSD, 1992) was for decades considered the blueprint for sustainable development, shaping national planning, donor investment and programming across the environmental sphere. Agenda 21 built upon previous plans and platforms that promoted women's empowerment and gender equality with regard to crucial issues such as land ownership, resource stewardship, education and employment. Moreover, two of the three Rio Conventions (below), i.e. those derived from UNCED, included gender considerations.

CBD (1993): The first of the three Rio Conventions, the Convention on Biological Diversity (CBD) has preamble text as well as many subsequent decisions of Parties that include gender considerations. In 2008, Parties to the CBD adopted a Gender Plan of Action, making it the first Multilateral Environmental Agreement (MEA) to do so. It was recently updated for the period 2015-2020. CBD has integrated actions to enhance the monitoring framework and indicator system for gender mainstreaming in the Secretariat and at national level (CBD, n.d.).

UNCCD (1996): Similarly, the UN Convention to Combat Desertification (UNCCD) recognised women's important role and participation in combatting desertification and mitigating the effects of drought. Parties have integrated gender into their decisions and evolved a Gender Action Plan—the latest version of which (September 2017) aiming to accompany implementation of the UNCCD 1830-2020 strategic framework (UNCCD, 2017).

Table 2: International Policy Framework (Cont.)

KEY COMPONENTS COMPRISING THE INTERNATIONAL GENDER-ENVIRONMENT POLICY FRAMEWORK INCLUDE:

UNFCCC (1994): Once void of social considerations in its Convention text and related decisions by Parties, the UN Framework Convention on Climate Change (UNFCCC) now has implementation informed by more than 50 decisions on gender equality made over recent years, including the Lima Work Programme on Gender (LWPG) and, in 2017, a first-ever Gender Action Plan (GAP) (Burns and Patouris, 2014; UNFCCC 2017). Among priority areas, the GAP includes a focus to strengthen monitoring and reporting of implementation of gender-related mandates under the Convention.

BRS (1989, 1998, 2001, respectively; synergy 2008): The Basel, Rotterdam, and Stockholm Conventions (BRS) are designed to help protect human health and the environment from the negative effects of hazardous pollutants. Marking a first concerted step in advancing gender equality as a key issue across the three Conventions, a Gender Task Team was established in 2012 to mainstream gender across the BRS Secretariat and to support the work of Parties and stakeholders. A BRS Gender Action Plan (BRS-GAP) (BRS, 2016), developed in 2013 and updated in 2016, serves as the guiding framework to ensure gender is an integral part of implementation (BRS, n.d.). Baseline information was collected toward this end in 2017 (Gilligan & Sabater, 2017; IUCN, 2017b).

MDGs (2000): The efforts to mainstream gender equality across the development sector have also been significant in the past decades. The Millennium Development Goals (MDGs) marked a milestone at the global and national level with the creation of measurable and internationally agreed gender goals and indicators. However, these indicators were siloed, and gender considerations were not integrated throughout all the different goals.

SDGs (2015): Building on lessons learned while implementing the agreements made at the Earth Summit, as well as the MDGs, the 2030 Sustainable Development Agenda, with its 17 SDGs, recognise that the natural world and its life-giving services must be urgently protected in order to fulfil the needs of nine billion people by 2050. Gender is a standalone SDG goal (#5) in addition to being a cross-cutting issue across the other 16 goals. (Sustainable Development Goals Fund, n.d.).

Sendai Framework (2015-2030): The Sendai Framework for Action for Disaster Risk Reduction calls for stronger women's leadership and participation in disaster risk reduction (DRR). This recognition provides a new opportunity to strengthen the capacities of gender machineries, women's organisations and women at regional, national and community levels to shape how DRR and climate change are implemented in the coming 15 years (UNISDR, n.d.).

The MEAs described in this section provide the basis for understanding the internationally agreed and often legally binding mandates dictating the necessity of promoting gender equality within the environmental sector. Environment and sustainable development agreements such as those outlined in Table 2 have made significant strides recognising women's rights and mainstreaming of gender equality and women's empowerment. Many of these MEAs have adopted Gender Action Plans (GAPs) encouraging, or mandating, the collection of sex-disaggregated data and the use of gender indicators within governance (e.g., measuring gender parity within the Secretariat) and implementation (e.g., mainstreaming gender within programmes and reporting mechanisms). While progress is being made, no process has yet attained gender parity in the Secretariat and convention bodies, and Parties often still under-

report, especially substantively, on gender-specific information within reporting mechanisms (IUCN, 2016; Gilligan & Sabater, 2017).

A key way to enhance gender equality and women's empowerment is to first understand current disparities to then develop evidence-based policies and programmes. Data is essential for this process. The following sections discuss some key examples of mechanisms at international, regional and national level currently used to collect sex-disaggregated data to gather information about how women and men interact with and rely on their environments across the priority areas.

Measuring gender and the environment

The United Nations, through its programmes, funds, specialised agencies and inter-agency expert groups, has provided global leadership in the production of technical materials for gender mainstreaming and in the collection, use and dissemination of gender statistics at the international and national levels. There are two particularly relevant UN indicator frameworks to consider in detail: the Minimum Set of Gender Indicators and the SDGs. For both, UN agencies act as custodians for relevant indicators, and, depending on the content of an indicator, may partner with the UN Statistics Division (UNSD), other UN agencies and/or national statistics mechanisms to develop methodologies.

UNITED NATIONS STATISTICS DIVISION

UNSD provides guidance and support in the production of gender statistics. In 2016, with the collaboration of the IAEG-GS, UNSD developed the manual *Integrating a Gender Perspective into Statistics* to support national statistical mechanisms and statisticians in the identification, collection, presentation and dissemination of gender statistics in different sectors, including environmental sectors. UNSD identified data needs in the gender-differentiated impact on environmental aspects such as water and firewood collection, the health impact of environmental conditions and the gender-differentiated impact of natural disasters, and on the involvement of women and men in the management of natural resources. The manual provides guidance on possible national gender indicators and data sources that can be useful for the collection of gender indicators so as to foster a gender perspective in national statistics (United Nations, 2016).

Minimum Set of Gender Indicators

The IAEG-GS created the Minimum Set of Gender Indicators, agreed by the United Nations Statistical Commission in its 44th Session in 2013 (UNSD, 2017c). In developing this list of indicators, it was decided that selected indicators "should be broadly consistent with other global lists and avoid imposing an unnecessary burden on national statistical systems, national government agencies and other partners" (IAEG-GS, 2012).

The United Nations Minimum Set of Gender Indicators addresses many of the critical areas of concern of the Beijing Platform for Action[1] and are categorised in the following domains: economic structures and access to resources; education, health and related services; public life and decision-making; and human rights of women and children. Owing to unavailability of either data or clear concepts and definitions, three of the 12 critical areas of concern of the BPfA, including Women and Environment, are not covered in the Minimum Set of Gender Indicators (UNSD, 2017c). However, within the existing indicator list, four indicators can be connected to the environment to some extent (Table 3). Although there are many more entry points for the gender-environment nexus than these four indicators, considering agricultural workers, land rights, women in science and inheritance rights is indeed very important for understanding the broader national context.

In addition, the IAEG-GS has been working closely with the Inter-Agency Expert Group-Sustainable Development Goals (IAEG-SDGs) to ensure that indicators are aligned, prioritising data consistency as well as streamlining the data collection and management processes for countries and custodian agencies. The UN Statistics Division (UNSD) acts as the Secretariat for the IAEG-SDGs. Table 3 presents indicators in the Minimum Set of Gender Statistics that are tangentially related to the environment and how they align with the strategic objectives in the BPfA and the SDG goals and targets. As of June 2017, the list of the Minimum Set of Gender Indicators includes 52 quantitative and 11 qualitative indicators classified into the three tiers *(see box, United Nations Tier Classification for Indicators).*

UNITED NATIONS TIER CLASSIFICATION FOR INDICATORS

UNSD uses a three-tier classification of indicators to identify the status of the indicator in terms of methodology and data collection. This three-tier classification is used in the Minimum Set of Gender Indicators and the SDGs, with an additional requirement for the Minimum Set of Gender Indicators applying to all tiers.

- Tier I: Indicator is conceptually clear, has an internationally established methodology and standards are available, and data are regularly produced by countries for at least 50per cent of countries and of the population in every region where the indicator is relevant;

- Tier II: Indicator is conceptually clear, has an internationally established methodology and standards are available, but data are not regularly produced by countries;
- Tier III: No internationally established methodology or standards are yet available for the indicator, but methodology/standards are being (or will be) developed or tested (UNSD, 2018b).
- Requirement for Minimum Set of Gender Indicators: Indicator addresses relevant issues related to gender equality and/or women's empowerment (UNSD, 2017e).

---

1 The critical areas of concern within the BPfA are as follows: A.) Women and Poverty; B.) Education and Training of Women; C.) Women and Health; D.) Violence against Women; E.) Women and Armed Conflict; F.) Women and the Economy; G.) Women in Power and Decision-Making; H.) Institutional Mechanisms for the Advancement of Women; I.) Human Rights of Women; J.) Women and the Media; K.) Women and the Environment; and L.) The Girl-Child (UN Women, 2014b).

Table 3: Indicators from the Minimum Set of Gender Indicators relevant to gender and environment

INDICATOR NUMBER	INDICATOR	BPFA / SDG	TIER	AGENCY	DATA COUNTRY COVERAGE
Indicator 8a	Percentage distribution of employed population in agricultural sector, by sex	F.5, H.3 / Goal 8	I	ILO	198 countries
Indicator 12	a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure	A.1, A.2 / Goal 5 target a	II	FAO/UN Women/UNSD	n/a
Indicator 25	Share of female science, technology, engineering and mathematics	B.3, B.4, L.4 / Goal 4	I	UNESCO Institute for Statistics	138 countries
Qualitative indicator 10	Whether or not inheritance rights discriminate against women and girls		II	OECD/WB/ UNSD	160 countries

Though these four indicators are linked to the environment sector, the Minimum Set of Gender Indicators does not comprehensively cover the gender-environment nexus. As a well-recognized standard for gender statistics, the IAEG-GS has the opportunity to enhance countries' ability to collect data and information on the environment-gender nexus by incorporating the BPfA critical area of women and the environment.

Sustainable Development Goals

Created with the support of IAEG-SDGs (2017a) to measure countries' progress towards the internationally agreed goals, the SDGs indicators list is another key indicator framework. Composed of 169 targets with 244 indicators (232 unique indicators with some repeated across multiple targets), the SDGs indicators list has integrated gender equality and gender considerations throughout most of the SDGs, moving forward from only measuring SDG 5 on gender equality. The list of SDG indicators includes many sex-disaggregated and gender-specific indicators to monitor the progress towards the achievement of the SDGs, which are categorised in three different tiers, depending on the existence of internationally agreed methodology and the status of data collection *(see box, United Nations Tier Classification for Indicators)*. The IAEG-SDGs has made considerable progress in the identification of gender and environment indicators, yet there is still room for improvement and a need to strengthen the methodology and data collection of many SDGs. The SDG framework provides the methodology for indicators with the potential to measure the gender-environment nexus.

Figure 1: The SDGs include 17 goals across sustainable development sectors.
Source: https://sustainabledevelopment.un.org

Examples of measuring the gender-environment nexus across the priority areas

In order to determine recommendations for areas of focus moving forward, it is first important to understand what is already being done to measure environmental issues as they relate to communities, and to women and men within communities. The following sections will explore relevant data collection across the priority areas outlined in the previous chapter. *(See Annex I for SDG targets and indicators mentioned throughout this chapter).*

Right to land, natural resources and biodiversity

The livelihoods of the majority of local populations around the world heavily rely on natural resources.

The discrimination and unequal access to land, natural resources and biodiversity perpetuate the pervasive effects of poverty and hinder sustainable development for communities worldwide (UNSD, 2017a). In many countries, women are systematically discriminated against with respect to accessing natural resources, not to mention equitably participating in their management or benefiting from their services; without the collection of appropriate sex-disaggregated data, those inequalities remain unreported and potentially overlooked. The establishment of a baseline at national level is key for the development of well-informed gender-responsive environmental policies that contribute to sustainable development and gender equality.

Right to land ownership

With the emergence of the SDG framework, many national statistical systems have begun collecting or have enhanced their collection of relevant information to track against SDG targets. However, gender analyses of such data are still rare. A few key SDG targets and indicators relate to this priority area, particularly to land ownership *(see also Annex I)*. SDG target 1.4 recognises the need to: "By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance" (UNSD, 2018b). Secure land access and land rights for women and men are key components of gender equality and women's empowerment; for this reason, women's and men's land ownership is also integrated in SDG target 5.a, "Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national law" (UNSD, 2018b). The SDGs include three indicators to measure land ownership:

- SDG indicator 1.4.2: Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure;
- SDG indicator 5.a.1: (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure; and
- SDG indicator 5.a.2: Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control.

In terms of equal rights to land ownership and control, inheritance is the primary source of women's land ownership in many countries, and thus knowing if women and men have equal inheritance and land rights according to formal and customary laws is crucial for effective policy-making and programming (Deere & Leon, 2003). The World Bank gender data portal is already collecting data on women's and men's land ownership,[2] disaggregated by sole and joint ownership. Yet, the number of countries that collect sex-disaggregated statistical data on land ownership is limited (World Bank, n.d. a).

In order to define—and champion—gender indicators to collect more accurate and rigorous data on land rights, there are key aspects to consider, such as collecting data at the individual level in addition to household level, and differentiating between individual and joint land ownership.

FAO Gender and Land Rights Database
Available to inform the SDG framework, data on land management and ownership have been collected for many years as part of agricultural statistics, and some of the data is already disaggregated by sex and available for some countries. The Gender and Land Rights Database, launched by the Food

---

[2] The differentiation between landowners and holders of agricultural land is essential because owning land is not the same as making management decisions on land use, and vice versa—not least relevant because only owned land can be used as a collateral. Similarly, land can be rented out or used by another family member who is not the owner; therefore, agricultural land ownership does not give accurate information on decision-making, such as decisions on crops (Doss, Kovarik, Peterman, Quisumbing & Van den Bold, 2013).

and Agriculture Organization (FAO) in 2010, is one of the leading databases on gender and land statistics available globally. This database provides sex-disaggregated country level information on landownership and land management, mainly collected from national agricultural censuses and academic research. The database includes five indicators: distribution of agricultural holders, by sex; distribution of agricultural landowners, by sex; incidence of female agricultural landowners; incidence of male agricultural landowners; and distribution of agricultural land area owned, by sex (FAO, 2015). While the FAO indicator on distribution of agricultural holders, by sex, is widely available and has been collected from 104 countries, mainly through agricultural censuses, sex-disaggregated data from the other four indicators is more limited, including only 17 countries for land ownership (FAO, 2015). As of 2018, this database also includes country profiles for 84 countries (FAO, 2018). Only six countries include sex-disaggregated data for all the indicators (FAO, n.d. a).

For the more limited FAO indicators, data has been collected from selected countries in Africa, Asia and South America through Living Standards Measurement Studies (LSMS), LSMS Integrated Surveys on Agriculture (LSMS-ISA)[3] and Demographic and Health Surveys (DHS) (FAO, 2015). The LSMS and LSMS-ISA are good tools to collect gender data, as the surveys focus on the individuals in the household and collect information from several areas (World Bank, n.d. b). Similarly, DHS integrates specific data on women's empowerment, including decision making and ownership, from 90 developing countries (DHS Programme, n.d.). The

FAO Gender and Land Rights Database also includes a Legal Assessment Tool (LAT) that includes 30 legal indicators, many of which provide gender-specific information on, for example, inheritance and property rights. Data is collected from 23 countries from Sub-Saharan Africa, South and East Asia, Latin America and the Caribbean, and Middle East and North Africa (FAO, n.d. a).

OECD Gender, Institutions and Development Database

The Organisation for Economic Co-operation and Development (OECD) provides an insight into women's rights to land in the Gender, Institutions and Development Database (GID-DB). It includes national statistics on women's inheritance rights from 159 countries—including both OECD and non-OECD countries (OECD, 2014b). This data covers the percentage of land titles owned by women, from 67 countries (OECD, 2014b). The OECD has created the Social Institutions and Gender Index (SIGI), a composite index to measure gender equality and based on the OECD Gender, Institutions and Development Database. The SIGI collects data on women's and men's secure access to land, non-land assets and financial assets from 121 countries (OECD, n.d.).

Beyond land ownership, access to natural resources and biodiversity

While it is recognised that women and men have differentiated roles in relation to biodiversity access, use and control, and that women are the main users of natural resources for food security, data to measure their actual access, use and control over

---

3 The LSMS is a survey program of the World Bank's Development Data Group focused on improving survey methods, enhancing capacity building and generating high-quality data that has conducted surveys in 38 countries. Similarly, the LSMS-ISA, with a focus on agriculture, has been collected in eight African countries.

these resources is not available (Sunderland et al., 2014). There is insufficient research and statistical data in relation to natural resources and biodiversity ownership and access rights.

Rights and Resources Initiative

The Rights and Resources Initiative (RRI) provides data on land ownership or designation to indigenous peoples and local communities at the national level from 52 countries, which not only includes agricultural land, but all the territory assigned or owned—which covers nearly 90per cent of the world's forest. Additionally, data is available from 27 of the countries on the bundle of rights to access and withdraw timber and non-timber forest products (NTFP), and other legal rights such as lease, collateral or sale (Rights and Resources Coalition, n.d.). A recent study from the RRI focusing on 64 countries shows that indigenous peoples and local communities own 10per cent of land and control an additional 8per cent, although there are differences between regions and nations. For instance, almost half of the land in China is owned by indigenous peoples and local communities while in the Middle East and North Africa, only four of the nine countries examined have community-based tenure regimes and of these only 5per cent of the land is controlled by indigenous peoples and local communities (Rights and Resources Coalition, 2015). However, there is no available data on the different roles of women and men regarding, and their specific uses of, natural resources.

Access to food, energy, water and sanitation

Securing access to food, energy and water and sanitation can be done through self-supply, via subsistence agriculture and the collection of natural resources, water and firewood, and through the purchase of goods, energy and water services. While

there generally is a combination of both, the burden of self-supply is higher in rural households and developing countries. When households have access to these services, the use of them depends on the household income, which in many households comes from men due to cultural-and gender-differentiated norms that limit women from accessing paid work. However, an increase in the access to and use of these services will free up women's time that can be invested in income generating activities, as well as education and leisure (Bhatia and Angelou, 2015). This means that poor households, particularly those headed by widows or where men are absent, lag behind in the access to and use of energy, water and sanitation services, as they cannot afford it. Hence, the importance of economically empowering women so they can contribute to household expenses and reduce poverty at the household and community levels, particularly as studies show that equal access to resources would increase agricultural outputs by 15per cent (OECD, 2008a).

Women in developing countries are largely responsible for fetching water and firewood, as well as for food security in the household. At either the subsistence or commercial level, many women are involved in crops, livestock and fish farming, an involvement that varies across and within countries. Nevertheless, according to an FAO report, agriculture is underperforming in many developing countries, partly due to women's unequal access to land and resources, which hinders women's productivity and impacts food security in the household (FAO, 2011). Closing the gender gap could increase annual crop production 2 to 7.3per cent, with estimated gross gains of US$100 million in Malawi, US$105 million in Tanzania and US$67 million in Uganda per year. Closing the gender gap in agriculture would directly contribute to poverty reduction, with estimates that as many as 238,000 people in Malawi, 80,000 in Tanzania and 119,000 people in Uganda could be

potentially lift out of poverty (UN Women, UNDP, UNEP and the World Bank Group, 2015). The collection of sex-disaggregated data on access to food, energy, water and sanitation at national level helps to understand the differentiated roles of women and men and to establish a baseline to monitor the progress towards related SDGs, particularly SDG 2 to end hunger and achieve food security, SDG 5 to achieve gender equality and empower all women and girls, SDG 6 to ensure clean water and sanitation and SDG 7 to ensure access to affordable and clean energy (UNSD, 2017a).

The SDGs provide great opportunities to advance in the identification of gender-environment indicators measuring access to natural resources and the collection of data for these indicators. The following indicators are useful to bridge the knowledge gap, particularly when their methodologies incorporate a gender perspective. SDG target 2.3 aims to "by 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment" (UNSD, 2017a). In order to measure this target, the IAEG-SDGs proposes the indicator 2.3.2 that measures the "average income of small-scale food producers by sex and indigenous status" (UNSD, 2017a). Indicator 2.3.2 has recently been updated to Tier II indicator, meaning that an internationally agreed methodology has been developed, yet

additional work is needed in the definition of small-scale food producers. At the moment, data is not being collected (UNSD, 2018b).

Similarly, in order to measure access to water and sanitation and energy—SDGs 6 and 7 respectively—the IAEG-SDGs have identified the following indicators:

- SDG indicator 6.1.1: Proportion of population using safely managed drinking water services;
- SDG indicator 6.2.1: Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water;"
- SDG indicator 7.1.1: Proportion of population with access to electricity; and
- SDG indicator 7.1.2: Proportion of population with primary reliance on clean fuels and technology (UNSD, 2017a).

The current SDG indicators do not explicitly request the sex-disaggregation of information on the differentiated access and roles of women and men. Yet, the comprehensive and intertwined approach of the SDGs has enabled the mainstreaming of environment and gender across most of the SDGs targets and indicators, including in the methodologies. As such, SDG indicator 5.4.1 measures the "proportion of time spent on unpaid domestic and care work, by sex, age and location", the disaggregation of which by type of activity could provide useful information on women's and men's role in energy and water collection (UNSD, 2018b).

THE IMPORTANCE OF ENVIRONMENTAL STATISTICS TO ADDRESS GENDER-BASED VIOLENCE (GBV)

Measuring access to energy, water and sanitation can provide useful data for addressing GBV in various contexts, helping achieving SDG 5.2 to "eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation" (UNSD, 2018b). Women are largely responsible for the collection of water, fuel and forest products to secure the livelihoods and well-being of their families and communities. The lack of access to water and sanitation on premises, as well as the reliance on natural resources for cooking, lighting and heating, not only limits the time women can invest in education, income generation activities or leisure, but also exposes them to a higher risk of suffering GBV. Many researchers on GBV and WASH present cases of rape, sexual assault and harassment of women while on their way to water access points or toilets in their daily lives (House et al., 2014; Women in Cities International, 2011).

GBV is particularly critical in humanitarian and post-disaster settings, where women feel more unsafe as they have to venture outside of refugee camps or shelters to collect water and firewood for their families and are exposed to different types of GBV when accessing toilets (UN Women, 2014c). The scarcity of food, loss of property and livelihoods, and post-traumatic stress disorder can also cause feelings of powerlessness for men and escalate masculinity crises that can contribute to an increase in pre-existing violent behaviour and domestic violence

(Dankelman, 2016). Some women have reported an increase in domestic violence after disasters, particularly in shelters, evacuation centres and refugee camps (UN Women, 2014c). Climate change and disasters can also force women and men to adopt negative coping strategies, such as sexual exploitation or child marriage, in order to obtain some income to feed family members. When the downy is paid by the bride's family, this negative coping strategy is used to avoid further increase in the price of the downy and because it is believed to be the best option to safeguard girls' honor in the event of being sexually assaulted and raped (Human Rights Watch, 2015; UN Women, 2014c).

There may be a correlation between the improvement of energy, water and sanitation access, particularly in post-disasters settings, and a reduction of GBV, including negative coping strategies such as child marriage. However, the high number of unreported cases coupled with the lack of statistical data on the incidence and risk of GBV as related to energy, water and sanitation access, including in post-disaster settings, disregards and perpetuates GBV. The periodic collection of sex-disaggregated data on water, sanitation and firewood access, as well as time spend collecting it and the person responsible for it, can help advance the measurement of GBV incidence related to these sectors and contribute to the adoption of environmental policies and programming that address and prevent GBV.

Women's role in the agricultural sector

Data on women employed in the agricultural sector has been collected and compiled by many international organisations. The World Bank database includes national sex-disaggregated statistics from 182 countries on the employment in the agriculture sector, including agriculture, hunting, forestry and fishing (UN Environment Programme, 2016). The statistics were originally provided by the International Labour Organization (ILO) and collected mainly from national labour force surveys (ILO, n.d.). However, self-employed and unpaid family workers, which in many cases are women, are excluded from the data collected, underrepresenting the role of women in these sectors (World Bank, n.d. c). UN Women and UN Development Programme (UNDP)-UN Environment Poverty Environment Initiative have used this data to analyse the cost of gender gap in agricultural productivity in Malawi, Tanzania and Uganda, providing both policy recommendations as well as outlining data gaps in such databases; these analyses have confirmed that unpaid care work and other social factors have not been captured in the World Bank survey (UNDP-UNEP PEI, 2015).

FAO: The State of Food and Agriculture 2010-2011

FAO's (2011) report *The State of Food and Agriculture 2010-2011, Women in Agriculture* presents sex-disaggregated data on more than a dozen indicators related to agriculture, employment, household characteristics and education, as presented in Table 4. These indicators can provide insightful information on women's and men's differentiated roles, access and uses of agriculture. Yet, availability of national statistical data in the report varies and is generally limited to a few countries per region. Country-level data presented in the report comes from ILO and FAO databases, FAO reports and academic research at regional or national level (FAO, 2011).

Disaggregating data by individual or type of household instead of by sex of the household head is more useful to adequately illustrate women's role in agriculture within male-headed households, yet the limited resources and the surveys structure make the collection of data at the household level more accessible (Deere & Leon, 2003) *(see box below, Looking inside the household)*.

Table 4: Gender indicators presented in *The State of Food and Agriculture 2010-2011, Women in Agriculture (FAO, 2011)*

1. Female share of the agricultural labour force, by regions

2. Proportion of labour in all agricultural activities that is supplied by women

3. Proportion of labour for selected crops that is supplied by women

4. Employed population as a share of total adult population, by sex and sector

5. Distribution of male and female employment, by sector

6. Employment in selected high-value agro-industries

Table 4: Gender indicators presented in *The State of Food and Agriculture 2010-2011,*
Women in Agriculture (FAO, 2011) (Cont.)

7. Share of male and female agricultural holders in main developing regions
8. Rural household assets: farm size, by household head
9. Household livestock assets, in female-headed households
10. Change in average female shares in professional staff of agricultural and higher education institutions in 14 African countries, by degree level, to 2007/08
11. Change in female shares in professional staff, by headcount, 2000/01 to 2007/08
12. Credit use by female- and male-headed households in rural area
13. Fertiliser use by female- and male-headed households
14. Mechanical equipment use by female- and male-headed households
15. Cereal yield and gender inequality

FAO AQUASTAT

On the nexus of gender, water and agriculture, the FAO database on water, AQUASTAT, includes two gender indicators on the percentage of area equipped for irrigation managed by women and the percentage of agricultural holdings with irrigation managed by women. These indicators are available for 29 European countries, some of which provide data dating back to 1990 (FAO, n.d. b).

Measuring women's and men's roles through time-use surveys

Information on women's and men's involvement in food production can also be collected from time-use surveys. The World Bank (2006) working paper *Gender, Time Use, and Poverty in Sub-Saharan Africa* includes sex-disaggregated data on the average time women

and men spend in different agricultural and domestic activities in a few Sub-Saharan countries, including Benin, South Africa, Madagascar and Guinea, among others. The activities performed by women and men that are measured through national case studies and surveys, particularly time-use surveys, include crop farming, tending animals and fish farming, hunting and gathering, food processing and preservation, and preparing and selling food and beverages (World Bank, 2006). These types of surveys are essential in the collection of sex-disaggregated data related to the environment as they provide information on the work performed and on the labour allocation within households, they illustrate the division of labour, and they reveal market economic contributions of men and women.

TIME-USE SURVEYS

Time-use surveys provide valuable insight into the time women and men spent in different productive and reproductive activities, showing the distinct gender-differentiated roles and responsibilities. These surveys are useful to analyse the division of labour between women and men, assess general well-being and estimate household production and its contribution to gross domestic product (GDP) (UNSD, 2016).

As of today, over 85 countries have conducted time-use surveys at least once. UNSD compiles data collected on paid and unpaid work, collected via national time-use surveys supplemented by the European Statistical System (Eurostat), OECD, the United Nations Economic Commission for Europe (UNECE) and the United Nations Economic Commission for Latin America and the Caribbean (UNELAC) (UNSD, 2016).

The SDGs include one indicator related to time-use surveys that measures unpaid domestic and care work: SDG 5.4.1 "Proportion of time spent on unpaid domestic and care work, by sex, age and location" (UNSD, 2017a).

Data collection on division of labour and time use at community and household level has a long tradition among statisticians and researchers. ILO's publication *Women's work in Third World agriculture: Concepts and indicators*, first published in 1985, includes several statistics on women's and men's differentiated activities and decision-making in relation to agriculture and household chores, as well as the time used in several of these activities (Dixon-Mueller, 1985). The report is based on research papers conducted in specific communities within countries. Although the data cannot be extrapolated to the national or regional level, it provides a better understanding of the gender statistics developed and analysed more than three decades ago.

Mainstreaming gender in agricultural censuses
International organisations, such as FAO, not only contribute to the collection and dissemination of gender and environment statistics, but also provide guidance to strengthen statistical collection. The *World Programme for the Census of Agriculture (WCA) 2020* (FAO, 2017) provides a list of 128 indicators, including 15 indicators with a gender component, for countries to consider when implementing agricultural censuses between 2016-2025. Five of these gender indicators are considered essential: sex of agricultural holder; household size by sex and age groups; whether working on the holding is the main activity, by sex; working time on the holding, by sex; and the number and working time of employees on the holding, by sex.

While censuses provide essential data in a comprehensive and rigorous way at the lowest geographical level, one of the main challenges is that censuses are very expensive to conduct and there is often a long time between censuses (i.e. many censuses are collected every ten years)—meaning that the data does not provide up-to-date information. The inclusion of all the gender indicators proposed by the WCA 2020 in the next census can provide insight into the roles of women and men in agricultural holdings at the national level and improve the current statistical databases, seeing that many of the gender indicators are newly added. These indicators can help establish a baseline to measure progress towards SDG 2 on zero huger and SDG 5 on gender equality.

Women in fisheries

In the fisheries sector, men predominantly fish in open sea while women often fish in coastal ecosystems, such as mangroves, and provide other important labour across the value chain such as in fish processing and fishing net repair. However, fisheries statistics mainly focus on open-ocean fishing, reducing women's visibility in this sector and limiting the scope of sex-disaggregated statistics (UN Environment Programme, 2016). An in-depth analysis of women's role in fisheries is provided in the report *Hidden Harvest, The Global Contribution of Capture Fisheries* (World Bank, 2012), which presents the percentage of women employed in fisheries, both small-scale and large-scale fisheries, in marine and inland ecosystems, who account for almost half of the workforce globally. Data was collected from national statistics and case studies from 17 developing countries, particularly from Africa and Asia, as well as 11 developed countries, mainly from the European Union (EU) plus Japan, United States and Canada. While stereotypical gender roles in fisheries reflect general norms—i.e., with men involved in fishing, especially at larger scale, and women in fish processing and sales—data provide nuances into a more complex array of roles, as well as needs, priorities, capacities, etc., that vary across country and cultural contexts.

Food insecurity and health

Agriculture, food security and health are intimately intertwined topics. The role of women in agriculture and food security is crucial because women are disproportionately responsible for food crops and food production (World Bank, 2009). However, sex-disaggregated data on food security is scarce and often limited to a few countries. For instance, FAO's database provides sex-disaggregated data on food consumption from 15 indicators collected through household surveys from 37 countries, mainly developing countries, and in only a few cases from more than one year. These indicators, presented in Table 5, shed light on essential information on food consumption, yet there is room for improvement by disaggregating the data by individuals or by the type of household, instead of household head, to better understand women's roles and experiences within the household (FAO, n.d. c). As previously mentioned, sex-disaggregated data at the household level does not accurately represent the situation of women within male-headed households (or vice-versa), where their food consumption habits may differ from those of men.

Table 5: FAO indicators from household surveys

1. Total consumption in monetary value
2. Food consumption in monetary value
3. Dietary energy consumption
4. Protein consumption

Table 5: FAO indicators from household surveys (Cont.)

5. Carbohydrates consumption
6. Fat consumption
7. Share of food consumption in total income (Engel ratio)
8. Share of Dietary Energy Consumption from protein
9. Share of Dietary Energy Consumption from fat
10. Share of Dietary Energy Consumption from total carbohydrates and alcohol
11. Share of purchased food in total food consumption (in dietary energy)
12. Share of own produced food in total food consumption (in dietary energy)
13. Share of food from other sources in total food consumption (in dietary energy)
14. Share of food consumed away from home in total food consumption (in dietary energy)
15. Average dietary energy unit value

LOOKING INSIDE THE HOUSEHOLD

Household composition varies widely, both in number of individuals and the relationship among members, for example, ranging from a one-person household to a composite household in which a number of non-related people live together. Understanding power dynamics and decision-making capacities and authorities can be very challenging—but is crucial to understanding real barriers and opportunities on a day-to-day basis for people. How a survey might be structured is important to examine, and the common delineation of head-of-household may not be sufficient. Data disaggregated by the type of household, specifying sex or gender identity of members and the family and marital status, provides insightful information on the socio-economic and decision-making differences between, for example, one-person female or male household, and between a nuclear household composed by a couple or a single parent with children.

The disaggregation of data by the sex of the head of household can underestimate the role that women have within male-headed households and may not apply to extended or composite households that can include more than one family unit or non-related members. For instance, a household composed by a working-age woman with children as well as her parent may be considered as a male-headed household even if the woman is the only income-generating member in the family. Thus, the disaggregation by the type of household can provide a better understanding of household and make women and gender inequalities more visible. Data disaggregated by type of household

---

LOOKING INSIDE THE HOUSEHOLD (CONT.)

---

is key to understanding gender dynamics within the household and in relation to the environment. Nuclear households composed of a mother with children in rural areas may rely more on natural resources than extended households, where, due to societal norms, men will have easier access to work and economic resources to guarantee food, water and fuel security.

UNSD suggests instead to consider types of households, distinguishing between a one-person household; nuclear household (consisting of a single-family nucleus); extended household (one family nucleus with other related or married persons, two

or more family nuclei related to each other or two or more persons related to each other); and composite household (one or more family nuclei with people related and non-related to each other, or non-related persons). UNSD also recommends collecting data on the sex of all members and the family and marital status in order to be more precise and distinguish between subcategories, e.g. a nuclear household can be composed of a married couple (with or without children), a partner in consensual union (with or without children) or a single father or mother with children (UNSD, 2017b).

Women and nutrition

Measuring the health impact of food insecurity on women and men is key to better understanding poverty and gender inequality in access to food. The World Health Organization (WHO) provides annual sex-disaggregated data since 1975 from 191 countries on underweight, overweight and obesity prevalence in children and adults as part of the Body Mass Index (BMI) (WHO, n.d. b). Additionally, WHO has a Global Database on BMI that further disaggregates in obese, overweight, pre-obese, normal, moderate and severely thin, and underweight (WHO, n.d. a). Eurostat, the statistical office of the European Union (EU), collects and displays sex-disaggregated data on the share of women and men that are underweight, normal and obese in EU member states plus Iceland, Norway and Turkey (Eurostat, 2017). Likewise, the World Bank database provides sex-disaggregated statistics on the prevalence of overweight, underweight, stunting, wasting and severe wasting in children under 5 that have also been collected

by WHO through the DHS programme. This set of indicators is collected more sporadically and the number of countries collecting each indicator varies from 135 to139 countries (World Bank, n.d. c).

