Food and Agriculture Organization of the United Nations

Tracking progress on food and agriculture-related SDG indicators 2022

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Rome, 2022

Required citation:

FAO. 2022. *Tracking progress on food and agriculture-related SDG indicators 2022.* Rome. https://doi.org/10.4060/cc1403en

ISBN 978-92-5-136737-7

Contents

Foreword

As the world enters the third year of the COVID-19 crisis, it is evident that after years of progress, development has been halted or even reversed across several domains. While the world was off track from meeting the Sustainable Development Goals (SDGs) even prior to 2020, the pandemic has compounded that trend, taking a devastating toll on people's lives and livelihoods and on global efforts to realize the SDGs. Contrary to early expectations, the COVID-19 pandemic kept its grip on the world economy well into 2021, further exacerbating an already alarming situation in terms of hunger and food insecurity, while continuing to make data collection and statistical assessments more difficult.

The latest estimates[1] by the Food and Agriculture Organization of the United Nations (FAO) put the global hunger figure for 2021 between 702 and 828 million people (with a point estimate of 768 million). These estimates imply that, since 2015, the increase in the number of undernourished people in the world has practically eroded all progress that had been made during the preceding decade, bringing the world back to hunger levels that prevailed in 2005. Furthermore, severe food insecurity has increased significantly from 10.9 percent of the global population in 2020 to 11.7 percent in 2021, pushing millions of those at moderate levels of food insecurity into severe food insecurity and – possibly – hunger.

While food prices were relatively stable from 2016 until 2019, the share of countries afflicted by high food prices rose sharply from 16 percent in 2019 to 47 percent in 2020. International prices of food items soared in the second half of 2020; they are expected to continue rising as a result of the war in Ukraine, which has had an adverse impact on several food-importing countries.

The world is still far from maintaining the genetic diversity of farmed and domesticated animals, either in the field or in gene banks.

In most countries with available data, both the average annual income and the average productivity of small-scale food producers lag behind those of their large-scale counterparts. Within the group of small-scale food producers, women's incomes are systematically and significantly lower than those of men in half of the countries with data. In 30 out of 36 countries, less than 50 percent of women have ownership and/or secure tenure rights over agricultural land. Data from 52 countries for the period from 2019 to 2021 reveal that only 29 percent of reporting countries include sufficient provisions in their legal frameworks to adequately protect women's rights to land.

[1] FAO, IFAD, UNICEF, WFP and WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.* Rome, FAO.

The global water stress level remained at a safe level of 18.6 percent in 2019, though this figure hides large regional variations. Southern Asia and Central Asia registered high levels of water stress at over 75 percent, whereas Northern Africa registered a critical water stress level of over 100 percent. Since 2015, water stress levels have increased significantly in Western Asia and Northern Africa. Water use efficiency rose to 19.4 USD/m^3 in 2019 worldwide, a 12 percent increase since 2015.

The percentage of food lost after harvesting on farms and at transport, storage, wholesale and processing levels is estimated at 13.3 percent globally, compared to 13 percent in 2016. These percentages mask improvements and deteriorations on regional and subregional levels, as estimates vary greatly across (sub)regions.

Between 2018 and 2022, the average degree of implementation of international instruments to combat illegal, unreported and unregulated fishing has improved across the world. In 2022, nearly 75 percent of countries scored highly in their degree of implementation of relevant international instruments, compared to 70 percent in 2018.

The world's forest area continues to decrease, although at a slightly slower rate compared to previous decades. The proportion of forest area fell from 31.9 percent of total land area in 2000 to 31.2 percent in 2020. Despite the overall loss of forests, the world continues to progress towards sustainable forest management. Between 2010 and 2020, the share of forests under certification schemes, the proportion of forest within protected areas and the proportion of forests under a long-term management plan increased globally.

Vegetation coverage of the world's mountains has remained roughly stable at approximately 73 percent since 2015. Disaggregated data by mountain class show that green cover tends to decrease with mountain elevation, evidencing the strong role played by the climate in mountain green cover patterns.

To ensure progress across all the areas discussed above, it is essential to improve data capabilities. While considerable progress has been made towards building stronger data and statistical systems for SDG monitoring, significant data gaps still exist. It is difficult to effectively measure the pace of progress across different regions and socioeconomic groups in the absence of data with comprehensive disaggregation levels. Greater investments to improve data collection and strengthen data capabilities are also crucial to trigger earlier responses to crises, anticipate future needs and design the urgent actions needed to realize the 2030 Agenda.

Pietro Gennari, Chief Statistician

SUSTAINABLE DEVELOPMENT GOAL 1

No Poverty

End poverty in all its forms everywhere.

INDICATORS
1.4.2 1.5.2

Overview

The impact of the COVID-19 pandemic has reversed the steady progress in poverty reduction of the past 25 years. This reversal is exacerbated by rising inflation and the impacts of the war in Ukraine. It is estimated that these combined crises will push an additional 75 to 95 million people into extreme poverty in 2022, compared to pre-pandemic projections. As the economic impacts of these crises begin to be felt strongly, the importance of robust social protection systems to protect the poor and vulnerable is becoming clearer than ever. Although many new social protection measures were introduced in 2020, only 47 percent of the global population are effectively covered by at least one social cash benefit system, leaving 4.1 billion people unprotected.

The triple threat of COVID-19, conflict and climate change pushes the global goal of ending poverty by 2030 beyond reach, unless immediate and substantial policy actions are implemented. Global poverty has risen from 8.3 percent in 2019 to 9.2 percent in 2020, setting back poverty reduction by around three years. The strongest impact has been in low-income countries, which have been set back eight to nine years.

There is a critical need for better emergency preparedness for future pandemics and other hazards that cause disasters. Proactive risk reduction is imperative in joint efforts to design a sustainable future and prevent potentially hazardous events from devolving into full-blown disasters. Nowhere is this more evident than in agriculture, which underpins the livelihoods of over 2.5 billion people worldwide and provides nourishment for all 7.9 billion people on the planet. The growing frequency and intensity of disasters are putting at risk agricultural communities and the food system at large, highlighting the urgency of building more resilient agricultural systems.

SDG INDICATOR 1.4.2

Proportion of the 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.

Target 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.

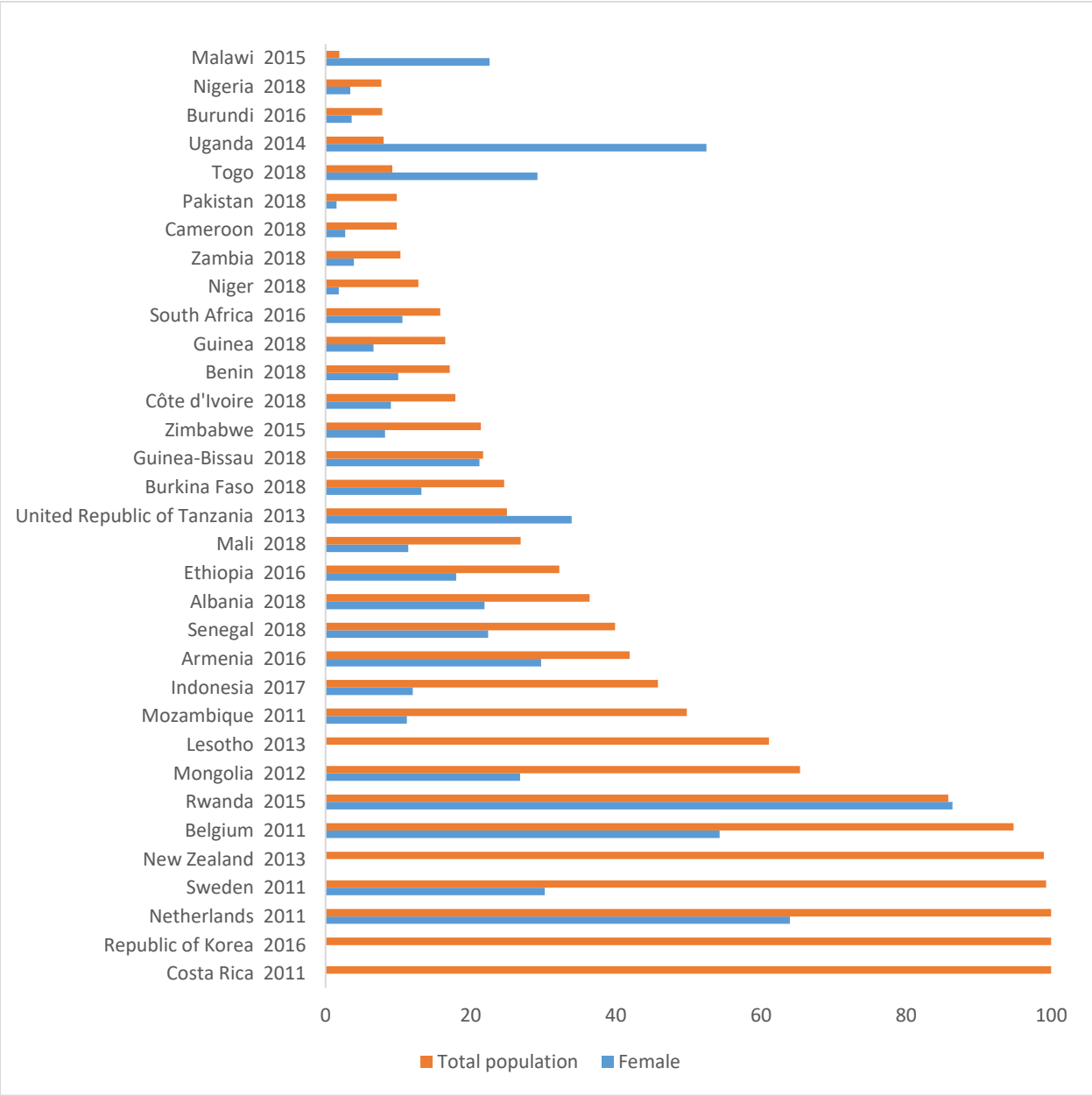
Land is a key asset for poverty reduction. However, systemic discrimination has tended to reproduce prevailing inequalities in land access, ownership and control between men and women, and continues to do so. The governance of tenure is therefore a crucial element in determining if and how people and communities acquire rights to use and control land and natural resources. Indicator 1.4.2 measures disparities in tenure security among the adult population, disaggregated by sex and type of tenure, assessed based on "legally recognized documentation" and "perception of tenure security". Together, these two subindicators determine the prevalence of secure tenure rights to land in a population.

Sex-disaggregated data regarding tenure rights to land are available for 33 countries, but only for the subindicator that measures legally documented tenure rights to land; data regarding the share of people who perceive their rights to be secure (available for 22 countries) are not yet available on a sex-disaggregated basis. The available data suggest that the proportion of women with legally recognized documentation of their land tenure rights is significantly below the average for the adult population in most surveyed countries, with the exception of Malawi, Rwanda, Togo, Uganda and the United Republic of Tanzania (see Figure 1). This finding corroborates the figures for SDG Indicators 5.a.1 (which deals more specifically with agricultural land, and provides a measure of the share of women among agricultural land owners) and 5.a.2 (which captures the strength of legal frameworks guaranteeing women's and girls' equal rights to land ownership and/or control) (see Section on Goal 5 of this report).

SDG Indicator 1.4.2 is under the co-custodianship of the United Nations Human Settlements Programme (UN-Habitat) and the World Bank. These two organizations, together with FAO (the custodian for SDG Indicator 5.a.1), the Global Land Indicators Initiative and the Global Land Tool Network, have developed a joint module for measuring individual land rights, in order to generate consistent data on Indicators 1.4.2 and 5.a.1 (FAO, The World Bank & UN-Habitat, 2019). The joint module, now available in five official UN languages, provides national statistical organizations with a customizable tool to collect data on the two indicators in an efficient and cost-effective way. The custodian agencies continue to work together to disseminate the joint module and provide technical support to national statistical institutions to fast-track data collection and report on the indicators. Although several countries have already reported on Indicator 1.4.2, the data are not timely enough to effect

meaningful policy reform that can bring the target of gender equality in land ownership closer. This calls for UN Member Nations to prioritize and devolve more resources to ensure regular reporting on this indicator, and then use the indicator as a tool for policy decisions.

Figure 1. Proportion of people with legally recognized documentation of their rights to land, by sex (percent) (most recent year available)



SOURCE: United Nations. 2022. SDG Indicators Database. In: *UN Statistics Division*. New York. Cited 8 June 2022. https://unstats.un.org/sdgs/dataportal/database

SDG INDICATOR 1.5.2

Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)

Target 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.