Another indicator to measure food insecurity is the prevalence of anaemia in women, including pregnant and non-pregnant women, which has also been estimated by WHO since 1990 through the collection of sex-disaggregated data from 186 countries (WHO, n.d. c). Indicators measuring the prevalence of anaemia in women can help compare food insecurity conditions across countries, yet malnutrition and food insecurity are not the only causes of anaemia and this indicator should be considered within that context.

All of these indicators can help measure food and nutrition insecurity and provide data to measure the progress towards SDG 2 to end hunger and more specifically SDG target 2.2: "By 2030, end all

---

forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons" (UNSD, 2017a). Although there is no gender indicator to measure this target, the proposed indicators in the SDG indicators list offer some possible entry points. While access to natural resources and biodiversity is key to guaranteeing food security and nutrition in the household, the indicators compiled by WHO and the World Bank focus on the health impact of food insecurity. There are no international indicators that specifically measure the reliance on natural resources to secure food; the link between the environment, food security and gender remains overlooked.

Access to energy

In view of the limited inclusion of gender considerations in access to energy in the SDGs, time-use surveys are an essential source of information on women's and men's roles in the collection of fuel for lighting and cooking, particularly in developing countries. Such surveys can contribute to the creation of a baseline for measuring the benefits of modern energy and clean cooking solutions, particularly in women's workload. In sub-Saharan Africa, for example, women are generally responsible for firewood collection and spend more time than men on this domestic task (World Bank, 2006). However, the collection of statistical data through time-use surveys is still at a nascent stage and few countries conduct this type of survey.

DHS AND MICS

The Demographic and Health Survey (DHS) and the Multi Indicator Cluster Survey (MICS) are multi-topic household surveys that provide a wide range of information on different socio-economic and environmental considerations at the household level. The DHS is a program funded by the United States Agency for International Development (USAID) that has supported over 90 countries in the development of health surveys through questionnaires at different levels, including separate questionnaires for women and men and a household questionnaire, among others. Similarly, the MICS, funded by United Nations Children's Fund (UNICEF), consists on a combination of questionnaires, including for women, men, children and the household, that have been conducted in over 100 countries over the last two decades. In addition to information on health, violence and social practices collected through the personal questionnaires, MICS also collect data on water and sanitation, energy and other household characteristics. Additionally, there is a water quality questionnaire that is used in some selected households (DHS, 2017; MICS, 2017).

Internationally supported surveys, such as the DHS or the MICS provide data on household access and type of energy used for cooking, lighting and heating, as well as cooking conditions; this data, however, is not disaggregated by sex (DHS, 2017; MICS, 2017). Not disaggregating data by sex prevents policy-makers from better understanding how providing access to sustainable energy may reduce women's workload burden from collecting firewood and cooking, enabling them to spend their time on economic, educational or leisure activities. For example, access to renewable energy can lead to women's economic empowerment and have a greater impact on communities when energy projects adopt a gender lens that supports

women's use of the freed time on economic activities (O'Dell, Peters & Wharton, 2014). International initiatives such as Sustainable Energy for All (SEforALL) work toward the achievement of SDG 7—to secure access to affordable, reliable, sustainable and modern energy for all by 2030—and aim to ensure that women are full participants and beneficiaries of the programmes (SEforALL, n.d.). The Global Tracking Framework, partnered by many international agencies, including SEforALL and The World Bank, provides national data on the access to electricity, clean cooking renewable energies and energy efficiency, yet data is only disaggregated by rural and urban region, not by sex of household head or by type of household (GTF, n.d.). As the collection of data on energy access increases, there is a need to collect it at the individual level within the household to identify gender-differentiated access, needs and use of energy. The lack of sex-disaggregated data to inform policymakers leads to the adoption of policy frameworks that perpetuate gender inequalities in the energy industry (UN Environment Programme, 2016). Access to renewable energy has the potential to increase women's and men's reliance to climate change and offers entrepreneurial opportunities for rural women to increase agricultural productivity and engage in agro-processing and non-farm economic activities, including in the energy sector.

Access to water and sanitation

Time-use surveys are also key to measure water and sanitation access and use, particularly in developing countries where women largely bear the brunt of water collection responsibilities, which can take a considerable amount of their time (World Bank, 2006). While data on household water and sanitation access is not disaggregated by sex, MICS surveys can collect data on the person responsible for water collection within a household (MICS, 2017). MICS generates data on the well-being of women and children and has conducted almost 300

surveys in 108 developing countries over the past two decades (UNICEF, n.d.).

Beyond collecting sex-disaggregated data, analysis and dissemination of these data are also important. In order to disseminate information on water and sanitation access, WHO and UNICEF created the Joint Monitoring Programme (JMP). The JMP has reported on the progress on drinking water and sanitation on a biennial basis until 2012, when it became a yearly update. However, only the reports of 2008, 2010 and 2012 presented sex-disaggregated data on the role of women and men in water collection, displaying data from 35 and 45 developing countries in 2008 and 2010 respectively, and from 25 sub-Saharan countries in 2012 (Fletcher & Schonewille, 2015). Sex-disaggregated data was not available in the subsequent reports, though the update in 2015 discussed the impact of water and sanitation access on menstrual health, without providing any statistical data (WHO & UNICEF, 2015).

The JMP programme published a document in 2016 that presents recommended questions to support the monitoring of Water, Sanitation and Hygiene (WASH) in Schools as part of the SDGs monitoring (WHO & UNICEF, 2016). In order to achieve SDG target 4.a regarding education facilities, this report presents sex-disaggregated questions to measure the sanitation-related aspect of the indicator 4.a.1, i.e. "proportion of schools with access to [...] (f) single-sex basic sanitation facilities..." (UNSD, 2017a). The core questions proposed in the report demand sex-disaggregated information on the existence, amount and conditions of girls' only toilets, and can be included in the national Education Management Information System (EMIS), used to monitor the performance of the education system. The JMP also proposes expanded WASH questions for school surveys that delve into girls' only toilets accessibility regarding menstrual hygiene conditions (WHO &

UNICEF, 2016). Similarly, in 2017, the JMP published a report on WASH in the East Asia and Pacific Region, which included similar questions to those proposed in the previously mentioned report on WASH in Schools (WHO & UNICEF, 2017b). Additionally, JMP published a thematic report on drinking water in 2017, which again includes the distribution of the responsibility of collecting water and includes data from 61 countries (WHO & UNICEF, 2017a).

In addition to who is responsible for water collection and the time spent on it, gender indicators can also include women as employees or decision-makers in public water institutions; women's role in, and access to, irrigation; and women's role in, and access to, water and sanitation facilities (Fletcher & Schonewille, 2015). The United Nations World Water Assessment Programme (WWAP) presents a list of 100 gender indicators in the water sector in the report *Sex-disaggregated indicators for water assessment, monitoring and reporting* (Seager, 2015). This document is part of a wider project that includes as a next phase the implementation of pilot projects in the field (Seager, 2015). The collection of gender statistics on drinking water and sanitation access can help create a baseline and monitor the progress made towards SDG 6, particularly SDG target 6.2 that aims to "by 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations" (UNSD, 2017a).

Climate change, sustainable consumption and production, and health and well-being

Environmental degradation and the unequal access to natural resources can also contribute to deterioration of health and well-being for women and men. Thus, responsible and sustainable production and consumption of natural resources, as well as

sound management of chemicals and waste, can contribute to mitigating and even reverting the effects of environmental degradation and climate change. The active participation of women at all levels is crucial for the achievement of these goals. The SDGs have addressed these issues in many of the goals, including SDG 1 to end poverty, SDG 3 to ensure good health and well-being, SDG 5 to achieve gender equality and the empowerment of all women and girls, SDG 11 to make sustainable cities and communities, SDG 12 to ensure sustainable consumption and production and SDG 13 to combat climate change (UNSD, 2017a).

Climate change impacts on women and men

Climate change impacts a broad swath of environmental sectors and issues, many of which are addressed in the previous sections. The effects of climate change exacerbate existing stressors and inequalities with respect to agricultural land and other land management, food security, water security, and more.

Measuring the impact of climate change

The gender-differentiated impacts of climate change and disasters and the unequal position of many women may increase their vulnerability to these events, particularly as climate change intensifies them. One way to measure climate change is through the direct impacts of disasters, particularly through the number of deaths, missing people and affected people. *The World's Women 2015: Trends and Statistics* report (UN, 2015b) presents case studies on gender- and age-disaggregated mortality due to natural disasters, such as the 2011 East Japan Earthquake and tsunami. The data shows that mortality differences by gender and age vary across countries and type of hazard, women being the most vulnerable to natural disasters in developing countries, though

this is often different in developed countries (e.g., 61per cent and 63per cent of deaths were women, caused by the 2008 cyclone in Myanmar and the 2004 tsunami in Sri Lanka, respectively, while 37per cent of natural disaster deaths in the United States from 2004 to 2013 were women) (UN, 2015b). Other factors such as age and socio-economic status also play a role in disaster mortality. However, gender statistics measuring the impacts of natural disasters are limited and have not been fully integrated at the national and international levels.

The reinsurance company Munich Re collects data on the number of deaths and economic losses due to disasters, including extreme weather events, and compiles it in NatCatSERVICE, one of the most comprehensive databases for analysing and evaluating natural catastrophes. These data are used by GermanWatch to produce the Global Climate Risk Index that combines the death and economic losses due to extreme weather events as indicators. However, data on the number of deaths is not sex-disaggregated (Eckstein, Künzel, & Schäfer, 2018). Additionally, the distinction between natural disasters and climate change related disasters, also known as hydrometeorological disasters or extreme weather events, is lacking.

These limitations can be addressed through the SDG framework, particularly with indicator 1.5.1 (also 11.5.1 and 13.1.1) on the "number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population." While the indicator measures all types of disasters, its methodological framework includes the disaggregation by type of hazard and sex as options. The collection of gender statistics on the impacts of climate-related extreme events and natural disasters, as well as the DRR measures adopted at the national level, can help measure national progress towards SDG targets 1.5, 11.5 and 13.1 (UNSD, 2017a).

Measuring the direct impacts of natural disasters is only one part of measuring climate change and should be complemented with the measurement of other indirect impacts, such as agricultural productivity decline or biodiversity losses due to droughts. These indirect impacts can greatly affect women's and men's livelihoods; particularly those of women who are responsible for food security at the household and community levels and are often deprived of land properties and access rights. However, statistical data linking gender with the indirect impacts of climate change is currently lacking. Along these lines, indicators presented in Priority Areas A and B can be useful to analyse the indirect effects of climate change.

UN Women (2016) report *Leveraging co-benefits between gender equality and climate action for sustainable development,* provides a broad list of 42 gender-responsive indicators in climate change projects to help measure climate change direct and indirect impacts, resilience and adaptation efforts at the impact and output levels of the project; a sample of these indicators is presented in Table 6.

Table 6: Examples of gender-responsive indicators in climate change projects (UN Women 2016)

OUTCOME / IMPACT LEVEL	**Well-being and livelihoods:** Number and percentage of poor women and men with increased resilience to deal with climate change (e.g., use of climate-resilient crops and farming techniques, improved land management, clean technologies, increased knowledge and strengthened networks on climate change issues, number/percentage of women-headed households provided with resilient home)
	Economic empowerment: Number of female entrepreneurs with adequate access to financing for low-carbon and climate-resilient investment
	Participation and decision-making: Proportion of women in sectoral ministry in senior management positions
	Capacity development: Number and percentage of women and men trained in energy-saving and sustainable agricultural technologies (e.g., adaptations to land management practices in marginal and fragile lands, adaptations related to changed rainfall patterns)
OUTPUT LEVEL	**Sectoral planning and policies:** Sex-disaggregated data routinely collected and applied to sectoral policy, planning, implementation, monitoring and evaluation
	Business model and technology solutions: Number and percentage of women adopting low-carbon and climate-resilient solutions
	Access to finance: Number / proportion of women with improved access to financial mechanisms (equity investment, affordable loans, etc.) for low-carbon / climate-resilient products and services

W+: MEASURING GENDER-RESPONSIVE OUTCOMES

While data on the impacts of climate change are still significantly lacking, women's innovative initiatives such as Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN)'s W+ are trying to capture and accelerate progress made via climate change interventions—namely those that, in tandem to realising adaptation and mitigation results, improve women's empowerment. Organized around 6 domains, W+ indicators include topics such as women's increased assets (e.g., land, trees, equipment, livestock) and decreases in period of food security (WOCAN, 2018; W+, 2016).

Disaster Risk Reduction

Women's and men's roles in the aftermath of disasters may also differ and existing inequalities to access to natural resources can limit women's capacity and resources to respond with resilience to natural disasters and climate change. However, regular and consistent statistics on women's and men's role in the aftermath of an extreme weather event are scant, partly due to the complexity of post-disaster settings and the absence of standardised definitions and methodological tools for data collection (UN, 2015). The World Bank (2011) proposes a list of gender indicators for gender sensitive monitoring in disaster

risk management (DRM) programs. These indicators focus on risk identification, preparedness and early warning, disaster risk reduction (DRR), and post disaster response and recovery.

Similarly, the Asian Development Bank (ADB) (2013) provides a list of gender indicators at the country and sector level in relation to development, as part of the report *Tool Kit on Gender Equality Results and Indicators*. The guiding tool includes six indicators regarding environmentally sustainable development and climate change at the country and sector level, as presented in Table 7 (ADB, 2013).

Table 7: Gender indicators for Environmentally Sustainable Development and Climate Change at the country and sector level (ADB, 2013)

HUMAN CAPITAL	Number of community-based adaptation activities that strengthen women's access to resources for sustainable food production, renewable energy, and clean water sources
	Number and percentage of poor women and men with increased resilience to deal with climate changes
	Time saved in collecting and carrying water, fuel, and forest products due to environmentally sustainable and climate change adaptation activities
ECONOMIC EMPOWERMENT	Number and percentage of women and men who access employment or increase their incomes due to climate change adaptation or mitigation activities
VOICE AND RIGHTS	Evidence that climate change policies, strategies and plans require the participation and involvement of poor women and men in developing and managing local adaptation and mitigation plans
GENDER CAPACITY BUILDING	Evidence that policies, strategies, and plans are based on gender analysis of the different impacts of climate change on poor women and men, and include gender equality objectives for each sector of climate change adaptation and mitigation

Gender-differentiated consumption and production patterns

The current global consumption and production patterns, which are environmentally unsustainable and contribute to the rapid depletion of natural resources and ecosystems, as well as to the generation of waste and gas emissions, exacerbate global warming and magnify the effects of climate change. Low- and middle-income countries face striking inequalities; they produce fewer emissions and consume less than high-income countries but are the most affected by climate change (UN Environment Programme, 2016). Data on the extent of sustainability of consumption and production patterns is limited, and despite the different consumption patterns regarding gender, age, class, race and location, there is still a scarcity of disaggregated statistics that reflect these differentiated patterns (UN Environment Programme, 2016).

Academics and researchers have conducted studies on consumption patterns at the national level (OECD, 2008b). Consumption patterns are often gender differentiated since women are generally responsible for purchasing household essentials, such as food, household goods and clothing; while men tend to spend their money on more expensive capital goods such as homes, cars and electronics (OECD, 2008b). However, the indicators used to measure household consumption patterns in the OECD report are not widely used at the institutional level and reliable and comparable gender statistics do not exist. There is still a need to strengthen the knowledge base regarding gender differentiated sustainable consumption patterns, considering that gender considerations are not integrated in SDG 12 on sustainable consumption and production patterns (UNSD, 2017a).

Other approaches to measure consumption and production are through ecological footprints and carbon footprints. The Global Footprint Network (GFN) provides data on the national ecological footprint disaggregated by the type of land, e.g., cropland, build-up land, forest products, and grazing land (GFN, n.d.). Carbon footprints provide insight into the impact of consumption on climate change in terms of greenhouse gas (GHG) emissions; yet the ecological footprint offers a more holistic approach when measuring consumption (GFN, n.d.). Data at the intra-household level is limited, and the ecological footprints disaggregated by sex and social dimensions are lacking (UNEP, 2016).

The need for a change in the current model of consumption and production has propelled the development of the Sustainable Consumption and Production (SCP) model. The importance of sustainable consumption and production has been reflected in SDG 12, which focuses on the promotion of this new model. Supporting the IAEG-SDGs efforts to define the SDG indicators, UN Environment developed a list of proposed indicators to measure sustainable consumption and production. While it did not include gender considerations in the final proposed list, it mentioned as an additional indicator the "contribution by the tourism sector to direct and indirect employment, by gender and duration of jobs in the tourism sector" (UN Environment Programme, 2015). As with the measurement of consumption and production, the sustainable dimension of consumption and production is still largely gender-blind and gender statistics do not widely exist.

---

1 MILLION WOMEN

The 1 Million Women movement, based in Australia, is an example of the role of women in sustainable consumption (1 Million Women, n.d.). Members can join the initiative to reduce carbon pollution, committing themselves to adopt specific actions. This data can be collected to measure the amount

of CO_2 tonnes that women have not released to the atmosphere, yet statistics are based on estimates and trust people's commitment to what they had pledged. One Million Women proposes many indicators to measure sustainable consumption.

Environmental health threats

Environmental contamination poses a threat to human health and biodiversity and hampers sustainable development efforts. As such, it is recognized in SDG target 3.9 that aims to "by 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination" (UNSD, 2018b). This target includes three indicators, measuring ambient and air pollution; unsafe water, unsafe sanitation and lack of hygiene; and unintentional poisoning. The following sections discuss chemicals and hazardous waste and water and air pollution.

Chemicals and hazardous waste

The consumption of chemicals and the disposal of waste can pose a serious threat due to their harmful effects on human health and the environment. In many countries, people are unaware of the dangerous effects of some chemicals and hazardous waste, including pesticides, on those who have unprotected direct and indirect contact with them. Women, especially pregnant women, are the most at risk because their bodies accumulate chemicals such as Persistent Organic Pollutants (POPs) more readily than men and they can transmit these chemicals to their foetuses (Stockholm Convention, 2009). Acknowledging this, many countries have reported conducting studies at a small scale on

POPs concentrations in women to the Stockholm Convention, one of the three leading conventions on chemical management, along with the Basel and Rotterdam Conventions (Gilligan & Sabater, 2017).

Monitoring the differentiated effects of chemicals on women and men, as well as the use and exposure to them is key to secure women's and men's health and well-being. However, data collection at a national scale is limited and results vary across countries because of the different gender roles in societies. A small pilot study carried out by the Pesticide Action Network (PAN) United Kingdom, FAO and local NGOs in Eastern Europe and Central Asia identifies how gender-differentiated exposures to pesticides vary across the studied countries (UN Environment Programme, 2016). There is a need to produce gender indicators and collect sex-disaggregated data on health impacts of chemicals in a consistent manner and at the national, regional and global levels not least so as to strengthen chemical restricting and banning legislation.

Water and air pollution

In addition to direct and indirect contact with chemicals, the pollution of water supplies with chemicals, pesticides and other water-borne contaminants jeopardises women's and men's health and well-being. Sex-disaggregated data on diseases and deaths caused by poor water and sanitation

conditions are scarce (UN Environment Programme, 2016). The collection of gender data on these issues can help to measure the progress made towards SDG target 3.9 (UNSD, 2017a).

Environmental health is one of the most complex areas for data collection insomuch as it is difficult to estimate the burden of a disease due to environmental causes. At the academic level, there has been some research focusing on the burden of a disease, as is the case of Prüss-Üstün et al. (in UN Environment Programme, 2016), who analysed the burden of disease from inadequate water sanitation and hygiene in low-and middle-income settings and collected sex-disaggregated data on the number of deaths from diarrhoea due to poor water and sanitation. The collection of data on water-borne diseases and water pollution is key, particularly as climate change is causing an increase in floods, droughts and natural disasters, which can lead to an increase in the cases and danger of these environmental health threats.

Air pollution is another cause of environment-driven diseases that disproportionally affects low- and middle-income countries. WHO conducted a study in 2012 on the household and ambient air pollution impact on human health where it presented the percentage of global deaths, disaggregated by women, men and children (WHO, 2012). The development of gender indicators related to air pollution and other types of contamination such as wastes are needed in order to measure national progress towards SDG targets 11.6 and SDG target 3.9 (UNSD, 2017a).

The dimensions of climate change, sustainable consumption and production, and health and well-being are highly intertwined. Unsustainable consumption and production patterns have exacerbated global warming and climate change while damaging ecosystems and endangering human health. The particular use of dangerous chemicals over the past century—many of which have since been banned—has had a negative effect on peoples' health, particularly women, and will continue to do so in the future as many of them persist in the environment for a long time. Similarly, the worsening of climate change effects also has a negative impact on ecosystems and human health that disproportionally affects women and marginalised groups, especially in developing countries. Thus, the identification of gender indicators and the collection of gender statistics is key to better understand women's and men's differentiated consumption patterns and the gender-differentiated impact of climate change and the environment on women's and men's health.

Women in environmental decision-making

According to the UNDP *Human Development Report* (2014), "Better representation of women in political life can greatly improve the position of women generally." Women's equitable participation in decision making empowers women and upholds commitments to gender equality, while also contributing to better sustainable development outcomes (Luna, et al., 2015). Women remain dramatically underrepresented in political representation broadly,[4] but also specifically in environmental decision making spheres, as IUCN's own data shows (Prebble et al., 2015; IUCN, 2015; Oliva & Owren, 2015). As gender-differentiated roles and responsibilities across the environmental arena—from fisheries to forests—lead to unique knowledge, capacities, priorities and needs

---

4   As of 1 October 2018, 24.0per cent of national parliamentarians globally are women (IPU, 2018).

for women and men, ensuring diverse inputs and representation in decision-making processes is vital to sound policymaking and action. However, data measuring women's participation, representation and role in the environmental sector is scarce.

SDG target 5.5 aims to "ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life", which is measured by the SDG indicators 5.5.1 "proportion of seats held by women in (a) national parliaments and (b) local governments" and 5.5.2 "proportion of women in managerial positions" (UNSD, 2017a). Data for these Tier I indicators are already being collected, and the methodology from Tier II sub-indicator on local governments has recently been approved by the Statistical Commission and countries are starting to align their methodology and collect these data (IAEG-SDGs, 2018). Data is not being disaggregated by the type of sector or ministry women belong to, however, meaning that it does not provide information specifically pertaining to decision making in environmental sectors (UNSD, 2017a).

Environment and Gender Information (EGI)

IUCN's EGI platform has aimed, since its pilot-phase launch in 2013, to identify and close data gaps in this area. The platform has compiled sex-disaggregated data on the existence of gender focal points in environmental ministries, gender policies and programmes in environmental ministries and environmental linkages within national women's affairs mechanisms. Additionally, the EGI platform has conducted several projects on women's participation in major MEAs, including the three Rio Conventions and the BRS Convention. Using quantitative and qualitative analysis, the EGI provides a snapshot of women's participation in Conferences of Parties (COPs) and how gender is being integrated in national reporting documents to the different conventions (IUCN GGO, n.d.). The EGI dataset on women in environmental decision making included indicators measuring women's and men's participation in international environmental fora such as the UN Forum on Forests and the World Energy Council (IUCN GGO, August 2015).

While the EGI platform has been able to gather information on a variety of indicators, they were mostly focused at international level. At national level, much progress can be made to measure women in environmental decision making at all levels, including within the national government (e.g. leadership position within environmental ministries and agencies); within sector-specific environmental management committees and working groups (e.g. water and forestry groups); within state and local governments, and within leadership boards of civil society organisations, NGOs and the private sector.

WOMEN'S PARTICIPATION IN FORESTRY DECISION-MAKING

Information on women's participation and role in environment-related management bodies and committees, such as communal land management bodies or water and forestry groups, among others, is very scarce. However, some initiatives at the local or national level exist. In the forestry sector, women have gender-differentiated roles and, in many cases, have restricted access to forest resources, which could lead to food insecurity in the household, among other issues. Sex-disaggregated data on the differentiated use of forest resources is limited, mainly collected for specific studies. For example, IUCN's EGI platform compiled data on women's participation in national protected areas in Mexico, including sex disaggregating the information on the director of the national protected area. In 2015, out of 18 protected areas, women headed three (IUCN GGO, 2015). Similarly, Sunderland et al. (2014) provide data on the percentage of women who participate in forest user groups (FUGs) in Latin America, Asia and Africa. Women's participation in FUGs is highest in Africa and lowest in Latin America, where few households, both male-and female-headed, participate in FUGs. However, in about half of the sites women admitted not attending FUGs meetings. The research also provides sex-disaggregated data on the share of income of processed and unprocessed forest products collected by women and men in Latin America, Asia and Africa (Sunderland et al., 2014).

The scarcity of sex-disaggregated and socioeconomic data in the forestry and other environmental sectors limits the adoption of gender-responsive policies and programmes. This data gap has been documented, including, for example, suggested gender-sensitive indicators recommended by FAO, as presented in Table 8 (FAO, 2016). Some of these indicators can strengthen gender-responsive monitoring and evaluation at the project and programme level and can also be used to monitor women's participation and roles in other management bodies and committees related to agriculture, fisheries, water management and energy.

Table 8: Gender-sensitive indicators to mainstream gender in the forestry sector (FAO, 2016)

QUANTITATIVE INDICATORS

1. Percentage of men and women attending forestry schools
2. Percentage of women members of local organisations/decision-making bodies
3. Percentage of property owned and controlled by women and men across socio-economic, age and ethnic groups
4. Percentage of credit, financial and technical support services received by women/men

QUALITATIVE INDICATORS

1. Men and women's perception on the quality of their participation and impact of project's activities on their lives
2. The degree to which men and women are aware of their legal rights
3. Perception of women and men whether women are becoming more empowered, and the reasons why

In conclusion, as the scoping in this chapter has presented, gender-environment linkages span sectors, levels, issues and the SDGs themselves. The policy frameworks are in place, and yet data gaps persist—arguably for a very wide range of reasons. While it will be a continuous and long-term undertaking to make progress in every area, the following chapter will explore key immediate entry points for enhanced action in priority areas.

© Jose de Jesus Churion Del | Shutterstock

© Marcos Castillo | Shutterstock

3

Data and statistics that can be used to measure the priority areas

Chapter 3: Data and statistics that can be used to measure the priority areas

Introduction

The policy and data landscape reviewed in the previous chapter, along with the SDG framework, provide useful information for the development and consideration of an enhanced set of indicators that can be used to measure gender and environment issues within the four priority areas identified as the scope of this paper.

Proposed indicators to measure the priority areas

The background research conducted and presented in the previous chapter helps to identify countries' priorities in the measurement of gender and environment issues and grounds the list of indicators presented in this chapter. An in-depth review of the SDG indicators was carried out to identify gender entry points in the internationally agreed indicators. Countries' commitments to the SDGs, and the integration of SDG indicators within national statistics in order to measure their progress towards sustainable development, have positioned the SDG indicators at the centre of this study.

The list of indicators has been developed taking into consideration other currently existing indicators and methodologies, especially internationally agreed methodologies and surveys, such as time-use surveys. The selection of these indicators is also based on the feasibility of indicators. Additionally, the priorities of the case study countries (Lao PDR, Kenya and Mexico) helped to shape this list—these countries cover diverse regions, environmental challenges, rural and urban priorities, and socio-economic status of developing countries to provide a well-rounded view of priority issues. However, as developing countries are often the focus of international data collection efforts, particularly in rural areas, and rural indicators (i.e. water and energy access) have been routinely measured for many years, these types of indicators play a greater role in this report and in the recommended indicator list. It is also important to measure environmental and gender challenges in developed countries and urban areas, but those feature less prominently in this IUCN-UN Environment research collaboration.

Process elements for developing an indicator list

The UN IAEG-GS has their own minimum indicator list of 52 quantitative and eleven qualitative indicators, based on the twelve critical areas highlighted in the Beijing Platform and, more recently, in alignment with the SDGs. However, there are currently no indicators reflecting three specific BPfA areas: women and armed conflict, women and the media, and women and the environment. This is due to various constraints, including especially the availability of data. As part of the process that informed this paper, IUCN in collaboration with UN Environment developed an initial list of nine indicators for measuring the gender-environment nexus that was presented for discussion during the 11th meeting of IAEG-GS in October 2017. Discussion emphasised the relevance and importance of measuring the gender-environment nexus, with specific consideration of potential indicators that can be further developed for inclusion.

Following the IAEG-GS discussions, IUCN and UN Environment invited input on the initial indicator list through an online consultation in January 2018 to engage key experts and invite suggestions to shape the research, missions and eventual recommendations, as noted in the methodology section. Occurring prior to the three country missions, (which, again, comprised a key portion of the methodology for this research initiative,) the consultation provided additional insights for the action-research national workshop methodologies. Consultation participants included experts on the gender-environment nexus and/or data collection in these fields, including from UN organisations, international NGOs, academia and national statistics offices. Feedback from this consultation was used to hone the list of 19 indicators presented and discussed at workshops in Lao PDR, Kenya and Mexico.

This list was then presented in the country workshops to foster discussions among participants on the gender-environment data already being collected at national level and on key statistical priorities in the country.

The list of indicators presented below has been refined through this feedback and is the result of these processes *(see Annex II for the full indicator list and Tables 9-12 for the indicators separated in the four Priority Areas)*. Some are indicators already in place, e.g., with strong country data coverage and backed by—among other things—political will to keep serving as useful markers; some are proposed indicators that demand attention, resources and strategies for action.

Priority Area A: Right to land, natural resources and biodiversity

This priority area focuses on women's and men's land tenure rights and land ownership. Strong governance of land tenure is key to secure land tenure and guarantees access to and management of other natural resources, such as forest, water, fisheries and mineral resources (UNSD, 2018a). Thus, secure land tenure is essential for women and men who heavily rely on natural resources for their livelihoods and personal use, particularly in rural areas. Additionally, ownership of lands and assets is indispensable to access credit to develop businesses or invest in land extension services.

The need to measure land ownership and secure tenure rights has been recognised in the SDGs through two specific gender indicators: SDG 1.4.2 and SDG 5.a.1 (Table 9). These SDG indicators' methodologies do include disaggregating by sex. Countries' commitment towards the SDGs and their

work to define internationally agreed indicators and methodologies make these two existing indicators good examples for the collection of data on land tenure rights and ownership. As such, they are included as-is in the proposed list of indicators in this research.

Table 9: Proposed indicators for Priority Area A

PRIORITY AREA A: RIGHT TO LAND, NATURAL RESOURCES AND BIODIVERSITY

---

1. Proportion of total adult population with secure tenure rights to land, (a) with legally recognised documentation, and (b) who perceive their rights to land as secure, by sex and by type of tenure (SDG 1.4.2)

2. (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure (SDG 5.a.1)

---

1. Proportion of total adult population secure with tenure rights to land, (a) with legally recognised documentation, and (b) who perceive their rights to land as secure, by sex and by type of tenure (SDG 1.4.2)

SDG indicator 1.4.2[1] has recently been upgraded from Tier III to Tier II at the 6th IAEG-SDG meeting in November 2017, meaning that countries have agreed on a methodology to collect this information and many countries have the ability to collect this data (116 countries have the electronic land information systems necessary). The World Bank and UN-Habitat, with support from the partner agencies FAO, UNSD, UN Women, UN Environment, and the International Fund for Agricultural Development (IFAD), are the custodians of this indicator (UNSD, 2018b).

SDG 1.4.2 is quite all-encompassing: it covers all types of land use, including agricultural, residential, commercial and forestry, and all types of land tenure as recognised at country level, such as freehold, leasehold, public land or customary land.

Additionally, ownership can be individual; shared with other individuals; as a member of a household; or collectively as part of a group, cooperative or other type of association (UNSD, 2018a). This SDG indicator comprises two subcomponents to measure secure tenure rights to land: the legally recognised documentation of ownership and the perception of the security of tenure. Measuring these two components provides a comprehensive approach to secure land tenure rights, as both legality and perception contribute to secure land ownership. For example, in customary systems land tenure is perceived as secure even if there is no formal documentation, while individuals with legally recognised documentation may perceive their rights as unsecure due to limited trust in the land administration or fragile state institutions

---

1 Specific information on the methodology to measure this indicator can be found in the SDG indicators metadata repository: https://unstats.un.org/sdgs/metadata/

(UNSD, 2018a). The disaggregation by sex is key, as secure tenure rights for women could be additionally affected by societal norms, gender inequalities in the communities and intra-household power relations (UNSD, 2018a).

2. (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure (SDG 5.a.1)

The second indicator proposed to measure land tenure is SDG 5.a.1 (UNSD, 2017a). This SDG indicator specifically measures ownership and secure rights over agricultural land and is in the custody of FAO, with support from other partner agencies that are also responsible for SDG 1.4.2, such as the World Bank, UN-Habitat, UN Environment, UN Women and UNSD (UNSD, 2018b). SDG indicator 5.a.1 was updated to Tier II category during the 5th meeting of the IAEG-SDGs in March 2017 (UNSD, 2018b).

As previously mentioned, some countries have already collected similar sex-disaggregated data on land ownership and tenure rights, but without a specific focus on agricultural land, through national household surveys, including DHS, MICS, and Living Standard Measurement Study (LSMS). The World Bank and FAO have collated data from these national surveys and FAO has compiled them in the Gender and Land Rights Database, a great example of the integration of gender within environment statistics (FAO, 2015; World Bank, n.d.).

One of the main differences between SDG indicators 1.4.2 and 5.a.1 is that for 5.a.1, FAO dismisses reported ownership as proof of ownership and identifies the need for three conditions: the presence of legally recognised documents in the name of the individual, the right to sell, and the right to bequeath (FAO, n.d. d). Thus, FAO suggests countries to include specific questions on agricultural land ownership and tenure rights, including the possession of land titles and the rights to sell and bequeath, on their next household survey questionnaire (FAO, n.d. d).

© Jen Watson | Shutterstock

Priority Area B: Access to food, energy, water and sanitation

Data on access to energy, water and sanitation has been collected at household level for many years, yet gender considerations have rarely been included. Time-use surveys are an essential tool that can provide additional information on the gender-differentiated access to these natural resources,

as well as on gender-differentiated roles and responsibilities within and outside of the household. Proposed indicators—that is, indicators that are based in but expand beyond the SDG framework and the IAEG-GS Minimum Set of Gender Indicators—are listed in Table 10, followed by short discussion of the rationale for their consideration. Many of these indicators also support the broad goals of SDG 2.3 (Annex I).