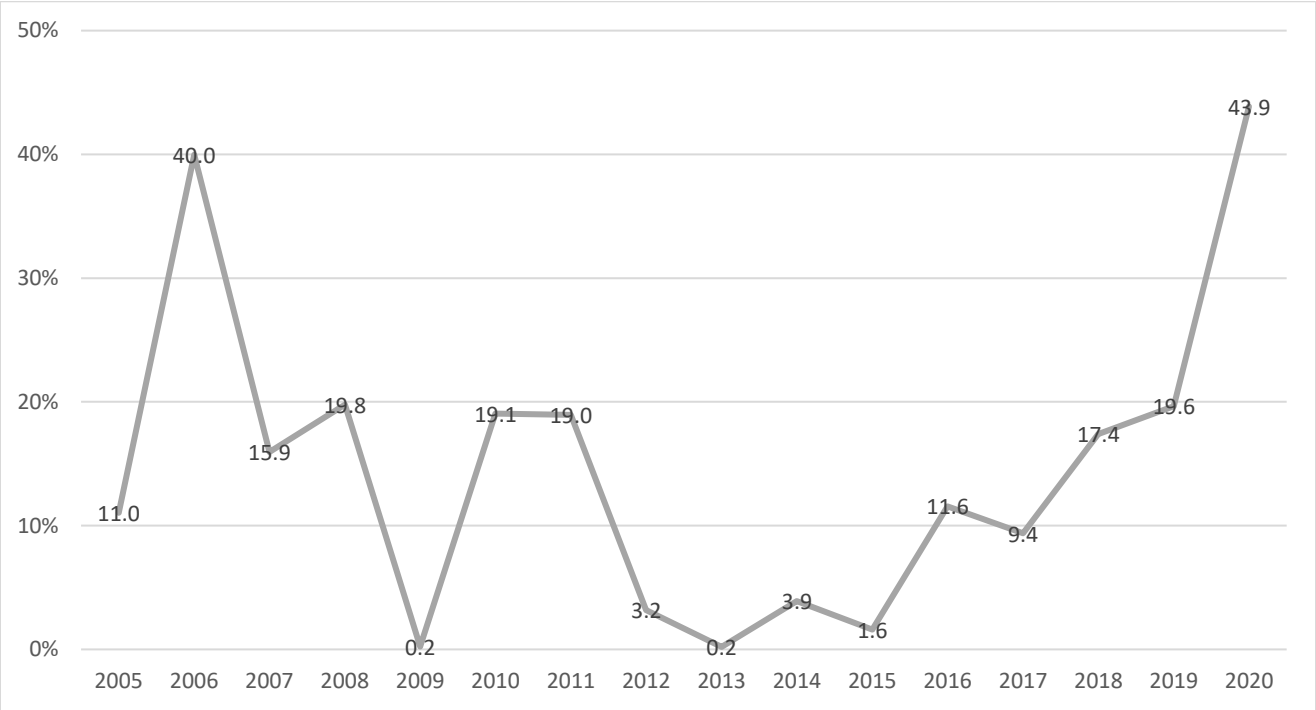
On average, agriculture has incurred over one third of total economic losses due to disasters since 2005, with that share in losses increasing in recent years.

The adverse impacts of disasters on societies and economies pose a major obstacle to poverty and hunger reduction. The effects of the COVID-19 pandemic are slowing down economic growth and development trajectories. With its cascading and devastating impacts across entire economies, COVID-19 has demonstrated the interconnected nature of risk today, and thus the urgent need for a concerted global effort to accelerate risk reduction activities through collective commitments.

Based on data reported by 25 countries in 2020, direct economic losses attributed to disasters amounted to USD 15.4 billion, of which agricultural losses constituted USD 6.8 billion (United Nations, 2022). Wide variations exist in disaster loss data across time and regions since they are greatly influenced by large-scale catastrophic events. Furthermore, the number of countries that report data on economic loss from disasters varies significantly across the years.

Agricultural losses consistently constitute a significant proportion of total economic losses over the years, regardless of the value of total losses incurred, as evidenced by data from countries which report both types of losses (Figure 2). The significance of this share underscores agriculture's importance for the economic development of many countries across the globe, its innate interactions with the environment and its direct reliance on natural resources. Urgent and ambitious action is needed to build more resilient agricultural systems, which are currently bearing the brunt of economic losses due to disasters.

Figure 2. Share of agriculture in total economic loss attributable to disasters (percent) (2005–2020)



SOURCE: United Nations. 2022. SDG Indicators Database. In: *UN Statistics Division.* New York. Cited 8 June 2022. https://unstats.un.org/sdgs/dataportal/database

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FAO, The World Bank and UN-Habitat. 2019. *Measuring Individuals' Rights to Land: An Integrated Approach to Data Collection for SDG Indicators 1.4.2 and 5.a.1.* Washington, DC, World Bank. https://www.fao.org/3/ca4885en/CA4885EN.pdf

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SUSTAINABLE DEVELOPMENT GOAL 2

Zero Hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

SUMMARY TABLES

INDICATORS

2.1.1 2.1.2 2.3.1 2.3.2 2.5.1.a 2.5.1.b 2.5.2 2.a.1 2.b.1 2.c.1

Overview

The numbers of people going hungry and suffering from moderate or severe food insecurity was already on the rise from 2014 until 2019. In 2020, however, both series took a sharp upturn due to the COVID-19 pandemic. The increase persisted in 2021 as disrupted food supply chains and economic slowdowns continued affecting food systems worldwide, limiting people's access to food in many parts of the world. Overall, in the two years of 2020 and 2021, the pandemic may have pushed up to 210 million more people into the group of those who suffer from hunger.

Urgent actions are needed to avert the increase in world hunger; at the same time, a longer-term transformation of food systems is required to achieve a healthy and sustainable food future for all.

SDG INDICATOR 2.1.1

Prevalence of undernourishment

Status assessment: close to target.

Trend assessment: deterioration.

Target 2.1

By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

The number of undernourished persons has risen sharply over the past two years, with up to 828 million people in the world facing hunger in 2021.

After remaining virtually unchanged for five years, FAO estimates of the prevalence of undernourishment in the world increased from 8 percent in 2019 to around 9.3 percent in 2020, and then further to 9.8 percent in 2021. Given current estimates of the world population, this implies that up to 828 million people may have faced hunger in 2021 globally.

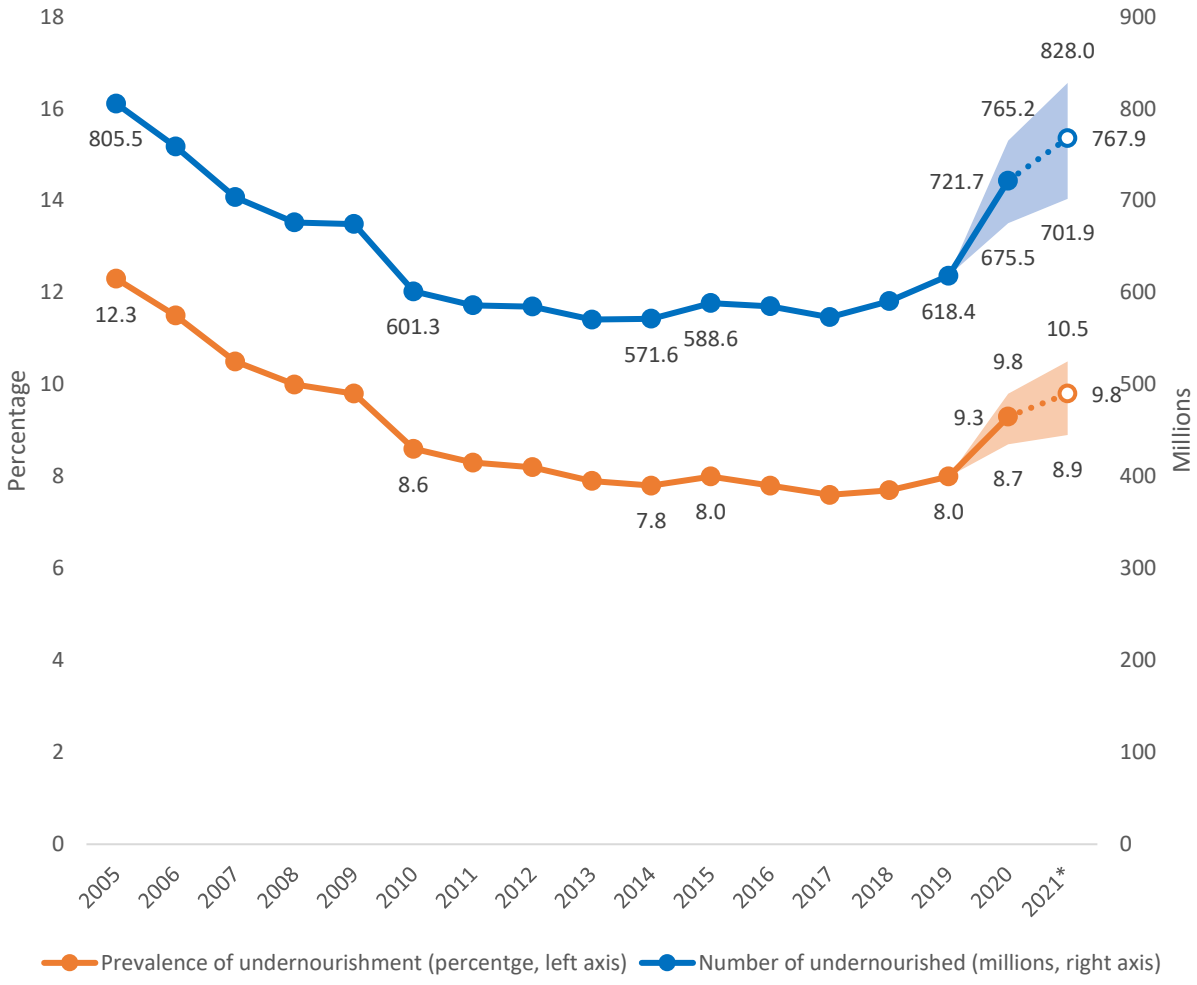
These are point estimates of a prevalence value that might range, in 2021, from 8.9 to 10.5 percent. Uncertainty in the estimates arises from varying degrees of reliability and timeliness of the data coming from countries. Considering the middle of the projected range (768 million), around 150 million more people were facing hunger in 2021 than in 2019 – a figure that could be as high as 210 million, if the upper bound of the range of estimates is considered (see Figure 3).

The unprecedented COVID-19 pandemic posed a significant challenge for the assessment of the state of food insecurity in the world in 2020 and 2021. The physical distancing measures taken to contain the spread of the pandemic disrupted planned data collection in 2020 and, though some activities were resumed in 2021, resurgent waves of the pandemic have continued to impede normal statistical operations around the world. As a result, the uncertainty that always characterizes estimates of how many people are suffering from hunger and food insecurity has been further amplified. For this reason, estimates of the global prevalence of undernourishment (SDG Indicator 2.1.1) in 2020 and 2021 are presented as ranges.

Across world regions, hunger numbers continue to depict significant disparities. As seen in Figure 4, Africa is the region where the proportion of the population affected by hunger is highest (20.2 percent) and has increased the most since the launch of the 2030 Agenda for Sustainable Development in 2015 (+ 4.4 percentage points). The proportion of people

suffering from hunger is lower in Asia (9.1 percent), Latin America and the Caribbean (8.6 percent) and Oceania (5.8 percent), while it remains below 2.5 percent (i.e. the lowest value that can be reliably reported with current estimation methods) for Northern America and Europe. Compared to 2015, the situation has worsened significantly everywhere; in addition to Africa, increases were also seen in Asia (+ 1.1 percentage points) and, of particular concern, in Latin America and the Caribbean (+ 2.8 percentage points).

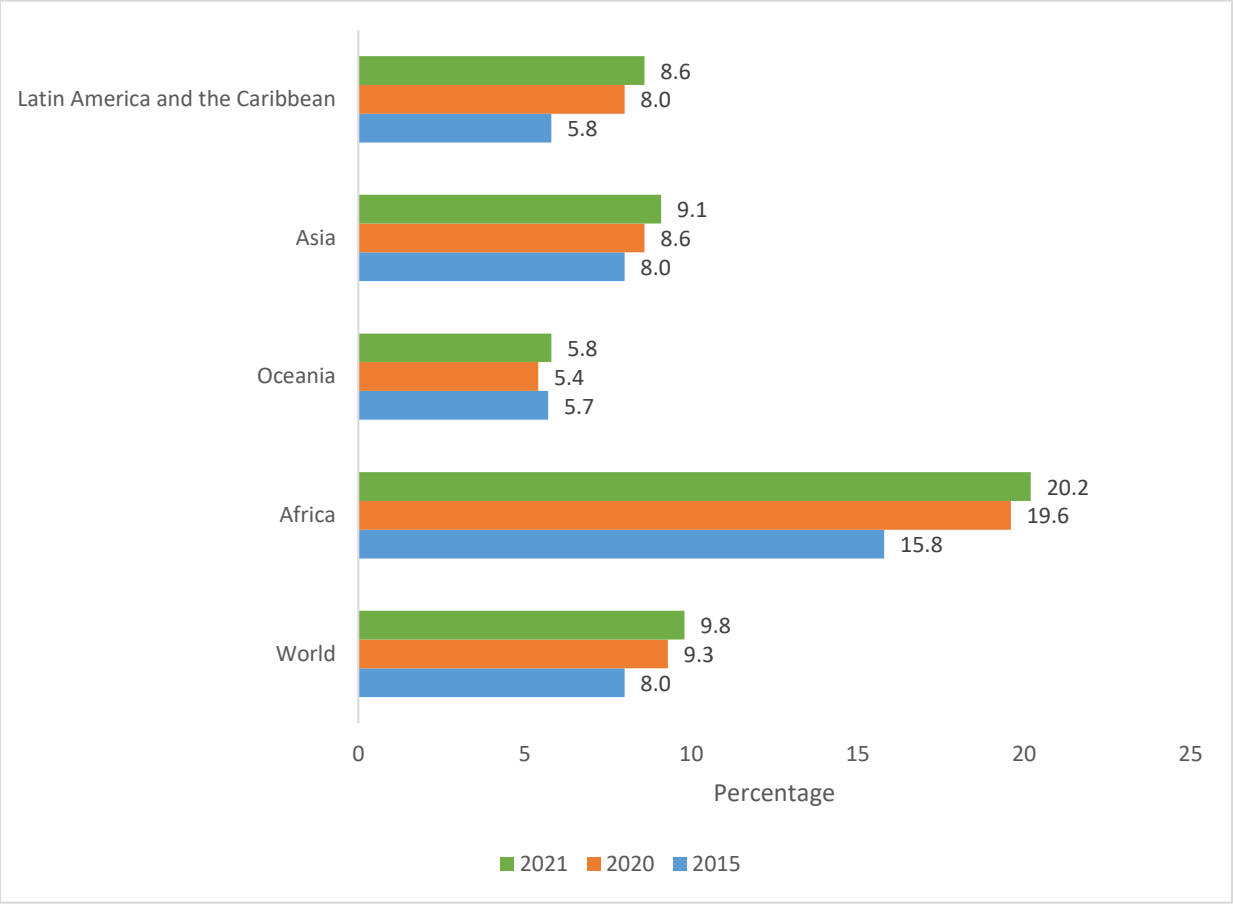
Figure 3. Number and percentage of undernourished people in the world (2005–2021)



NOTE: * projected values for 2020 and 2021 are illustrated by dotted lines. Shaded areas show lower and upper bounds of the estimated ranges.