Table 10: Proposed indicators for Priority Area B

PRIORITY AREA B: ACCESS TO FOOD, ENERGY, WATER AND SANITATION	
FOOD	3. Share of food that directly comes from extractive methods (hunting, fishing and collecting) by source of the food, type of household and by urban/rural
	4. Time spent collecting plants, mushrooms, flowers and wild fruits; fishing and hunting for household consumption by sex
	5. Time spent planting, tending and harvesting a garden patch, and breeding of farm animals and the production of animal products for household consumption, by sex
ENERGY	6. Proportion of population with primary reliance on clean fuels and technology, by main user *(Similar to SDG 7.1.2)*
	7. Time spent collecting fuel for household consumption, by sex
WATER	8. Access to and use of safely managed drinking water, by source, by type of household *(Similar to SDG 6.1.1)*
	9. Time spent collecting water for household consumption, by sex
SANITATION	10. Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water, by type of household *(Similar to SDG 6.2.1)*
	11. Mortality and morbidity rates attributed to unsafe water, unsafe sanitation and lack of hygiene, by sex *(Similar to SDG 3.9.2)*

Food

3. Share of food that directly comes from extractive methods (hunting, fishing and collecting) by source of the food, type of household and by urban/rural

In many developing countries, women and men heavily rely on natural resources for their livelihood and household consumption, particularly in rural areas. However, the SDGs have not included any indicator to measure the relative contribution of food that comes from collection, hunting and fishing. Collecting data on women's and men's reliance on natural resources can provide additional information to studies on nutrition and food security. This data can also provide valuable insight on how to prevent or decrease possible negative effects that environmental interventions and governance—such as the creation of protected areas—may have on women and men in the surrounding communities.

The proposed indicator measures the share of food that comes from hunting, fishing and/or collecting in relation to the food consumed in a household. Data are disaggregated by the location (e.g., rural or urban)

and by the type of household (see box, *Looking Inside the Household*). Data to measure this indicator could be collected through multi-topic household surveys that include a module on household consumption. These types of surveys focus on the consumption of food that is purchased, received as a gift or payment, or home produced (Beegle, 2010). However, home produced food does not include food from extractive methods, such as fishing, hunting and/or collecting forest products.

While there have been some specific studies on communities' reliance on forest products, bushmeat and fish, data remains limited (FAO, 1990). Further research and pilot surveys are needed to define and test the questions that can be included in household questionnaires in order to measure the share of food that comes from extractive methods.

4. Time spent collecting plants, mushrooms, flowers and wild fruits; fishing and hunting for household consumption, by sex

As mentioned above, time-use surveys are very useful tools to measure women's and men's allocation of time, revealing roles and responsibilities. They provide an effective alternative to assess women's and men's reliance on natural resources, including on the collection of forest products, fishing and hunting for household consumption.

This proposed indicator is based on Mexico's national time-use survey module on rural activities. Mexico's categorisation of the activities is based on the International Classification of Activities for

Time Use Statistics (ICATUS) and the Classification of Activities for Time-Use for Latin America and the Caribbean (CAUTAL, in Spanish) (UNSD, 2017c; CEPAL 2016). However, Mexico has its own classification of activities within the production of goods for household consumption. These activities included breeding of farmyard animals; firewood collection; plants, mushrooms, flowers and wild fruits collection, fishing and hunting; planting, tending and harvesting a garden patch; water collection and storage; and other household improvement activities (National Institute of Statistics and Geography, 2014).

The indicator proposed here—time spent collecting plants, mushrooms, flowers and wild fruits; fishing and hunting for household consumption, by sex—is a composite indicator that combines three different ICATUS Activities: hunting, trapping and production of animal skins, for own final use (Activity #213); gathering wild products, for own final use (Activity #215); and fishing, for own final use (Activity #216). Despite differences in the wording, the activities of the proposed indicator can be clearly associated with ICATUS activities and, in turn, be used across countries. The proposed composite indicator, as Mexico's indicator, combines these three activities to measure women's and men's reliance on gathering food from the surrounding environment.

For countries already employing time-use surveys, ensuring that food collection activities are included in national questionnaires is straightforward and does not imply high additional costs because time-use surveys already collect sex-disaggregated data and activities related to the use of natural resources are already included within the internationally agreed methodology.

5. Time spent planting, tending and harvesting a garden patch, and breeding of livestock for household consumption, by sex

This time-use indicator is also based on Mexico's National Time-Use Survey, although in this case it combines two differentiated indicators: tending land for household consumption and breeding animals for household consumption. These two activities belong to the category of production of goods for household consumption of Mexico's national time use classification (National Institute of Statistics and Geography, 2014). These activities are also included in ICATUS with some wording differences. The activities are growing crops and kitchen gardening for own final use (Activity #211) and farming of animals and production of animal products for own final use (Activity #212). In this case, Mexico's time-use indicators were presented separately, but the proposed indicator is a composite indicator in order to be able to measure women's and men's reliance on their own produced food, as opposed to gathered food.

HARMONISING TIME-USE SURVEYS

When it comes to time-use statistics, each country has its own methodology and activities based on existing classifications, and not all of them use the same. ICATUS provides an internationally agreed framework for the production of time-use statistics. However, some countries base their activities on regional classifications, such as the classification of the Harmonised European Time Use Surveys (HETUS) and CAUTAL, or on their own developed classifications such as the United States (UNSD, 2017c). Having different classifications impedes data comparison across countries, thus UNECE has developed guidelines for harmonising time-use surveys (UNECE, 2013). As of yet, additional efforts are needed in order for countries to use the same classification or, at least, for their activities to be easily comparable with other countries.

Proposed indicators 4 and 5 provide comprehensive and useful information on gender-differentiated roles in the activities that contribute to food security in the household and both should be included within national time-use surveys, especially since these activities are included within the international classification of activities proposed by UNSD.

Energy

6. Proportion of population with primary reliance on clean fuels and technology, by main user (Similar to SDG 7.1.2)

Access to energy is essential for socioeconomic development, as energy is needed for various applications within the household, for productive uses and in public infrastructure (Bhatia and Angelou, 2015). Countries' commitment toward ensuring sustainable energy access is evident in SDG 7, aiming to "ensure access to affordable, reliable, sustainable and modern energy for all" (UNSD, 2017b). The proposed indicator is similar to SDG 7.1.2 on the "proportion of population with primary reliance on clean fuels and technology", which includes the collection of data on fuels and technologies used for lighting, cooking and heating (UNSD, 2018b). However, the indicator proposed here also requires the disaggregation of data by the main user, as suggested in the SDG methodology. While data on energy is the same for the household, women and men have a different use of these sources. For example, women are responsible for cooking and the type of energy used and the place of cooking can impact their health. Thus, collecting data disaggregated by main user can help to better understand the gender-differentiated access to energy.

SDG 7.1.2 methodology is based on the methodology developed by the World Bank known as the Multi-Tier Framework for Measuring Energy Access that measures the different levels of access to energy, affordability and reliability (UNSD, n.d. a). This framework provides a more comprehensive insight on the access to electricity supply, cooking solutions and space heating by proposing the collection of data on different components such as capacity, quality, reliance, affordability or health and safety (Bhatia and Angelou, 2015). Additionally, SDG 7.1.2 methodology suggests the disaggregation by place of residence (urban/rural), by sex of head of household and by main user, which can provide some information on the gender-differentiated access and use of clean fuels and technology (UNSD, n.d. a). However, none of the disaggregation are required, which reduces the possibility to report on the gender-differentiated access and use to energy and that is the reason why the proposed indicator requires the disaggregation by main user.

Data to measure SDG 7.1.2 can be collected through national household surveys and censuses, such as DHS, MICS, LSMS and other country specific surveys collected at household level (UNSD, n.d. a). MICS' methodology and questionnaires have already been amended to measure SDG indicators more efficiently (UNSD, n.d. a) The last version of the MICS household questionnaire includes questions regarding the different types of technologies and energy used for cooking, heating and lighting and

provides a broad range of answer options.[2] This new questionnaire includes most of the necessary information to measure this indicator, however no information is collected on who is the main user of these energy sources, which in many cases are the women. National household surveys such as MICS are useful for developing countries in the collection of data on energy access, however, for those countries who do not use this type of surveys, administrative data from energy companies may also be available, particularly in developed countries and urban areas.

7. Time spent collecting fuel for household consumption, by sex

Time-use surveys provide useful information on gender-differentiated time allocation that helps to better understand women's and men's gender-differentiated roles and responsibilities. In many least developed and developing countries, women are responsible for firewood collection for household consumption. Thus, knowing how much time they spend carrying out this task provides valuable insight for policymakers and decision-makers so as to adopt informed policies that reduce this burden.

This type of indicator[3] is generally included in national time-use surveys, particularly in least developed and developing countries where reliance on firewood and other fuel products for cooking, lighting and heating is higher. Given that time-use surveys already collect sex-disaggregated data, collecting information on time spent on firewood collection can be fairly straightforward and efficient.

Water

8. Proportion of population using safely managed drinking water services, by type of household (Similar to SDG 6.1.1)

Collecting data on the source(s) of water used for drinking provides insightful information on the health and socio-economic status of people in the household. SDG 6.1.1 measures the "proportion of population using safely managed drinking water services" (IAEG-SDGs, 2018). WHO and UNICEF, through the JMP for Water Supply, Sanitation and Hygiene, are the custody agencies of SDG 6.1.1, which is a Tier II indicator (UNSD, 2018b). The JMP has been collecting data on water and sanitation for over 25 years, and a new methodology has been developed to measure safely managed drinking water services, as requested in SDG 6.1.1 (JMP, 2018). This indicator is a composite indicator that requires the collection of data on the proportion of population using improved water supplies on premises, have water available when needed and are free of contamination (JMP, 2018).

---

2   For example, in relation to cooking, the questionnaire includes questions on the type of cookstove, whether there is a chimney and a fan (when applicable), the type of fuel or energy source used in the cookstove, and whether the cooking is done inside or outside the house. Some of the types of fuel mentioned are gasoline, kerosene, coal, wood, animal dung, processed biomass or garbage (UNICEF, 2018a).

3   The activity presented in the proposed indicator corresponds to ICATUS Activity #241 on gathering firewood and other natural products used as fuel for own final use (UNSD, 2017c).

Data to measure use of water can be collected from multiple household surveys and censuses, particularly MICS, which include a questionnaire on Water Quality Testing (UNICEF, 2018a). This data is later compiled by the JMP, which holds a database of over 1,700 censuses and surveys. However, new questions need to be incorporated in order to specifically measure the use of safely managed drinking water services, as defined by the JMP (UNSD, n.d. c). Since data is collected through household censuses and surveys, the disaggregation by the type of household to measure the indicator proposed here is feasible; particularly as that information is either already being collected or very easy to collect at the beginning of the questionnaire. Given that SDG 6.1.1 already mentions the possibility to disaggregate data by gender—in addition to place of residence (urban/rural) and socioeconomic status— doing the disaggregation by type of household instead can provide more precise information on the gender and socio-economic differences of households (UNSD, n.d. c).

9. Time spent collecting water for household consumption, by sex

Collecting data on the time spent fetching water for household consumption is essential in order to achieve SDG 6 on the availability and sustainable management of water and sanitation. Similar to indicators 4, 5 and 7, water collection is one of the activities within the category of production of goods for own final use in ICATUS 2016, and it is not included within the SDGs. The proposed indicator has similar wording to the ICATUS activity on fetching water from natural and other sources for own final use (Activity #242) (UNSD, 2017c).

Besides national time-use surveys, information on the time spent collecting water is also collected through DHS and MICS, as part of a module on water and sanitation within the household questionnaires. Regarding time spent collecting water, the DHS household questionnaire only measures the distance to the source of water, while the MICS questionnaire includes questions on who is responsible to collect water, how much time it takes and how often water is collected in a seven-day period (UNICEF, 2018a). The MICS, which has been implemented in 110 countries, is a useful tool to collect data on the time spent on water collection, particularly for countries that have not conducted a separate time-use survey (UNICEF, 2008b).

However, while the MICS is useful to collect information on access, quality and time-use on water, they ideally should be used in combination with time-use surveys to get comprehensive information regarding the gender-differentiated roles and responsibilities of household and community members.

Sanitation

10. Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water, by type of household (Similar to SDG 6.2.1)

Access to sanitation and hygiene is essential to end poverty and for the sustainable development of a country, and it is particularly important for women due to the gender-differentiated experiences that women and men have when accessing sanitation. The proposed indicator is similar to SDG 6.1.2 on

"Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water" (UNSD, n.d. d) yet in includes the disaggregation by type of household in the language, as it is essential to achieving goal 6.

Similar to SDG 6.1.1 on access to water, SDG 6.2.1 has WHO and UNICEF as custodian agencies, with the support of the partner agency UN Environment, and has been categorised as a Tier II indicator as the methodology has recently been developed (UNSD, n.d. d). This indicator is composed of two sub-indicators, one on safely managed sanitation services, and the other on hand-washing facilities, and all the information is being compiled by JMP, which has also developed the methodology needed to measure both sub-indicators.

The sub-indicator a) on SDG 6.2.1 is a composite indicator that can be measured by calculating the proportion of population using sewer connections where wastes are sent to treatment plants, using on-site sanitation facilities where wastes reach treatment plants and using on-site sanitation facilities where wastes are disposed in situ (JMP, 2018). Regarding sub-indicator b), the JMP revised the methodology for measuring handwashing practices and agreed that the best way of collecting this information is through the observation of the place where household members live (UNSD, n.d. d). In order to properly measure this sub-indicator, MICS household questionnaire includes ash, mud or sand as hand-washing options (UNICEF, 2018a).

Data on sanitation and hygiene can be collected from household censuses and surveys, particularly from MICS, which already collect data on type of sanitation facilities, waste disposal methods and handwashing practices (UNICEF, 2018a). As abovementioned, these types of censuses and surveys are very useful for the disaggregation of the data by type of household, as that information is generally collected at the beginning of the questionnaire. Disaggregating data by sex is envisioned in SDG 6.2.1, yet this report considers the need to include it as a requisite in the wording of the indicator because it is necessary to better understand household composition and gender-differentiated access, particularly in relation to single-female households or households with a mother and children. This sex-disaggregated data can inform WASH projects that need to include a gender-sensitive approach in order to tackle women's and girl's discrimination when accessing to sanitation and hygiene facilities.

11. Mortality and morbidity rates attributed to unsafe water, unsafe sanitation and lack of hygiene, by sex (Similar to SDG 3.9.2)

The use of unsafe water and unsafe sanitation and associated lack of hygiene were responsible for the deaths of 842,000 people from diarrhoea in 2012 (WHO, n.d. a). Improving access to water and sanitation will increase women's and men's well-being, including reducing the health problems and deaths associated with the use of unsafe water and sanitation and lack of hygiene. Thus, collecting sex-disaggregated data on mortality and morbidity rates attributed to unsafe water, unsafe sanitation and lack of hygiene is essential to inform policy-makers and decision-makers of the negative health impacts of the lack of proper water access and sanitation, so as to adopt measures to improve access and use to improve sources.
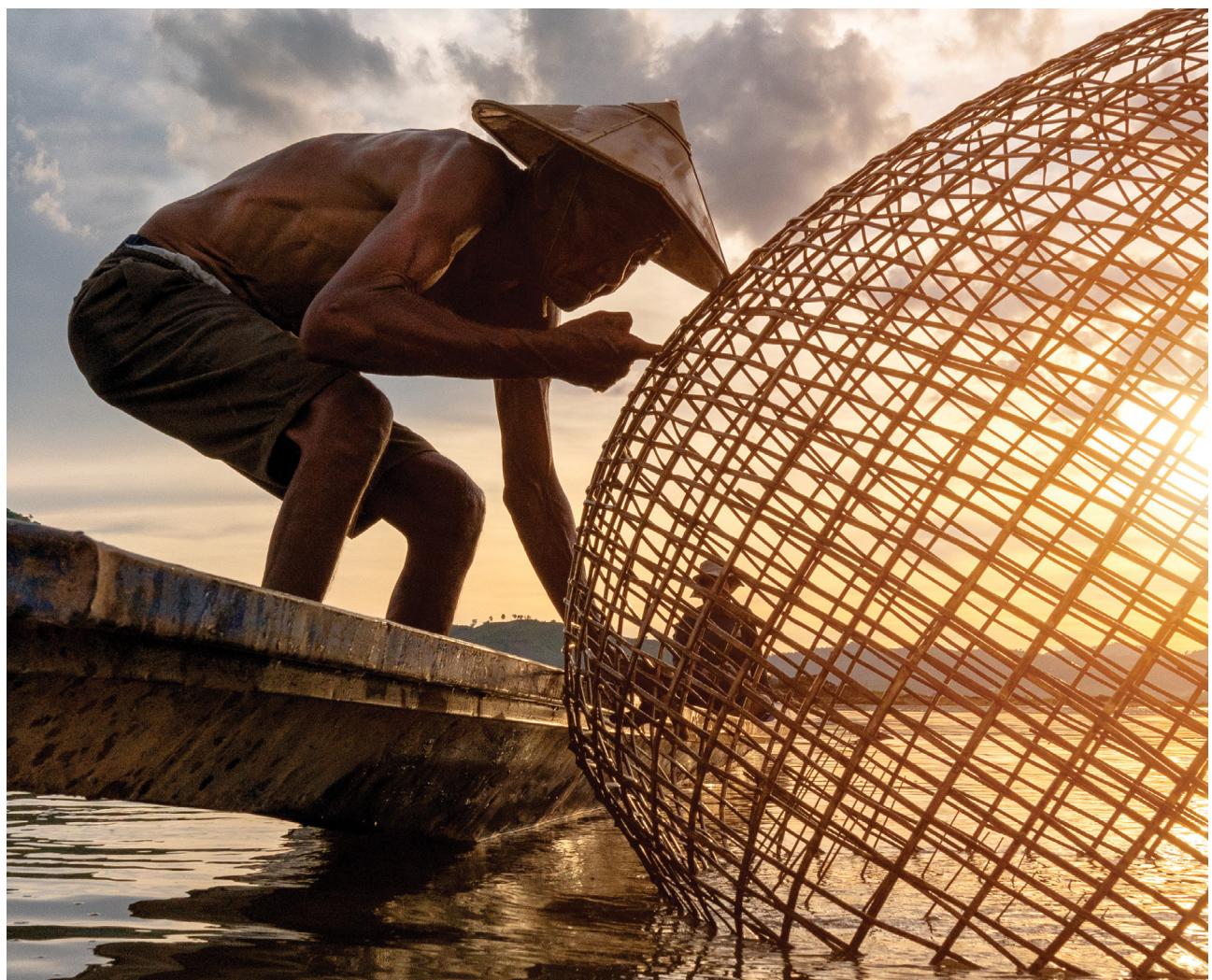
The indicator proposed in this list is similar to SDG 3.9.2 on "Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe WASH services)" (UNSD, 2017a), but it

suggests measuring both mortality and morbidity rates and the disaggregation of data by sex. This can provide insightful information on gender inequalities. Along these lines, other important disaggregation would be by age, geographical situation (urban/rural) and by wealth quintile, as suggested in the methodology of 3.9.2 (UNSD, n.d. e).

WHO, in cooperation with the partner agency UN Environment, is the custodian agency of SDG 3.9.2, which has been recently upgraded to Tier I (UNSD, 2018b). The methodology developed by WHO relies on data collected from death registrations or sample registration systems, which are very reliable (UNSD, n.d. d). In order to also measure morbidity, data would need to be collected from hospital records. The main challenge is that in some least developed and developing countries, people may not go to the hospital and the cause of death may not be clearly established or recorded. Thus, some of the data is based on extrapolation/interpolation, adjustments and cause-of-death models (UNSD, n.d. d). Deciding on the tools needed to measure both mortality and morbidity is useful because even when the illness does not result in death, suffering from unsafe water- and sanitation-related illnesses, such as diarrhoea and cholera, hinder women and men, girls and boys, from carrying out daily tasks, income-generating activities, education and leisure activities.

© Sirisak Baokaew | Shutterstock

Priority Area C: Climate change, sustainable consumption and production, and health and well-being

This priority area focuses on a broader range of environmental issues related to climate change, sustainable consumption and production, health and well-being (Table 11).

Table 11: Proposed indicators for Priority Area C

PRIORITY AREA C: CLIMATE CHANGE, SUSTAINABLE CONSUMPTION AND PRODUCTION, AND HEALTH AND WELL-BEING
12. Number of deaths, missing persons and directly affected persons attributed to hydrometeorological disasters per 100,000 people, by sex *(Similar to SDG 13.1.1)*
13. Mortality and morbidity rate attributed to environmental causes (unintentional poisoning, air & water quality), by age and sex *(Similar to SDGs 3.9.1, 3.9.2 and 3.9.3)*
14. Mortality rate attributed to vector- and water-borne diseases, by sex
15. Proportion of population that (a) has convenient access to public transport by location (urban/rural), sex, age and persons with disabilities; and (b) use public transport by location (urban/rural), sex, age and persons with disabilities *(Similar to SDG 11.2.1)*
16. Consumer spending, by sex of head of household: a. Household spending by type of product and sex of head of household b. Decision-making over household spending, by product and sex (intra-household decision-making)

12. Number of deaths, missing persons and directly affected persons attributed to hydrometeorological disasters per 100,000 people, by sex (Similar to SDGs 1.5.1, 11.5.1 and 13.1.1)

This indicator aims to measure climate change impacts by collecting data on the number of people affected by climatological, weather-related and hydrological disasters. SDG 1.5.1—repeated in the SDGs as indicators 11.5.1 and 13.1.1—measures the "number of deaths, missing persons and directly affected persons attributed to disaster per 100,000 population" (UNSD, 2018c); these are Tier II indicators with the United Nations Office for Disaster Risk Reduction (UNISDR) as the custodian agency

(UNSD, 2018b). The indicator proposed in this report is similar, yet it only focuses on those disasters that are weather related and includes disaggregation by sex as a requisite.

The indicator proposed in Table 11 uses the same internationally agreed methodology defined for SDGs 1.5.1, 11.5.1 and 13.1.1, which was developed by the Open-ended Intergovernmental Expert Working Group (OIEWG) created by the United Nations General

Assembly to monitor countries' implementation of the Sendai Framework (UNSIDR, 2017). This SDG indicator is also part of the Sendai Framework monitoring system, which separately measures the number of deaths, missing persons and directly affected persons (UNSIDR, 2017). Directly affected persons include "people who have suffered injury, illness or other health effects; who were evacuated, displaced, relocated or have suffered direct damage to their livelihoods, economic, physical, social, cultural and environmental assets" (UNSD, 2018c).

Data should be disaggregated by sex to better understand the gender-differentiated impact of weather-related disasters on women and men. This information can help to better inform adaptation policies to strengthen resilience of the most vulnerable—this can also highlight gender entry points for women's participation as stakeholders for or beneficiaries of DRR policies. Other useful disaggregation would be by age, as children and elderly are the most vulnerable to weather-related disasters (United Nations, 2015). Countries that are collecting this type of information can collect data from the Ministry of Health, national disaster management offices, national disaster loss databases and relief organisations (UNSIDR, 2017). However, some of the challenges collecting data on disasters include that, in some countries, data sources only record events that surpass a determined threshold of impact and, in many cases, the collecting mechanisms use secondary data, which makes it difficult to use for cross-country comparisons (UNSD, 2018c).

13. Mortality and morbidity rate attributed to environmental causes (unintentional poisoning, air & water quality), by age and sex (Similar to SDGs 3.9.1, 3.9.2 and 3.9.3)

This composite indicator proposes the collection of data on mortality and morbidity of unintentional poisoning, air quality and water quality, disaggregated by age and sex. The indicator is based on SDG indicators 3.9.1, 3.9.2 and 3.9.3 that collect data on mortality rate attributed to household and ambient air pollution; unsafe water, unsafe sanitation and lack of hygiene; and unintentional poisoning, respectively (UNSD, 2017a). These three SDG indicators are under the custody of WHO, with the support of the partner agency UN Environment, and are classified as Tier I indicators (UNSD, 2018b). The sub-indicator on the mortality and morbidity rates attributed to unsafe water, unsafe sanitation and lack of hygiene has also been included in this list as a separate indicator (*see indicator 11*).

Disaggregating data by sex and age is essential in order to better understand how the gender-differentiated societal roles and responsibilities can lead to different levels of exposure to unintentional poisoning, air pollution and unsafe water and sanitation. For example, in households relying on firewood for cooking, women and children are more exposed to household air pollution (United Nations, 2015). According to the methodology for SDGs 3.9.1, 3.9.2 and 3.9.3, data is already collected and can be disaggregated by sex and age (UNSD, n.d. e, f, g).

Some challenges remain when measuring these three SDG indicators. In many countries, good quality data on causes of death is not yet available, reducing the accuracy of attribution related to each environmental aspect. Additionally, each indicator has its own challenges, e.g. estimating the joint effects of household and ambient air pollution on the population is still challenging (UNSD, n.d. e).

Information on the causes of death to calculate the mortality rate attributed to environmental causes

is collected from death registration data or sample registration systems (UNSD, n.d. e, g). In order to measure both the mortality and morbidity rates attributed to environment causes, it is still necessary to develop a proper methodology and identify other sources such as hospital records. This methodology should bear in mind that access to hospitals and health care facilities is limited in some countries, especially in rural areas, and not all data can be collected through hospital records.

14. Mortality rate attributed to vector- and water-borne diseases, by sex

This indicator aims to provide insightful information on the prevalence of vector- and water-borne diseases in new areas to better understand how climate change impacts human health.

Evidence shows that inter-annual and inter-decadal climate variability have a direct impact on the prevalence of vector-borne diseases, thus the estimated increase of temperatures in the following years will result in an increase of vector-borne diseases in areas where they did not appear before (Githeko et al. 2000). Similarly, an increase in severity and frequency of floods can lead to an increase in the disease burden from water-borne diseases, such a cholera, particularly when there is population displacement and the disaster responses are inadequate (WHO, n.d. b). Additionally, floods lead to an increase in the water surface, providing vectors with more breeding sites and increasing exposure to population (WHO, n.d. b). Thus, collecting sex-disaggregated data on vector- and water-borne diseases is necessary to illustrate climate change impact on women's and men's health and to predict the incidence and prevalence of vector- and water-borne diseases in different regions.

An internationally agreed methodology still needs to be developed for this specific indicator, yet data on the cause of death, e.g. malaria or cholera, are already being collected and compiled by WHO (n.d. c) and can thus complement efforts to close these data gaps.

15. Proportion of population that (a) has convenient access to public transport by location (urban/rural), sex, age and persons with disabilities; and (b) use public transport by location (urban/rural), sex, age and persons with disabilities (Similar to SDG 11.2.1)

This indicator aims to collect valuable information on the access to and use of public transportation by women and men of different ages, including persons with disabilities. The indicator proposed here is based on SDG 11.2.1 on the "proportion of population that has convenient access to public transport, by sex, age and persons with disabilities" (UNSD, 2017a). SDG 11.2.1 is a Tier II indicator with internationally agreed methodology under the custody of UN-Habitat, with the collaboration of the partner agency UN Environment and the United Nations Economic Commission for Europe (UNECE) (UNSD, 2018b).

Access to public transport is considered as convenient when "an officially recognised stop is accessible within a distance of 0.5 km from a reference point such as a home, school, work place, market, etc." (UNSD, n.d. h). Additional criteria for defining public transportation as convenient includes that it is accessible to all special-needs

customers, that has frequent service during peak travel times and that modes of public transportation and their stops are safe and comfortable (UNSD, n.d. h). In order to calculate the proportion of population that has access to convenient public transportation, the SDG methodology suggests using Geographic Information Systems (GIS) to delimit the built-up urban area, pinpointing public transport stops and identifying those dwellings within the access range (UNSD, n.d. h).

Some of the limitations of this SDG indicator are that having convenient access measured by proximity to the public transport stop is not an indicator of use of transport, although it is a prerequisite for it (UNSD, n.d. h). Thus, the sub-indicator (b) aims to measure that gap. An internationally agreed methodology still needs to be developed; yet some countries are already collecting information on use of public transportation. For example, origin-destination surveys for urban areas can be used

to collect data on the type of transportation that women and men of different ages use on a daily or weekly period. Additionally, multi-topic household surveys can collect data on public transport use if they include a module on transportation or sustainable consumption. Gathering data from public transportation agencies and companies can also provide useful information.

Collecting data on access to and use of public transport is essential as the transport system enables access to resources and employment opportunities, as well as to service centres such as schools and hospitals; it is also key for urban economic development (UNSD, n.d. h). Considering the intersectionality of people's identities—how aspects of their identity such as gender, race, ability, and socio-economic status interact and overlap—is key for this indicator to ensure that public transportation meets the needs of community members.

16. Consumer spending, by type of household:
   a. **Household spending by type of product and type of household**
   b. **Decision-making over household spending, by product and sex (intra-household decision-making)**

Indicator 16 (Table 11) is not a typical indicator in that it is not formulated to measure specific data, but to introduce the type of information needed to better understand consumer spending. The indicator is composed of two sub-indicators that measure different components of consumer spending: the gender-differentiated household spending and the power relations in decision-making over household spending. As there are no similar SDG indicators, except for SDG 8.4.1 on material footprint and 8.4.2 on domestic material consumption, there is no internationally agreed methodology to measure household spending or decision-making over household spending.

Household Income and Expenditure Surveys (HIES) are a useful tool to collect information on household spending, however there is no internationally agreed methodology on the modules and types of questions that this survey should include. In order to collect data on these two indicators, HIES should include questions regarding household expenditure by product and a module on decision-making within the household on specific products, e.g. shopping for food, buying a car or buying a house. Data on decision-making can also be collected through other multi-topic household surveys, such as the DHS. This type of survey asks women and men about decision-making in the household through the woman's

questionnaire and man's questionnaire, respectively. These questionnaires ask about decisions regarding respondents' salary, health care and major household purchases. The woman's questionnaire additionally includes questions on the amount of money earned in comparison to their partner and on decisions regarding their partner's money and visiting the woman's family (USAID, 2017).[4]

© GPE/Stephan Bachenheimer | Flickr

---

4 UNECE has a Task Force on measuring intra-household power and decision-making that is due to finish its work during 2019. It will be making methodological recommendations about these types of survey questions.

Priority Area D: Women in environmental decision-making

Measuring women in environmental decision-making at all levels can be done in many ways. SDG 5.5.1 aims to measure the "proportion of seats held by women in (a) national parliaments (Tier I) and (b) local government (Tier II)," and SDG 5.5.2 measures "proportion of women in managerial positions (Tier I)" (UNSD, 2018b). The Inter-Parliamentary Union (IPU) and UN Women are the custodians for 5.5.1 while ILO is the custodian of 5.5.2. The SDG indicators, however, are not sector-specific and therefore do not explicitly capture women's participation within environmental fields. Building from the SDG indicators, proposed indicators 17-19 (Table 12) provide suggestions for what could, and should, be measured within this field; country context is important for developing applicable indicators, but these suggestions offer examples.

Table 12: Proposed indicators for Priority Area D

PRIORITY AREA D: WOMEN IN ENVIRONMENTAL DECISION-MAKING AT ALL LEVELS

---

17. Women in governmental environmental decision-making
    a. Heads of environmental ministries, by sex, by sector

---

18. Women's participation in environmental decision-making fora
    a. Delegates to international environmental COPs, such as for UNFCCC, UNCCD, CBD and BRS Conventions, by sex
    b. Heads of delegations to international environmental COPs, such as for UNFCCC, UNCCD, CBD and BRS Conventions, by sex
    c. Participants in national level environmental fora, by sex

---

19. Women's participation in sector-specific environmental governance bodies
    a. Participation in communal land governance bodies, by sex
    b. Participation in forest groups, by sex
    c. Participation in water governance bodies, by sex
    d. Executive managers of national energy utilities, by sex

---

17. Women in governmental environmental decision-making
a. Heads of environmental ministries, by sex

One way to measure women's involvement in environmental decision-making within a country's government is to consider the environmental ministries and/or agencies at the federal level (i.e. Ministry of Forests and Agriculture, Ministry of Mining and Energy, Ministry of Natural Resources and the Environment, Environmental Protection Agency). IUCN's EGI analysed heads of environmental ministries, disaggregated by sex and sector, based on publicly available information. Countries have the ability to take this analysis to a deeper level by internally reviewing ministerial positions, including

staff and heads of committees. Focusing on environmental-sector ministries offers insight into women's leadership roles and gender parity, also identifying fields that may be missing opportunities for enhanced sustainable development by not embracing the voices and ideas of women.

18. Women's participation in environmental decision-making fora
   a. **Delegates to international environmental COPs, such as for UNFCCC, UNCCD, CBD and BRS Conventions, by sex**
   b. **Heads of delegations to international environmental COPs, such as for UNFCCC, UNCCD, CBD and BRS Conventions, by sex**
   c. **Participants in national level environmental fora, by sex**

Better understanding government positions in environmental decision-making also offers insight into women's participation in, and leadership of, delegations to international environmental fora, as these opportunities often go to positions of leadership within governments. With that in mind, this next proposed indicator offers the opportunity for governments to better understand how they are being represented in international environmental fora by learning more about the makeup and leadership of delegations.

For these conventions, though information is publicly available on countries' representatives to the Conference of Parties (COP), there is a need to systematically and regularly analyse and utilise this information. IUCN and the Women's Environment and Development Organization (WEDO) have each developed knowledge products analysing COP delegations (IUCN, 2015; WEDO, 2017). Governments, however, can collect this information internally and use it to reach gender parity goals, including supporting progress on SDG target 5.5. Secretariats of respective MEAs, such as UNFCCC, can request, champion and help to resource regular collection of this type of data, including as important aspects of implementation of their gender action plans.

19. Women's participation in sector-specific environmental governance bodies
   a. **Participation in communal land governance bodies, by sex**
   b. **Participation in forest groups, by sex**
   c. **Participation in water governance bodies, by sex**
   d. **Executive managers of national energy utilities, by sex**

Collecting data on women's participation in key sector-specific environmental governance bodies and processes, for example in communal land governance bodies, forest groups, water governance bodies, and national energy utilities, provides opportunities to better understand women's position in society and to adopt informed policies so these governance bodies can benefit from women's unique priorities, needs, capacities and knowledge, including traditional ecological knowledge. The main data source is typically administrative data on the composition of such bodies, disaggregated by sex.

Much can be learned about women's participation in and leadership of environmental decision making at all levels and across sectors. The first step is for all ministries, organisations, governance bodies, etc., to begin tracking this information. This is also an opportunity for international organisations to play a leadership role, as they may already be tracking

disaggregated information for programme-specific monitoring and evaluation, but not necessarily disseminating this information beyond project reports. By further sharing this information, organisations can build awareness at multiple levels highlighting the importance of recognising the participation of women and men in projects and programmes—as well as the outcomes of this participation.

© Joseph Sorrentino | Shutterstock

4

Discussion and summary of lessons learned and best practices

Chapter 4: Discussion and summary of lessons learned and best practices

The three case studies (*see Annex IV-VI*) developed through action research in Lao PDR, Kenya and Mexico provide insightful information, including especially from national experts and cross-sectoral representatives, on strengths and weaknesses, opportunities and challenges in relation to the collection of gender and environment statistics. While each country has its own unique context, some lessons are applicable across contexts to support enhanced data collection, not to mention dissemination, analysis and use, at national level and beyond.