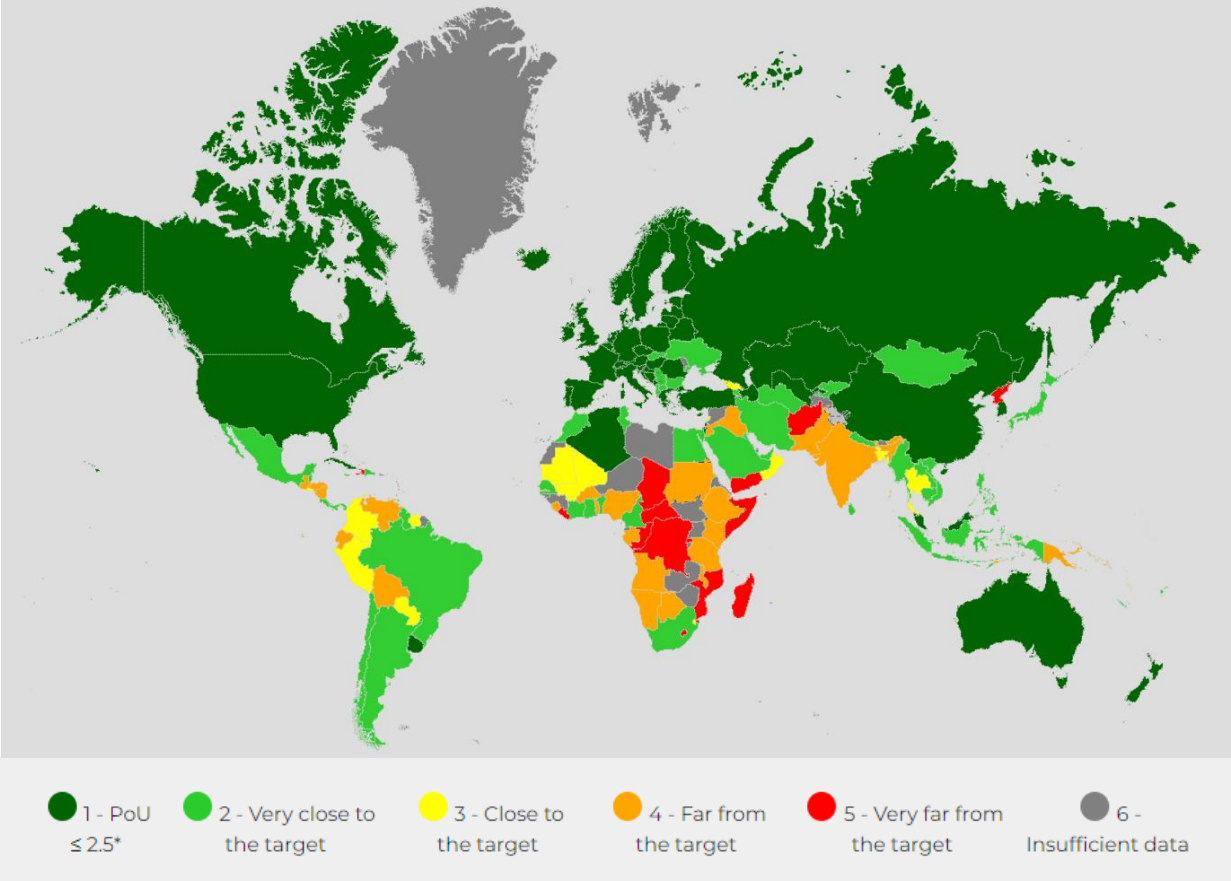
SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.* Rome, FAO. https://doi.org/10.4060/cc0639en

Figure 4. Prevalence of undernourishment (in percentage)



NOTE: * projected values. Northern America and Europe are not shown because the prevalence of undernourishment is below 2.5 percent.
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals*. Rome. Cited 7 July 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 5. Current distance to the target of SDG Indicator 2.1.1 on the prevalence of undernourishment (data for 2020)

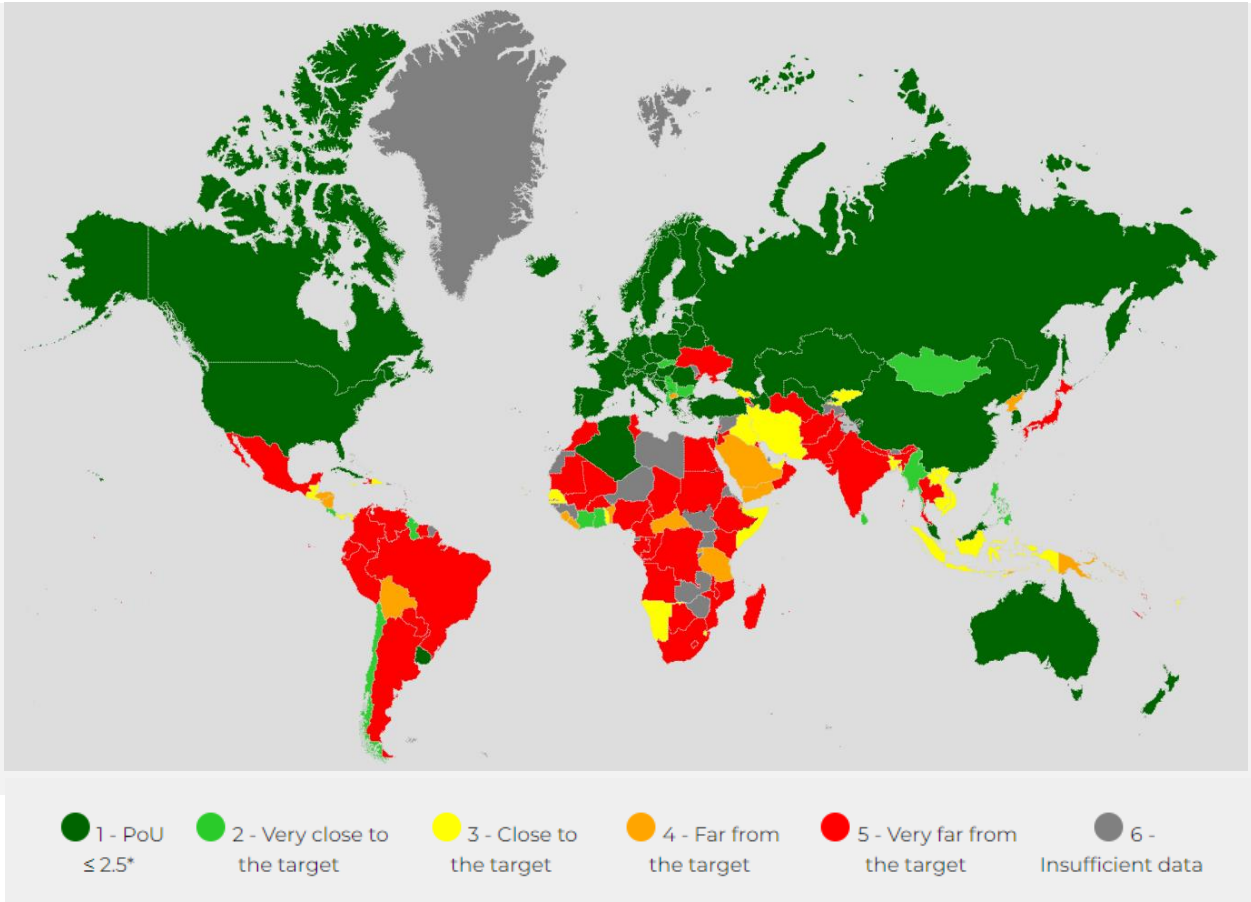


NOTE: * due to the probabilistic nature of the indicator and the margins of uncertainty associated with the estimates of each parameter in the model, FAO does not publish estimates of the prevalence of undernourishment lower than 2.5 percent. This impedes the assessment of whether or not a country has already met the SDG target.

NOTE: * Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 7 July 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022)

Figure 6. Progress towards eradicating hunger across the world (2015–2020)



NOTE: * due to the probabilistic nature of the indicator and the margins of uncertainty associated with the estimates of each parameter in the model, FAO does not publish estimates of the prevalence of undernourishment lower than 2.5 percent. This impedes the assessment of whether or not a country has already met the SDG target.

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SDG INDICATOR 2.1.2

Prevalence of moderate or severe food insecurity in the population, based on the food insecurity experience scale (FIES)

Status assessment: far from the target.

Trend assessment: deterioration.

Target 2.1

By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

Global food insecurity, which rose sharply in 2020, remained at a high level in 2021. Moreover, severe food insecurity continued to increase, and reached 11.7 percent in 2021.

SDG target 2.1 challenges the world to go beyond ending hunger. Indeed, for optimal health and well-being, it is imperative to ensure access to safe, nutritious and sufficient food for all, all year round. SDG Indicator 2.1.2 – the prevalence of moderate or severe food insecurity in a population, based on the food insecurity experience scale (FIES) – is used to monitor progress towards ensuring access to adequate food for all. The prevalence of food insecurity at severe levels provides an additional lens to look at hunger that is complementary to SDG Indicator 2.1.1.

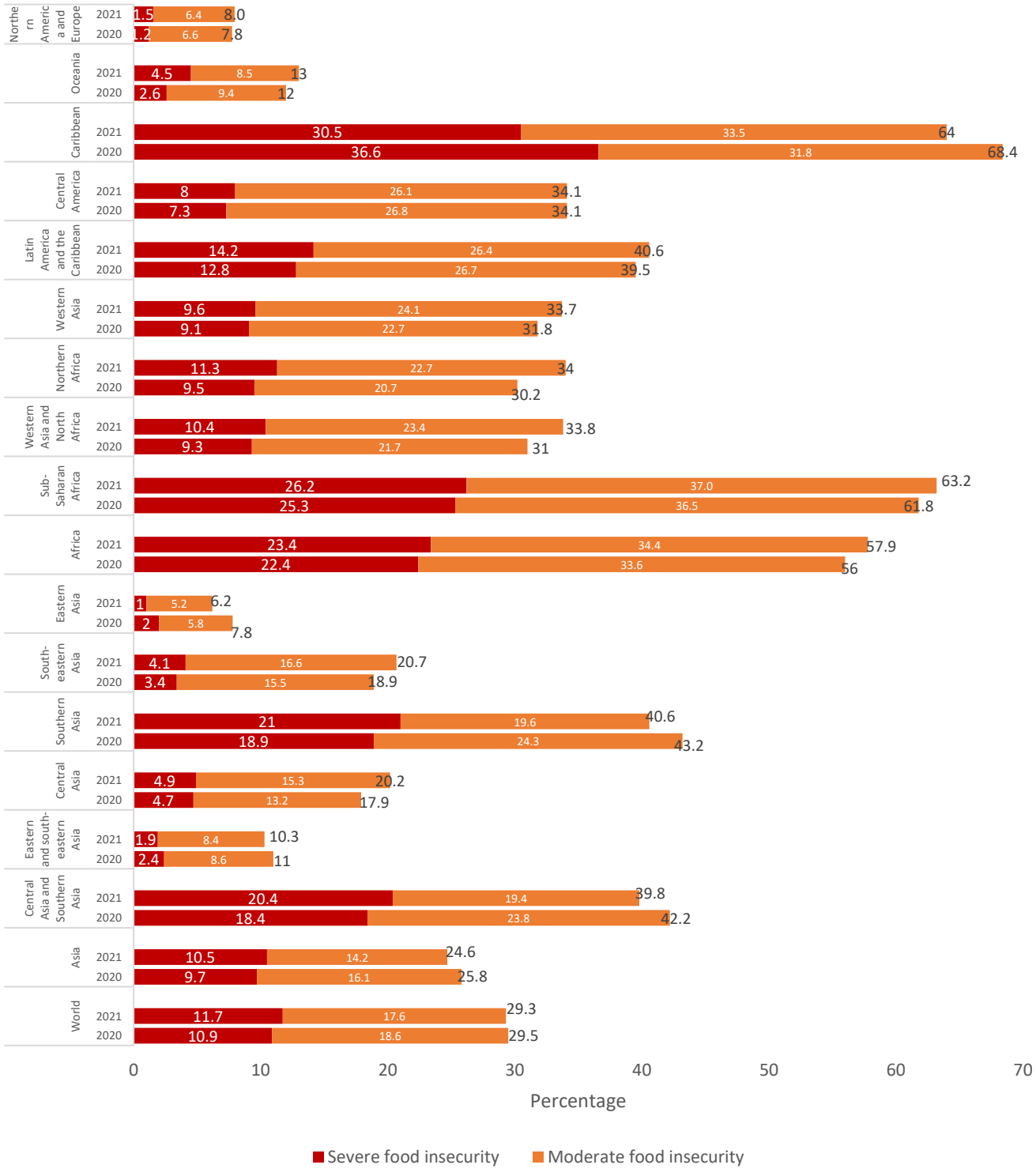
The estimated prevalence of food insecurity at the global level (counting both moderate and severe levels) increased from 21.2 percent in 2014 – when FAO first started collecting FIES data – to 25.4 percent in 2019. It took a sharp upturn in 2020, rising nearly as much in one year as over the previous five years combined. The overall estimate stood at 29.5 percent that year, with the levels for both moderate and severe food insecurity increasing from 2019 to 2020 (from 9.3 to 10.9 percent for severe food insecurity, and from 16.1 to 18.6 percent for moderate food insecurity), mainly due to the onset of the COVID-19 pandemic.