Enabling policy framework for gender mainstreaming in statistics

One main lesson learned through this research, including the in-country missions, is that utilising existing international policy frameworks, in conjunction with strong national frameworks across sectors, is key to developing an enabling environment for gender-responsive data collection. As seen above, the SDGs provide a strong starting point agreed and prioritised by the international community to measure progress toward sustainable development. Unlike the previous MDGs, the SDGs framework make a concerted effort to highlight the interlinkages among topics, particularly by mainstreaming gender throughout. However, as shown in Chapter 3, there are entry points for gender considerations and sex disaggregation that are, as of yet, not utilised, therefore revealing great potential for strengthened attention to gender mainstreaming by prioritising sex disaggregation, gender indicators and gender-responsive methodologies for collection, analysis and use.

In addition to the SDGs, this report has shown that the IAEG-GS Minimum Set of Gender Indicators also provides a strong framework for measuring gender equality and women's empowerment. However, the environment is not (yet) a key sector incorporated into and reflected by this list. Even so, the long-term cooperative process of the IAEG-GS offers many best practices that can be applied to the gender-environment nexus. First, it is important to remember that the Minimum Indicator List is older than the SDGs. As described in Chapter 2, IAEG-GS drew inspiration from the Beijing Platform for Action and developed a reasonably small list of feasible indicators covering as many critical areas as possible. At the time, BPfA priority areas Women and the Environment, Women and the Media, and Women and Armed Conflict were not included due to the unavailability of either data or clear concepts and definitions. It is important and timely that the Minimum Indicator List include women and environment issues, as mainstreaming

gender across the environmental sector remains an international priority for achieving sustainable development (not least, as reinforced and reflected, again, in the SDGs themselves).

The connections between these international frameworks and national statistics mechanisms were made clear through the in-country missions as well as participation in the IAEG-GS meeting. These international frameworks directly influence the type of information gathered by national statistics systems, as well as the methodologies used to collect such information. Although each country will have its own context- and culturally specific priorities, they all prioritise action toward and measuring progress and results related to the SDGs; this is especially true for countries aiming to graduate out of Least Developed Country status, such as Lao PDR.

Political will and commitment at national level are essential for achieving sustainable development goals; national policies, laws and mandates provide the impetus to prioritise sustainable development across sectors and levels. Lao PDR has been one of the first countries to incorporate Agenda 2030 and the SDGs within its national framework. In 2016, Lao PDR adopted the 8th iteration of its Five-Year National Socio-Economic Development Plan (NSEDP) (2016-2020), linking 60per cent of its national indicators to the SDGs. This promotes the process of data collection for graduating out of the Least Developed Country status (Government of Lao PDR, 2018). Gender is also a key cross-cutting issue

in the NSEDP and, as of 2017, Lao PDR collects data from 34 out of the 52 indicators of the Minimum Set of Gender Indicators (Government of Lao PDR, 2018; UNSD, 2017).

Mexico has also illustrated the importance of international and national frameworks for national statistics. As a member of IAEG-GS and the IAEG-SDGs, Mexico is a leader in the collection of gender and environment indicators and is already collecting information against 169 of the 232 SDG indicators (Mexico Federal Government, 2018). Similarly, it produces data from 45 out of 52 gender indicators from the Minimum Set, many of which are integrated in a national gender atlas (UNSD, 2017; INEGI, n.d.). Gender equality is considered a cornerstone for Mexico's development and it is included as a transversal strategy within Mexico's National Development Plan, in accordance with the National Programme for Equality of Opportunities and Non-Discrimination of Women, which includes several lines of action to produce gender statistics (Gobierno de la República, 2013).

Kenya also has a strong national framework and is committed to the measurement related to the SDGs, especially given that it is currently chair of the UN Statistical Commission and, in turn, a member of the IAEG-SDGs. Kenya has mapped 128 out of the 232 SDG indicators and is collecting information against 33 out of 52 gender indicators of the Minimum Set (Kenya Ministry of Devolution and Planning, 2017; UNSD, 2017).

INDIA'S NATIONAL STATISTICS SYSTEM

Another compelling example, India is also a member of IAEG-GS and IAEG-SDGs, and demonstrates commitment to gender-environment statistics. Its National Statistics Office has a national indicator framework including 328 indicators, 111 of which are gender indicators. They draw upon the SDGs and Minimum Indicator List, particularly in terms of methodology, but they also choose indicators that are relevant for their specific country context. As of 2017, out of the 52 indicators on the Minimum Indicator List, India produces data on 44, with efforts underway to produce five more. In a presentation to the IAEG-GS, a representative from India explained that the SDGs and Minimum Indicator List provide valuable frameworks, which India then adapts to suit their needs—particularly as India mentioned some indicators are simply not applicable to their country context. One interesting statement at the IAEG-GS speaks to the dual-directional relationships between the UN and country statistics systems: India offered a word of caution "to cap the overdrive to generate over-enthusiastic indicators which are based on developing countries" (IAEG-GS, 2017). As such, India recommends including indicators relevant for developed countries, rather than prioritising only those indicators that measure issues being faced by developing countries, similarly wishing to include urban issues, not solely rural issues.

ITALY'S NATIONAL STATISTICS SYSTEM

Although data collection has been a priority in Italy since 1926, Italy's National Statistics System (SISTAN) was established by legislative decree in 1989 to reduce redundancies by centralising data collection—as well as responsibility for methodology and processed—within one organisation (ISTAT, n.d.). The Italian National Institute of Statistics (ISTAT) directs and coordinates SISTAN while providing technical training (ISTAT, 2018).

Italy is also a member of both IAEG-GS and IAEG-SDGs, and Italy hosted the 2017 IAEG-GS meeting. In remarks at the 2017 IAEG-GS meeting, a representative from Italy noted that their approach to Agenda 2030 is inter-institutional, bringing together various agencies and organisations within and outside the national statistical system to work together to advance measuring the SDGs, including a review of SDG indicators currently available. In terms of gender, Italy recognises the importance of approaching sustainable development with a gender perspective and is working to measure gender within key areas, especially health and well being, education, and decent work and economic growth.

Italy is also a member of a few other groups working on SDGs, namely the High-Level Group for Partnership, Coordination, and Capacity-Building for the 2030 Agenda for Sustainable Development (HLG-PCCB); the Joint HLG-PCCB/IAEG-SDG subgroup; the Europe Working Group on Data Integration; and the High-Level Group for the Modernisation of Statistical Production and Services (UNECE, 2017). As such, Italy prioritises knowledge sharing and international cooperation for best methods. This positions Italy to be a leader in modern data collection. In particular, as part of the HLG-PCC, Italy contributed to the development of a global action plan for data on sustainable development, focusing on developing the statistical capacity of national statistics systems, among other goals (ISTAT, 2017).

Enabling environments for national statistics systems

A lesson reinforced through case study development and in-country missions, an important factor for successful national level data collection revolves around an enabling institutional environment. Three characteristics of an enabling environment for national statistics systems include national gender equality and gender mainstreaming laws, mandates and policies; coordination and cooperation among ministries; and capacity for both statistics and the gender-environment nexus.

National statistics systems are ultimately responsible for gathering, analysing and disseminating statistical information for and about a country. In many ways, UN agencies provide guidance—i.e. methodologies developed by SDG indicator custodian agencies—but the entities actually conducting surveys and censuses (among other data collection tools) are the national statistics systems. These offices determine what data to collect and how. They are responsible for developing surveys, training enumerators, analysing data and disseminating information. Along these lines, having national budget and, in some cases, international aid and support, allocated to the development of statistics is essential to fulfil national mandates and commitments and to adopt evidence-driven policies. This budget should include funding for data collection, including at the gender-environment nexus, and funds to strengthen statistical capacity and knowledge, especially on interlinkages. On the other hand, a lack of funding can affect developing countries' capacities and priority-setting in numerous ways, including impeding the production of gender-environment statistics, despite countries' interest in strengthening their statistical capacity on to produce and apply gender-environment data.

Effective enabling environments include a national statistics system with a very clear mandate, as seen in Kenya. The Kenya National Bureau of Statistics (KNBS) was established by the Statistics Act of 2006 with a mandate to be the principal government agency for production and dissemination of official statistics and the custodian of official statistics (KNBS, n.d.). As such, KNBS is responsible for establishing standards and promoting the use of best practices and methods and dissemination of statistical information (Awes, 2018). This allows KNBS to not only set standards used throughout the country, but to have a clear responsibility for data collection through means such as agricultural and housing surveys.

Considering the vast extension and the complex socio-economic and cultural characteristics of Mexico, a comprehensive and centralised statistical system was needed in order to produce reliable and accessible data. In 2008, Mexico created the National System for Statistical and Geographical Information (SNIEG) (SNIEG, n.d.), which is composed of the National Advisory Council, four National Subsystems of Information and the National Institute of Statistics and Geography (INEGI). The National Subsystems of Information focus on: demographic and social information; economic information; geography, environment and territorial and urban planning information; and governance, public security and justice information. This same structure is adopted within INEGI, which is the autonomous public institute responsible for data collection and for the harmonisation and coordination of the entire national statistical system. Having similar structure and clear mandates and responsibilities is essential to effectively collect data and avoid redundancies.

In Lao PDR, the Lao Statistics Bureau (LSB) is responsible for data collection at national, provincial, district and village level with the support from the statistical offices within each ministry at the same levels. Working closely with local governments, LSB trains female and male enumerators to conduct household level surveys; one third of enumerators are women. New technology now allows enumerators to conduct surveys on tablets, uploading data directly to LSB for analysis. This is beneficial for all enumerators, but specifically women as it reduces potentially dangerous travel to deliver survey results. Nevertheless, one of the outcomes of the mission in Lao PDR was the need for additional funding to collect data and for capacity building on the gender-environment nexus.

National gender equality laws, mandates and policies

In order to prioritise data collection on the gender-environment nexus, these issues must be prevalent in a country's national policy agenda. Gender equality and women's empowerment is one field in which it is actually quite common to have sound policies despite the pervasiveness of data gaps, whereas in many other fields, data is relied upon to drive policy. This is important to note because many government officials and practitioners working across sectors may assume data exists based on mainstreamed policies when in reality this is not the case. Such policies and laws, at national and international level, do contribute to an enabling environment for working towards gender equality.

For example, Mexico also has gender equality and women's empowerment laws, mandates and policies, including guidelines for the mainstreaming of gender within statistical projects and the support of the Specialized Technical Committee on Information with a Gender Perspective. Additionally,

Kenya's 2006 constitution offers multiple mandates with respect to gender equality and women's empowerment, including a mandate on women's participation in government positions. In addition, women are granted the right to own and inherit land through a series of laws including the Kenya Land Act of 2012, Matrimonial Property Act of 2013 and the Kenyan Land Laws (Amendment) Act of 2016 (The Republic of Kenya, 2012; 2013; and 2016). This is linked not only to gender equality but also to the importance of data collection, since land titles must first include the sex of the landowner for the gender component of land ownership to be measured. Gender mainstreaming mandates across ministries and within the statistical system strengthen the understanding of the gender-environment nexus and the collection of gender statistics.

Coordination among ministries

Cooperation and coordination among various ministries is key to successful data development and application. In Mexico, Specialized Technical Committees under the National Subsystems of Information provide the space for coordination among ministries, INEGI's statistical departments and other institutions to decide what type of information will be produced and to strengthen capacity and share data collected. The strong mandate of INEGI along with the enabling environment provided in these Specialized Technical Committees strengthens coordination among ministries and national statistical capacity.

In Lao PDR, ministries such as the Ministry of Agriculture and Forestry, Ministry of Natural Resources and Environment, Ministry of Energy and Mines and Ministry of Foreign Affairs work closely together to support the LSB, and vice versa. This is especially true in terms of measuring gender equality and women's empowerment. The Lao National

Commission for the Advancement of Women and Mother-Child (NCAWMC, often called NCAW) (NCAW, n.d.) seconds officials called sub-CAWs within each ministry and within local governments. NCAW is responsible for implementing national policy for the advancement of women—including monitoring actions pertaining to CEDAW and the Beijing Platform for Action (UN Women: Asia and the Pacific, n.d.). With such a cross-sectoral mandate, NCAW is mainstreamed across all levels of government.

Similarly, in Kenya, the State Department of Gender Affairs seconds gender experts to various ministries, including the Ministry of Environment, to ensure that gender considerations and women's empowerment are mainstreaming across sectors, in accordance with Kenya's 2006 Constitution.

This coordination is particularly necessary when it comes to reporting on the SDGs. For instance, in Kenya and Lao PDR, the Ministries of Foreign Affairs (MoFA) were ultimately responsible for reporting on SDG results and progress; it is therefore essential that the statistics system and MoFA work closely together. In Mexico, it is the President of the Republic, in the role of the chair of the National Council of Agenda 2030, who is responsible for reporting on the SDGs. The Specialized Technical Committee on the SDGs enables the coordination among ministries and INEGI to identify existing national data to report on the progress towards achieving the SDGs.

Capacity for gender-environment statistics

Capacity is of utmost importance for successfully measuring the gender-environment nexus. This requires statistical capacity, sector-specific technical environmental capacity, an understanding of gender equality and women's empowerment, expertise on the gender-environment nexus and of course the combination of each of these factors. This is a lot to ask of a statistical system, highlighting again the benefits of cooperating and collaborating across ministries/sectors.

In Kenya, the KNBS is split into multiple offices, each covering specific topics. Although there is an office specifically focusing on gender equality, the Division of Food and the Environment is separate from the Gender Statistics Unit, and in neither office is there a focus on the gender-environment nexus. In Kenya, data is mandated to be sex-disaggregated when applicable; however, analyses are done by request and, at the time of this paper, the environmental office has never received a request for a gender analysis of any of their data.[1] Based on the outcomes of the IUCN-UN Environment workshop in Kenya, the environmental office of KNBS has expressed interest in enhancing their capacity on the gender-environment nexus to be able to conduct gender analyses and use their data to tell a story about women's and men's relationships with the environment. This would be an important contribution toward more impactful programming across sectors.

Mexico offers a great example of incorporating expertise on gender considerations together with expertise on environmental issues to purposefully and thoughtfully study the gender-environment nexus. While the National Institute of Women does not participate in any of the Specialized Technical Committees under the National Subsystem of

---

1   This is based on discussions with KNBS during the in-country workshop and key informant interviews (*see Annex III and Annex V for more information*).

Information on Environment and environment-related ministries are not part of the Specialized Technical Committee on Information with a Gender Perspective, Mexico developed national mandates for gender mainstreaming, which have enabled it to produce gender-environment statistics. Additionally, Mexico has prioritised the gender expertise of statistical and ministry members to support these goals across sectors. For example, the gender office within the Ministry of Natural Resources and Environment supports in the identification of gender-environment indicators.

ENABLING ENVIRONMENTS FOR PROGRESS AGAINST DECISION-MAKING INDICATORS

The enabling environments mentioned above are especially essential for achieving progress against the decision-making indicators of Priority Area D. Political will to measure parity within environmental decision-making processes and bodies is an important factor. Participation should be tracked, by sex, for meetings, committees, convention delegations, ministry positions, etc. at all levels. While other proposed indicators can be collected via mechanisms like household surveys, the indicators on women in environmental decision-making rely more on programmatic and institutional recording and reporting. *(See the Lao PDR, Kenya and Mexico case studies, Annexes IV-VI, for further discussion.)*

5

Recommendations for the way forward

Chapter 5: Recommendations for the way forward

Through this project, IUCN and UN Environment have sought to identify and promote awareness and uptake of national level indicators that can advance understanding of the gender-environment nexus, ultimately contributing to better, more impactful policymaking and programming, including toward realising the SDGs. Evidence-driven policies and programmes can help to enact positive change at all levels, for whole communities, around the world. Closing data gaps in the gender-environment nexus area will help to meet the goals and mandates of existing international frameworks as well as support development of more effective, equitable and efficient efforts related to environmental issues across sectors.

This chapter provides recommendations geared toward various national actors, including national statistics systems and other relevant ministries, international stakeholders such as those involved in the IAEG-GS, and gender-environment practitioners and policymakers at all levels. Recommendations are related to the indicators discussed in Chapter 3 and the enabling environments discussed in Chapter 4.

Recommendations for national statistics systems

National statistics systems are currently adapting their statistical framework and integrating new indicators and methodologies to measure progress on the SDGs. This provides a unique opportunity to strengthen gender-environment knowledge and statistics capacity at the national level. Through research of statistics at the international and national levels, in combination with outcomes from country missions in Lao PDR, Kenya and Mexico, this project identified several entry points for gender-environment indicators at national level, in alignment with international frameworks and national priorities.

PRIORITIES IN LAO PDR, KENYA AND MEXICO

Action-research workshops in Lao PDR, Kenya and Mexico included an exercise in which participants discussed the priority areas and proposed indicators in detail, and then ranked indicators considered priorities for their given country context and areas of expertise. The following are main outcomes:

- In Lao PDR, workshop participants identified women in environmental decision-making, reliance on natural resources, and women's land rights as top-priority topics.

- In Kenya, climate change and safe drinking water emerged as the main areas of concern, with one participant calling climate change, "the mother of all problems (health, water, energy)." Women in environmental decision-making and the right to land were the next biggest priorities for workshop participants.

- In Mexico, secure tenure of agricultural land and use of improved sanitation were the biggest priorities, with climate change—including deaths from weather-related disasters—and women in environmental decision-making as the next priorities.

Overall, national statistics systems can work on fostering an enabling environment to reach their goals of measuring progress toward gender equality by:

1. Enhancing cooperation with other relevant ministries and organisations at all levels;
2. Building their capacity of the gender-environment nexus to better identify gender entry points; and
3. Utilising the recommended indicators and methodologies discussed below.

Additionally, national statistics systems can work to advance the ways they analyse, disseminate and report on data and information to be able to tell a gender story that is grounded in data and useful for policymakers and practitioners.

Recommended indicators for Minimum Set of Gender Indicators

The critical areas identified under the Beijing Platform for Action inspired the development of the Minimum Set of Gender Indicators (*see Chapter 3*). While the Beijing Platform for Action includes a critical area on Women in the Environment, because of the lack of gender-environment information and data at the time of development, this critical area was not included in the Minimum Set of Gender Indicators.

Nevertheless, the adoption of the SDGs in 2015 has brought renewed momentum to the efforts toward addressing gender as a cross-cutting issue in the environment. Countries' commitment to the SDGs provides an enabling environment for the production, collection and dissemination of gender-environment statistics. In fact, countries will not meet their targets without gender-environment statistics.

Along these lines, IAEG-GS has been revising the Minimum Set in order to align it more closely with the SDGs and national commitments, with the intention to combine efforts to strengthen the collection of gender statistics. This process to update the Minimum Set of Gender Indicators provides an opportunity for the IAEG-GS to consider the inclusion of a section on environmental indicators and references to BPfA's critical area on Women and Environment. National and international progress in the collection of gender-environment statistics, including in the SDGs, offers new avenues for measuring the gender-environment nexus that can be included within the work of the IAEG-GS.

Further vetting the full list of possible indicators discussed in Chapter 3 and Annex II, Table 13 includes priority proposed indicators for inclusion within the Minimum Set of Gender Indicators. When developing this list, multiple factors were considered, including feasibility; alignment with (although not solely adherence to) SDG goals and methodologies; and prioritisation during workshop discussions in Lao PDR, Kenya and Mexico. Additionally, care was taken to select indicators across the four priority areas of this project.

Table 13: Recommended indicators for inclusion in Minimum Set of Gender Indicators

---

PRIORITY AREA A: RIGHT TO LAND, NATURAL RESOURCES AND BIODIVERSITY

Indicator 2. (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure (SDG 5.a.1)

PRIORITY AREA B: ACCESS TO FOOD, ENERGY, WATER AND SANITATION

Indicator 8. Proportion of population using safely managed drinking water services, by type of household (Similar to SDG 6.1.1)

Indicator 9. Time spent collecting water for household consumption, by sex

---

PRIORITY AREA C: CLIMATE CHANGE, SUSTAINABLE CONSUMPTION AND PRODUCTION, HEALTH & WELL-BEING

Indicator 12. Number of deaths, missing persons and directly affected persons attributed to hydrometeorological disasters per 100,000 people, by sex (Similar to SDGs 1.5.1, 11.5.1 and 13.1.1)

PRIORITY AREA D: WOMEN IN ENVIRONMENTAL DECISION-MAKING

Indicator 17a. Heads of environmental ministries, by sex, by sector

---

(a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure (SDG 5.a.1)

The Minimum Set of Gender Indicators would greatly benefit from an indicator on agricultural land ownership for several reasons. It is feasible to collect information for SDG 5.a.1 as it is an internationally agreed Tier II indicator with a defined methodology, and countries are starting to collect data to measure it. Additionally, MICS and DHS surveys, as well as the LSMS-ISA and other agricultural surveys and censuses, include this indicator as part of their methodology. Moreover, women's ownership over agricultural land—and land in general—is a key indicator to measure women's economic empowerment.

Indicator 12 in the Minimum Set of Gender Indicators has been the Tier II indicator "proportion of adult population owning land, by sex." As IAEG-GS aligns this list more closely with the SDGs, it was recommended in the 2017 IAEG-GS meeting to align this indicator with SDG 5.a.1. This report supports that alignment and recommends adding a reference to BPfA strategic objective K.2.[1]

Proportion of population using safely managed drinking water services, by type of household

Data on access to water is essential for adopting evidence-based women's empowerment policies

to bridge the existing gender gap. SDG 6.1.1 is a Tier II indicator and has an internationally agreed methodology that is being adopted by countries. The indicator recommended here is similar to SDG 6.1.1, with the additional disaggregation category of type of household. MICS and DHS surveys have already included all the necessary sub-indicators in their questionnaires to measure SDG 6.1.1. Given that countries already collect some of the components of SDG 6.1.1, mainly the existence of water on premises, the inclusion of the proposed indicator in the Minimum Set of Gender Indicators is feasible and pertinent. In order to include the disaggregation by type of household, the IAEG-GS would need to agree on the methodology for disaggregating data by type of household, in conjunction with UNSD.

Time spent collecting water for household consumption, by sex

Each of the time-use indicators proposed in this report (*see Annex II*) could be taken into consideration by the IAEG-GS for inclusion in the Minimum Set of Gender Indicators, given that time-use surveys provide insightful information on women's and men's gender-differentiated and unequal roles. However, considering priority as noted in the case study countries and feasibility for collection, this report specifically recommends including "time spent collecting water for household consumption, by sex."

The only time-use indicator in the SDGs is SDG 5.4.1 on the "proportion of time spent on unpaid domestic and care work, by sex, age and location" (UNSD, 2017b). Similarly, the Minimum Set of Gender Indicators includes two indicators on the time spent on unpaid domestic work and on unpaid and paid

---

1   Beijing Platform for Action strategic objective K.2 is part of the critical area of Women and the Environment and states, "integrate gender concerns and perspectives in policies and programmes for sustainable development."

domestic work by sex (UNSD, 2017a). However, time-use surveys are an essential source of information on gender-differentiated roles, including in relation to the environment. Thus, the IAEG-GS could benefit from the inclusion of more time-use indicators, including one on the time spent collecting water.

While there is no internationally agreed questionnaire for time-use surveys and some countries use slightly different indicators, the methodology for time-use surveys is clear, and the international community has made promising progress in the harmonisation of application, including with the updating of ICATUS that is used to measure SDG 5.4.1. This classification provides a comprehensive framework of activities that can support the inclusion of other time-use indicators, such as this indicator related to water collection, in the Minimum Set of Gender Indicators.

Number of deaths, missing persons and directly affected persons attributed to hydrometeorological disasters per 100,000 people, by sex

In order to provide useful information to measure the gender-differentiated impact of weather extreme events and, in turn, of climate change, the indicator proposed here is similar to the Tier II indicator SDG 13.1.1 (also repeated as 1.5.1 and 11.5.1), yet it specifically focuses on hydrometeorological disasters, as opposed to all disasters. The internationally agreed methodology of SDG 13.1.1 can be used for measuring this indicator, as this methodology recommends disaggregating by hazard

and by sex. However, most available data has not been disaggregated by sex, whether due to a lack of statistical capacity or capacity on the importance of the gender-environment nexus. This demands attention. Given countries' commitment to the SDGs, it is expected that national data to measure this indicator will be available in the coming years. Thus, the IAEG-GS should consider this indicator, particularly as there are no climate change-related indicators currently in the Minimum Set of Gender Indicators.

Heads of environmental ministries, by sex

The Minimum Set of Gender Indicators includes five indicators related to public life and decision-making, including indicator 43 on "women's share of government ministerial positions", indicator 44 on "proportion of seats held by women in national parliament" and indicator 45 on "women's share of managerial positions."[2] However, when measuring these indicators there is no specification of the type of ministry women and men belong to. This is important to know in order to adopt evidence-based policies to break the glass ceiling that prevents women from having managerial positions or heading those ministries that are still typically associated with men, such as environmental sectors. National statistics office can undertake these reviews, including in partnership with IUCN's EGI platform, which has already established a methodology and a baseline report (Prebble et al., 2015; IUCN, 2015). The IAEG-GS should consider the indicator proposed here for inclusion in the Minimum Set of Gender Indicators in reference to BPfA strategic objective K.1. [3]

---

[2]   Alternatively, if including this indicator on environmental decision-making is not possible, the IAEG-GS should consider the disaggregation of indicators 43, 44 and 45 by the type of ministry or area of work, so information can be collected on women's participation in environmental decision-making.

[3]   Beijing Platform for Action strategic objective K.1 is part of the critical area of Women and the Environment and states, "involve women actively in environmental decision-making at all levels."

Recommended methodologies for use at national level

As the recommended indicators explored in the section above to IAEG-GS have been based in large part on respective national priorities, it is also recommended that national statistics offices prioritise those indicators within their national frameworks, in alignment with the goals of the BPfA and Agenda 2030. The below sections discuss methodologies (i.e. types of surveys and useful indicators) identified through this project that can support national and international development goals, including goals to mainstream gender.

Surveys such as national time-use surveys and the DHS and MICS surveys provide great opportunities for the consistent measurement of the gender-environment nexus because of their multi-topic characteristics and, in the case of DHS and MICS, internationally agreed methodologies and questionnaires. While there is still a need to strengthen these international surveys to better integrate gender-environment indicators, strides have been made to adapt the methodology and questionnaires to measure the SDGs. In this vein, countries can take the lead and go beyond only measuring the SDGs to integrate the gender-environment components in these surveys, as identified in this report. The integration of gender-environment considerations within these surveys can also support enhanced methodologies and contribute to graduating SDG indicators to Tier I and II status.

National household surveys

Household surveys, such as DHS and MICS, are generally multi-topic surveys that collect data on an array of demographic, social and economic themes. For instance, DHS and MICS surveys are strategic for gender-environment data collection as they include environment-related topics, such as land ownership and access to energy and water and sanitation and have already adapted their methodology and questionnaires to measure the SDGs. However, the gender component still needs to be strengthened, and countries can play a key role in ensuring that all the data collected be disaggregated by sex and/or type of household. Table 14 includes the indicators proposed in chapter III that could be collected through DHS and MICS surveys.

Table 14: Indicators for collection through household surveys

PROPOSED INDICATOR
1. Proportion of total adult population with secure tenure rights to land, with (a) legally recognised documentation, and (b) who perceive their rights to land as secure, by sex and by type of tenure
2. (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure
6. Proportion of population with primary reliance on clean fuels and technology, by main user

Table 14: Indicators for collection through household surveys (Cont.)

PROPOSED INDICATOR
8. Access to and use of safely managed drinking water, by source, by type of household
10. Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water, by type of household

National Time-Use Surveys

Time-use surveys are useful to better understand gender-differentiated roles and responsibilities and illustrate existing gender-differentiated time burdens that in many countries lead women to suffer from time poverty, limiting their lives, livelihoods and empowerment in myriad ways, including limiting opportunities to participate in income generating activities, education and leisure time. Gender statistics on time use can be used to inform gender analyses and contribute to bridging the knowledge gap on the gender-environment nexus—including especially for more impactful conservation and sustainable development programming.

Time-use surveys provide significant opportunities for national measurement of gender-environment statistics, as data collected is generally disaggregated by sex. Additionally, time-use surveys include many activities related to the environment, particularly within the category of "production of goods for own use", as identified in the International Classification of Activities for Time Use Statistics (ICATUS). Table 15 includes a list of the time-use indicators identified in this report, for recommended inclusion in national time-use surveys and data analyses (*see Annex II*). The indicators proposed are based on the activities identified in ICATUS and Mexico and Lao PDR time-use surveys. Thus, while the wording used is not exactly the same as ICATUS activities, all of the indicators are identified in ICATUS, as previously explained in Chapter 3.

Table 15: Time-use indicators

Indicator 4. Time spent collecting plants, mushrooms, flowers and wild fruits; fishing and hunting for household consumption, by sex *(Similar to ICATUS Activities #213, #215, and #216)*
Indicator 5. Time spent planting, tending and harvesting a garden patch, and breeding of farm animals and production of animal products for household consumption, by sex *(Similar to ICATUS Activities #211 and #212)*
Indicator 7. Time spent collecting fuel for household consumption, by sex *(Similar to ICATUS Activity #241)*
Indicator 9. Time spent collecting water for household consumption, by sex *(Similar to ICATUS Activity #242)*

These indicators will provide policy makers data required to make informed, evidence-based decisions, leading to more effective, efficient and equitable policies, programmes and laws. Data on how community members, especially women and girls, spend their time is a critical step toward gender-responsive action, identifying gender gaps and uncovering opportunities to improve inequities in multiple spheres.

Moving forward

"We need a data revolution." So declared former UN Secretary-General Ban Ki-moon on World Statistics Day in 2015, urging the global community that the need for more reliable data and statistics across sectors was more urgent than ever (UN, 2015c). To meet the time-bound SDGs, and to accelerate harmonised strategies and action across related spheres including under the Rio Conventions, redoubled attention and synergised effort on closing data gaps is paramount. Among those taking up that charge, UN Environment and IUCN have each and together invested in closing one of the most persistent data gaps: that found at the gender-environment nexus.

Data shines a light on the invisible, as a 2018 UN Women publication on the topic notes. As this paper examines, collection and dissemination of national level gender-environment statistics offers an outstanding opportunity to shine a light on a persistently dark intersection. These statistics advance global understanding of how gender gaps thwart the best of sustainable development plans. They help to tell a story of transformation—connecting the dots on how realising women's rights and advancing gender equality unlock opportunities for more effective and equitable outcomes. They not only reinforce the importance of an intersectional approach, as the SDG framework aims to drive, but they give clues to strategies and actions required. The promising practices demonstrated in the case study countries of this project—Lao PDR, Kenya and Mexico—are particularly important to recall, as they showcase the practical, doable possibilities for promoting enabling environments for gender-environment statistics. Continuing research into diverse countries' enabling conditions and challenges, sharing information across countries and communities of practice, and developing and testing specific guidance for enhancing gender-responsive statistical capacities are critical next steps for consideration.

Investing in capacities, institutional arrangements and political buy-in at all levels—as well as mobilising actual, and sustained, resources for the same—is not only timely, but urgent. Data initiatives at all levels, and donors who support them, must turn attention to the blind spots persistently found at the gender-environment nexus. While momentum has grown in recent years to embrace the interlinkages that make up the heart of the sustainable development agenda, it is the data community that can spur and accelerate change.

Bibliography

1. 1 Million Women. (n.d.). 1 Million Women. Retrieved from https://www.1millionwomen.com.au

2. Asian Development Bank (ADB). (2013). *Tool Kit on Gender Equality Results and Indicators*, The Philippines: Asian Development Bank. Retrieved from www.oecd.org/derec/adb/tool-kit-gender-equality-results-indicators.pdf

3. Awes, A.A. (2018). *Gender and environmental statistics.* Presentation during the National-level Gender and Environment Statistics Workshop. 28 February-1 March. Nairobi, Kenya.