The estimates for 2021 indicate that while the prevalence of moderate and severe food insecurity combined remained constant, severe food insecurity increased significantly, from 10.9 percent in 2020 to 11.7 percent in 2021. These figures provide convincing evidence that the pandemic has negatively affected people's ability to access food, and mainly for those who were already facing serious hardships. Millions of those who were experiencing moderate levels of food insecurity were pushed into severe food insecurity – and possibly hunger.

Figure 7 illustrates differences in food insecurity levels across regions and subregions. Asia is the only region in the world where the prevalence of moderate and severe food insecurity combined did not increase in 2021. However, even there, the slight improvement is only

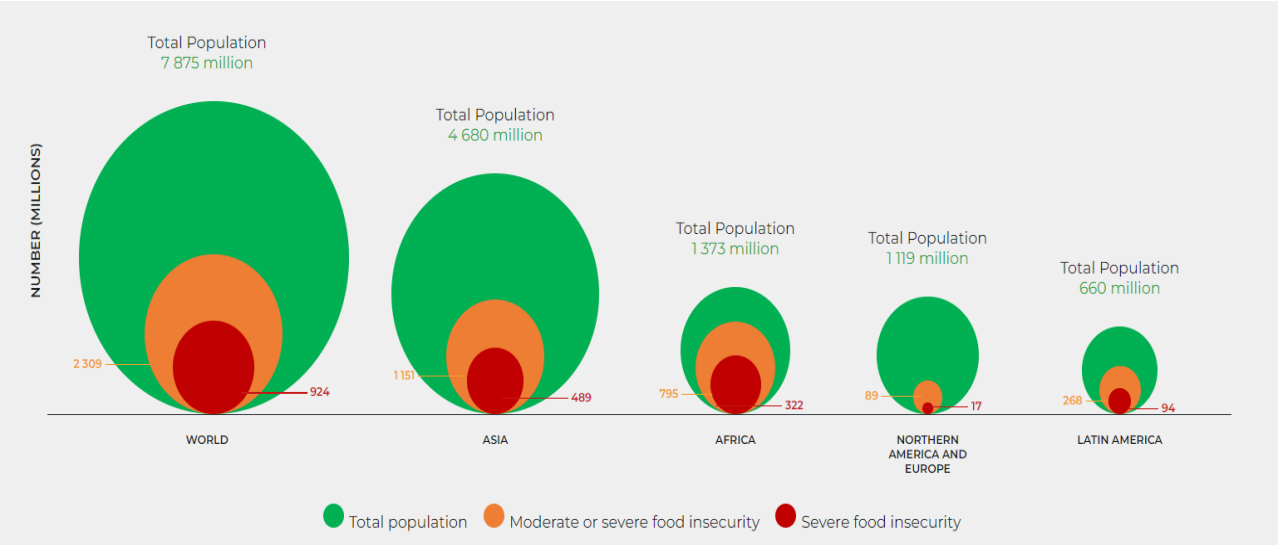
apparent. Indeed, the prevalence of severe food insecurity in the region increased from 9.7 percent in 2020 to 10.5 percent in 2021, evidencing a worsening situation rather than an improvement. As in past years, the highest rates of food insecurity were recorded in Africa, and especially in sub-Saharan Africa, where almost two thirds of the population (63.2 percent) suffered from food insecurity in 2021. Nearly half of these – or 26.2 percent of Africa's total population – experienced severe food insecurity. Though much lower than in sub-Saharan Africa, alarmingly high rates of moderate and severe food insecurity combined were found in both Latin America and the Caribbean and Southern Asia (both at 40.6 percent). The respective proportions of moderate versus severe food insecurity and the dynamics since 2020 differ, however, between the two regions. In 2021, the rate of severe food insecurity was much higher in Southern Asia (21 percent) than in Latin America and the Caribbean (14.2 percent). In addition, while the situation slightly improved in Southern Asia (with moderate and severe food insecurity combined falling from 43.2 to 40.6 percent), it worsened in Latin America and the Caribbean (from 39.5 percent in 2020 to 40.6 percent in 2021).

Figure 7. Prevalence of moderate and severe food insecurity by region (2020 and 2021)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 7 July 2022. www.fao.org/sustainable-development-goals/indicators/en

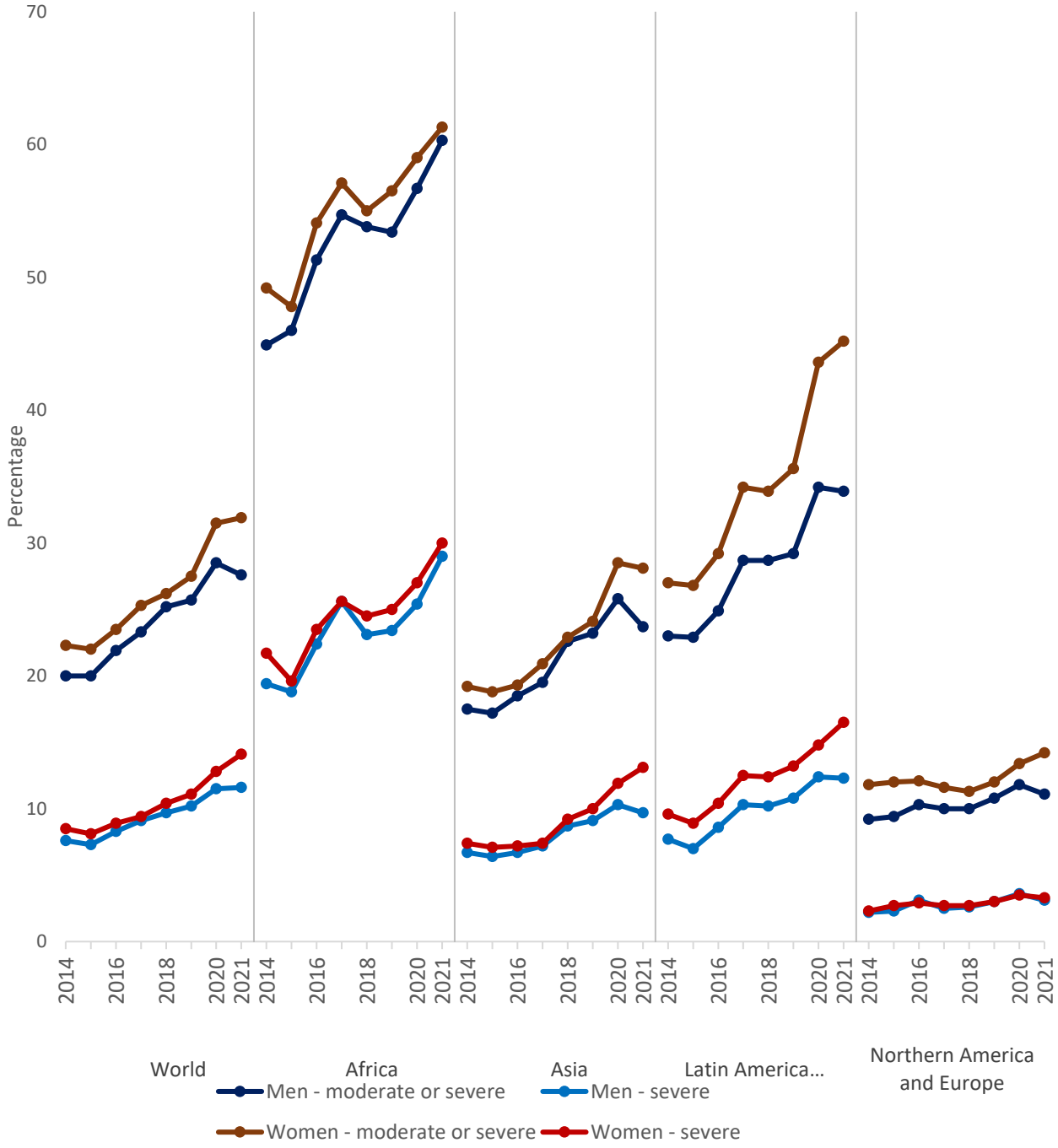
Figure 8a: Concentration and distribution of food insecurity by severity across regions, in millions (2021)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 7 July 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 8b shows that out of a total of 2.3 billion people suffering from food insecurity in 2021, 1.15 billion were in Asia, 795 million in Africa, 268 million in Latin America and the Caribbean, and 89 million in Northern America and Europe. Most importantly, the figure also shows how the distribution of the population by food insecurity level differs across regions. While the shares of those suffering severe food insecurity in those suffering moderate and severe food insecurity combined are rather similar in Asia, Africa and Latin America and the Caribbean, they are significantly lower in Northern America and Europe.

Figure 8b. Prevalence of food insecurity across regions, disaggregated by sex (2021)



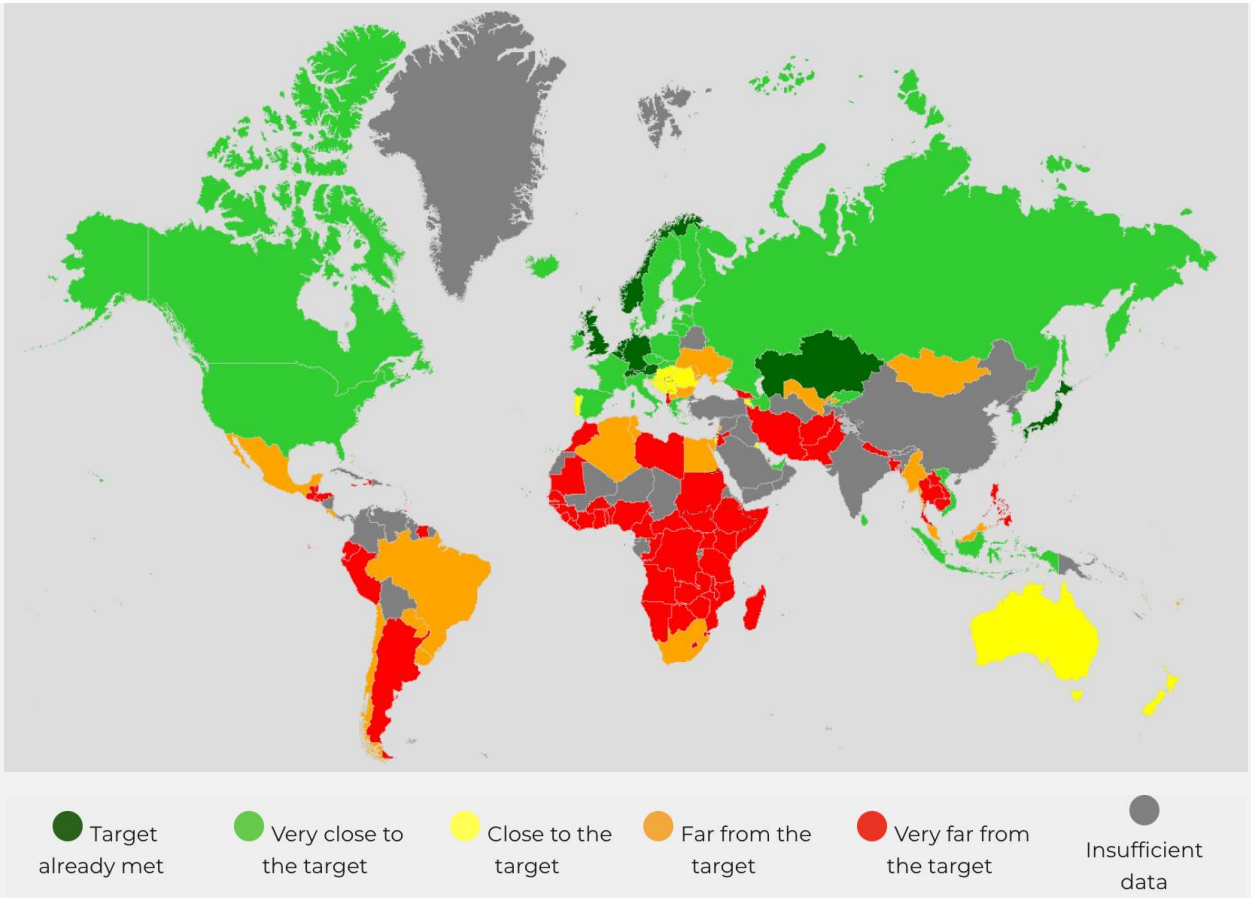
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals*. Rome. Cited 7 July 2022. www.fao.org/sustainable-development-goals/indicators/en

Already last year, the COVID-19 pandemic was found to have had a disproportionate impact on women's economic opportunities and access to nutritious foods, as evident in Figure 8b. The 2021 assessment confirms the growing gender gap in food insecurity. In 2021, this gap stood at over 4 percentage points for moderate and severe food insecurity combined: 31.9 percent for women worldwide, compared to 27.6 percent for men. For severe food insecurity, the gap was 2.5 percentage points: 14.1 percent for women and 11.6 percent for men.