4. BRS Conventions. (n.d.). *BRS Gender Action Plan.* Retrieved from www.brsmeas.org/Gender/BRSGenderActionPlan/tabid/3652/language/en-US/Default.aspx

5. BRS Secretariat. (2016). *Gender Action Plan of the Secretariat of the Basel, Rotterdam and Stockholm conventions (BRS-GAP) for 2016-2017.* Retrieved from http://www.brsmeas.org/Gender/BRSGenderActionPlan

6. Beegle, K., De Weerdt, J., Friedman, J., & Gibson, J. (2010). *Methods of Household Consumption Measurement through Surveys. Experimental Results from Tanzania.* Policy Research Working Paper 5501. The World Bank. Retrieved from http://documents.worldbank.org/curated/en/265491468312013923/pdf/WPS5501.pdf

7. Bhatia, M., Angelou, N. (2015). *Beyond Connections: Energy Access Redefined.* ESMAP Technical Report. Washington, DC: World Bank. Retrieved from https://www.openknowledge.worldbank.org/handle/10986/24368

8. Burns, B. and Patouris, J. (2014). *United Nations Framework Convention on Climate Change (UNFCCC) Decisions and Conclusions: Existing Mandates and Entry Points for Gender Equality.* Retrieved from https://portals.iucn.org/union/sites/union/files/doc/gender_cc_technical_guide.pdf

9. CBD. (n.d.). COP Decisions. Retrieved from www.cbd.int/decisions/

10. CEPAL. (2016). *Clasificación de Actividades de Uso del Tiempo para América Latina y el Caribe (CAUTAL).* Retrieved from https://repositorio.cepal.org/bitstream/handle/11362/39624/4/S1600508_es.pdf

11. Dankelman, I. (2016). Action Not Words. Confronting Gender Inequality through Climate Change Action and Disaster Risk Reduction in Asia. Thailand: UN Women. Retrieved from http://www2.unwomen.org/-/media/fieldper cent20officeper cent20eseasia/docs/publications/2017/04/ccdrr_130317-s.pdf?la=en&vs=5239

12. Deere, C. D., and Leon, M. (2003). "The Gender Asset Gap: Land in Latin America" in *World Development* Vol. 31, No. 6, pp. 925-947. Retrieved from www.sciencedirect.com/science/article/pii/S0305750X03000469

13. Demographic Health Survey (DHS). (2017). *Model Household Questionnaire.* Retrieved from https://dhsprogram.com/pubs/pdf/DHSQ7/DHS7_Household_QRE_EN_16Mar2017_DHSQ7.pdf

14. Demographic Health Survey Programme (DHS programme). (n.d.). *Demographic and Health Survey Overview.* Retrieved from https://dhsprogram.com/What-We-Do/Survey-Types/DHS.cfm

15. Dixon-Mueller, R. (1985). *Women's work in Third World agriculture: Concepts and indicators.* Women, Work and Development, No.9 (Third impression 1994) Geneva: ILO. Retrieved from staging.ilo.org/ public/libdoc/ilo/1985/85B09_372_engl.pdf

16. Doss, C., Kovarik, C., Peterman, A., Quisumbing, A. and Van den Bold, M. (2013). "Gender Inequalities in Ownership and Control of Land in Africa: Myths versus Reality" in *International Food Policy Research Institute Discussion Paper 01308.* Retrieved from ebrary.ifpri.org/cdm/ref/collection/p15738coll2/ id/127957

17. Eckstein, D., Künzel, V. and Schäfer, L. (2018). Global Climate Risk Index 2018. Who suffers most from extreme weather events? Weather-related loss events in 2016 and 1997 to 2016. Berlin: GermanWatch Retrieved from https://germanwatch.org/en/download/20432.pdf

18. Eurostat. (2017). Body mass index (BMI) by sex, age and educational attainment level. Retrieved from http://ec.europa.eu/eurostat/data/database?p_p_id=NavTreeportletprod_WAR_NavTreeportletprod_ INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_ id=column-2&p_p_col_count=1

19. FAO. (1990). *The major significance of 'minor' forest products. The local use and value of forest in the West African humid forest zone.* Retrieved from http://www.fao.org/docrep/t9450e/t9450e00. htm#Contents

20. FAO. (2011). *The State of Food and Agriculture 2010-2011. Women in Agriculture.* Retrieved from www.fao.org/docrep/013/i2050e/i2050e.pdf

21. FAO. (2015). Gender and Land Statistics. Recent developments in FAO's Gender Land Rights Database. Retrieved from http://www.fao.org/3/a-i4862e.pdf

22. FAO. (2016). *How to mainstream gender in forestry. A practical field guide.* Retrieved from http://www.fao.org/3/a-i6610e.pdf

23. FAO. (2017). *World Programme for the Census of Agriculture 2020*. Rome, Italy: FAO. Retrieved from www.fao.org/3/a-i4913e.pdf

24. FAO. (2018). Gender and land rights database. Retrieved from http://www.fao.org/gender-landrights-database/en/

25. FAO. (n.d. a). Gender and Land Statistics. Retrieved from http://www.fao.org/gender-landrights-database/legislation-assessment-tool/indicators/en/?sta_id=967

26. FAO. (n.d. b). AQUASTAT water and gender. Retrieved from www.fao.org/nr/water/aquastat/data/ query/results.html

27. FAO. (n.d. c). FAOSTAT. Retrieved from www.fao.org/faostat/en/?#data/HS

28. FAO. (n.d. d). Metadata SDG indicator 5.a.1. Retrieved from http://www.fao.org/fileadmin/user_upload/ sustainable_development_goals/docs/Metadata_SDG_Indicator_5a1.pdf

29. Fletcher, A. and Schonewille, R. (2015). *Overview of resources on gender-sensitive data related to water.* Gender and Water Series. World Water Assessment Programme. Paris, UNESCO. Retrieved from www.unesco.org/fileadmin/MULTIMEDIA/HQ/SC/pdf/Overview_of_resources_on_gender_sensitive_ data_related_t_01.pdf

30. Gilligan, M and Sabater, L. (2017). *Women's participation and gender considerations in country representation, planning and reporting to the BRS Conventions.* Washington, USA: IUCN. vi + 41pp

31. Githeko, A., Lindsay, S., Confalonieri, U., Patz, J. (2000). "Climate change and vector-borne diseases: a regional analysis" in *Bulletin of the World Health Organization* 78 (9), pp. 1136-1147. Retrieved from http://www.who.int/bulletin/archives/78(9)1136.pdf

32. Global Footprint Network. (n.d.). About the data. Retrieved from data.footprintnetwork.org/#/abouttheData

33. Global Tracking Framework (GTF). (n.d.). Results. Retrieved from http://gtf.esmap.org/results

34. Gobierno de la República. (2013). *Programa Nacional para la Igualdad de Oportunidades y No Discriminación Contra las Mujeres (2013-2018)*. Retrieved from http://www.inmujeres.cdmx.gob.mx/storage/app/uploads/public/594/98d/0d8/59498d0d8784c152211482.pdf

35. Government of Lao PDR. (2018). *Lao People's Democratic Republic Voluntary National Review of the Implementation of the 2030 Agenda for Sustainable Development.* Retrieved from https://sustainabledevelopment.un.org/memberstates/lao

36. House, S., Ferron, S., Sommer, M. and Cavill, S. (2014). Violence, Gender & WASH: A Practitioner's Toolkit – Making water, sanitation and hygiene safer through improved programming and services. London, UK: WaterAid/SHARE. Retrieved from http://violence-wash.lboro.ac.uk/toolkit/

37. Human Rights Watch. (2015). Marry before your house is swept away. Child marriage in Bangladesh. Retrieved from https://www.hrw.org/sites/default/files/report_pdf/bangladesh0615_web.pdf

38. IAEG-GS. (2012). *Minimum set of gender indicators.* IAEG-GS 4th Global Forum on Gender Statistics (Dead Sea, Jordan, 27-29 March 2012). Retrieved from https://unstats.un.org/unsd/gender/Jordan_Mar2012/Presentations/Panelper cent205.b/Panelper cent205.b_1_UNSD_Minimumper cent20setper cent20ofper cent20indicators_GFGSper cent20rev.1.pdf

39. IAEG-SDGs. (2018, May). *Tier classification for global SDG indicators.* Retrieved from https://unstats.un.org/sdgs/files/Tierper cent20Classificationper cent20ofper cent20SDGper cent20Indicators_11per cent20Mayper cent202018_web.pdf

40. ILO. (2015). *Domestic work, wages and gender equality: Lessons from developing countries.* Working paper no.5/2015. Retrieved from http://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_430902.pdf

41. ILO. (n.d.). *Employment by sex and economic activity.* Retrieved from http://www.ilo.org/ilostat/faces/oracle/webcenter/portalapp/pagehierarchy/Page27.jspx

42. INEGI. (n.d.). *Atlas de género.* Retrieved from http://gaia.inegi.org.mx/atlas_genero/

43. IPCC. (2014). *Climate change 2014 synthesis report: Summary for policymakers.* Retrieved from http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf

44. IPCC. (2018). *Global warming of 1.5 degrees: Summary for policymakers.* Retrieved from http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf

45. IPU. (2018). Women in national parliaments: Situation as of 1st October 2018. Retrieved from http://archive.ipu.org/wmn-e/world.htm

46. ISTAT. (n.d.). *The National Statistics System (SISTAN).* Retrieved from http://ec.europa.eu/eurostat/documents/64157/4372828/IT-description.pdf/ab1b0006-f87d-475e-9e38-3304d4cc76cc

47. ISTAT. (2017). ISTAT indicators for UN Sustainable Development Goals (SDGs). Retrieved from https://www.istat.it/en/files/2017/12/2017_12_15_SDGs_Information_note.pdf

48. ISTAT. (2018, January). Organisation and activity. Retrieved from https://www.istat.it/en/organisation-and-activity

49. IUCN. (2013). *The Environment and Gender Index (EGI): Pilot phase.* Retrieved from http://genderandenvironment.org/wp-content/uploads/2014/12/The-Environment-and-Gender-Index-2013-Pilot.pdf

50. IUCN. (2015). *Women's participation in global environmental decision making.* https://portals.iucn.org/union/sites/union/files/doc/egi_factsheet_desicion_making_web_sept2015.pdf

51. IUCN. (2015b). Participacion de mujeres y hombres en espacios de toma de decision sobre medio ambiente y desarrollo sostenible. Retrirved from https://portals.iucn.org/union/sites/union/files/doc/factsheet_participacion_numerada_int.pdf

52. IUCN. (2015c). Gender and climate finance: New data on women in decision-making positions. Retrieved from https://portals.iucn.org/union/sites/union/files/doc/egi_finance_indicators_fact_sheet.pdf

53. IUCN. (2015d). Women in environmental decision making: Case studies in Ecuador, Liberia and the Philippines. Retrieved from https://portals.iucn.org/library/sites/library/files/documents/Rep-2015-002.pdf

54. IUCN. (2016). *Inclusion and characterization of women and gender equality considerations in fifth national reports to the CBD: EGI factsheet.* Retrieved from https://portals.iucn.org/union/sites/union/files/doc/egi_fs_cbd5thnr_web.pdf

55. IUCN. (2017). *Sustaining development: IUCN and the Sustainable Development Goals.* Retrieved from https://www.iucn.org/sites/dev/files/sdgs_-_uicn_-_web_-_eng.pdf

56. IUCN. (2017b). *Women's participation and gender considerations in country representation, planning and reporting to the BRS Conventions: EGI factsheet.* Retrieved from https://portals.iucn.org/union/sites/union/files/doc/iucn-egi-fs-brs-conventions.pdf

57. IUCN. (2018). Themes: Gender. Retrieved from https://www.iucn.org/theme/gender

58. IUCN. (2018b). Themes: Forests. Retrieved from https://www.iucn.org/theme/forests

59. IUCN GGO. (2015). Toma de decisiones y participación de las mujeres en Áreas Naturales Protegidas (ANP). Retrieved from https://portals.iucn.org/union/sites/union/files/doc/factsheet_anp_int.pdf

60. IUCN GGO. (n.d.). Environment and Gender Information Platform. Retrieved from genderandenvironment.org/egi/

61. IUCN GGO. (n.d.). EGI Analysis & Knowledge Products. Retrieved from http://genderandenvironment.org/egi/information-knowledge-products/

62. Jenkins, K. (2014). Women, mining and development: An emerging research agenda. The Extractive Industries and Society, 1 (2). pp. 329-339. Retrieved from http://nrl.northumbria.ac.uk/18099/1/Womenper cent20miningper cent20andper cent20developmentper cent20FINALper cent20REVISEDper cent20endnoteper cent20refsper cent20removedper cent2022per cent20Aug.pdf

63. JMP. (n.d.). Core questions. Retrieved from https://washdata.org/monitoring/methods/core-questions

64. JMP. (2018). *JMP Methodology 2017 Update & SDG Baselines.* Retrieved from https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

65. Kenya Ministry of Devolution and Planning. (2017). *Implementation of the Agenda 2030 for Sustainable Development in Kenya.* Retrieved from https://sustainabledevelopment.un.org/content/documents/15689Kenya.pdf

66.   KNBS. (n.d.). KNBS mandate. Retrieved from https://www.knbs.or.ke/knbs-mandate/

67.   Knox, J. (2017). Environmental Human Rights Defenders: A global Crisis, Universal Rights Group, Versoix (Switzerland). Retrieved from https://www.universal-rights.org/urg-policy-reports/environmental-human-rights-defenders-ehrds-risking-today-tomorrow/

68.   Luna, M., Aguilar, L., Gilligan, M., Owren, C., Prebble, M., and Westerman, K. (2015). *Women in environmental decision making: Case studies from Ecuador, Liberia, and the Philippines.* IUCN & Conservation International. Retrieved from https://portals.iucn.org/library/sites/library/files/documents/Rep-2015-002.pdf

69.   Mexico Federal Government. (2018). *Voluntary National Review for the High-Level Political Forum on Sustainable Development*. Retrieved from https://sustainabledevelopment.un.org/content/documents/20122VOLUNTARY_NATIONAL_REPORT_060718.pdf

70.   Multiple Indicator Cluster Survey (MICS). (2017). MICS6 Household Questionnaire. Retrieved from http://mics.unicef.org/tools

71.   National Institute of Statistics and Geography (INEGI). (2014). Encuesta Nacional Sobre el Uso del Tiempo 2014, Documento Metodológico. Mexico: INEGI. Retrieved from http://www.beta.inegi.org.mx/app/biblioteca/ficha.html?upc=702825075545

72.   NCAW. (n.d.). Home. Retrieved from http://www.laoncaw.gov.la/en/; translated https://translate.google.com/translate?hl=en&sl=lo&u=http://www.laoncaw.gov.la/&prev=search

73.   O'Dell, K. Peters, K., Wharton, K. (2014). "Women, Energy, and Economic Empowerment" in The Atlantic. Retrieved from https://www.theatlantic.com/sponsored/deloitte-shifts/women-energy-and-economic-empowerment/261/

74.   OECD. (2008a). Gender and sustainable development. Maximising the economic, social and environmental role of women. Retrieved from https://www.oecd-ilibrary.org/environment/gender-and-sustainable-development_9789264049901-en

75.   OECD. (2008b). *Household Behaviour and the Environment. Reviewing the Evidence*. Retrieved from https://www.oecd.org/environment/consumption-innovation/42183878.pdf

76.   OECD. (2014a). *Social Instructions and Gender index 2014 Synthesis Report.* Organisation for Economic Co-operation and Development, Paris https://www.oecd.org/dev/develop- ment-gender/BrochureSIGI2015-web.pdf

77.   OECD. (2014b). Gender, Institutions and Development Database 2014. Retrieved from stats.oecd.org/index.aspx?datasetcode=GIDDB2014

78.   OECD. (n.d.). *Social Institutions and Gender Index*. Retrieved from http://www.genderindex.org/data/

79.   Oliva, M.J. & Owren, C. (2015). Roots for a more sustainable future: An introduction to climate change—and the value of a gender-responsive approach to tackling it. In L. Aguilar, M. Granat, & C. Owren (Authors), *Roots for the Future: The landscape and way forward on gender and climate change.* Washington, DC: IUCN & GGCA. Retrieved from https://portals.iucn.org/union/sites/union/files/doc/rftf_2015_chapter_1.pdf

80.   Prebble, M., Gilligan, M., & Clabots, B. (2015, October). *Women's Participation in Global Environmental Decision Making: An EGI supplemental report.* IUCN: Washington, DC.

81.   The REDD Desk. (n.d.). *Forest-dependent communities.* Retrieved from https://thereddesk.org/encyclopaedia/forest-dependent-communities

82. Rights and Resources Coalition. (2015). *Who owns the world's land?*. Retrieved from https://rightsandresources.org/wp-content/uploads/GlobalBaseline_web.pdf

83. Rights and Resources Coalition. (n.d.). Tenure and Data Tool. Retrieved from rightsandresources.org/en/work-impact/tenure-data-tool/#sthash.Z2Vts7vw.dpbs

84. The Republic of Kenya. (2012). Land Act. No. 6 of 2012. Retrieved from http://bcckenya.org/assets/documents/LandAct6of2012.pdf

85. The Republic of Kenya. (2013). Matrimony Property Act. No. 49 of 2013. Retrieved from http://www.kenyalaw.org/lex//actview.xql?actid=No.per cent2049per cent20ofper cent202013

86. The Republic of Kenya. (2016). Land Laws (Amendment) Act. No. 28 of 2016. Retrieved from http://kenyalaw.org/kl/fileadmin/pdfdownloads/AmendmentActs/2016/LandLaws_Amendment_Act_28of2016.pdf

87. Seager, J. (2015). *Sex-disaggregated indicators for water assessment monitoring and reporting.* Technical Paper. Gender and Water Series. WWAP. Paris, UNESCO. Retrieved from unesdoc.unesco.org/images/0023/002340/234082e.pdf

88. SNEIG. (n.d.). Sistema nacional de información estadística y geográfica. Retrieved from http://www.snieg.mx

89. Sorenson, S. B., Morssink, C., & Campos, P. A. (2011). Safe access to safe water in low income countries: Water fetching in current times. *Social Science & Medicine, 72*, 1522-1526.

90. Stockholm Convention. (2009). *Stockholm Convention on Persistent Organic Pollutants (POPs)*. Retrieved from http://chm.pops.int/TheConvention/Overview/TextoftheConvention

91. Sunderland, T., Achdiawan, R., Angelsen, A., Babigumira, R., Ickowitz, A., Paumgarten, F., Reyes-García, V. and Shively, G. (2014). Challenging perceptions about men, women, and forest product use: A global comparative study'. *World Development* 64. Retrieved from ac.els-cdn.com/S0305750X14000692/1-s2.0-S0305750X14000692-main.pdf?_tid=874a03dc-9c87-11e7-b169-00000aacb361&acdnat=150574936_563060b8f0afe00cd0baaacc2a5e3439

92. Sustainable Development Goals Fund. (n.d.). From MDGs to SDGs. Retrieved from http://www.sdgfund.org/mdgs-sdgs

93. Sustainable Energy for All. (n.d.). About us. Retrieved from se4all.org/about-us

94. UN. (1995). Beijing Declaration and Platform for Action. Retrieved from www.un.org/womenwatch/daw/beijing/pdf/BDPfAper cent20E.pdf

95. UN. (2015a). *Transforming our world: The 2030 Agenda for Sustainable Development.* A/RES/70/1. Retrieved from https://sustainabledevelopment.un.org/content/documents/21252030per cent20Agendaper cent20forper cent20Sustainableper cent20Developmentper cent20web.pdf

96. UN. (2015b). *The World's Women 2015: Trends and Statistics.* New York: United Nations, Department of Economic and Social Affairs, Statistics Division. Retrieved from https://unstats.un.org/UNSD/gender/worldswomen.html

97. UN. (2015c). *Secretary Gender calls for 'data revolution,' stronger capacity, in message for World Statistics Day*. Retrieved from https://www.un.org/press/en/2015/sgsm17245.doc.htm

98. UN. (2016). *Integrating a Gender Perspective into Statistics*, New York. Retrieved from www.un-ilibrary.org/population-and-demography/integrating-a-gender-perspective-into-statistics_91a9c011-en

99. UN. (n.d.). *Goal 5: Achieve gender equality and empower all women and girls.* Retrieved from https://www.un.org/sustainabledevelopment/gender-equality/

100. UNCCD. (1994). United Nations Convention to Combat Desertification in those countries experiencing serious drought and/or desertification, particularly in Africa. Retrieved from www2.unccd.int/sites/default/files/relevant-links/2017-01/UNCCD_Convention_ENG_0.pdf

101. UNCCD. (2018). *Gender action plan*. Retrieved from https://www.unccd.int/publications/gender-action-plan

102. UNDP. (2014). *Human development report 2014. Sustaining human progress: Reducing vulnerability and building resilience.* Retrieved from http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf

103. UNDP-UNEP PEI. (2015). *The cost of the gender gap in agricultural productivity in Malawi, Tanzania, and Uganda*. Retrieved from http://www.unpei.org/sites/default/files/publications/costing_gender_final_eng_0.pdf

104. UNECE. (2010). *Developing gender statistics: A practical tool.* Retrieved from https://www.unece.org/fileadmin/DAM/stats/publications/Developing_Gender_Statistics.pdf

105. UNECE. (2013). Guidelines for Harmonizing Time-Use Surveys. Retrieved from http://www.unece.org/index.php?id=34496

106. UNECE. (2015). Indicators of Gender Equality. Retrieved from www.unece.org/stats/publications/gender_equality.html

107. UNECE. (2017). *Other groups working on SDGs.* Retrieved from https://statswiki.unece.org/display/SFSDG/Other+groups+working+on+SDGs

108. UN Environment Programme. (2015). Sustainable Consumption and Production Indicators for the Future SDGs. Retrieved from www.scpclearinghouse.org/sites/default/files/sustainable_consumption_and_production_indicators_for_the_future_sdgs.pdf

109. UN Environment Programme. (2016). Global Gender and Environment Outlook. Retrieved from http://web.unep.org/ggeo

110. UN Environment. (n.d.). Gender and the Environment. Retrieved from www.unep.org/gender/what-we-do/policy

111. UNFCCC. (2017). Gender Action Plan. Retrieved from http://unfccc.int/resource/docs/2017/sbi/eng/l29.pdf

112. UNICEF. (2018a). MICS6 tools. Retrieved from http://mics.unicef.org/tools

113. UNICEF. (2018b). MICS facts & figures. Retrieved from http://mics.unicef.org/facts-figures/key-events

114. UNICEF. (n.d.). About MICS. Retrieved from www.unesco.org/fileadmin/MULTIMEDIA/HQ/SC/pdf/Overview_of_resources_on_gender_sensitive_data_related_t_01.pdf

115. UNISDR. (n.d.). We advocate: Gender. Retrieved from https://www.unisdr.org/we/advocate/gender

116. UNSD Knowledge Platform. (2017). *Sustainable development goal 5: Achieve gender equality and empower all women and girls.* Retrieved from https://sustainabledevelopment.un.org/sdg5

117. UNSD. (1992). *United Nations Conference on Environment and Development: Agenda 21.* Retrieved from https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

118. UNSD. (2016). Time use data portal. Retrieved from unstats.un.org/unsd/gender/timeuse/index.html

119. UNSD. (2017a). *The United Nations Minimum Set of Gender Indicators.* Retrieved from genderstats.un.org/#/home

120. UNSD. (2017b). *Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development.* Retrieved from https://unstats.un.org/sdgs/indicators/ Globalper cent20Indicatorper cent20Framework_A.RES.71.313per cent20Annex.pdf

121. UNSD. (2017c). *Principles and Recommendations for Population and Housing Censuses.* Revision 3. New York: United Nations Publication. Retrieved from https://unstats.un.org/unsd/demographic/ meetings/egm/NewYork/2014/P&R_Revision3.pdf

122. UNSD. (2017d). *International Classification of Activities for Time-Use Statistics.* Retrieved from https://unstats.un.org/unsd/demographic-social/time-use/icatus-2016/

123. UNSD. (2017e). *The United Nations Minimum Set of Gender Indicators.* A product of the Inter-Agency Expert Group on Gender Statistics. Retrieved from https://genderstats.un.org/files/Minimumper cent20Setper cent20indicatorsper cent20web.pdf

124. UNSD. (2018a). *SDGs Metadata 01-04-02.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-01-04-02.pdf

125. UNSD. (2018b). *Tier Classification for Global SDG Indicators:* https://unstats.un.org/sdgs/files/Tierper cent20Classificationper cent20ofper cent20SDGper cent20Indicators_15per cent20Octoberper cent202018_web.pdf

126. UNSD. (2018c). *SDGs Metadata 1.5.1.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-01-05-01.pdf

127. UNSD. (n.d. a). *SDGs Metadata 07-01-01.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-07-01-01.pdf

128. UNSD. (n.d. b). *SDGs Metadata 07-01-02.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-07-01-02.pdf

129. UNSD. (n.d. c). *SDGs Metadata 06-01-01.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-06-01-01.pdf

130. UNSD. (n.d. d). *SDGs Metadata 06-02-01.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-06-02-01.pdf

131. UNSD. (n.d. e). *SDGs Metadata 03-09-02.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-03-09-02.pdf

132. UNSD. (n.d. f). *SDGs Metadata 03-09-01.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-03-09-01.pdf

133. UNSD. (n.d. g). *SDGs Metadata 03-09-03.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-03-09-03.pdf

134. UNSD. (n.d. h). *SDGs Metadata 11-02-01.* Retrieved from https://unstats.un.org/sdgs/metadata/files/ Metadata-11-02-01.pdf

135. UNSIDR. (2017). *Technical Guidance for Monitoring and Reporting on Progress in Achieving the Global Targets of the Sendai Framework for Disaster Risk Reduction.* Retrieved from https://www.preventionweb.net/files/54970_techguidancefdigitalhr.pdf

136. UN Women. (2014a). *World survey on the role of women in development: Gender equality and sustainable development.* Retrieved from https://cleancookstoves.org/binary-data/RESOURCE/ file/000/000/302-1.pdf

137. UN Women. (2014b). *Beijing declaration and platform for Action; Beijing+5 political declaration and outcome.* Retrieved from http://beijing20.unwomen.org/~/media/headquarters/attachments/sections/csw/pfa_e_final_web.pdf

138. UN Women. (2014c). *Climate Change, Disasters and Gender-Based Violence in the Pacific.* Retrieved from http://asiapacific.unwomen.org/en/digital-library/publications/2015/1/climate-change-disasters-and-gender-based-violence-in-the-pacific

139. UN Women: Asia and the Pacific. (n.d.). Lao PDR. Retrieved from http://asiapacific.unwomen.org/en/countries/laos

140. UN Women, World Bank, UNEP and UNDP. (2015). *The Cost of the Gender Gap in Agricultural Productivity in Malawi, Tanzania, and Uganda.* UN Women, UNDP, UNEP, and the World Bank Group. https://www.unpei.org/sites/default/ les/ publications/costing_gender_ nal_eng_0.pdf

141. USAID. (2017). *Demographic and Health Surveys Model Woman's Questionnaire.* Retrieved from https://dhsprogram.com/pubs/pdf/DHSQ7/DHS7-Womans-QRE-EN-07Jun2017-DHSQ7.pdf

142. W+. (2016). WOCAN W+ domains. Retrieved from http://www.wplus.org/domains

143. WEDO. (2017). By the numbers: UNFCCC progress on achieving gender balance. Retrieved from https://wedo.org/wp-content/uploads/2017/11/UNFCCC_WEDO-factsheet-Cop23.pdf.pdf

144. WEF. (2013). Five challenges, one solution: Women. Retrieved from http://www3.weforum.org/docs/WEF_GAC_WomensEmpowerment_FiveChallangesOneSolution_Compendium_2013.pdf

145. WHO. (2012). *Burden of Disease from Ambient Air Pollution for 2012.* Retrieved from www.who.int/phe/health_topics/outdoorair/databases/AAP_BoD_results_March2014.pdf

146. WHO. (n.d. a.). Global Database on Body Mass Index. Retrieved from http://apps.who.int/bmi/index.jsp

147. WHO. (n.d. b). Global Health Observatory data repository - Body Mass Index. http://apps.who.int/gho/data/node.main.BMIANTHROPOMETRY?lang=en

148. WHO. (n.d. c). Global Health Observatory data repository. Prevalence of anaemia in women. Retrieved from http://apps.who.int/gho/data/view.main.GSWCAH28v

149. WHO. (n.d. d). Global Health Observatory (GHO) data. Mortality and burden of disease from water and sanitation. Retrieved from http://www.who.int/gho/phe/water_sanitation/burden_text/en/

150. WHO. (n.d. e). *Flooding and communicable diseases fact sheet.* Retrieved from http://www.who.int/hac/techguidance/ems/flood_cds/en/

151. WHO. (n.d. f). Global Health Observatory data. Retrieved from http://www.who.int/gho/en/

152. WHO and UNICEF. (2015). *Progress on Sanitation and Drinking Water 2015 Update and MDG Assessment.* Retrieved from https://washdata.org/reports

153. WHO and UNICEF. (2016). *Core questions and indicators for monitoring WASH in Schools in the Sustainable Development Goals.* Retrieved from https://washdata.org/reports

154. WHO and UNICEF. (2017a). *Safely managed drinking water – thematic report on drinking water 2017.* Retrieved from https://washdata.org/reports

155. WHO and UNICEF. (2017b). *Scoping Study Preparing for SDG reporting of WASH in health care facilities in the East Asia and Pacific Region.* Retrieved from https://washdata.org/reports

156. WOCAN. (2018). WOCAN homepage. Retrieved from http://www.wocan.org

157. Women in Cities International. (2011). *Gender and Essential Services in Low-income Communities: Report on the findings of the action research project women's rights and access to water and sanitation in Asian cities*. Retrieved from https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/47973/IDL-47973.pdf

158. World Bank. (2006). "Gender, Time Use, and Poverty in Sub-Saharan Africa" *World Bank Working Paper No. 73*. Washington D.C.: The World Bank. Retrieved from siteresources.worldbank.org/INTAFRREGTOPGENDER/Resources/gender_time_use_pov.pdf

159. World Bank. (2009). *Gender in Agriculture Sourcebook*, p.12. Retrieved from siteresources.worldbank.org/INTGENAGRLIVSOUBOOK/Resources/CompleteBook.pdf

160. World Bank. (2011). *Gender Informed Monitoring and Evaluation in Disaster Risk Management*. Retrieved from http://www.gfdrr.org/sites/gfdrr/files/Guidance_Note_3_Gender_Informed_Monitoring_and_Evaluation_in_Disaster_Risk_Management.pdf

161. World Bank. (2012). Hidden Harvest The Global Contribution of Capture Fisheries. Retrieved from http://documents.worldbank.org/curated/en/515701468152718292/pdf/664690ESW0P1210120HiddenHarvest0web.pdf

162. World Bank. (n.d. a). *Living Standards Measurement Study.* Retrieved from http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTLSMS/0,,contentMDK:21610721~pagePK:64168445~piPK:64168309~theSitePK:3358997~isCURL:Y,00.html

163. World Bank. (n.d. b). Gender Data Portal. Retrieved from http://datatopics.worldbank.org/gender/indicators

164. World Bank. (n.d. c). World Bank Database. Retrieved from data.worldbank.org/indicator/SH.STA.STNT.FE.ZS?view=chart

165. World Economic Forum. (2015, March). *Why gender equality is key to sustainable development*. Retrieved from https://www.weforum.org/agenda/2015/03/why-gender-equality-is-integral-to-sustainable-development/

Annexes

Annex I: Relevant SDG goals, targets and indicators

Table 16: Relevant SDG Targets and indicators (UNSD, 2018b)

SDG GOAL	TARGET • INDICATOR
1. NO POVERTY	**1.2** By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.
	1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance. • **1.4.2** Proportion of total adult population with secure tenure rights to land, (a) with legally recognised documentation, and (b) who perceive their rights to land as secure, by sex and by type of tenure
	1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters. • **1.5.1** Number of deaths, missing persons and persons affected by disaster per 100,000 people
2. ZERO HUNGER	**2.2** By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons
	2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment • **2.3.2** Average income of small-scale food producers, by sex and indigenous status

Table 16: Relevant SDG Targets and indicators (UNSD, 2018b) (Cont.)

SDG GOAL	TARGET • INDICATOR
3. GOOD HEALTH & WELL-BEING	**3.3** By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.
	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. • **3.9.1** Mortality rate attributed to household and ambient air pollution • **3.9.2** Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) • **3.9.3** Mortality rate attributed to unintentional poisoning
	3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.
4. QUALITY EDUCATION	**4.a** Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all • **4.a.1** Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions)
5. GENDER EQUALITY	**5.4** Recognise and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate • **5.4.1** Proportion of time spent on unpaid domestic and care work, by sex, age and location
	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life • **5.5.1** Proportion of seats held by women in national parliaments and local governments • **5.5.2** Proportion of women in managerial positions
	5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national law • **5.a.1** (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure • **5.a.2** Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control

Table 16: Relevant SDG Targets and indicators (UNSD, 2018b) (Cont.)

SDG GOAL	TARGET • INDICATOR
6. CLEAN WATER AND SANITATION	**6.1** By 2030, achieve universal and equitable access to safe and affordable drinking water for all • **6.1.1** Proportion of population using safely managed drinking water services
	6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations • **6.2.1** Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water
7. AFFORDABLE AND CLEAN ENERGY	**7.1** By 2030, ensure universal access to affordable, reliable and modern energy services • **7.1.1** Proportion of population with access to electricity • **7.1.2** Proportion of population with primary reliance on clean fuels and technology
8. DECENT WORK AND ECONOMIC GROWTH	**8.5** By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value • **8.5.1** Average hourly earnings of female and male employees, by occupation, age and persons with disabilities
11. SUSTAINABLE CITIES & COMMUNITIES	**11.1** By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.
	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons. • **11.2.1** Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
	11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations. • **11.5.1** Number of deaths, missing persons and persons affected by disaster per 100,000 people
	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

Table 16: Relevant SDG Targets and indicators (UNSD, 2018b) (Cont.)

SDG GOAL	TARGET • INDICATOR
11. SUSTAINABLE CITIES & COMMUNITIES	**11.7** By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities • **11.7.1** "Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities"
12. RESPONSIBLE CONSUMPTION & PRODUCTION	**12.4** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimise their adverse impacts on human health and the environment.
13. CLIMATE ACTION	**13.1** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries • **13.1.1** Number of deaths, missing persons and persons affected by disaster per 100,000 people **13.b** Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalised communities. • **13.b.1** Number of least developed countries and small island developing States that are receiving specialised support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate change-related planning and management, including focusing on women, youth and local and marginalised communities

Annex II: Recommendations and status of proposed indicators

INDICATOR	STATUS	RECOMMENDATIONS
PRIORITY AREA A: RIGHT TO LAND, NATURAL RESOURCES AND BIODIVERSITY		
1. Proportion of total adult population with secure tenure rights to land, (a) with legally recognised documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure (SDG 1.4.2)	SDG 1.4.2 is a Tier II indicator[4] and has an internationally agreed methodology[5] in place. Data is not regularly collected by countries, yet questions regarding land ownership are included in DHS.	*Countries:* Adapt national methodology to measure SDG 1.4.2 *International community:* Support countries in the implementation of the internationally agreed methodology.
2. (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure (SDG 5.a.1)	SDG 5.a.1 is a Tier II indicator and has an internationally agreed methodology in place. Data is not regularly collected by countries yet on this specific indicator, but some data from MICS, DHS or LSMS-ISA surveys exist.	*IAEG-GS:* For consideration of inclusion in the Minimum Set of Gender Indicators. *Countries:* Adapt national methodology to measure SDG 5.a.1 *International community:* Support countries in the implementation of the internationally agreed methodology.

---

[4] For more information on Tier Classification see: https://unstats.un.org/sdgs/iaeg-sdgs/tier-classification/

[5] For more information on SDG indicators methodology see: https://unstats.un.org/sdgs/metadata/

INDICATOR	STATUS	RECOMMENDATIONS
PRIORITY AREA B: ACCESS TO FOOD, ENERGY, WATER AND SANITATION		
3. Share of food that directly comes from extractive methods (hunting, fishing and collecting) by source of the food, type of household and by urban/rural	There is no internationally agreed methodology and countries are not collecting this data yet.	*Countries:* For consideration of national statistic offices to include in Household Income and Expenditure Surveys (HIES) or other surveys. *International community:* Develop an internationally agreed methodology for this indicator and strengthen knowledge and capacity to disaggregate data by type of household.
4. Time spent collecting plants, mushrooms, flowers and wild fruits; fishing and hunting for household consumption, by sex	Many countries are collecting time-use surveys and use the International Classification of Activities for Time Use Statistics (ICATUS) or other regional and national classifications for guidance. However, there is no standardised questionnaire and each country decides on the activities and their classification. This indicator is used in Mexico time use survey and activities are similar to ICATUS activities 213 (hunting, trapping and production of animal skins, for own final use), 215 (gathering wild products, for own final use) and 216 (fishing, for own final use).	*Countries:* For consideration on national time-use surveys, in alignment with the ICATUS classification. *International community:* Support development of sample questionnaires and methodology for time-use surveys that follow the same classification.
5. Time spent planting, tending and harvesting a garden patch, and breeding of farmyard animals for household consumption, by sex	Many countries are collecting time-use surveys and use the International Classification of Activities for Time Use Statistics (ICATUS) or other regional and national classifications for guidance. However, there is no standardised questionnaire and each country decides on the activities and their classification. Activities presented in this indicator used in Mexico are similar to ICATUS activities 211 (growing crops and kitchen gardening, for own final use) and 212 (Farming of animals and production of animal skin, for own final use).	*Countries:* For consideration on national time-use surveys, in alignment with the ICATUS classification. *International community:* Support development of sample questionnaires and methodology for time-use surveys that follow the same classification

INDICATOR	STATUS	RECOMMENDATIONS
6. Proportion of population with primary reliance on clean fuels and technology, by main user (Similar to SDG 7.1.2)	SDG Indicator 7.1.2 is a Tier I indicator with WHO as its custodian and IEA and UN-Energy as partner agencies. The methodology is based on the Multi-Tier Framework for Measuring Energy Access. Disaggregating by main user, among other types of disaggregation is included as a recommendation within the methodology.	*Countries:* Adapt national methodology to measure 7.1.2, including the disaggregation by main user. *International communities:* Support inclusion in DHS and MICS, as well as support enhanced capacity for disaggregating by main user.
7. Time spent collecting fuel for household consumption, by sex	Many countries are collecting time-use surveys and use the International Classification of Activities for Time Use Statistics (ICATUS) or other regional and national classifications for guidance. However, there is no standardised questionnaire and each country decides on the activities and their classification. This indicator is similar to ICATUS Activity #241 (gathering firewood and other natural products used as fuel for own final use).	*Countries:* For consideration on national time-use surveys, in alignment with the ICATUS classification. *International community:* Support development of sample questionnaires and methodology for time-use surveys that follow the same classification
8. Proportion of population using safely managed drinking water services, by type of household (Similar to SDG 6.1.1)	SDG 6.1.1 is a Tier II indicator and an internationally agreed methodology is in place. The MICS and DHS already include the necessary questions to measure SDG 6.1.1 and many countries have collected some data. However, the disaggregation by type of household is not part of the SDG methodology and it is not included in the MICS or DHS.	*IAEG-GS:* For consideration of inclusion in the Minimum Set of Gender Indicators *Countries:* Adapt national methodology to measure SDG 6.1.1, including the disaggregation by type of household. *International community:* Strengthen knowledge and capacity on the disaggregation of data by type of household, possibly through MICS and DHS.
9. Time spent collecting water for household consumption, by sex	Many countries are collecting time-use surveys and use the International Classification of Activities for Time Use Statistics (ICATUS) or other regional and national classifications for guidance. However, there is no standardised questionnaire and each country decides on the activities and their classification. This indicator is similar to ICATUS Activity #242 (fetching water from natural and other sources for own final use).	*IAEG-GS:* For consideration of inclusion in the Minimum Set of Gender Indicators *Countries:* For consideration on national time-use surveys, in alignment with the ICATUS classification. *International community:* Support development of sample questionnaires and methodology for time-use surveys that follow the same classification

INDICATOR	STATUS	RECOMMENDATIONS
10. Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water, by type of household (similar to SDG 6.2.1)	SDG 6.2.1 is a Tier II indicator and an internationally agreed methodology is in place. Many countries have collected data on sub-indicator a) on sanitation access, but additional and regularly collected data is needed to measure this composite indicator. The disaggregation by type of household is not part of the SDG methodology.	*Countries:* Adapt national methodology to measure SDG 6.2.1, including the disaggregation by type of household. *International community:* Strengthen knowledge and capacity on the disaggregation of data by type of household.
11. Mortality and morbidity rates attributed to unsafe water, unsafe sanitation and lack of hygiene, by sex (Similar to SDG 3.9.2)	SDG 3.9.2 is a Tier I indicator, meaning that an internationally agreed methodology is in place and data is being collected by some countries. The measurement of morbidity is not included in the SDG indicator and a methodology needs to be developed for it. The disaggregation by sex is included as part of the methodology but is not required as in the indicator proposed here.	*Countries:* Adapt methodology to measure morbidity and disaggregate data by sex as suggested in SDG 3.9.2. *International community:* Develop international methodology to measure morbidity in combination with mortality.

PRIORITY AREA C: CLIMATE CHANGE, SUSTAINABLE CONSUMPTION AND PRODUCTION, HEALTH AND WELL-BEING

INDICATOR	STATUS	RECOMMENDATIONS
12. Number of deaths, missing persons and directly affected persons attributed to hydrometeorological disasters per 100,000 population, by sex (Similar to SDG 1.5.1; 11.5.1; 13.1.1)	SDG 13.1.1 is a Tier II indicator and has an internationally agreed methodology in place. The indicator proposed here specifically focuses on hydrometeorological disasters and requires the disaggregation by sex, contrary to SDG 13.1.1 which only suggest the disaggregation by sex in methodology. Data is not regularly collected by countries yet.	*IAEG-GS:* For consideration of inclusion in the Minimum Set of Gender Indicators *Countries:* Integrate the disaggregation of data by sex as part of the SDG 13.1.1 methodology. *International community:* Support the disaggregation of SDG 13.1.1 by sex
13. Mortality and morbidity rates attributed to environmental causes (unintentional poisoning, air & water quality), by age and sex (Similar to SDGs 3.9.1, 3.9.2 and 3.9.3)	SDGs 3.9.1, 3.9.2 and 3.9.3 are Tier I indicators, meaning that there's an internationally agreed methodology in place and data is being collected. The measurement of morbidity is not included in the SDG indicator and a methodology needs to be developed for it. The disaggregation by sex and age is included in the SDG methodology but is not required as in the indicators proposed here.	*Countries:* Adapt national methodology to measure morbidity and disaggregate data by sex and age as suggested in SDGs 3.9.1, 3.9.2 and 3.9.3. *International community:* Develop international methodology to measure morbidity in combination with mortality for these indicators.

INDICATOR	STATUS	RECOMMENDATIONS
14. Mortality rate attributed to vector- and water-borne diseases, by sex	There is no internationally agreed methodology, however many countries already collect data on specific vector- and water-borne diseases.	*Countries:* Compile existing data to measure this indicator and develop methodology to collect missing data. *International community:* Develop internationally agreed methodology to measure this indicator
15. Proportion of population that (a) has convenient access to public transport by location (urban/rural), sex, age and persons with disabilities; and (b) use public transport by location (urban/rural), sex, age and persons with disabilities (Similar to SDG 11.2.1)	SDG 11.2.1 (corresponding to sub-indicator a) is a tier II indicator and an internationally agreed methodology is in place. Data on SDG 11.2.1 is not regularly collected by countries yet. A methodology needs to be developed for sub-indicator b) on the use of public transport. Origin-Destination surveys can be considered.	*Countries:* Implement internationally agreed methodology to measure SDG 11.2.1. Sub-indicator b) for consideration of inclusion in national statistic offices, pending adoption of internationally agreed methodology is adopted *International community:* Develop internationally agreed methodology to measure sub-indicator b)
16. Consumer spending, by type household: a. Household spending by type of product and type of household b. Decision-making over household spending, by product and sex (intra-household decision-making)	There is no internationally agreed methodology to measure any these indicators. However, some countries are already collecting data over decision-making or household spending.	*Countries:* For consideration of national statistic offices to include in HIES or other consumption surveys. *International community:* Develop internationally agreed methodology to measure these indicators.

PRIORITY AREA D: WOMEN IN ENVIRONMENTAL DECISION MAKING AT ALL LEVELS

INDICATOR	STATUS	RECOMMENDATIONS
17. Women in governmental environmental decision-making a. Heads of environmental ministries, by sex, by sector	There is no internationally agreed methodology to measure this specific indicator, yet data was already collected by IUCN EGI platform in 2015 following a methodology defined in partnership with UN Women. Similar internationally agreed methodology exists for measuring women in national parliaments (SDG 5.5.1)	*Countries:* Compile existing administrative data to measure this indicator *International community:* Support countries or organisations to collect this data.

INDICATOR	STATUS	RECOMMENDATIONS

18. Women's participation in environmental decision-making fora
  a. Delegates to international environmental COPs, such as for UNFCCC, UNCCD, CBD and BRS Conventions, by sex
  b. Heads of delegations to international environmental COPs, such as for UNFCCC, UNCCD, CBD and BRS Conventions, by sex
  c. Participants in national level environmental fora, by sex
	There is no internationally agreed methodology to collect this information at national level. However, data is publicly available for indicators a) and b) and has already been collected by IUCN EGI platform and WEDO on specific years. An internationally agreed methodology to measure indicator c) is needed.	*Countries:* Compile existing administrative data to measure indicators a) and b) and define national methodology to measure indicator c) until an internationally agreed methodology is developed.
		
		International community: Define internationally agreed methodology to measure indicator c)

19. Women's participation in sector-specific environmental governance bodies
  a. Participation in communal land governance bodies, by sex
  b. Participation in forest groups, by sex
  c. Participation in water governance bodies, by sex
  d. Executive managers of national energy utilities, by sex
	There is no internationally agreed methodology for any of the indicators and data is not usually collected, but some countries collect sex-disaggregated data on women's participation in governance bodies and some administrative data is available.	*Countries:* Strengthen sex-disaggregated administrative data collection to measure these indicators
		
		International community: Define internationally agreed methodology to measure these indicators

Annex III: Additional indicator topic ideas as outcomes of Lao PDR, Kenya and Mexico workshop discussions

Table 17: Indicator topics from Lao PDR, Kenya and Mexico workshop discussions

Labour migration

Change in sectors due to climate change drivers such as drought and flood

Health impacts of climate change

Reliance on Natural Resources (e.g. NTFP)

Legislation and policies that require women's participation

Percentage of the population with water rights and land tenure by sex, age and type of tenure

Percentage of population with food deficiency by sex

Women's perception of safety in public transport

Percentage of the population that has access to roads, by sex (3-5 km)

Percentage of Environmental Human Rights Defenders (EHRD), by sex, age, ethnicity, region

Percentage of women in presidency and secretariat positions in environmental / agrarian commissions in local and federal state congresses; working groups, committees, inter-institutional bodies

Annex IV: Enabling conditions for gender-environment statistics in Lao PDR

© Molly Gilligan | IUCN

Acronyms

CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
DHS	Demographic and Health Survey
IAEG-GS	Inter-Agency Expert Group on Gender Statistics
IAEG-SDG	Inter-Agency Expert Group on Sustainable Development Goals
IUCN	International Union for Conservation of Nature
LDC	Least-Developed Country
LECS	Lao Expenditure and Consumption Survey
LSB	Lao Statistics Bureau
LSIS	Lao Social Indicators Survey
LWU	Lao Women's Union
MICS	Multi Indicator Cluster Survey
MPI	Ministry of Planning and Investment
MoFA	Ministry of Foreign Affairs
MoNRE	Ministry of Natural Resources and Environment
NCAWMC	National Committee for the Advancement of Women and Mother-Child
NSEDP	National Socio-Economic Development Plan
NSS	National Statistical System
SDG	Sustainable Development Goals
Sub-CAW	Sub-Committee for the Advancement of Women
ToT	Training of Trainers
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UXO	Unexploded Ordnance

Introduction

Understanding the gender-environment nexus is essential in Lao People's Democratic Republic (PDR) where many households rely on natural resources for their sustenance and livelihoods. Men and women within a community are impacted differently by environmental and climate change impacts and have differing capacities to cope and lead responsive measures, for example; thus, data exploring these differences is essential for developing meaningful policies and programmes supporting sustainable development while promoting gender equality and women's empowerment. Lao PDR is currently prioritising the collection of statistics in its pursuit of sustainable development and gender equality, including in effort to graduate from Least Developed Country (LDC) status.

Lao has conducted several international surveys in an efficient and effective way, and it is at the stage where, with some technical and funding support on the collection of gender-environment statistics, it can become a leading country on gender-environment statistics in the region. The collection of gender-environment statistics, particularly of sex-disaggregated data to measure environmental indicators, is steadily increasing, and Lao PDR's strong commitment towards Agenda 2030 and the Sustainable Development Goals (SDGs) provides a new area for improvement and for the advancement on gender-environment data collection.

In complement, Lao PDR is prioritising understanding and promoting the roles that women can play as decision makers and agents of change. Women's participation in the parliament has reached 25%, and the country is committed to increasing women's involvement in decision-making at all levels, with the support of the organisations and agencies that advocate for gender equality and the advancement of women.

CASE STUDY METHODOLOGY

This case study was developed by IUCN with support from UN Environment primarily through action research in Lao PDR. Information-sharing and mutual capacity-building workshops were organized on 14-15 February 2018 in Vientiane to discuss gender and environment data collection and to identify key priorities, gaps and needs in this area. Discussions revolved around four priority areas: right to land, natural resources and biodiversity; access to food, energy, water and sanitation; climate change, sustainable consumption and production, health and well-being; and women in environmental decision making at all levels.

This workshop brought together stakeholders, decision-makers, statisticians and gender experts from the Lao Statistics Bureau (LSB), the Lao Women's Union (LWU), the National Committee for the Advancement of Women and Mother-Child (NCAWMC) and from key environmental secretaries and commissions, international organizations, academia and other civil society organizations. Interviews with key informants strengthened the knowledge on Lao PDR's statistical system and structure and provided insightful information on gender equality and women's empowerment efforts across ministries and within the statistical system. In-country workshops, interviews and consultations were further complemented by desk research.

Lao PDR's National Context

Lao PDR is strongly committed to sustainable development as a path to graduate from the LDC status by 2020 and become an upper-middle-income country by 2030, as reflected in its 8th Five-Year National Socio-Economic Development Plan (NSEDP). Along these lines, Lao PDR is aware of the need to achieve gender equality and eliminate all forms of violence against women and children in order to achieve sustainable development and graduate from the LDC status. Thus, Lao PDR's government has adopted many policies and strategies for the advancement of women, including laws on Women's Development and Protection, and on Non-Violence Against Women and Children; and strategies such as Vision 2030 on Women Development, a 10-year Women's Development Strategy (2016-2025), a 10-year National Strategy on Gender Equality (2016-2025), a Five-year Lao PDR Women's Development Plan (2016-2020) and the 3rd Five-year National Plan of Action on Gender Equality (2016-2020).

Lao Women's Union and Gender Mainstreaming in Lao PDR

Lao PDR's commitment towards the advancement of gender equality and women's empowerment led to the creation of two organizations, the Lao Women's Union (LWU) and the National Committee for the Advancement of Women and Mother-Child (NCAWMC, or NCAW), which have differentiated mandates and responsibilities regarding women's empowerment and gender equality.

LWU, created in 1955, is an organization of women that focuses on gender equality for national development through the promotion of the Party's directions, the laws on gender equality and the advancement of women and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). Additionally, it is responsible for educating women of all ethnic groups to have a better understanding of the government's policies, laws and international commitments concerning women's rights and interests. LWU is an organisation equivalent to a ministry and operates at four levels: central, ministry-equivalent, district/municipality; and grass roots. LWU focused on a few key policies including the Women Development Plan (2016-2020), National Action Plan for Gender Equality (2016-2020), and National Action Plan for Mother and Child (2016-2020).[1]

NCAWMC, established in 2003, and its sub-Committees for the Advancement of Women (sub-CAWs) have a more technical role and focus on the formulation of policies, strategies and programmes for the advancement of women, including supporting the participation of women in committees and sustainable development projects.

LWU and NCAWMC each have representation at all levels, including national, district and local levels. Both organizations have departments within each ministry and participate in the majority of committees

---

1   Source: Lao Women's Union brochure

and working-groups, including within projects related to data collection, such as the national committee on Agenda 2030 implementation. These networks provide enabling environments for the mainstreaming of gender equality across all sectors, including the environment sector, and can have a critical role in the development of gender and environment statistics. For example, LWU collaborated with the Ministry of Natural Resources and Environment (MoNRE) in the mainstreaming of gender in a successful organic farming project.

However, coordination between and among ministries, the LWU and NCAWMC, and LSB must be strengthened—as noted in various key informant interviews. The network is in place to support coordination, but it is not always utilised to effectively and efficiently mainstream gender equality and women's empowerment throughout the work of ministries, including with respect to data and information collection. Interviewees noted that one aspect hindering gender mainstreaming and data collection at the gender-environment nexus is that capacity for understanding the gender-environment nexus and importance of gender and environment statistics is still limited.
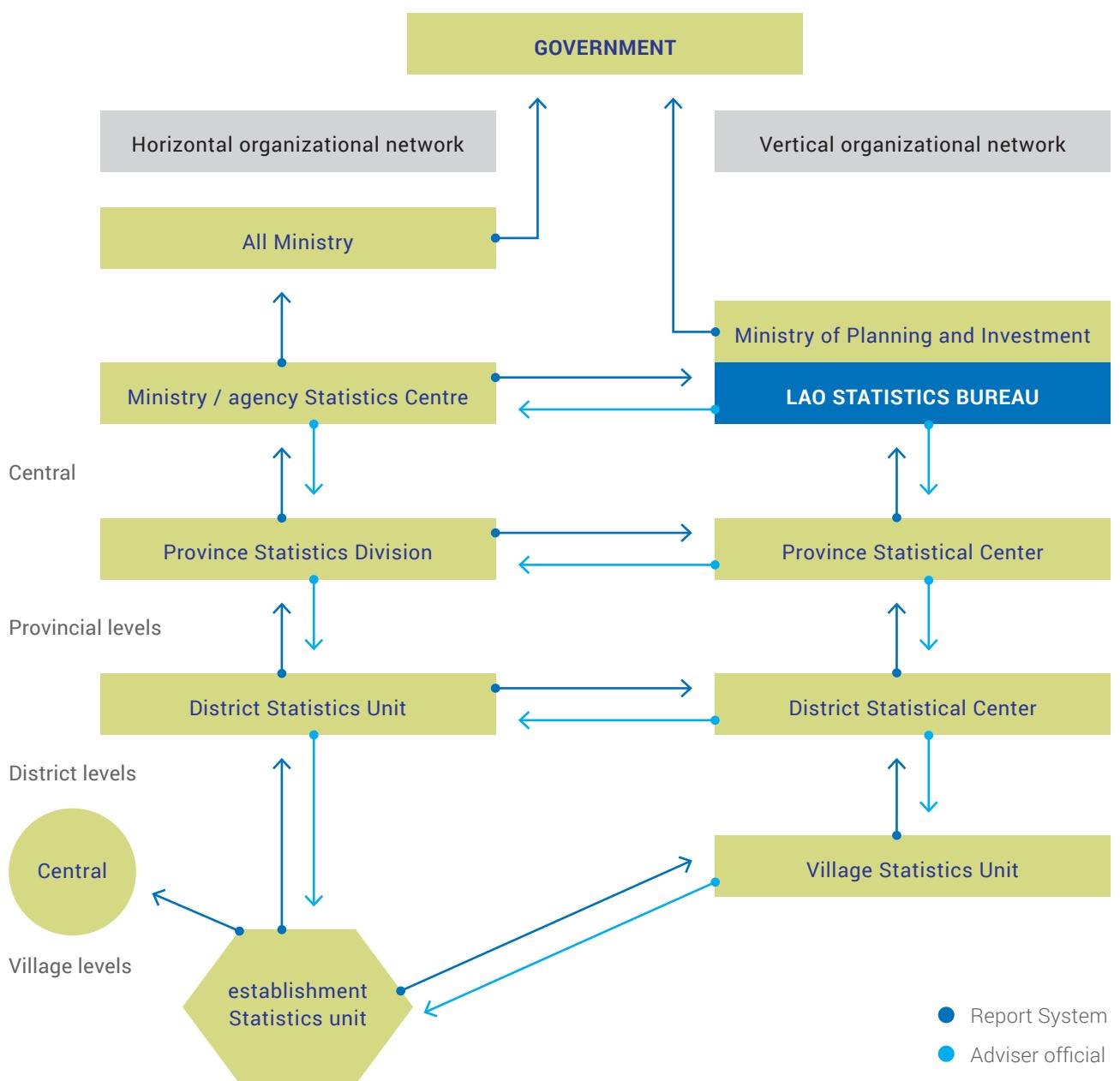
Lao PDR National Statistical System

Lao PDR National Statistical System (NSS) combines a vertical and horizontal structure to facilitate the collection of statistics at different levels. The Lao Statistics Bureau, under the supervision of the Ministry of Planning and Investment, is one of the main statistical offices in Lao PDR and has statistical centres at the province, district and village level that collect data for LSB and receive advisory support from it. Additionally, a horizontal organizational network of statistical offices within each ministry exists at the national, province, district and village level. The LSB and its offices at different levels provide advisory support to ministries, which, in turn, report to them on the data collected (see Figure 2).

Figure 2: NSS Coordination System²

Lao Statistics Bureau

The LSB is divided in four departments: The Department of Administration, the Department of Economic Statistics, the Department of Social Statistics and the Department of Data Service. The Department of Administration is responsible for the coordination of the LSB, while the Department of Data Service is in charge of disseminating official statistics, methodologies and other statistical communications. The Departments of Economic Statistics and Social Statistics are responsible for data collection within LSB, including surveys and census that integrate some gender-environment data; both of these departments were involved with this IUCN and UN Environment project through participation in the workshop and/or key informant interviews.

LSB is a fairly small office in comparison with other statistical offices in South East Asia, and Lao PDR needs financial and human capacity to strengthen the collection of quality data, as programmed in the Strategy for the Sustainable Development of the National Statistical System (2016-2025) and Vision by 2030. Additionally, the possibility to collect data at different levels and by different organisations and agencies, as presented in Figure 2, requires strong coordination among offices; however, data sharing needs to be improved and the LSB needs additional support to realise its mandate to streamline coordination and centralise data collection. Some other challenges identified when collecting data at the local level include accessing remote areas, language barriers and the lack of awareness of existing data that can lead to redundant efforts

TRAINING OF TRAINERS

The LSB is committed to strengthening staff capacity at all levels, hence the importance of Trainings of Trainers (ToT). Trainers are then responsible for training the enumerators that collect data at the local level. The LSB, following the national gender mandate, has a minimum requirement of having at least half of the enumerators being female, especially as some of the surveys include a women's questionnaire that needs to be conducted by a woman enumerator to guarantee a secure place for the women being surveyed to speak honestly about their experiences. Surveys tend to use the same trained teams, and in some of them, there are more women than men. The ToT is a great entry point to increase women's role in data collection and decision-making as enumerators and trainers and can help to better collect sex-disaggregated data and information toward gender indicators.

# Key examples of gender and environment statistics
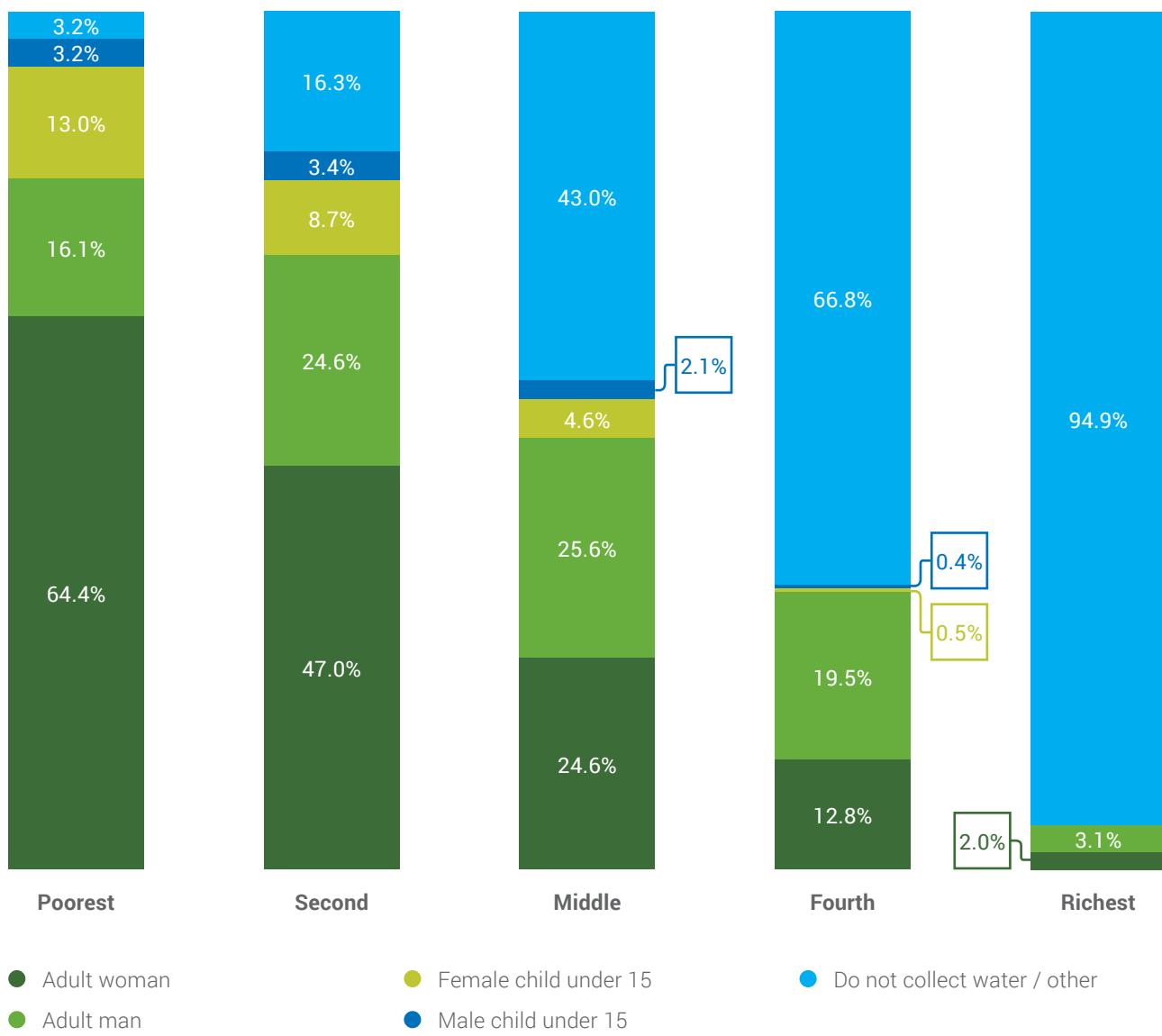
While various ministries and LSB collect data and produce statistics, LSB is responsible for conducting surveys and censuses. Hence, LSB has more publicly available official data than ministries, as survey and census reports are available for consultation. Lao PDR has capacity to disaggregate some of its information by different variables including sex, location, wealth quintile, education and ethnic status. However, the availability of sex-disaggregated data in relation to the environment, including within household surveys, is limited; most of the sex-disaggregated data available relates to education, health and employment rather than environmental topics. For example, the Population and Housing Census (2015) provides data on the sex of the head of household, which is essential to further disaggregate other household characteristics such as energy use, water and sanitation, which is not done at the moment. This section presents examples of Lao PDR's surveys and censuses that integrate gender-environment statistics within their reporting. The collection of gender statistics in all sectors, including the environment, is key to identify gender-differentiated roles and experiences so as to adopt evidence-based policies and programmes that support gender equality and women's empowerment and enable sustainable development.

Lao Social Indicator Survey (LSIS)

Lao PDR has conducted the Lao Social Indicator Survey (LSIS) since 1997, and the new version of 2017 has been amended to incorporate questions and variables to measure the SDGs. LSIS combines the internationally agreed questionnaires, methodologies and thematic modules of the Demography and Health Survey (DHS) and the Multi Indicator Cluster Survey

(MICS). These two surveys are supported by USAID and UNICEF, which provide funds and technical support to developing countries in order to strengthen their statistical capacity. Data is collected at the household level through individual questionnaires for the full household, women, men, children under five and children age 5-17. Lao PDR was one of the first countries to include the updated questionnaire of the MICS that was made public in 2018 and included questions to measure SDGs, including on energy (SDG 7) and water and sanitation (SDG 6). Additionally, this new edition of the LSIS survey includes a water quality testing that has been key to knowing that, while water access has increased, water in eight out of ten households is undrinkable because it contains *E.Coli.* The quality of water is one of the sub-indicators to measure safely managed drinking water services.

The LSIS collects data on mortality, reproductive and maternal health, child health, nutrition and development, education, protection from violence and exploitation, clean and safe environment and equality. Environmental statistics regarding energy, water and sanitation are disaggregated by many variables, but not by sex of the head of household or by type of household. Nevertheless, sex-disaggregated data is provided in regard to the person responsible for water collection, as presented in Figure 3, and the time to the water source. These indicators are also disaggregated by other variables. As data shows, women in the poorest quintile are extremely taxed with water collection, which reduces the time they can invest in income-generating activities and perpetuates poverty. Therefore, to address gender inequality within sustainable development, water access activities and programmes could be paired with economic empowerment activities, including specifically for women.

Figure 3: Lao Social Indicator Survey (LSIS) 2017

● Adult woman	● Female child under 15	● Do not collect water / other
● Adult man	● Male child under 15	

BRINGING INTERSECTIONALITY INTO VIEW

Lao PDR is a very diverse country where people from different ethno-linguistic groups and religions live side by side in rural and urban areas. Thus, the LSB is aware of the importance of disaggregating data by as many variables as possible to better identify inequalities. A strong example of data disaggregation is the LSIS report, where data is disaggregated by region, province, urban/rural (including rural areas with and without roads),

ethno-linguistic group, education and wealth quintile. Sex-disaggregated data is not always used in this survey, particularly in relation to environmental indicators related to household access to water, energy and sanitation. However, there are many gender statistics as this type of survey includes a women's questionnaire to better measure maternal and reproductive health, education and violence, among other.
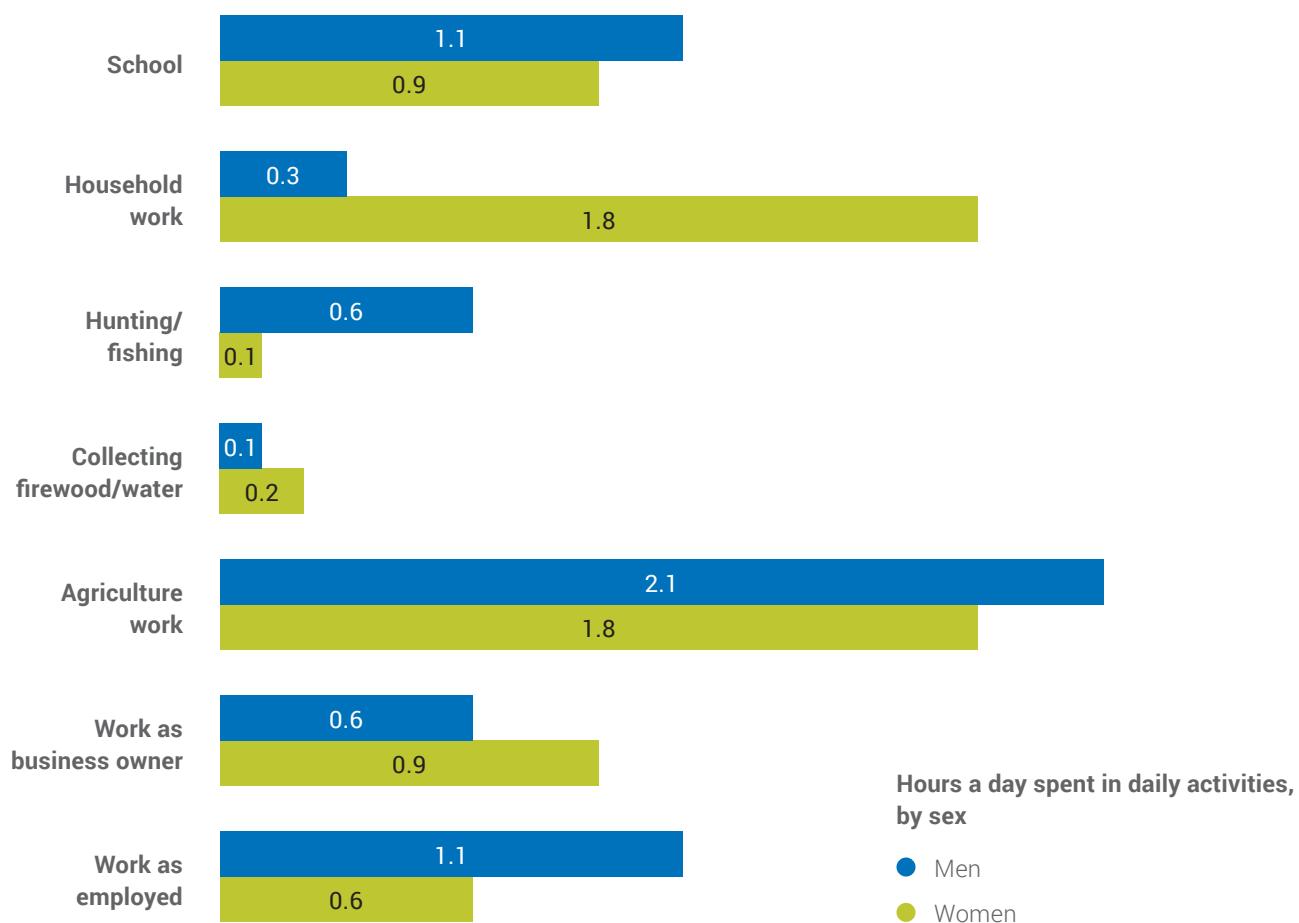
Sample questionnaires and technical support provided by international surveys such as the MICS and the DHS help strengthen countries' statistical capacities and provide an entry point for gender and environment data collection.

Lao Expenditure and Consumption Survey

Household income and expenditure surveys are collected in many countries although there is not a sample questionnaire and methodology that determines the types of information collected. In Lao PDR, the Lao Expenditure and Consumption Survey (LECS) (2012/2013) combines information on

household expenditure and consumption, as well as time use spent on different economic sectors and daily activities. Time use data provided in the LECS is sex-disaggregated and is an example of the integration of gender-environment statistics, as it provides information how women and men spend their time differently in daily activities, including related their environment such as water and firewood collection. Time use surveys can play a significant role in bridging the gender and environment statistics gap—not only in the environment sector, but also in the economic sector—and can help measure women's time burden associated to unpaid domestic and care work. Figure 4 presents some of the sex-disaggregated data on time use collected by Lao PDR through the LECS.