The gap is growing everywhere but in Africa, where very high levels of food insecurity affect everyone. It is most evident in Latin America and the Caribbean and in Asia, but there is clear evidence that food insecurity is more prevalent among women in Northern America and Europe, too. This widening of the gender gap in food security for two years in a row reflects the disproportionate impact on women of the economic crisis that was triggered by the COVID-19 pandemic and of the measures implemented to contain it. In addition to being more affected by job and income losses during the pandemic, women have also borne a larger burden of the additional unpaid, unrecognized caregiving work, looking after sick family members and children out of school. In addition, women are often more vulnerable to food insecurity because they have less access to resources, opportunities and information.

The growing gender gap is of extreme concern from a nutrition perspective, too: the increasing food insecurity among women in 2020 and 2021 will likely contribute to worsening nutritional outcomes in the short, medium and long term. This will be reflected in more women affected by anaemia, more babies born with low birthweight and, consequently, more malnourished children. Food security and nutrition targets will not be met without addressing gender inequalities.

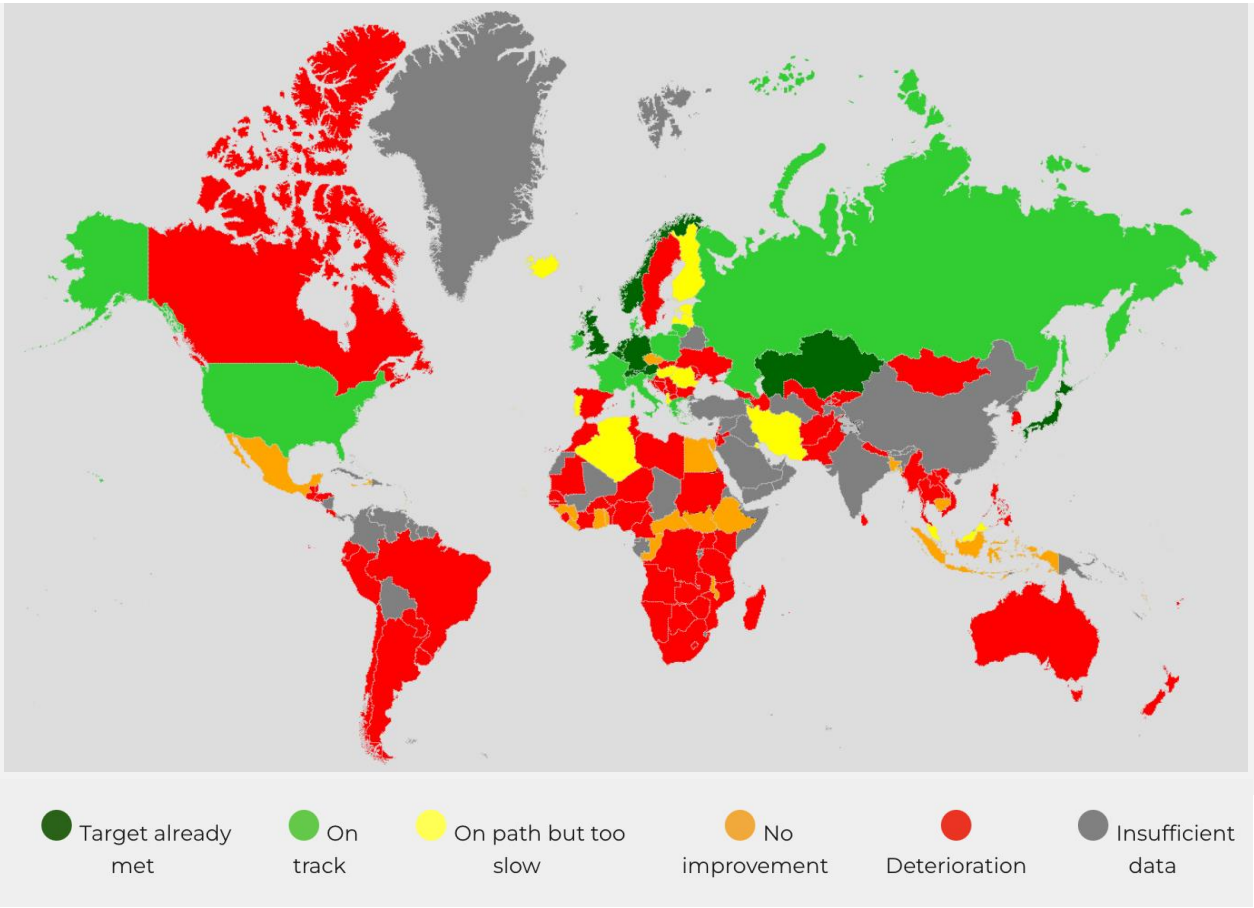
Figure 9. Current distance to indicator 2.1.2 on the prevalence of food insecurity (data for 2020)



NOTE: ' Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 7 July 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022)

Figure 10. Progress towards reducing moderate or severe food insecurity (2015–2020)



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Conflict, COVID-19 and food insecurity snapshot

Conflict, the COVID-19 pandemic, climate change and growing inequalities are converging to undermine food security worldwide. The past few years have seen a series of economic and environmental crises that have resulted in a reversal of progress along several economic and social dimensions, including food security and agricultural productivity.

In 2021, as many as 828 million people in the world may have been facing hunger. At the same time, over 30 percent – a stunning 2.4 billion people – have experienced moderate or severe food insecurity at times during the year. Overall, in the years 2020 and 2021, the pandemic may have pushed up to 210 million more people into the group of those suffering from hunger (FAO *et al.,* 2022).

The impact of the pandemic was compounded by the worst weather extremes in decades in certain areas in 2021, exposing agricultural and pastoralist households to crop and livestock losses and causing population displacements. The *Global Report on Food Crises* highlights the alarming increase in acute food insecurity in 2021 in numerous countries and territories affected by food crises (Global Network Against Food Crises, 2022). The report notes that nearly 193 million people were "in crisis" or worse (Integrated Food Security Phase 3 or above) or equivalent in 53 countries and territories where comparable data were available in 2021. This can be attributed to multiple factors, including intensified conflict, significant economic shocks and some of the most severe weather extremes in recent years, or a combination of these drivers. Most countries and territories affected by food crises have also experienced years of recurrent shocks, which have progressively eroded households' resilience to withstand and recover from stressors. The situation is expected to worsen in 2022. Indeed, the alarmingly high incidence of acute food insecurity and malnutrition starkly exposes the fragility of global and local food systems, which are under mounting strain from the increased frequency and severity of weather extremes, the COVID-19 pandemic, armed conflict and rising global food prices.

The interconnectedness of drivers is further laid bare by the unfolding war in Ukraine, which not only compromises the food security of those directly affected by the war, but also compounds existing challenges faced by millions of acutely food-insecure people worldwide. The Russian Federation and Ukraine are key food suppliers to many countries that are highly dependent on imported foodstuffs and fertilizers (FAO, 2022a). Several of these countries fall into the group of least developed countries (LDCs).

The war in Ukraine, which began in February 2022, has caused food, fuel and fertilizer prices to skyrocket, disrupting supply chains in the region and beyond, and causing distress in financial markets, and resulted in a refugee crisis. The impacts of the conflict are seriously

affecting food security in several import-dependent countries, and risk leading to a global food crisis unless urgent measures are taken. The war in Ukraine is exposing global markets, and in particular LDCs, to increased shocks and price volatility. The Russian Federation and Ukraine are among the most important producers of agricultural commodities in the world. In the global wheat market, where the top seven exporters combined accounted for 89 percent of international trade in 2021, the Russian Federation was the second largest wheat exporter that year, and Ukraine the sixth. At least 50 countries import 30 percent or more of their wheat from these two countries, with many LDCs importing more than 50 percent. Together, the two countries also account for 72 percent of global exports of sunflower seed products. Given the Russian Federation and Ukraine's share in the agricultural commodities trade, it is not easy for other producer countries to immediately increase exports so as to adequately compensate for the losses caused by the ongoing conflict, especially since weather shocks and domestic constraints limit the possibility of such substitution (FAO, 2022b).

In addition, the Russian Federation is a leading exporter of nitrogen, potassium and phosphorous fertilizers. Some 15 net importers of fertilizers in Latin America, Europe and Asia have an import dependency of over 30 percent on Russian fertilizers, for all three types (FAO, 2022a). While fertilizer prices were already at a record high prior to the outbreak of hostilities, the Russian Federation began tightening supplies to international markets soon after conflict erupted, introducing export restrictions that are expected to be extended through to the 2023/24 season. As a result, food producers worldwide (of both crops and livestock) are dealing with higher costs of inputs, such as energy, fertilizers, seeds, feeds and pesticides. If farmers reduce input applications or switch to crops that are less input-intensive, agricultural productivity will suffer, decreasing exports of key foodstuffs (particularly wheat, rice and maize) to international markets and putting at risk countries that are heavily dependent on imports to meet their staple food needs.

While the international community has stepped up urgent famine mitigation action, global humanitarian and development funding for food crises is failing to match the growing needs. Although funding for humanitarian food assistance has been falling since 2017, the current shortfall is particularly stark due the COVID-19-induced economic slowdown and the prioritization of the public health response to the pandemic.

In contexts where food availability is limited by a reduction in imports and food access is curtailed by higher prices and reduced humanitarian food assistance, providing support to farmers to raise their productivity, improve their access to markets and enhance their resilience to shocks is crucial. The international community must mobilize the investments and political will needed to collectively address the causes and consequences of escalating food crises, particularly in the face of the growing direct and indirect effects of the war in Ukraine. High-quality and timely food security and nutrition data and information are crucial for situation analyses that identify not only outcomes, but also hunger's main drivers, for a targeted and integrated response.

Data gaps remain a challenge. They prevent the international community from reporting on all crisis-affected countries. Thus, the number of people facing high levels of acute food insecurity due to food crises globally is likely to be higher than official published estimates.

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SDG INDICATOR 2.3.1

Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size

Status assessment: not possible due to the insufficiency of data.

Trend assessment: insufficient data.

Target 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.

The productivity of small-scale food producers continues to lag behind that of larger-scale producers, with more pronounced differences in higher-income countries. Among small-scale food producers, the labour productivity of production units headed by men and women are similar.

Small-scale food producers provide key contributions to the resilience of agricultural and food production systems, which is important to combat hunger. While they account for significant shares of overall food production in several countries, they are often among the most vulnerable groups in rural areas and within the agrifood system.

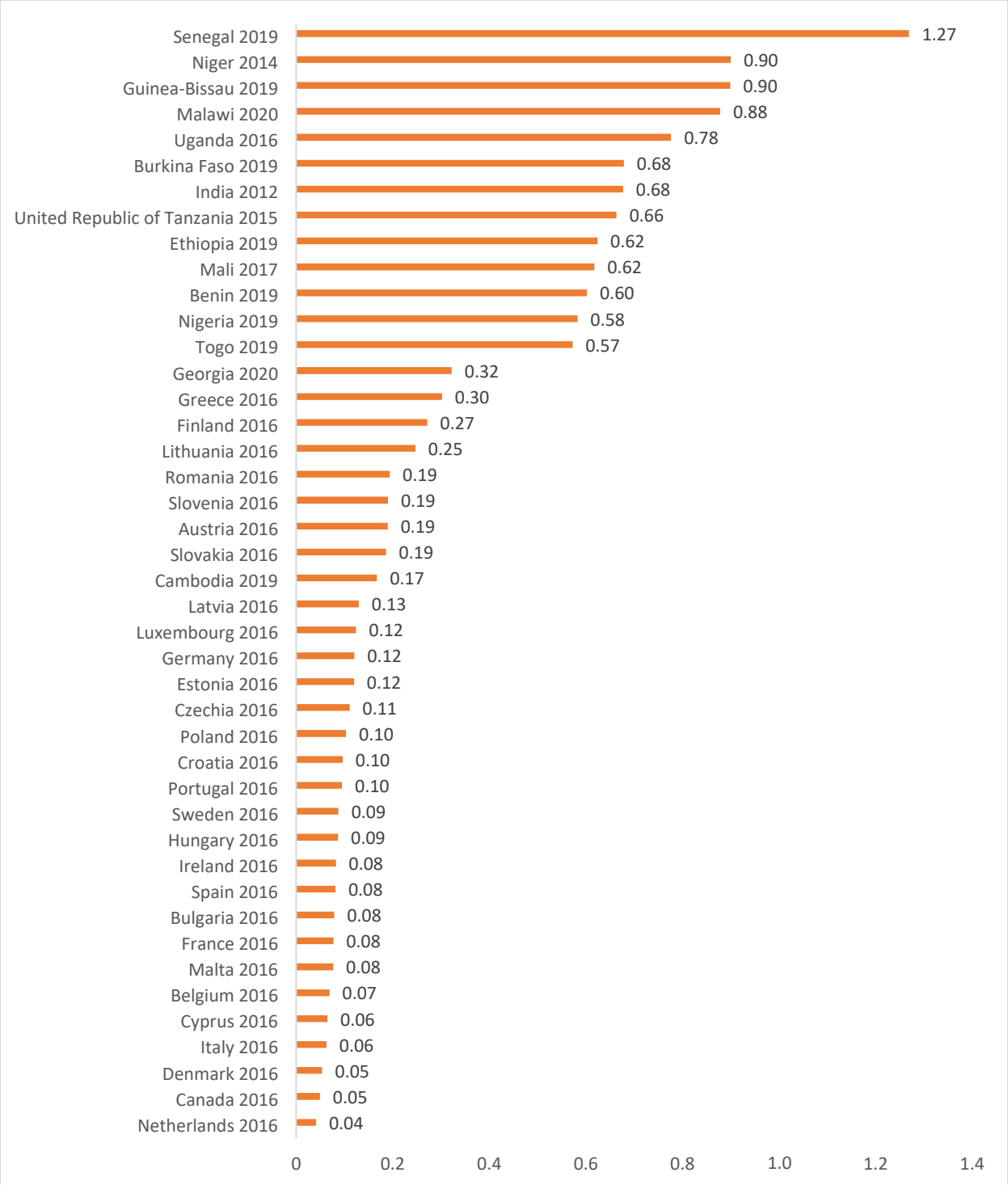
According to the latest available country figures, small-scale food producers' labour productivity is less than USD 15 (constant PPP 2011) per day worked in all low- and middle-income countries where data are available. In addition, the labour productivity of small-scale food producers continues to lag behind that of larger-scale producers, with more pronounced differences in higher-income countries. In three quarters of the countries for which data are available, small-scale food producers earn an average income of less than half that of large-scale food producers (Figure 11).

Among small-scale food producers, the labour productivity of production units headed by men and women are similar, with units headed by women achieving 90 percent or more of the labour productivity of those headed by men in most countries (Figure 12).

The limited availability of data on the productivity and incomes of food producers makes it difficult to discern any noticeable global trend over time. However, since some countries do have data spanning several years, trends contrasting the productivity of small-scale food producers and their large-scale counterparts can be examined. Figure 13 provides such insights for some countries. In Canada, Ethiopia and the United Republic of Tanzania, the productivity of small-scale food producers has gradually increased over time. Meanwhile, in

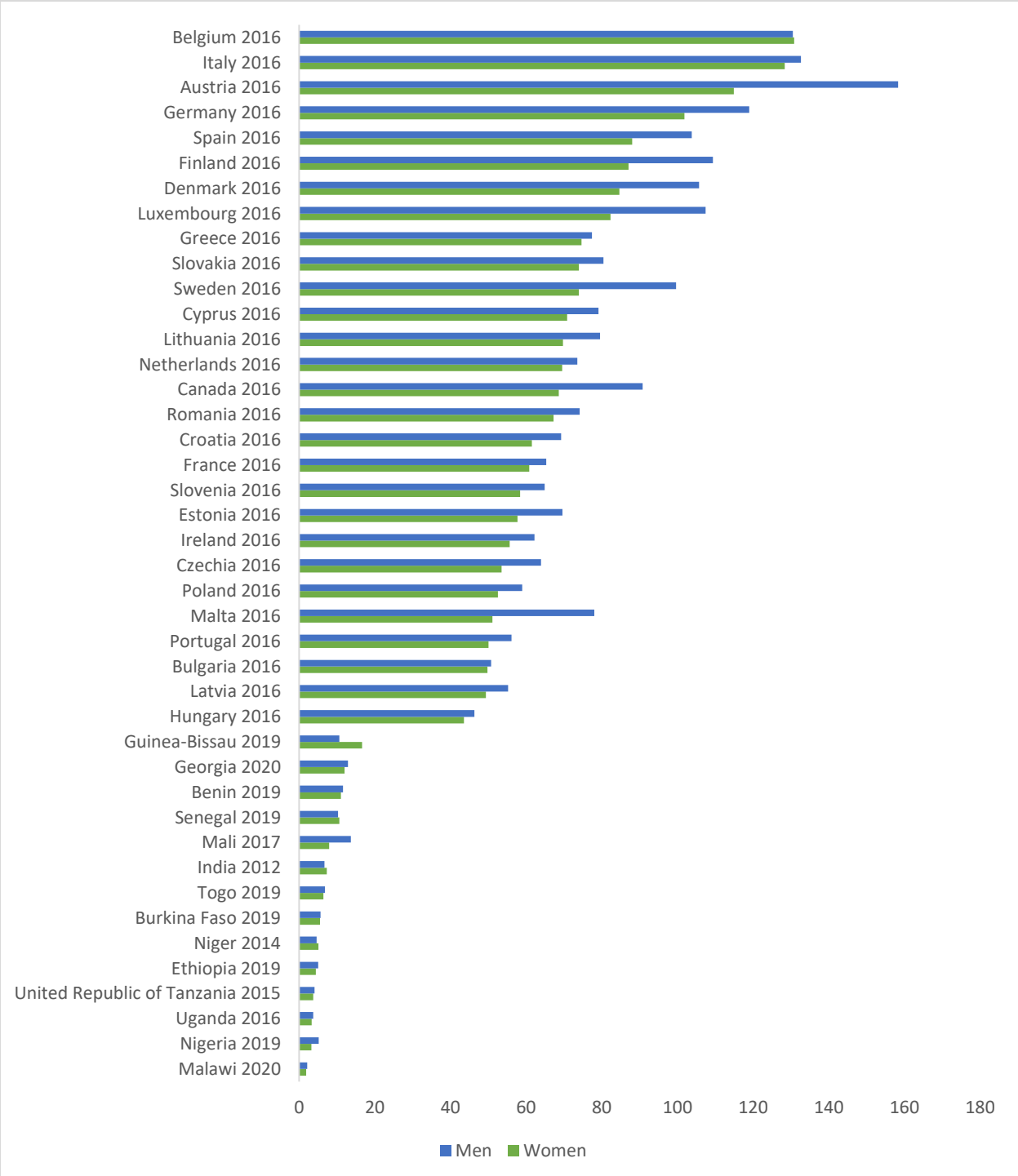
Malawi and Paraguay, productivity initially increased and peaked in 2013 and 2018, respectively, and decreased thereafter. The gap between the productivity of small-scale and large-scale food producers has gradually increased in Canada and the United Republic of Tanzania, whereas it has decreased in Malawi and Uganda. These findings reflect a lack of uniformity in attaining progress towards this target across countries.

Figure 11. Ratio of the average labour productivity of small-scale food producers over that of non-small-scale food producers (most recent year reported)



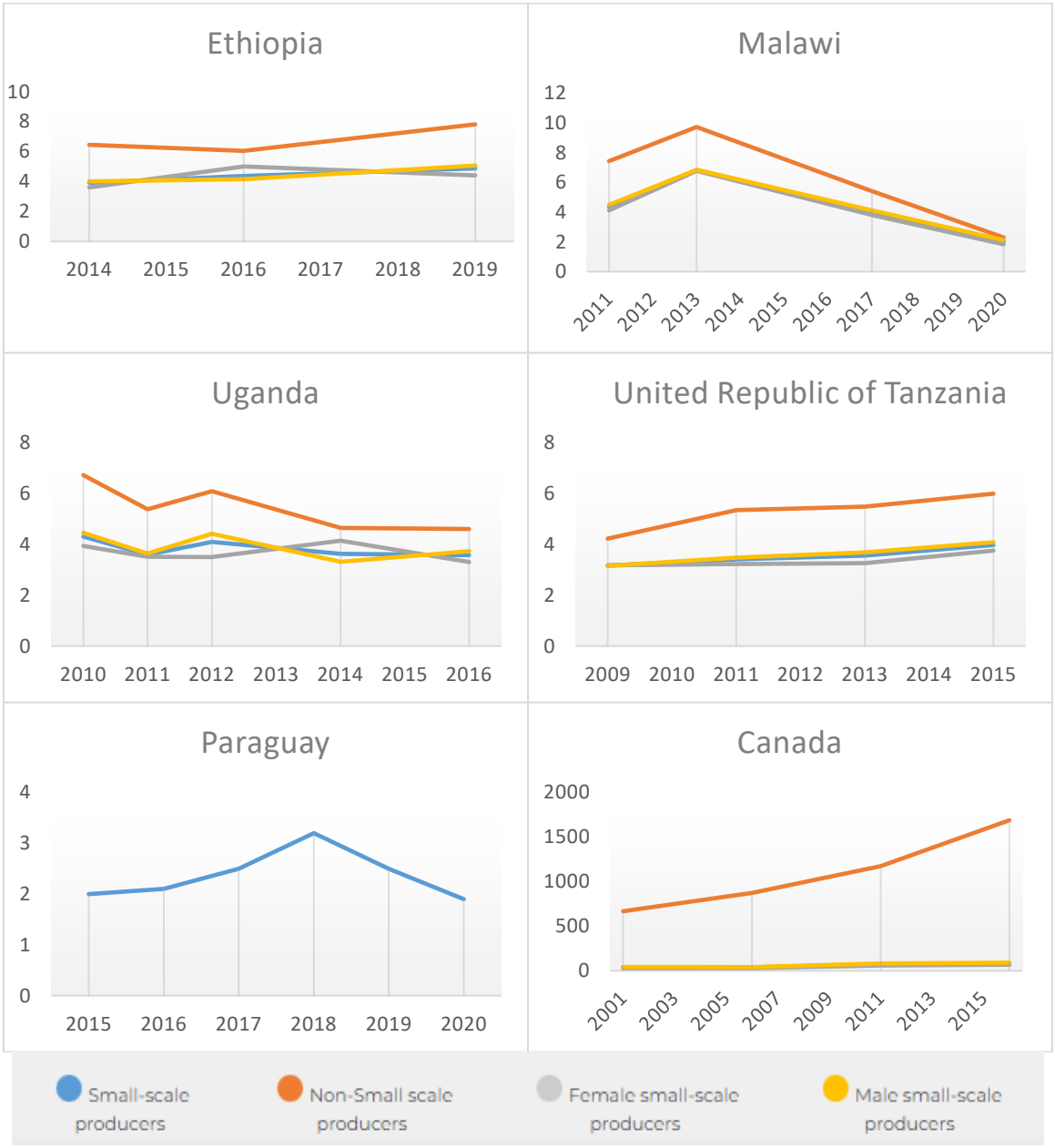
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 12. Average labour productivity of small-scale food producers by sex (most recent year reported) (2011 PPP USD)



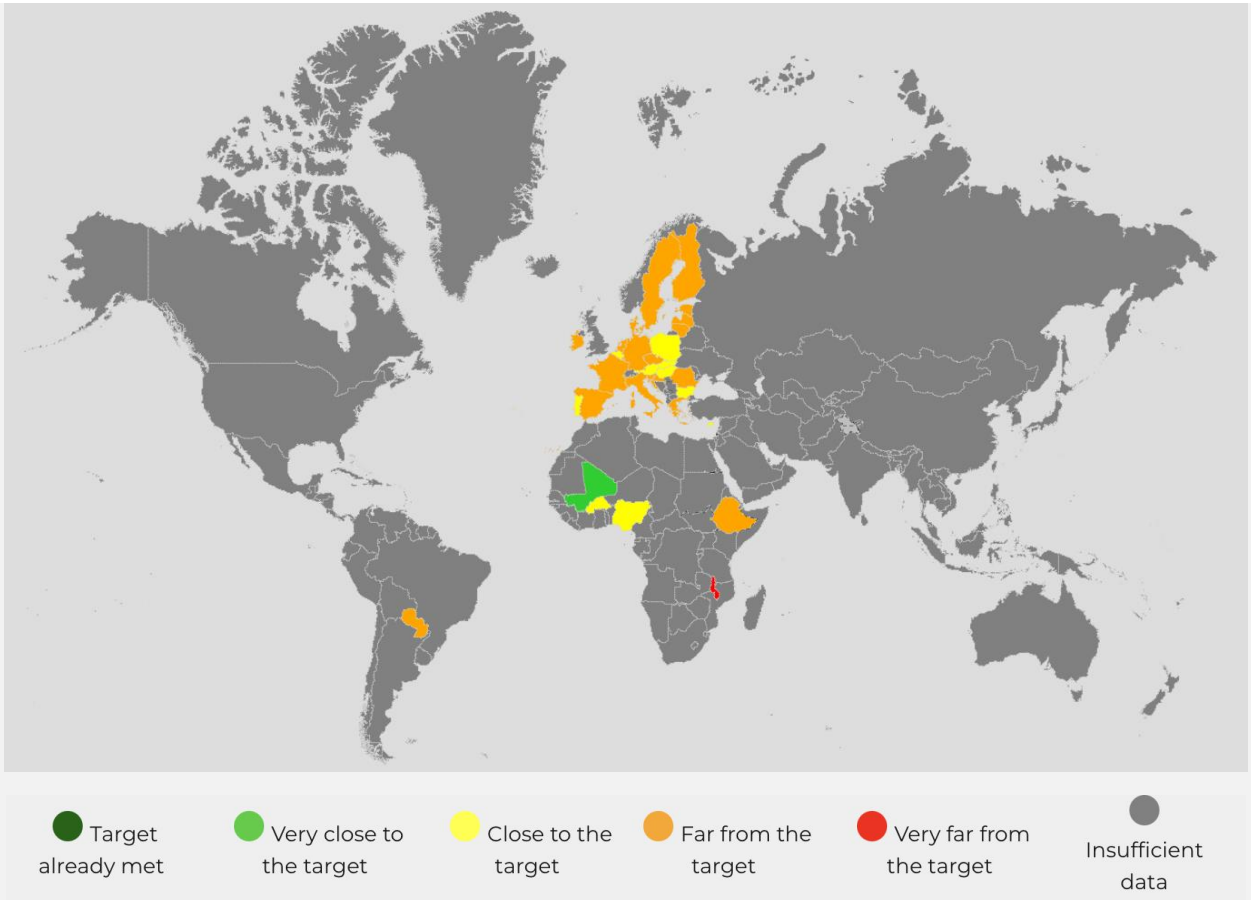
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 13. Average labour productivity by producer size and by sex (2011 PPP USD)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