Figure 4: Lao Expenditure and Consumption Survey (LECS) 2012/2013
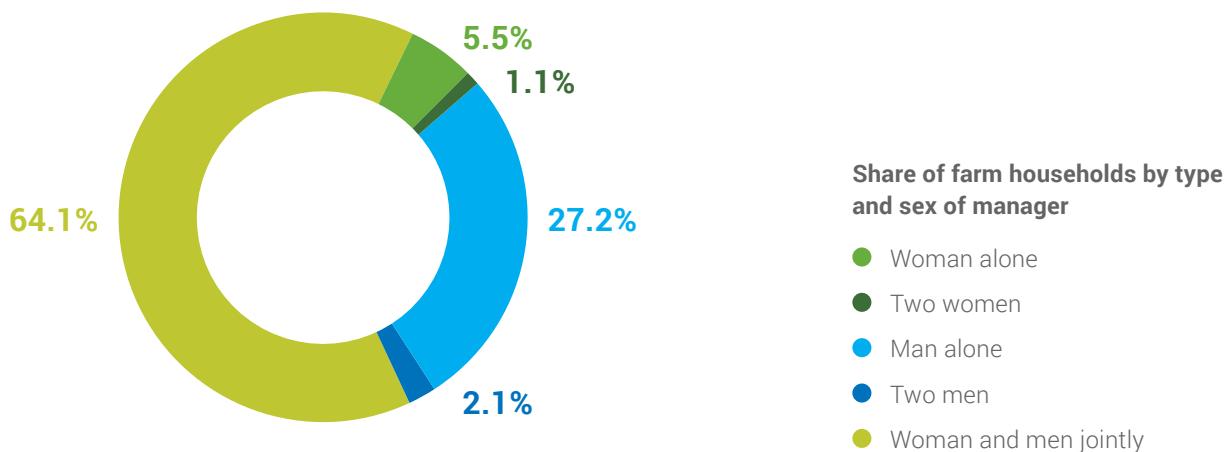
Lao Census of Agriculture
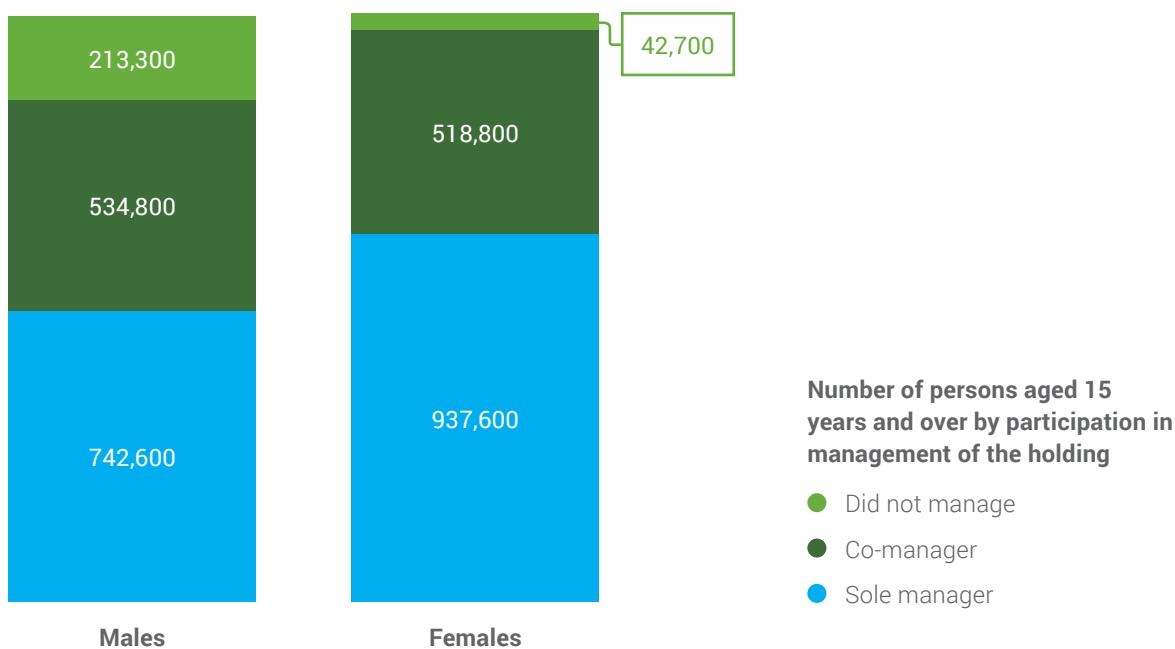
Lao PDR's Census of Agriculture was collected in 2010/2011. Data is disaggregated by province and, in some pertinent cases, by sex. Agriculture is one of the environmental areas in which there has been more progress in sex-disaggregating the collected data because agricultural work and land management are strongly linked to economic development and employment—areas where sex-disaggregated data is abundant. The Lao Census of Agriculture provides sex-disaggregated data on several indicators related to farmers and their work in agriculture and the family farm holding. Additionally, it provides data on decision-making on the number of farm households by sex of the manager, (Figure 5), and the number of persons aged 15 years and over by participation in management of the holding (Figure 6).

Figure 5: Lao Census of Agriculture 2010/2011

Share of farm households by type and sex of manager

- Woman alone
- Two women
- Man alone
- Two men
- Woman and men jointly

5.5%
1.1%
27.2%
2.1%
64.1%

Figure 6: Lao Census of Agriculture 2010/2011

Males
213,300
534,800
742,600

Females
42,700
518,800
937,600

Number of persons aged 15 years and over by participation in management of the holding

- Did not manage
- Co-manager
- Sole manager

The SDGs commitment

Lao PDR has embraced Agenda 2030 and is strongly committed to achieving the SDGs, which was reflected on the early integration of the SDGs within the 8th NSEDP (2016-2025) outcomes and targets. In 2017, Lao PDR created the National Steering Committee for SDG implementation, composed by members of all concerned ministries, ministry-equivalent agencies and mass organizations. The committee appointed the National SDG Secretariat, led by the Ministry of Foreign Affairs (MoFA) and the Ministry of Planning and Investment (MPI), as well as focal points within each relevant ministry. The LSB and relevant ministries are responsible for collecting all existing data that can be used to measure sustainable development progress and sharing it with the MoFA.

SDG 18: LIVES SAFE FROM UXO

Lao PDR is one of the countries with most unexploded ordnance (UXO) in the world— estimated at 80 million UXO remaining and affecting 25% of all villages. UXO remain a barrier to development in Lao PDR, as contaminated areas are a hazard for communities and biodiversity. Thus, the country has decided to include this topic as an additional SDG[3] in order to continue reducing casualties and clearing contaminated areas. Sex-disaggregated data is collected on reported UXO casualties.

Although UXO have had a detrimental impact across communities in Lao PDR, there are also gendered aspects of their effects, particularly relating to the circumstances in which individuals are injured (e.g., men are often injured when discovering UXO, while women are often trained and tasked with disarming UXO, contributing to their risk of injury) and how those who are injured are cared for (for example, as anecdotally learned through key informant interviews, oftentimes men will leave their injured wives along with their children, whereas women are more likely to stay with and care for their injured husbands).

In 2018, Lao PDR published its *Voluntary National Review on the Implementation of the 2030 Agenda for Sustainable Development*. While some progress has been made in women's participation in decision-making, especially in the Lao National Assembly, and in their access to education and health, women and girls still face inequality. Disaggregated data is still insufficiently available, particularly in relation to environmental decision making. Lao PDR has acknowledged the need to strengthen capacity building on statistics production and the gender-environment nexus. The LSB is currently conducting a gap analysis to identify what data is missing to measure the SDGs, particularly as many sets of data require disaggregated data.

---

3   https://sustainabledevelopment.un.org/content/documents/19385Lao_Final_VNR_19_June_2018_web.pdf

Key takeaways and opportunities

Lao PDR is strongly committed to sustainably developing the country without leaving anyone behind, as espoused in Agenda 2030 and the SDGs. These efforts support Lao PDR's goals for graduation out of LDC status and the recognition of Lao PDR as a middle-income country, as envisioned in its national socio-economic development plan. Gender equality is a cross-cutting outcome in Lao PDR's plan, echoing the SDGs, and the country has made great strides in the inclusion of women in decision-making, supported by gender equality mandates, including a target of 50% of survey team members being women. The participation of LWU and NCAWMC members in the majority of committees and working groups, including the national committee for the implementation of Agenda 2030 and other statistic committees, provides an enabling environment for Lao PDR to lead in the promotion of gender-environment statistics and capacity building efforts in these intersections.

Although there is still a long way to go in order to achieve gender equality and women's empowerment, Lao PDR is steadily improving, including in the environment and statistics sectors. Lao PDR is prioritising closing data gaps and collecting information to be used in development of evidence-based policies and programmes, e.g., by incorporating SDG indicators in the new LSIS survey. The vertical system for statistics collection plays a key role in this process as it enables a more accurate collection of data at all levels and facilitates data sharing efforts.

As an LDC country, Lao PDR faces some challenges in relation to data collection. There is a need to strengthen the statistical capacity of the LSB and the different statistic offices in the ministries, including to better understand the gender-environment nexus. In order to do so, Lao PDR needs more investment and funding for capacity building trainings and to be able to produce more and better-quality surveys, which are key to adopt informed and effective policies at all levels. Additionally, LSB's role and mandate need to be strengthened, paired with an improvement of the coordination between the LSB and different ministries and institutions, including the LWU and NCAWMC, as current data sharing is limited.

IDENTIFIED PRIORITIES IN WORKSHOP

During the two-day knowledge-sharing workshop, participants identified the following priorities for indicator development and data collection:

- Women's participation in environmental decision-making at all levels;
- Reliance on natural resources, such as non-timber forest products;
- Ownership over land, including agricultural land; and
- Health impacts of climate change, including mortality and morbidity due to unsafe water and sanitation.

Some key opportunities for integrating gender into environment statistics are internationally used surveys such as the DHS and MICS (combined in Lao PDR in the LSIS) or Time Use Surveys (e.g. some components of the LECS). These surveys provide an internationally used methodology and sample questionnaires that help countries to collect data; this is particularly useful for countries that need such resources to increase their capacity. Additionally, by including or amending a few questions to these household surveys, countries can greatly improve their collection of gender-environment data, becoming leaders in this area and bridging the existing gender-environment knowledge gap. The LSIS and the time-use component of the LECS can help measure some of Lao PDR priorities, such as reliance on natural resources, land ownership and health impacts related to unsafe water and sanitation.

While Lao PDR is still facing some challenges in the collection of gender and environment statistics, its strong commitment towards sustainable development and the SDGs, including gender equality and women's empowerment, reflects profound potential, structures and political will to overcome these obstacles.

List of key informant interviews

- Ms. Davong Oumavong, Acting Director Women's Advancement Division, Lao Women's Union
- Dr. Stephen Rudgard, FAO Representative in Lao PDR
- Theonakhet Saphakdy, Social Development Officer, Lao PDR Resident Mission, Asian Development Bank
- Mr. Vilaysouk Sysoulath and Mr. Leokham Douangphachan, Department of Social Statistics, Lao Statistics Bureau
- Mr. Immala Inthaboualy, Ms. Nouansy Thipphaxay, and Mr. Phoutakay Kounvixay, Department of Disaster Management and Climate Change (DDMCC), Ministry of Natural Resources and Environment
- Ms. Sisomphet Souvanthalisith, Director Department for the Advancement of Women, Ministry of Agriculture and Forestry
- Ms. Salika Chanthalavong, Division Chief, Department of Economic Statistics and Mr. Perig Leost, GOPA Deputy Team Leader—LSB Consultant, Lao Statistics Bureau
- Dr. Margaret Jones Williams, Head of Natural Resources Management and Climate Change, UNDP
- Ms. Bouasavanh Khanthaphat, Managing Director, Lao Social Research
- Mr. Marc Gross, Programme Director, and Ms. Teresa Olbert, Gender Advisor, GIZ
- Ms. Frederika Meijer, UNFPA Representative in Lao PDR
- Ms. Elizabeth Thipphawong, Project Management Adviser, Gender Development Association
- Mr. Kanya Khammounghkoun, Deputy Director of International Organizations, Ministry of Foreign Affairs

Annex V: Enabling conditions for gender-environment statistics in Kenya

© Flore de Preneuf/World Bank | Flickr

Acronyms

AU	African Union
DHS	Demographic and Health Survey
ESARO	IUCN's Eastern and Southern Africa Regional Office
IUCN	International Union for Conservation of Nature
KNBS	Kenya National Bureau of Statistics
NGEC	National Gender and Equality Commission
SDGs	Sustainable Development Goals
UN	United Nations

Introduction

Kenya has a vested interest in measuring progress on sustainable development efforts related to environmental issues and gender equality, as is supported across various policy and international commitments. As noted by the Ministry of Environment and Natural Resources in its *Gender Mainstreaming Strategy and Action Plan for the Environment and Natural Resources in Kenya (2015-2018)*, Kenya predicts that with increased impacts of climate change, "conflicts of a personal and civil nature are going to rise significantly across the country," with women often affected the most due to pre-existing societal and economic inequalities.[i] The strategy and action plan notes that women are more likely to live in poverty than men—with an estimated 54% of rural women and 63% of urban women living below the poverty line—leaving women more vulnerable to climate and environmental shocks than men.

As such, the Government of Kenya prioritises mainstreaming gender equality across sectors in order to achieve progress on sustainable development, as reflected in its commitments to the Sustainable Development Goals (SDGs),

constitutional requirements and Kenya's Vision 2030. Kenya's Vision 2030 aims to "transform Kenya into a newly industrialising, middle-income country providing a high quality of life to all its citizens for 2030 in a clean and secure environment."[ii] Gender mainstreaming falls under the social pillar of Vision 2030 and is integrated across sectors, including a focus on gender statistics to guide policy decisions. [iii] Another key aspect of gender mainstreaming in Vision 2030, with particular relevance to sex-disaggregated data, aligns with constitutional mandates and stipulates that no more than two-thirds of any appointed or elected government body can be of the same gender.[iv, v]

Kenya's 2010 constitution[vi] created the Kenya National Human Rights and Equality Commission, which, in turn, led to the establishment of the National Gender and Equality Commission (NGEC)[vii] in 2011. NGEC's mission is to promote gender equality and freedom from discrimination for all persons in Kenya, ensuring compliance with commitments to gender equality. Among its responsibilities, NGEC is responsible for ensuring Kenya's compliance with ratified treaties and conventions pertaining

to equality and discrimination against women, as well as advising on gender mainstreaming across national development priorities.**viii, 1**

While Kenya recognizes the importance of gender equality for successful sustainable development through its national policy structures, as well as through international commitments like the SDGs, there is a need to strengthen these existing systems to measure the gender-environment nexus. While the country measures and reports on many climate change impacts and gender issues alike, Kenya does not currently utilise indicators specifically measuring the gender-environment nexus, nor does it analyse sex-disaggregated data in the climate change and environment sectors. Nevertheless, there is great potential and interest in better understanding, measuring and reporting on the gender-environment nexus, including as demonstrated through partnership on this research.**2** This case study aims to explore the enabling conditions of and outline the opportunities for strengthening statistical systems in Kenya to measure the gender-environment nexus.

CASE STUDY METHODOLOGY

The International Union for Conservation of Nature (IUCN) developed this case study, with support from UN Environment, primarily through action research in Kenya, which consisted of an information-sharing and mutual capacity-building workshop and key informant interviews. Key informants, some of whom also participated in the workshop, were identified to provide insight into the status of gender-environment statistics from government, civil society and academia perspectives. The outcomes from the workshop and interviews were informative for the case study, strengthened the research team's knowledge on Kenya's statistical system and structure and provided insightful information on gender equality and women's empowerment efforts across ministries and within the statistical system. The workshop and interviews were further complemented by desk research and additional expert consultations.

IUCN organised a two-day workshop from 28 February-1 March 2018 in Nairobi to discuss gender and environment data collection and to identify key priorities, gaps and needs in this area. Workshop participants included stakeholders, decision-makers, statisticians and gender experts from the Kenya National Bureau of Statistics (KNBS) and from key environmental secretaries and commissions, international organisations, academia and other civil society organisations. Discussions revolved around four priority areas: (1) right to land, natural resources and biodiversity; (2) access to food, energy, water and sanitation; (3) climate change, sustainable consumption and production, health and well-being; and (4) women in environmental decision making at all levels.

---

1   A representative from NGEC participated in the knowledge-sharing workshop.

2   The development of this case study was reliant upon key informant interviews and workshop discussions.

Kenya National Bureau of Statistics

As part of the action research for this IUCN-UN Environment collaboration, key informant interviews were held with officials from two directorates of KNBS: the Strategy and Development Directorate and the Production Statistics Directorate, including with the Food and Environment Division of the Production Statistics Directorate. Additionally, representatives from KNBS participated in the two-day workshop, including the Senior Manager of Social Statistics, who gave a presentation during the workshop. These interviews, presentation and discussions provided essential information for understanding the mandate, structure and goals of KNBS, as explored here. KNBS was a key partner in facilitating the action research in Kenya and, as the national statistical body, holds an essential role in implementing the needed steps to strengthen Kenya's enabling environment on measuring the gender-environment nexus.

KNBS is a semi-autonomous government agency housed under the Ministry of Devolution and Planning.[ix] It was established by the Statistics Act 2006 to be the "principle agency of the Government for collecting, analysing and disseminating statistical data in Kenya" and to be the custodian of official statistical information.[x] This means that KNBS has a wide mandate of responsibility for all official national statistics at every stage of the process—from developing and administering surveys, to analysing and storing data, to disseminating and reporting information to other government agencies and the public. KNBS is responsible for, among other tasks, establishing standards and promoting the use of best practices and methods.

KNBS collects data through three main means: censuses, national surveys and administrative statistics. The census is conducted every ten years, with the next—for 2019—currently under development; it will include modules on a variety of topics such as water supply, waste, energy use and housing conditions. Many household surveys conducted each year cover a wide variety of themes at national and county level. Although a gender analysis has not been conducted on environmental topics collected through surveys, it is possible to do so: the sex of each respondent is recorded and thus this data can be readily sex-disaggregated. For many cases, including the Kenya Demographic Health Survey (DHS), stakeholder organisations can submit questions to KNBS for considered inclusion in surveys. Additionally, stakeholders— including ministries, as well as government officials at county level—can request data and data analyses from KNBS.[3]

On a different note, multiple experts interviewed (including academics and practitioners) highlighted that in the past few years there has been an increase in women studying and working in statistics, including within KNBS.

---

3 This was an important point of discussion at the knowledge-sharing workshop facilitated by IUCN and UN Environment; many of the stakeholders participating were not aware of this process.

Gender and environmental statistics

Kenya has made great strides in measuring many gender issues (e.g., related to education, health, labour rates) and, separately, measuring environmental and climate change issues (e.g., through a technical working committee and with a new focus on the SDGs). However, there are persistent data gaps in Kenya when it comes to the gender-environment nexus, particularly concerning land use, access to resources, climate change, and greenhouse gas emissions. Some of these data gaps are due to the challenges of collecting sex-disaggregated information (e.g., lack of capacity, sensitive nature of household surveys) and some are because those areas of the environmental sector are not comprehensively measured at this time. An additional challenge to gender and environment statistics is the lack of baselines in the environmental domain, which makes it difficult to observe trends and changes over time (A. Khasakhala & A. Agwanda Otieno, interview, 26 February 2018). Acting as an impetus for closing these data gaps, there are mandates in place for collecting sex-disaggregated data under Kenya's Vision 2030. Data in environmental sectors is currently being collected that could be sex-disaggregated (i.e., the sex of survey respondents is collected), but these data are not actually being disaggregated (i.e., information on the sex of the respondent is not being used in this manner).

This data on sex of the respondent is available upon request for those who wish to explore gender dimensions of survey responses; this offers potential to explore existing sex-disaggregated data and

perform gender analyses. However, to date, KNBS has not received requests to conduct analyses related to the gender-environment nexus. With enhanced understanding of what information KNBS has available, the types of information that they have the ability to collect, and the process through which stakeholders can request information and analyses,[4] stronger KNBS-stakeholder relationships can be fostered, including furthering understanding of the role of data in understanding the gender-environment nexus.

While there is some progress to bridge the gaps on measuring the intersections of where gender and environmental issues overlap, concerted efforts are still needed in Kenya to further strengthen the enabling conditions. For instance, most gender statistics fall under KNBS's Population Directorate, but there are initiatives to mainstream gender across directorates, particularly in relation to the SDGs. However, as highlighted in interviews with KNBS officials, capacity building is still needed across directorates to better understand the gender-environment nexus and how directorates can better work together on these cross-cutting issues. Additionally, indicators specifically designed to measure the gender-environment nexus should be employed to develop a robust understanding of the different ways women and men interact with and rely upon their environments, as recommended in this UN Environment-IUCN report, *Gender and environment statistics: Unlocking information for action and measuring the SDGs.*

---

4   The data request form can be found here https://www.knbs.or.ke/data-request/
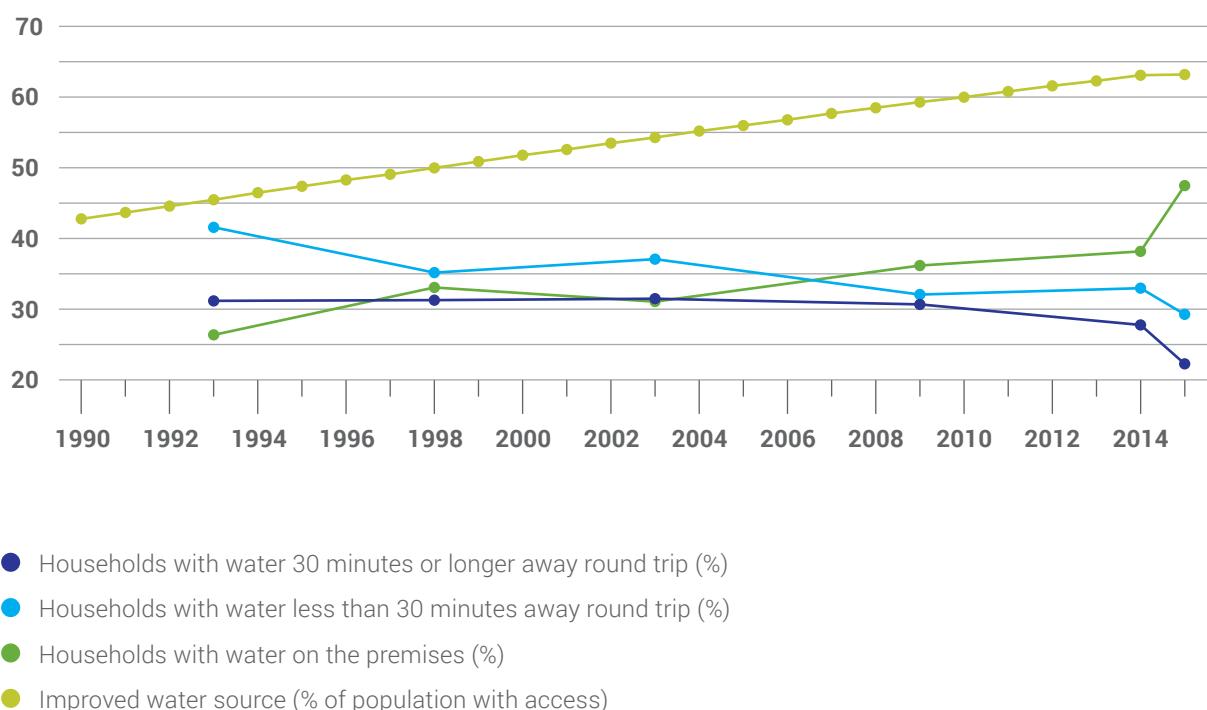
EXAMPLE OF DATA IN KENYA

In terms of data dissemination, KNBS has many tools to ensure that their data and publications are transparent and accessible. One such tool is a data-sharing platform called KNBS Data Visualization,[xi] which is geared at enhancing KNBS's data dissemination capabilities. This transparent tool is useful for accessing data relating to agriculture, public finance, health, population and education.

Additionally, KNBS hosts an online data-sharing platform, the Kenya Data Portal, which includes various data sources, including those developed in partnership with or provided by international organisations such as the World Bank and United Nations. For example, data is available from the World

Bank's Gender Data Portal pertaining to access to water sources (Figure 7);[xii] although these indicators are listed on the Kenya Data Portal under an indicator category called "gender statistics," there is no information available as to who within a household is responsible for collecting water, or any other gender component. However, these data still provide valuable information for policy-makers, practitioners and academics who are familiar with the often gender-differentiated roles and responsibilities pertaining to water collection—though sex-disaggregated data on this topic would help to close this important data gap and contribute to evidence-based policy and programme decisions.

Figure 7: Data relating to household access to water. Source: Kenya Data Portal

- ● Households with water 30 minutes or longer away round trip (%)
- ● Households with water less than 30 minutes away round trip (%)
- ● Households with water on the premises (%)
- ● Improved water source (% of population with access)

Using sex-disaggregated data to advance gender equality

Robust sex-disaggregated data is continuously needed to reinforce existing stories and inform policymaking and interventions; equally important, robust data must counter false stories that may undermine sustainable development strategies. Gender statistics can be used to strengthen advocacy efforts at all levels across sectors and inform project interventions at the local level, in particular. KNBS does try to mainstream gender across topics, as per government requirements, and include gender in specialized reports that it publishes. Additionally, several key informant interviews noted that KNBS gender data has been used for evidence-based planning and policy making in some sectors, such as education, which can provide a strong example for similar data use in environmental sectors. Further efforts to increase the collection and use of gender statistics are needed and welcomed in Kenya to inform evidence-driven initiatives and affect policy development and implementation.

It is important to recognise—as was noted in interviews and workshop discussions—that disaggregating data by sex is not, in and of itself, a gender analysis. If a gender analysis, preferably incorporating gender statistics, is not included in analyses and reports, merely collecting sex-disaggregated data will not contribute to policy and programming that aims to address gender considerations. Moreover, without analysis, sex-disaggregated data on its own can lead to skewed interpretation: poverty data, for example, is often collected at the household level, and the same value is assigned to each individual within the household, not considering intra-household equity and decision-making.

Informant interviews highlighted several additional challenges to the collection and use of gender statistics and sex-disaggregated data in Kenya. An overall strategy for the different (government) agencies that produce and use data does not seem to exist and would be useful, as data collection is often opportunistic, project specific and driven by donor agendas (A. Khasakhala & A. Agwanda Otieno, interview, 26 February 2018). Although some sex-disaggregated data and gender indicators do exist, and new ones are being developed and included (for example, for gender-based violence), there is still a gap for specific gender statistics and indicators in relation to the environment, as noted above. So far, Kenya has not done time-use surveys, which could provide crucial information on how men and women allocate time to the collection of water and fuel, for example; however, there are efforts to start implementing such surveys in Kenya (M. Wanyonyi, interview, 2 March 2018). Moreover, there is limited capacity within KNBS and other government agencies to analyse and use the sex-disaggregated data that is already collected.

One final note on using sex-disaggregated data to tell a gender story in environmental sectors is that there is much focus on advocacy, which is important, but there also needs to be a focus on implementation (W. Mathai, interview, 11 April 2018). Developing statistics on the gender-environment nexus can help to make great strides in the work being done to address environmental and climate change issues. A focus on using these data to implement policies and programmes has the potential to enact great change and support progress.

Kenya and the SDGs

In terms of the SDGs, Kenya is prioritising those falling into five categories most relevant for Kenya: health; agriculture and food security; employment and enterprise; universal education and gender; and environment.**xiii** Kenya has developed an enabling environment of cooperation among ministries, particularly on issues relating to sustainable development, and the SDGs are treated as cross-cutting across sectors and KNBS directorates. KNBS created an SDG task force that includes an inter-agency committee for the implementation of the SDGs, bringing together relevant groups and ministries to discuss indicators and data collected to ensure that accurate information is reported to the Ministry of National Treasury and Planning.

Although the Ministry of National Treasury and Planning is responsible for reporting on the SDGs, KNBS is the main party responsible for the data as it is mandated to be in charge of all indicators measured at national level, including working in partnership with custodian agencies. It is sometimes more realistic for a ministry to work directly with a custodian agency due to capacity, resources and relationships; in these instances, KNBS supports ministries and cooperates to validate data. For example, to support these goals, the State Department of Gender Affairs has developed a questionnaire for other ministries

to gather information on SDG5—this recognises the cross-cutting nature of gender equality and provides a means for ministries to cooperate and share information (J. Makokha & A. Muiti, interview, 26 February 2018).

During an interview with the Food and Environment Division of KNBS, the cooperation across ministries was highlighted, noting that this Division works closely with the Ministry of Water for SDG6, the Ministry of Energy for SDG7, and the Ministry of Environment for many goals. "No ministry alone can report on any SDG—they are interdisciplinary and cover many areas, so the ministries and KNBS collaborate quite closely" (P. Nderitu & S. Maingi, interview, 26 February 2018). This close cooperation between and among ministries and KNBS is a particular strength of the statistical system in Kenya.

Interestingly, an academic at the Technical University of Kenya mentioned that she is teaching her students about the SDGs, and they are completing assignments based on innovative ways to connect the SDGs to the population and environmental issues they study. Engaging students in sustainable development efforts provides opportunities for Kenya to study these topics for years to come (F. Mbai & M. Macharia Kedogo, interview, 27 February 2018).

AGENDA 2063

As part of the African Union (AU), Kenya is party to the AU's Agenda 2063, a "strategic framework for the socio-economic transformation of the continent over the next 50 years."[xiv] This agenda aims to promote "an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in international arena."[xv] A key priority is that this agenda be driven by and rely upon the people of Africa, especially including women and the youth. Gender equality is mentioned as part of multiple initiatives included within Agenda 2063. Various environmental issues are also mentioned throughout Agenda 2063. Importantly, there are a few key areas that consider the gender-environment nexus, such as with respect to equitable and sustainable use of water resources; the agriculture sector becoming "modernised, profitable and attractive to the continent's youth and women"; and "acting with a sense of urgency on climate change and the environment," including programmes on climate change targeting women and youth.[xvi]

Best practices and lessons learned

As noted, a key strength in Kenya is the cooperation between and among ministries and KNBS. While KNBS is responsible for official data, it also works closely with ministries (who often work closely with international SDG custodian agencies) to ensure that data being collected and reported meet the rigorous standards of KNBS. This process, and the various task forces set up to enable this process, allows ministries to collect and use relevant information with the support of KNBS. This also enables KNBS and the National Gender Equality Commission (NGEC) to promote mainstreaming gender across sectors by setting up interdisciplinary working groups and task forces to discuss the cross-cutting issues addressed in the SDGs and Kenya's own Vision 2030. In terms of reporting on SDGs, the Ministry of National Treasury and Planning can utilise these working groups to ensure that the interdisciplinary nature of the SDGs is captured within Kenya's data collection, analysis and reporting.

Beyond the statistical system, there are other ways in which ministries cooperate, including via a network of gender focal points. Gender focal points are seconded from the State Department of Gender Affairs to other ministries, and they have regular meetings to discuss experiences, challenges and policies and participate in trainings (J. Makokha & A. Muti, interview, 26 February 2018). Although there is much work to be done on measuring the gender-environment nexus, government entities and stakeholders are prepared to work together.

In interview after interview, stakeholders across government, practitioners and academia mentioned the changes and improvements they have seen for gender equality since the establishment of the new constitution in 2010. This is especially relevant when considering women representatives in elected and appointed government positions. Although many stakeholders mentioned that there are still challenges

in measuring these changes, they offered anecdotal evidence to the changes they have seen in their work. As women are gaining more positions as policy makers, women's issues are also being brought to the forefront of policy discussions. This is a very important takeaway message from Kenya—officially promoting women's involvement in policy making bodies does have an impact both in the number of women actually attaining those positions and in the types of policy issues that gain importance. Capacity building on environment and gender-environment statistics issues for women parliamentarians and other decision makers, in particular, is also a prime next-step opportunity.

Capacity on gender-environment issues and statistics is important at all levels, and across sectors and systems. Environmental, gender, and statistical experts in Kenya demonstrate great interest in prioritised attention toward the gender-environment nexus, and key gender entry points in environmental sectors offer opportunities for measuring these topics through statistics. Kenya has made great strides in measuring gender and environmental issues separately and is now ready for capacity support to better measure and report on the nexus.

List of key informant interviews

- Ms. Jackline Makokha, Deputy Director, State Department of Environment and Ms. Anastasia Muiti, Senior Coordinator for Environmental Education, Ministry of Environment and Forestry (26 February 2018)
- Dr. Anne Khasakhala, Director, Population Studies Research Institute (PSRI), University of Nairobi and Dr. Alfred Agwanda Otieno, Associate Research Professor, PSRI, University of Nairobi (26 February 2018)
- Mr. Paul Nderitu, Director, and Mr. Silverster Maingi, Statistician, Division of Food and Environment, KNBS (26 February 2018)
- Prof. Fiona Mbai, Professor of Biomedical Sciences, Technical University of Kenya and Dr. Margaret Macharia Kedogo, Department of Architecture, Urbanism and Planning, Technical University of Kenya (27 February 2018)
- Mr. A.A. Awes, Senior Manager of Social Statistics, KNBS (workshop presentation; 28 February, 2018)
- Mr. Edmund Barrow, Consultant (Retired, Head, Global Ecosystem Management Programme, IUCN and regional gender focal point) (1 March 2018)
- Ms. Mary Wanyonyi, Director, Strategy and Development (SDGs), Kenya National Bureau of Statistics (KNBS), joined by Mr. James Gatungu, Head of the Production Statistics Directorate (2 March 2018)
- Mr. Nzomo Mulatya, Deputy Director in Charge of Progrmme Coordination and M&E, National Commission for Population and Development (2 March 2018)
- Wanjira Mathai, Senior Partnership Advisor, wPOWER Project, Partnership on Women's Entrepreneurship in Renewables (11 April 2018)

Endnotes

i   Kenya Ministry of Natural Resources and Environment. *Gender mainstreaming strategy and action plan for the environment and natural resources (2015-2018).*

ii   http://vision2030.go.ke

iii   http://vision2030.go.ke/social-pillar/#69

iv   http://vision2030.go.ke/social-pillar/#69

v   http://www.kenyalaw.org/lex/actview.xql?actid=Const2010

vi   http://www.kenya-information-guide.com/kenya-constitution.html

vii   http://www.ngeckenya.org

viii   http://www.ngeckenya.org/about/15/mandate

ix   http://devolutionasals.go.ke/wp-content/uploads/2018/04/Ministry-of-Devolution-and-Planning-Strategic-Plan-2013.2017-revised-version.pdf

x   https://www.knbs.or.ke/download/kenya-statistics-acts-2006/

xi   https://knbs.or.ke/visualizations/

xii   http://kenya.opendataforafrica.org/nfvqtd/gender-statistics

xiii   https://www.the-star.co.ke/news/2015/09/22/kenya-to-focus-on-5-sustainable-development-goals-at-un-summit_c1208434

xiv   https://au.int/agenda2063

xv   https://au.int/agenda2063/about

xvi   https://au.int/sites/default/files/documents/33126-doc-03_popular_version.pdf

Annex VI: Enabling conditions for gender-environment statistics in Mexico

© Ricardo Garibay Velasco

Acronyms

ENIGH	National Household Income and Expenditure Survey
ENUT	National Time Use Survey
IAEG-GS	Inter-Agency Expert Group on Gender Statistics
IAEG-SDG	Inter-Agency Expert Group on Sustainable Development Goals
INEGI	National Institute of Statistics and Geography
INMUJERES	National Institute of Women
RAN	National Agrarian Registry
SEMARNAT	Secretary of Natural Resources and Environment
SDG	Sustainable Development Goals
SNIEG	National System for Statistical and Geographical Information
UNAM	National Autonomous University of Mexico

Introduction

Mexico is a leading country on sex-disaggregated data collection, not only regionally in Latin America, but globally. Understanding the importance of disaggregated data and information, together with investment in and commitment towards producing and using statistics, has led to a robust and comprehensive statistical system. The country's statistical framework facilitates the coordination between different key actors at different levels, which helps centralise statistical data collection efforts in Mexico and enhances cooperation among Secretaries.

Mexico has been making promising strides in the inclusion of the gender perspective in environment statistics. As a country that has strong policy frameworks and capacities for gender-responsive action across environmental and sustainable development issues, Mexico exemplifies important

lessons and best practices for enabling conditions necessary for gender-environment statistics. At the same time, while Mexican government agencies excel at gathering and systematizing information, collected data needs to be analysed and applied to effectively measure Mexico's development and to guide actions to address already existing inequalities, including gender inequalities. Without these necessary next-step processes, data collection remains isolated from decision-making, planning and programming, and from having a real impact for women and men, at all levels of society.

This case study presents a range of best practices in gathering gender-environment data in Mexico, as well as lessons learned and next-step opportunities, that will inform and enrich the proposed indicators and recommendations of this gender and environment statistics project.

CASE STUDY METHODOLOGY

This case study was developed by IUCN with support from UN Environment primarily through action research in Mexico. Information-sharing and mutual capacity-building workshops were organized together with the National Institute of Statistics and Geography (INEGI) on 23-24 April 2018 in Mexico City to discuss gender and environment data collection and to identify key priorities, gaps and needs in this area. Discussions revolved around four priority areas: right to land, natural resources and biodiversity; access to food, energy, water and sanitation; climate change, sustainable consumption and production, health and well-being; and women in environmental decision making at all levels.

This workshop brought together stakeholders, decision-makers, statisticians and gender experts from INEGI, the National Institute of Women (INMUJERES) and from key environmental secretaries and commissions, international organizations, academia and other civil society organizations. In-country workshops, interviews and consultations were further complemented by desk research.

Mexico's National Context

Mexico has a sound policy framework that is increasingly strengthening the connections between critical interlinked issues, such as gender, which is a critical cross-cutting issue across national and international environmental frameworks. Mexico's National Development Plan (2013-2018) recognizes the mainstreaming of a gender perspective—in accordance with the National Programme for Equality of Opportunities and the Non-Discrimination of women (2013-2018)—as one of the transversal strategies with which government agencies and entities must comply. Over the past 20 years, the participation of women in decision-making positions has steadily increased, and Mexico boasts an engaged and vibrant civil society that supports and reinforces the gender mainstreaming efforts of INMUJERES, the public institution for gender mainstreaming and women's empowerment.

Concurrently, Mexico has also strengthened its statistical framework to monitor national and regional progress towards sustainable development; enabled by Mexico's rising middle-income country assets and its commitment towards statistical production. The creation of a statistical institute that combines statistical data with geographical information, in order to better integrate information from the diverse regions and peoples that compose the territory, has enabled Mexico to stand out as an example of spatially referenced data within the Sustainable Development Goals (SDG) framework. Along these lines, the mainstreaming of gender within this statistical institute has given rise to a strong framework for the development of gender and environment statistics, which could provide guidance for countries committed to the strengthening of their national statistical system and to measuring the progress towards the SDGs.

Mexico's National Statistical System: an enabling environment for identifying and tracking gender-environment data

Considering the vast extension and the complex socio-economic and cultural characteristics of Mexico, the need for a comprehensive and centralised statistical system was needed in order to produce reliable and accessible data.

In 2008, Mexico created the National System for Statistical and Geographical Information (SNIEG),[1] which is composed of the National Advisory Council, four National Subsystems of Information and INEGI (see Figure 8). The National Subsystems of Information focus on: demographic and social information; economic information; geography, environment and territorial and urban planning information; and governance, public security and justice information. This same structure is adopted within INEGI, which is the autonomous public institute responsible for data collection and for the harmonization and coordination of the entire national statistical system, INEGI chairs the National Advisory Council and each of the National Subsystems.

Each National Subsystem has several Specialized Technical Committees, which provide a space for coordination, brainstorming and technical support among different secretaries, agencies, institutes, companies, organizations and INEGI. To address specific issues, Specialized Technical Committees can be established on a temporary or permanent basis; they can be thematic, such as the committee on water; specialized, such as the committee on climate change; or regional. During the committees' and working groups' meetings, members share their current work and discuss next steps, including the improvement of statistical tools and the inclusion of new indicators to measure information of national interest. The decisions on what type of information to collect are adopted in these committees, and it is the responsibility of INEGI to incorporate the new indicators and corresponding improvements to the surveys and censuses they collect.

---

1   http://www.snieg.mx

Figure 8: Structure of Mexico's National System of Statistical and Geographical Information.
Source: INEGI

**National Subsystem
of Demographic and
Social Information**

Executive Council
13 Specialized Technical Committees
Working groups

**National Subsystem
of geography, environment
and territorial and urban
planning information**

Executive Council
9 Specialized Technical Committees
Working groups

**National subsystem
of economic information**

Executive Council
11 Specialized Technical Committees
Working groups

**National subsystem of
governance, public security
and justice information**

Executive Council
7 Specialized Technical Committees
Working groups

Gender mainstreaming in the SNIEG

Recognized as a national priority, gender equality considerations are reflected in the participatory and inclusive structure of the SNIEG, which facilitates gender mainstreaming throughout the system. In 2010 INEGI created the Specialized Technical Committee on Information with a Gender Perspective[2] under the National Subsystem of Demographic and Social Information, with the mandate of mainstreaming gender across the statistics system. The committee presented the guidelines to incorporate a gender perspective in the statistic projects of the SNIEG in 2014. These guidelines establish modalities for the inclusion of a gender perspective in the design and project implementation to the extent possible and according to the theme of the given project.

---

2   http://www.snieg.org.mx/contenidos/espanol/comites/cte_acuerdos/demo/CTE%20Informacion%20de%20Genero.pdf

Mainstreaming gender within environment statistics has been slower than in other sectors, in part because both themes have only been relatively recently included in the national and international public agendas, and because gender concerns and environmental issues are often viewed as two separate topics, with their intersections not comprehensively considered. While the statistical system overall excels at synergistic approaches, not all ministries and institutes participate in all committees and the coordination on gender presents a gap in the environment sector as the National Institute of Women (INMUJERES) does not participate in any of the Specialized Technical Committees from the subsystem of environment. Similarly, no environment-related secretaries, (e.g. the Secretary of Environment and Natural Resources (SEMARNAT)) participate in the Committee on Information with a Gender Perspective. The only current meeting point for INMUJERES and SEMARNAT is the Specialized Technical Committee on the Sustainable Development Goals (SDGs), which provides enabling environments to strengthen the coordination on gender-environment statistics, in alignment with the SDGs.

Key examples of gender and environment statistics

As the coordinating body of Mexico's statistical system, INEGI is responsible for the collection of most data required at national level. If Secretaries need specific information that is not already being collected, they can coordinate with INEGI through the Specialized Technical Committees and propose a new study or suggest the inclusion of specific indicators within the existing collection tools. Thus, the statistical departments within the secretaries mainly rely on INEGI and on administrative data and registries from their secretaries. However, some data collection does take place within secretaries or other national organisations, including, for example, the National Agrarian Registry (RAN), which provides sex-disaggregated data on agricultural land ownership, and SEMARNAT, which collects sex-disaggregated data on beneficiaries of their programmes. The collection of gender statistics in the environment sector is key to identify gender-differentiated roles and experiences and gender inequalities so as to adopt evidence-based policies and initiatives that support gender equality and women's empowerment in the environment sector. This section provides examples of key entry points for gender mainstreaming and for the collection of gender and environment data at those entry points.

Gender Atlas

The Gender Atlas[3] is one of INEGI's gender mainstreaming flagship projects in the statistics system. INEGI's capacity to collect both statistical and geographical data enables the possibility to present how gender-differentiated roles vary across the country in a comprehensive and illustrative way. The Gender Atlas is a compilation and dissemination mechanisms that includes data collected on the areas of population, education, health, work,

---
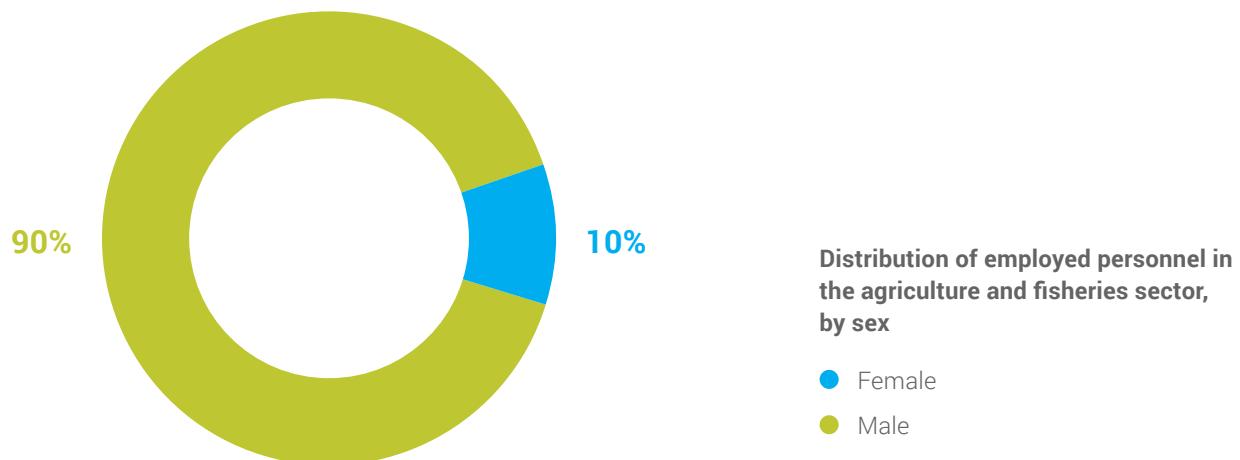
3   http://gaia.inegi.org.mx/atlas_genero/

decision-making, time use, poverty, empowerment, violence and indigenous peoples.

Environmental indicators *per se* have not yet been integrated in the Gender Atlas, in part because the collection of gender and environment indicators is recent; indicators also need to be collected periodically and be able to be disaggregated at least by two variables, including sex. Yet, the Gender Atlas does provide data on the percentage

of women and men working in environmental fields such as agriculture and fisheries (see Figure 9); electricity, water and gas; and mines. As data shows, the majority of personnel employed in the formal agricultural and fisheries sector are men. This type of information has been collected for many years in economic censuses. Thus, periodic and regular data collection is a precondition to include gender indicators in the Atlas.

Figure 9: Economic Census, INEGI 2014

90%   10%

Distribution of employed personnel in the agriculture and fisheries sector, by sex

- Female
- Male
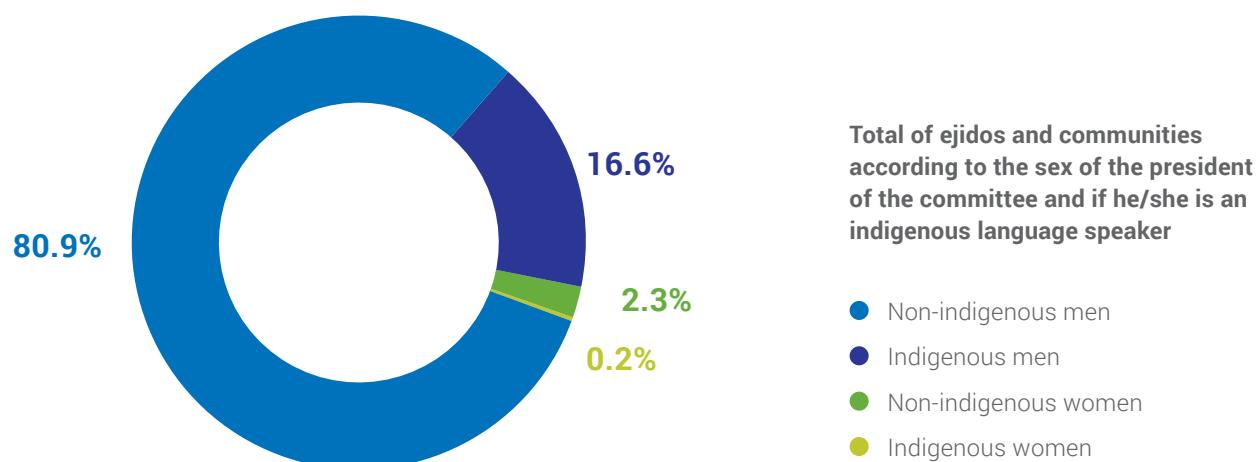
Agricultural Census

The Agricultural Census collects data on agriculture, livestock and forestry periodically. Additionally, it collects specific information on communal land, known as *Ejidos* in Mexico. Some of these data related to communal land can be disaggregated by sex. For example, the 2007 census collected data on the ownership and rights in communal land, and results showed that women represented 20% of the total of shareholders and owners in communal lands. The

census also collects data on the share of communal land management bodies disaggregated by the sex of the president and his or her indigenous status. Only 2.5% of the presidents of land committees are women, and a mere 0.2% are indigenous women. This type of information is key to understanding women's and men's unequal rights over land, as well as their unequal participation in managerial bodies. A National Agricultural Survey[4] was conducted in 2017 and results include sex-disaggregated data on employment in the agriculture and forestry sectors.

---

4   http://www.beta.inegi.org.mx/proyectos/encagro/ena/2017/
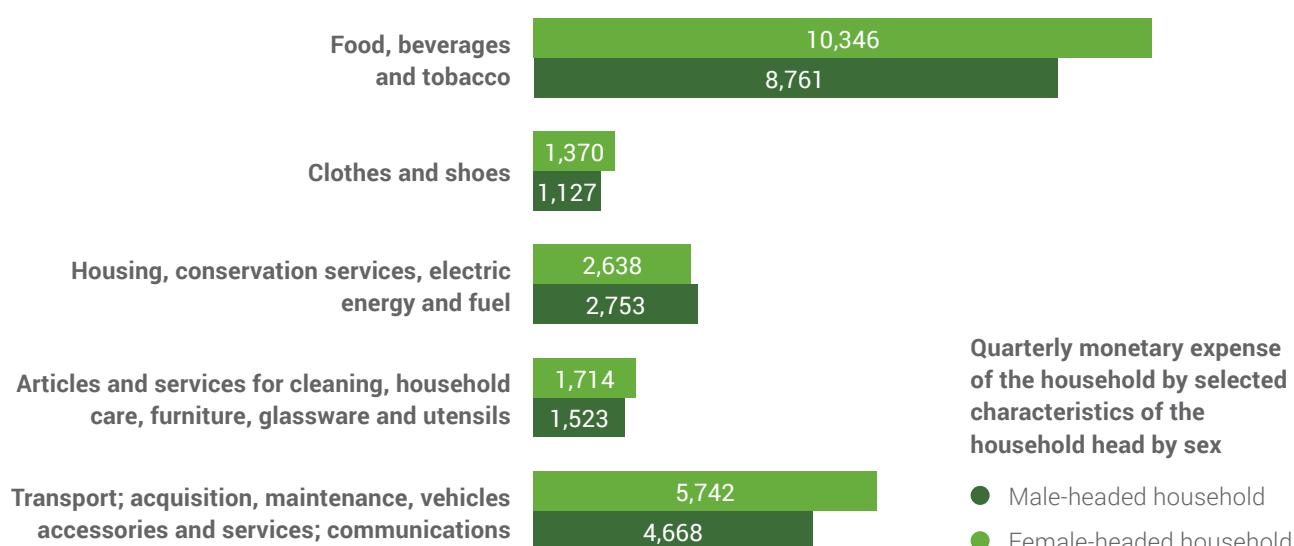
Figure 10: Agricultural Census, IX Communal Land Census, INEGI 2007

80.9%

16.6%

2.3%

0.2%

Total of ejidos and communities according to the sex of the president of the committee and if he/she is an indigenous language speaker

- Non-indigenous men
- Indigenous men
- Non-indigenous women
- Indigenous women

National Household Income and Expenditure Survey

Most information about the linkages between gender and environment are collected via socio-demographic surveys and censuses, as this information is collected through interviews in households, and data can be disaggregated by head-of-household sex as well as by type of household. For example, the National Household Income and Expenditure Survey (ENIGH, 2016) provides data disaggregated by sex of the head of the household on consumption patterns, socio-demographic characteristics of the household head and the purchase of goods that are for the exclusive use of women (see Figure 11). Data shows that female-headed households spend more money on housing, electricity and gas than male-headed households. While this offers important entry-level information, the analysis and interpretation of statistics is still limited and the reasons for gender-differentiated consumption patterns have not been further analysed.

Figure 11: National Household Income and Expenditure Survey, INEGI 2017

Category	Female-headed	Male-headed
Food, beverages and tobacco	10,346	8,761
Clothes and shoes	1,370	1,127
Housing, conservation services, electric energy and fuel	2,638	2,753
Articles and services for cleaning, household care, furniture, glassware and utensils	1,714	1,523
Transport; acquisition, maintenance, vehicles accessories and services; communications	5,742	4,668

Quarterly monetary expense of the household by selected characteristics of the household head by sex

- Male-headed household
- Female-headed household

National Household Survey

The recognition of the environmental component within socio-demographic surveys in Mexico is increasing. The National Household Survey, collected yearly since 2014, includes a household and environment module that collects sex-disaggregated data on environmental indicators related to water supply and consumption; energy consumption, waste management and recycling, environmental lifestyle and consumption patterns, climate change perception and willingness to adopt environmentally sustainable measures. This module collects important information on access and use and can be disaggregated by the sex of the head of household and the type of household. However, none of the data results available on INEGI's website is currently disaggregated by sex of head of household or type of household. Presenting this type of results would help understand women's and men's differentiated consumption patterns and environment awareness; which, in turn, will inform policies to promote sustainable household consumption.

National Time Use Survey

Time use surveys are very effective tools to better understand women's and men's gender-differentiated roles. Moreover, they are an additional source of information to interpret other surveys, as they provide information on the time that women and men spend on reproductive (i.e. often unpaid) work. Mexico's National Time Use Survey (ENUT) includes a module on the time spent on specific rural activities that go beyond the collection of firewood and water. For example, it also collects data on the time spent collecting plants and other forest products, hunting and fishing; on tending the land and breeding farmyard animals; and on preparing and processing food. This type of data can provide key information to better understand women's and men's reliance on natural resources and the time burden of securing food in the household. Data on women's and men's reliance on natural resources is essential for enhanced development and implementation of effective and efficient policies. Figure 12 shows some of the relevant environment-related indicators included in this survey, disaggregated by sex and ethnicity. As data shows, men spend more time breeding animals and planting a backyard, while women dedicate more time to food processing and cooking.

Figure 12: National Time Use Survey, INEGI 2014

Weekly hours dedicated to activities for consumption and food preparation and service, by type of activity, sex and ethnicity
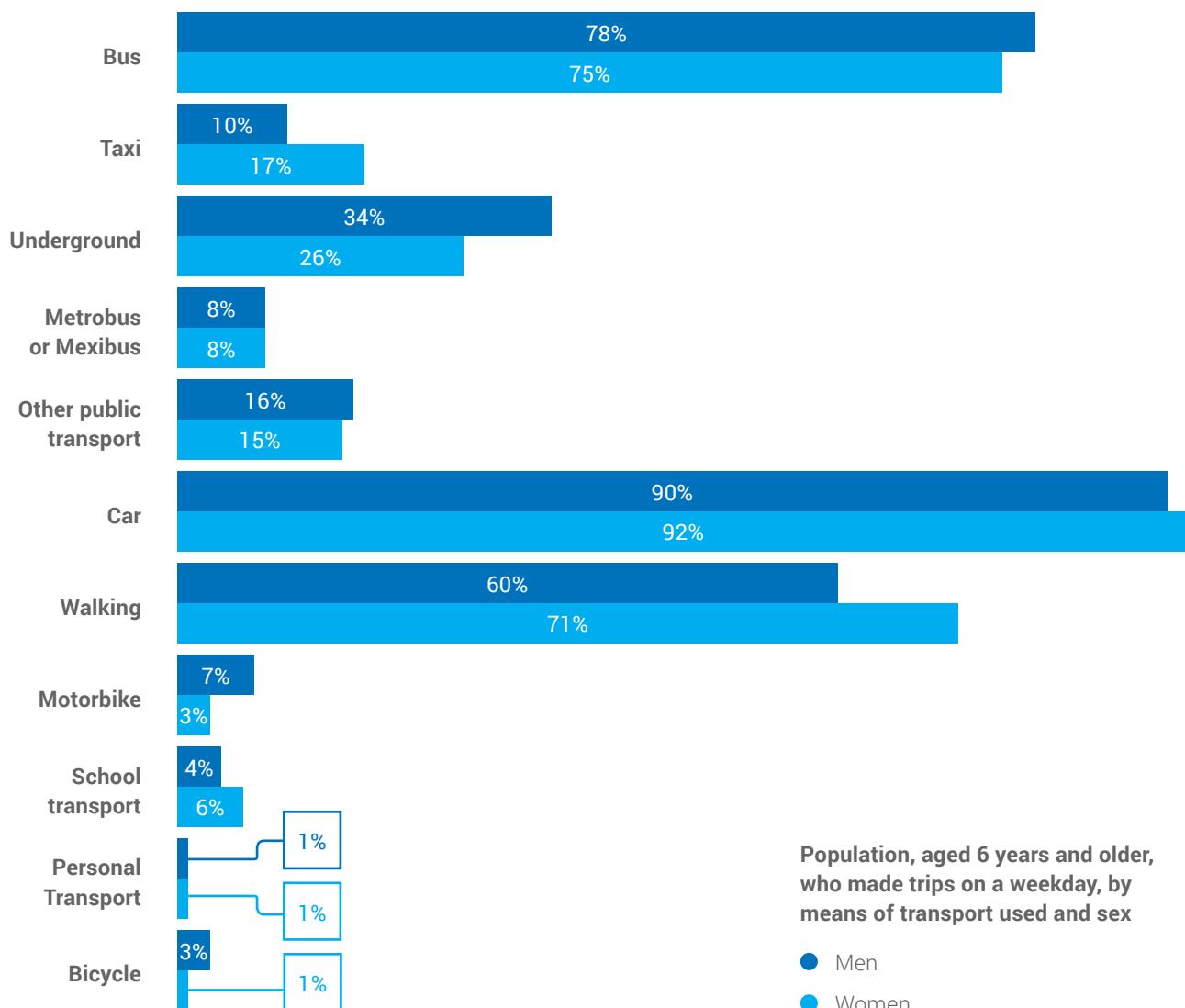
- Care and breeding of farmyard animals
- Firewood collection
- Collection of wild plants, mushrooms, flowers or fruits; fishing or hunting
- Planting or caring of backyard or vegetable gardens
- Corn dekernel, boil or grind nixtamal or make corn tortillas
- Turn on the stove, oven or firewood or coal stove to prepare or heat food

Origin-Destination Survey in the Households of the Metropolitan Area of the Mexican Valley

The Origin-Destination Survey was conducted in 2017 by INEGI and the Institute of Engineering of the National Autonomous University of Mexico (UNAM) to analyse transportation patterns in Mexico City and the metropolitan area from a gender perspective. The survey collects data on the origin, destination, time and objective of these trips to better understand specific populations' flows and directions, as well as women's and men's differentiated transportation patterns. The overall results show that men tend to use more mass-transit than women in the Mexico City area, yet compared to men, women are more likely to use taxis and private cars or walk to their destinations. Seventeen percent of women surveyed used a taxi during a weekday in comparison to 10% of men, who used the Underground comparatively more (Figure 13). Origin-Destination Surveys are useful to understand women's and men's transportation patterns and offer complementary information to time use surveys on this subject.

Figure 13: Origin-Destination Survey in the Households of the Metropolitan Area of the Mexico Valley, INEGI 2017

Population, aged 6 years and older, who made trips on a weekday, by means of transport used and sex

● Men
● Women

Using sex-disaggregated data to support a path to gender equality

To understand women's and men's differentiated roles and responsibilities in relation to the environment and natural resource management, it is important to not only look at the gender component, but also at other intersectional identities such as age, ethnic group, geographic location, income or education. Mexico's statistical capacity enables the disaggregation of data by different variables, which is a powerful enabling condition toward identifying and understanding inequity and inequality issues and trends across different ages, regions, genders or in indigenous communities. For example, the gender indicators presented in the Gender Atlas of Mexico are disaggregated at the federal level. Similarly, surveys such as the National Time Use Survey disaggregate data on rural activities by sex and by the population speaking an indigenous language. Similarly, the Agricultural Census also disaggregates the indicator on the share communal land management bodies by sex and the indigenous status of the president.

BRINGING INTERSECTIONALITY INTO VIEW

Various components of an individual's identity impact their relationships in their communities and with their natural environment. Recognizing the intersectional nature of gender, age, ethnicity, income level, etc. is an important step to develop a comprehensive understanding of community dynamics and the ways different people interact with their environment. Mexico is taking steps to recognize the intersectionality of identify components by disaggregating data by a variety of factors to conduct more holistic analyses. The following examples show indicators disaggregated by sex and ethnicity:

- Population aged 12 and over speaking an indigenous language and not speaking an indigenous language in localities of less than 10,000 habitants who carry out certain activities of consumption and food preparation and service for the members of their household. Source: National Time Use Survey, INEGI 2014.

- Total of *ejidos* (land granted to a group of people) and communities according to the sex of the president of the committee and if he/she is an indigenous language speaker, by federative entity.[5]

Another way to better understand gender inequalities is by looking within households instead of solely disaggregating data by the head-of-household sex. Mexico already has data on the household composition, disaggregated by sex of the head of the household, via the National Household Survey. Results show that there are more women than men heads-of-household in extended households (i.e. composed by a family nucleus plus relatives, or more than one family nucleus) and one-person households (Figure 14). However, there are more nuclear households headed by men than women.
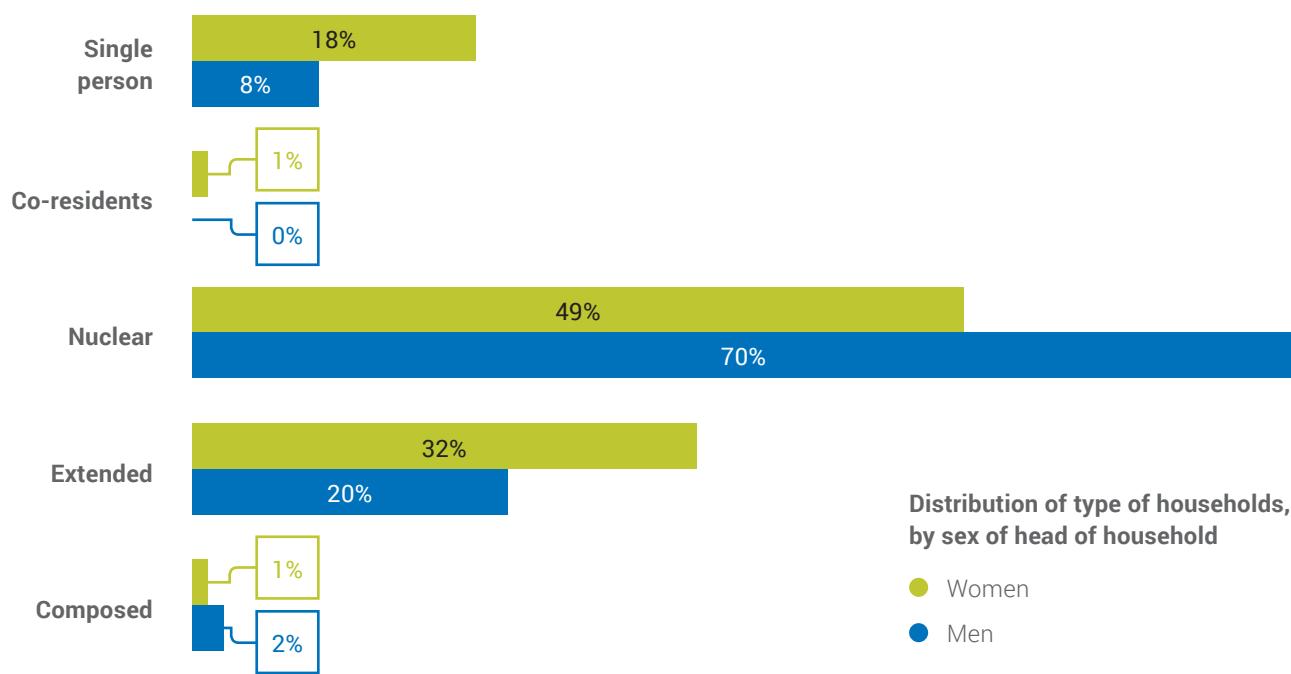
---

5   Source: Agriculture Census 2007, IX Communal Land Census. INEGI.

Reasons for this may vary and thus there is a need to cross-reference this disaggregation with other socio-economic and environmental information.

Still, disaggregating data at this level also helps to better understand gender inequalities according to the different household compositions.

Figure 14: National Household Survey, INEGI 2016

The SDGs and the National Strategy for Implementation of Agenda 2030

Mexico is committed to the development of statistics to measure the country's progress towards the SDGs, including toward gender equality (SDG 5) and has created a National Council of Agenda 2030 for sustainable development. The Presidency of the Republic chairs this council and is responsible for the reporting on the SDGs and is currently developing the National Strategy for the Implementation of Agenda 2030, in close collaboration with Secretaries and INEGI through the Specialized Technical Committee on SDGs. The final version of this strategy will be released in 2018, after a round of consultations with the civil society.

The strategy will provide a diagnosis of Mexico's statistical capacity and will present the SDGs indicators identified as applicable to Mexico, highlighting those for which data is already being collected. Additionally, Mexico will include a set of complementary indicators—already being collected in Mexico—that can help measure the county's progress towards sustainable development within the framework of the SDGs.

Mexico is also internationally committed to the development of gender and environment statistics and participates in the Inter-Agency Expert Groups on Gender Statistics (IAEG-GS) and on the SDGs (IAEG-SDGs).

Key takeaways and opportunities

Political will and commitment are essential for the strengthening of gender-environment statistics. Mexico's participation in international statistical forums, such as the IAEG-GS and IAEG-SDGs, as well as the position of Agenda 2030 and the SDGs as a priority for Mexico's presidency, are proof of this commitment to strengthen its statistical capacities. Additionally, supporting women in decision-making roles and leadership positions and encouraging their participation as equals in the Specialized Technical Committees also contributes to promoting gender equality and strengthening gender-environment statistics.

As demonstrated by Mexico, a robust statistical framework that enables collaboration between the different units of the state and the statistics institution not only facilitates knowledge sharing and coordination but also centralizes data collection, reducing duplications. The Specialized Technical Committees facilitate this knowledge-sharing space for cross-agency collaboration and help to shed light into specific themes such as gender or the SDGs, which strengthens coordination on gender mainstreaming, and to report on the SDG indicators.

Some of Mexico's surveys and censuses provide strong examples of ways in which gender considerations can be integrated. The National Time Use Survey provides essential information on women's and men's differentiated roles in environment-related and rural activities. Moreover, data is also disaggregated by the ethnic status of women and men, which informs on the additional inequalities faced by indigenous peoples. Similarly, the National Household Survey includes an environment module and data can be disaggregated by the type of household. Another good example of the production of gender statistics is the creation of the Gender Atlas that, even when environment indicators are yet to be included, it provides essential disaggregated information at federal level.

The statistical capacity of INEGI and the Secretaries has also enabled Mexico to identify country-specific indicators already being collected in the country that can provide additional information to measure the progress towards sustainable development and the SDGs. The collection of data to measure the SDG indicators, in accordance with the internationally agreed methodology, and the development of additional indicators to measure country's priorities can help strengthen the statistical capacities of countries to continue measuring sustainable development beyond Agenda 2030. Other countries that have identified additional priorities within the SDGs (such as a life safe from unexploded ordnances (UXO) in Lao PDR), or currently measure additional indicators beyond the SDG indicator list, can consider this approach as well.

IDENTIFIED PRIORITIES IN MEXICO'S WORKSHOP

During the two-day knowledge-sharing workshop in Mexico, participants discussed gender-environment statistics related to the priority areas and indicators of IUCN-UN Environment project and identified which were the national priorities and compiled a list of indicators for Mexico. The priorities identified in a ranking exercise are as follows:

- Agricultural land ownership and secure rights
- Access to and use of improved sanitation
- Climate change and disasters

- Women in decision-making in communal land governance bodies

In addition to the identification of priorities based on the indicators proposed in the IUCN-UN Environment project, participants drafted a list of indicators for Mexico aligned with the priority areas discussed in the workshop. A total of 37 initial indicator ideas were identified and INEGI committed to continue working with participants on these indicators and on the collection of gender-environment statistics.

However, data collection alone is not enough to effectively measure Mexico's sustainable development or to apply that information toward tailoring interventions to achieve substantial changes. As participants acknowledged during the workshop, data results need to be analysed with a gender lens in order to better understand women's and men's differentiated roles in Mexico and identify the causes of inequalities, including gender inequalities. But most importantly, data needs to be used to guide and inform decision-making at all levels to effectively address inequalities and advance towards sustainable development in an evidence-based manner.

In order for data to be available for effective decision-making, it is important to ensure continuity of data collection and data quality, requiring financial commitments over time to fund surveys and analysis. Acknowledging the benefits of data collection in crafting better policy-making is essential for policy makers and society as a whole so as to guarantee that financial needs to measure statistic and geographical in a disaggregated manner are secured. As a national case study, Mexico presents an extraordinary set of enabling conditions that has helped position the country among those with the most disaggregated data, though there still is room for progress in developing gender and environment statistics—and for analysing them for impact.

A strong political will, high statistical capacity, coordination across sectors and ministries, and deep understanding of the gender-environment nexus provide an enabling environment. Mexico's lessons and best practices can be adopted by other countries that are interested in strengthening their statistical framework and their collection of gender-environment statistics.

List of key informant interviews

- **Secretary of Environment and Natural Resources (SEMARNAT)**

  Arturo Flores Martínez, *Director General Environmental Information and Statistics*

  Georgina Alcantar López, *Director of Environmental Statistics*

- **National Institute of Women (INMUJERES)**

  Ms. Ana Laura Pineda, *Director General Statistics, Information and Gender Capacitation*

  Ms. María Eugenia Medina, *Director of Gender Statistics*

- **Regional Center for Multidisciplinary Investigations (CRIM), National Autonomous University of Mexico (UNAM)**

  Ms. Margarita Velázquez Gutiérrez, *Director of Regional Center for Multidisciplinary Investigations*

- **German Development Agency (GIZ) - Mexican-German Climate Change Alliance**

  Mr. Camilo de la Garza, *Advisor of the Adaptation Component of the Mexican-German Climate Change Alliance*

- **National Institute of Statistics and Geography (INEGI) – SDGs**

  Mr. Manuel Cuellar Rio, *Deputy Director General of Data Integration*

- **National Institute of Statistics and Geography (INEGI) – Gender Atlas**

  Mr. Luis Gerardo Esparza Ríos, *Deputy Director of Spatial Data*

  Mr. José Luis Mondragón Garibay, *Deputy Director of Systems Development*

- **National Institute of Statistics and Geography (INEGI) – Socio-demographic statistics**

  Mr. Octavio Heredia Hernandez, *Deputy Director General of Socio-demographic Surveys*

  Norma Luz Navarro Sandoval, *Director of Conceptual Design of Traditional and Special Surveys*

  Juan Trejo Magos, *Deputy Director of Regular Household Surveys*

- **Presidency of the Republic – National Strategy for the Implementation of Agenda 2030**

  Ms. Paulina Terrazas Valdés, *Responsible for the Office of the Deputy Head of the Office of the President and Technical Responsible for the National Strategy for the Implementation of Agenda 2030*

© Sirisak Baokaew | Shutterstock