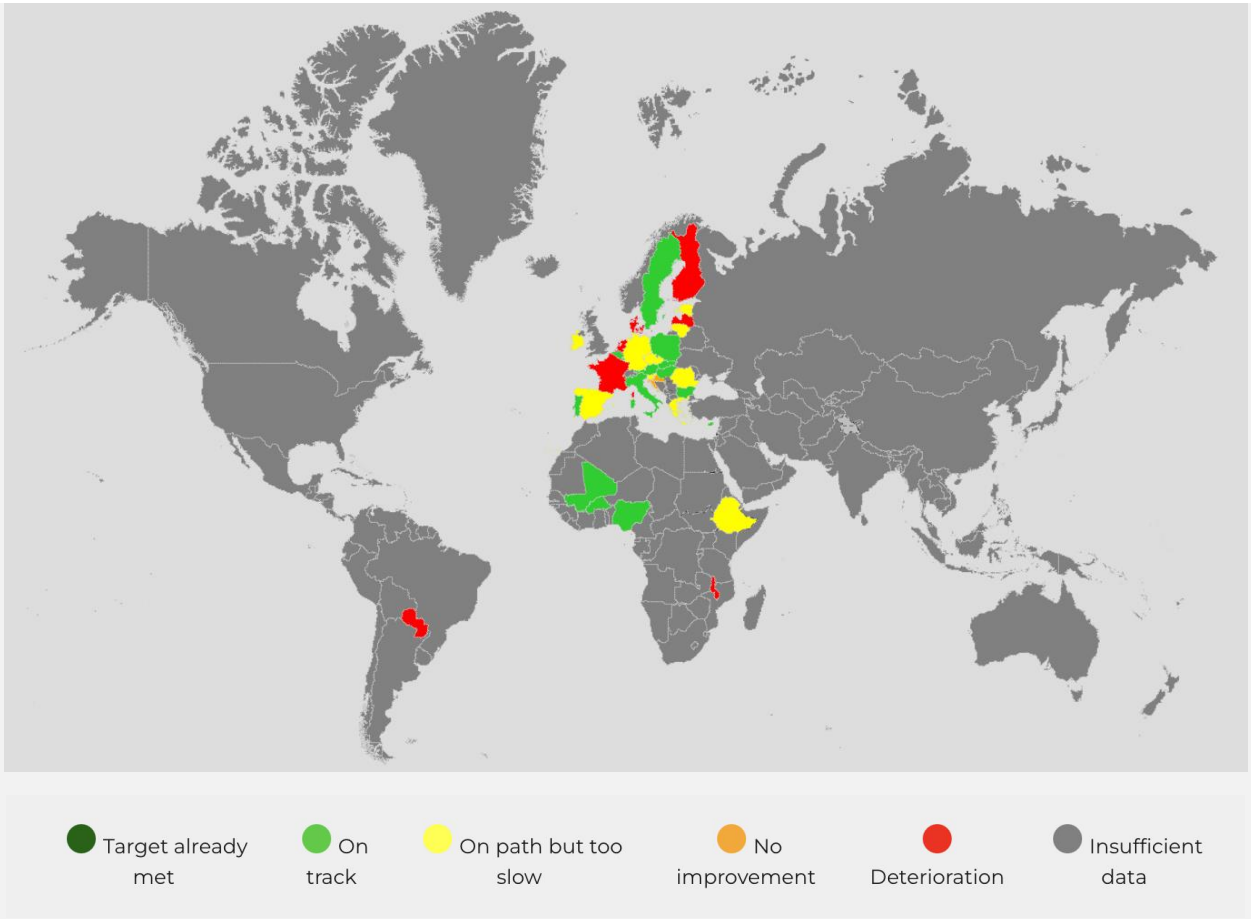
Figure 14. Current status of countries' progress towards the target of doubling the productivity of small-scale food producers (most recent year available)



NOTE: · Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals*. Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

Figure 15. Countries' progress towards the target of doubling the productivity of small-scale food producers (most recent year available)



NOTE: * Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

SDG INDICATOR 2.3.2

Average income of small-scale food producers, by sex and ethnicity

Status assessment: not possible due to the insufficiency of data.

Trend assessment: not possible due to the insufficiency of data.

Target 2.3

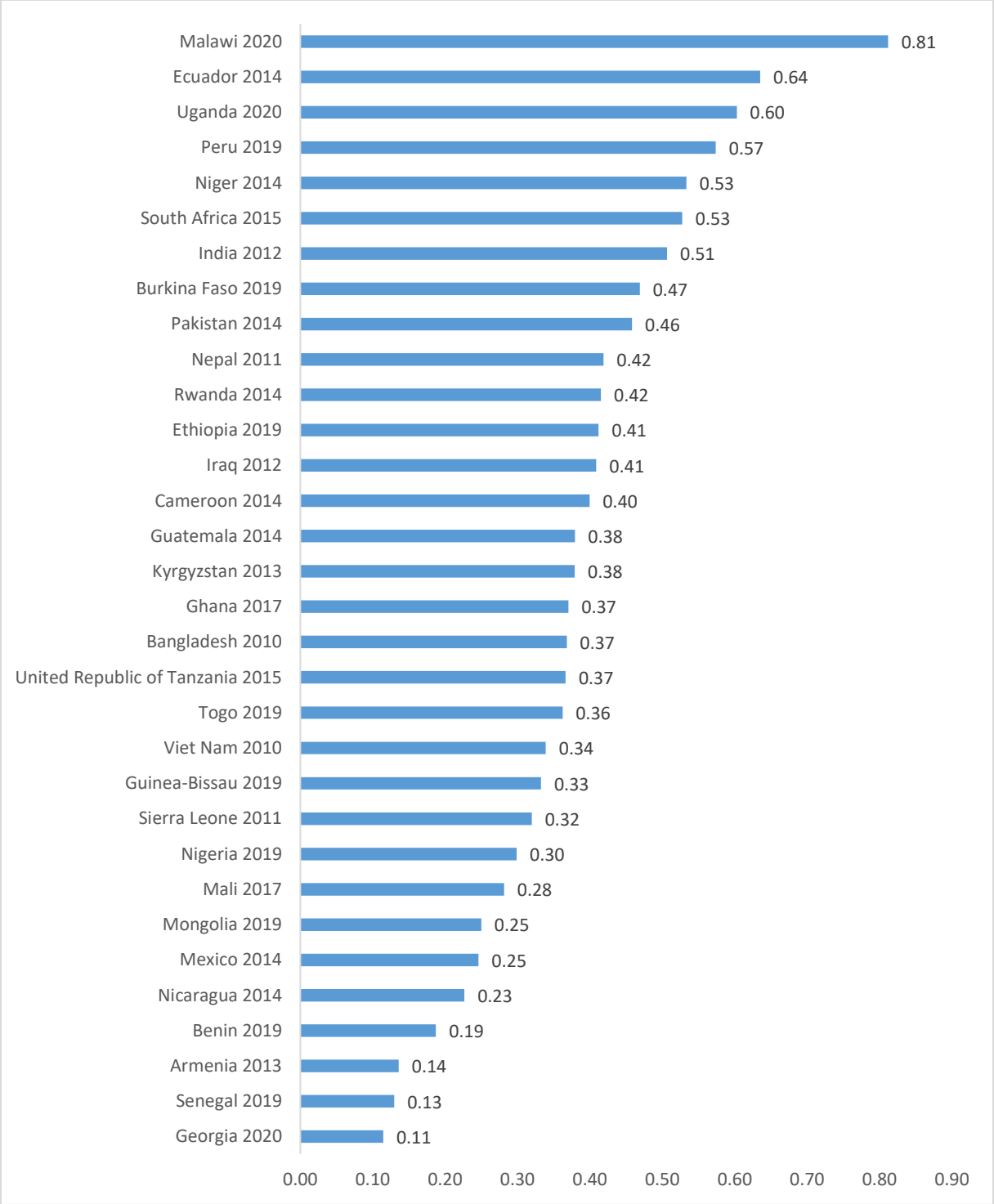
By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, Indigenous Peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.

In three quarters of the countries for which data are available, small-scale food producers have an average annual income of less than half that of large-scale food producers. Among small-scale food producers, the income of production units headed by men is systematically larger than the income of those headed by women.

According to the latest available figures from 44 countries, the incomes of small-scale food producers continue to lag behind those of larger-scale producers. In most countries, small-scale food producers' average annual income from agriculture is less than USD 2000 (constant PPP 2011) while in all countries, it is less than USD 4500 (constant PPP 2011). In addition, in three quarters of the countries for which data are available, small-scale food producers have an average income of less than half that of large-scale food producers (Figure 16).

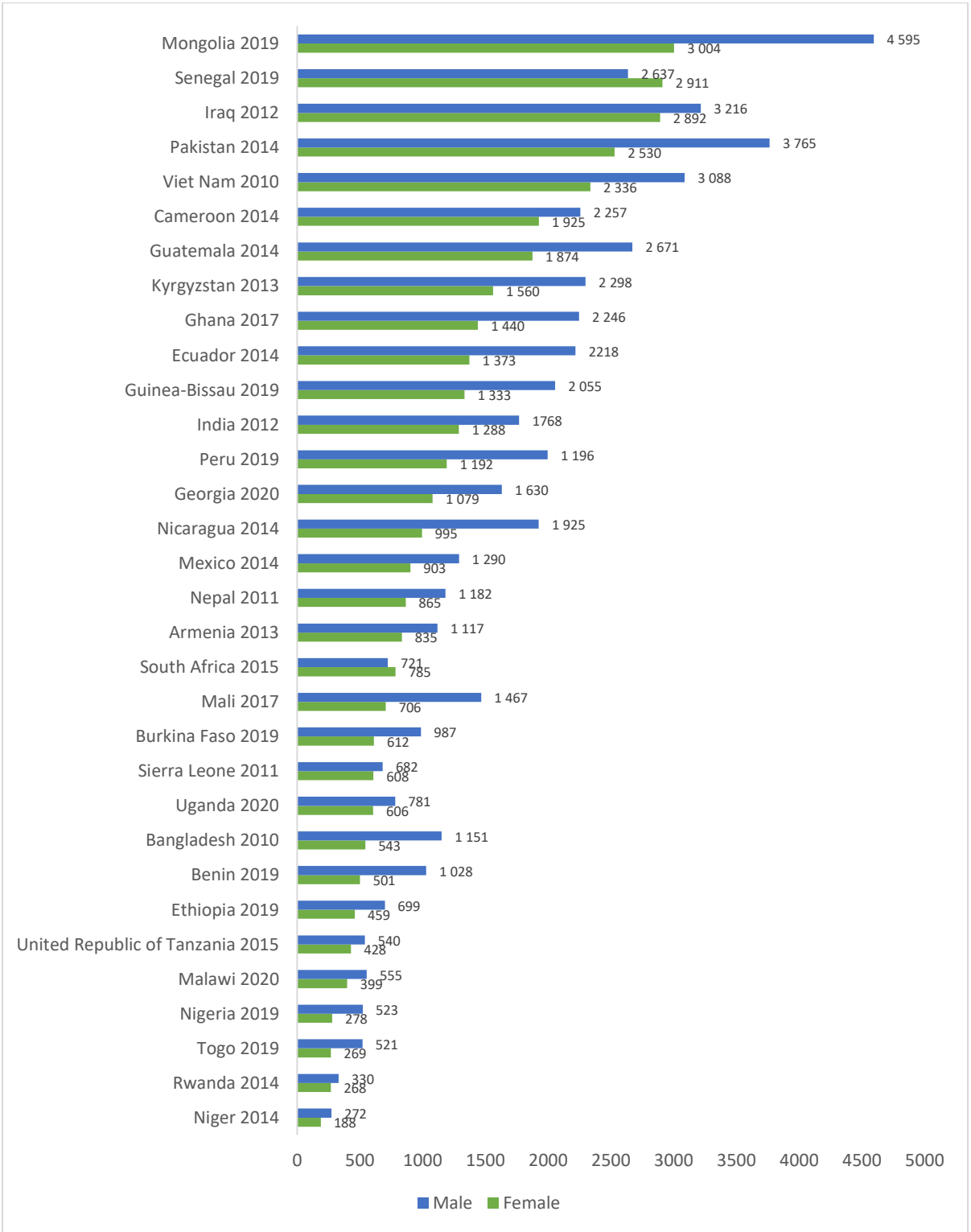
Among small-scale food producers, the income of production units headed by men is systematically larger than that of units headed by women. In half of the countries with available data, female-headed small-scale food production units earned an income of between 50 and 70 percent of that of units headed by men (Figure 17). Combining this information with the data on SDG Indicator 2.3.1 in the Section on Goal 2, it can be concluded that even though the productivity of women is on par with that of men, women earn less for the same amount of labour, which indicates a gender pay gap in agriculture.

Figure 16. Ratio of the average annual income from agriculture of small-scale food producers over that of non-small-scale food producers (most recent year reported)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 17. Smallholders' average annual income from agriculture by sex (most recent year reported) (2011 PPP USD)



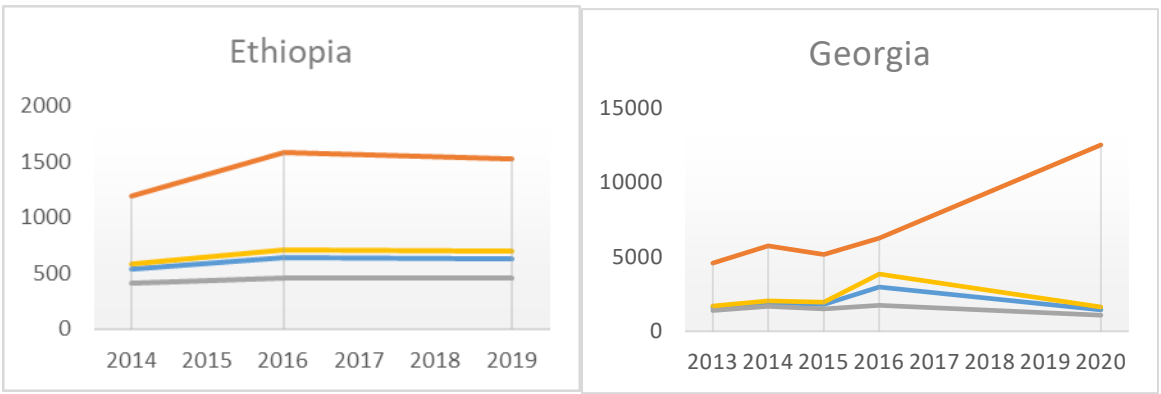
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals*. Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

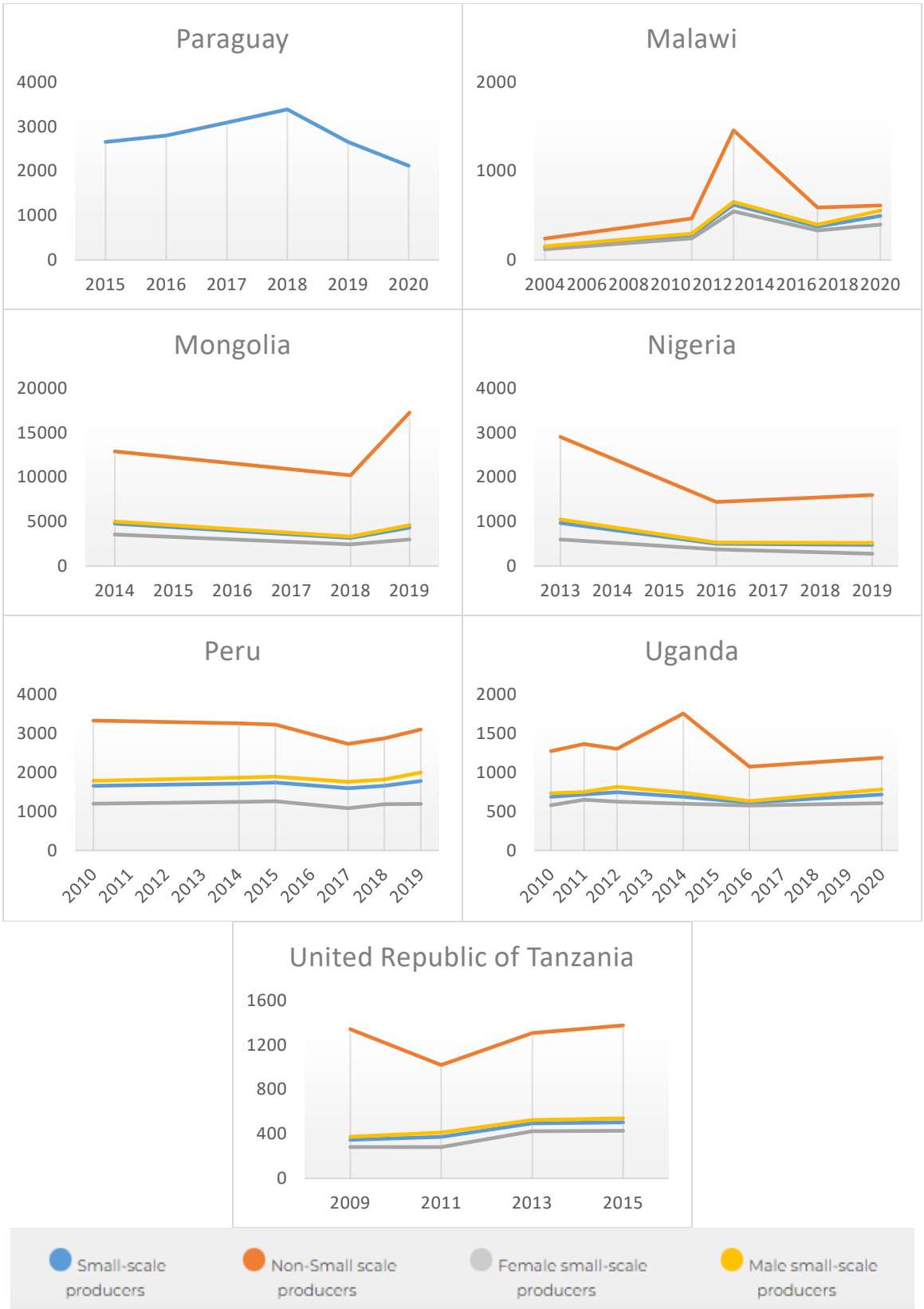
The limited availability of data on the productivity and incomes of food producers makes it difficult to discern any noticeable trend over time. However, specific country cases with data for an adequate period of time can be examined to understand trends in recent years, including from a gender-disaggregated perspective. Figure 18 provides insights into trends in a number of countries. The United Republic of Tanzania is the only country showing a continuous gradual increase in the income of small-scale food producers, whereas Nigeria is the only country showing a continuous gradual decrease. In Ethiopia and Georgia, the income from agriculture of small-scale food producers increases until 2016; in Paraguay, it does so until 2018. Afterwards, incomes decrease. Meanwhile, agricultural incomes of small-scale food producers in Mongolia and Uganda show an opposite trend, decreasing until 2018 and 2016, respectively, and increasing thereafter. In Malawi and Peru, trends have been erratic over the years, but the income of small-scale food producers has been increasing over the past three to four years.

Over the past four to five years, the gap between small-scale and non-small-scale food producers has gradually decreased in Ethiopia, Malawi and Uganda, but increased in Georgia, Mongolia and Nigeria. In the United Republic of Tanzania and Peru, the gap has remained consistent over the past four to five years.

The average annual incomes from agriculture of male- and female-headed households and holdings follow the same trend in all countries except Uganda. Moreover, the gap between men and women has remained constant in all countries except Georgia and Uganda. In Georgia, the gap increased abruptly in 2016, but decreased thereafter. Meanwhile, in Uganda, the gap between the two categories almost disappeared in 2016, but increased again thereafter.

Figure 18. Average annual income from agriculture by producer size and sex (2011 PPP USD)





SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals*. Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

SDG INDICATOR 2.4.1

Average income of small-scale food producers, by sex and ethnicity

Status assessment: not possible due to the insufficiency of data.

Trend assessment: not possible due to the insufficiency of data.

Target 2.4

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

Since the final endorsement of the methodology of SDG Indicator 2.4.1 on productive and sustainable agriculture in March 2019, FAO has invested substantial efforts in providing capacity development support to countries so to as to ensure their regular reporting of the indicator. FAO organized a number of training workshops and bilateral trainings in 2019 and – on account of the COVID-19 pandemic – delivered four virtual trainings in 2020–2021, covering more than 100 countries across all regions of the world. To further facilitate country reporting, FAO also published a compendium of key methodological documents (FAO, 2022), as well as an e-learning course on the indicator, in 2019 (available in English, French and Spanish).

These efforts have helped some 40 countries report partial data on SDG Indicator 2.4.1, though only a very small number of countries have reported complete data. This is due to a multiplicity of factors, including the inherent complexity of the indicator, the difficulty in leveraging alternative data sources, the low frequency of agricultural surveys in countries (which took an additional hit with the COVID-19 pandemic), as well as low technical and financial means to include the 2.4.1 module in new agricultural surveys.

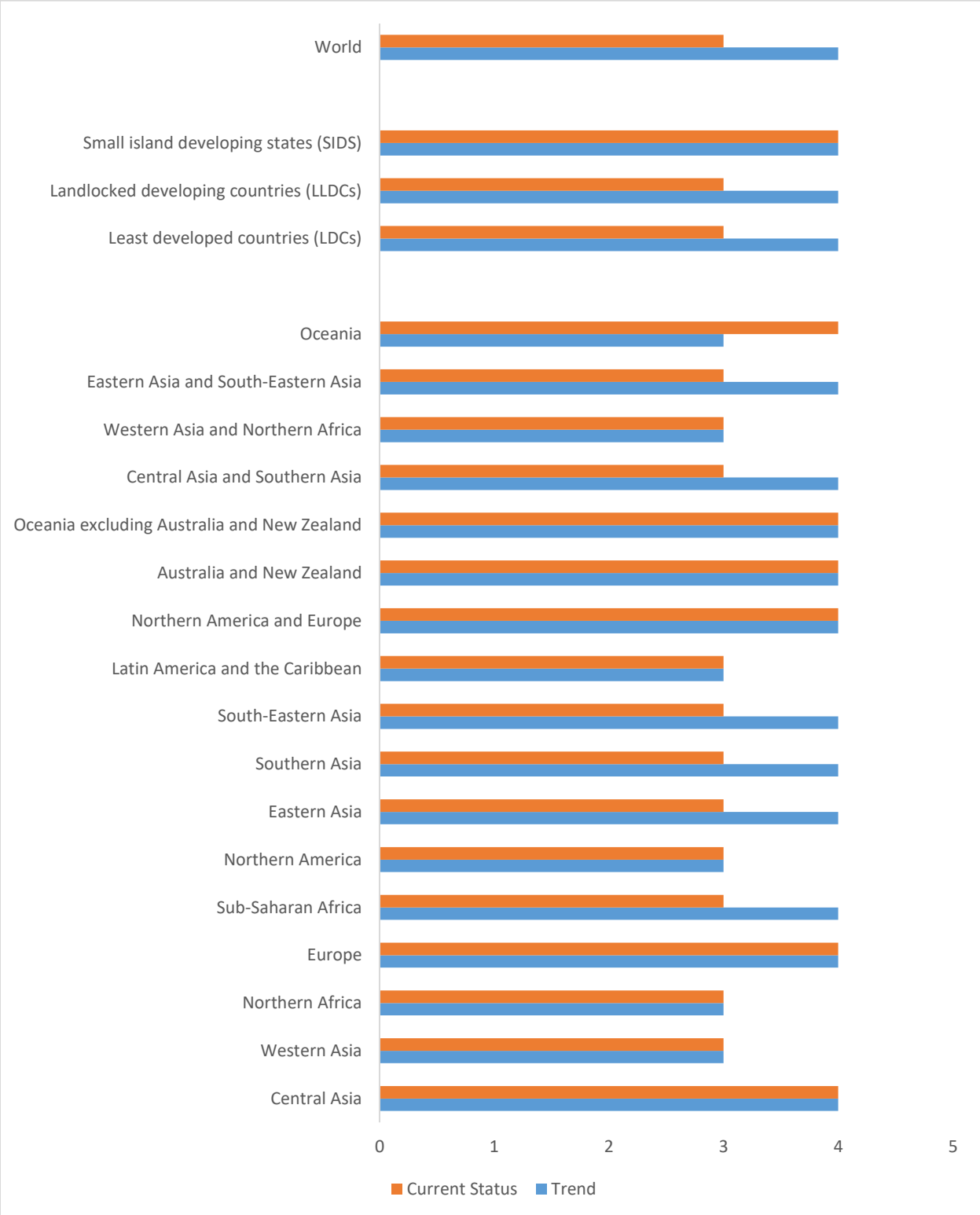
Measuring productive and sustainable agriculture

The current dearth of data on SDG Indicator 2.4.1 creates a critical information gap in SDG reporting. SDG Indicator 2.4.1 aims to measure the sustainability of agriculture, which is central to the 2030 Agenda for Sustainable Development. It has come even more to the forefront of international discourse in the recent months, including at the Food Systems Summit, the UN Climate Change Conference (COP26) and the Stockholm+ 50 meeting. Therefore, for this year's SDG Progress Report, FAO has decided to try to fill this information gap and report on progress toward SDG Target 2.4 by means of a provisional, alternative measure. This proxy measure consists of a set of eight established metrics linked to the sustainability and productivity in agriculture, based on widely available national statistics.

The proxy indicator is based on an innovative methodology that builds on the Progress Toward Sustainable Agriculture (PROSA) analytical framework (Ignaciuk *et al.*, 2021) launched by FAO in 2021. This framework synthesizes the information from the eight constituent metrics to produce an overall score for both trend towards and current status of the target of productive and sustainable agriculture. The proxy indicator will be able to provide good guidance on countries' progress until countries are able to produce SDG Indicator 2.4.1. The results of this first assessment are reported in Figure 1 and Figure 2 below, to be read and interpreted with the help of the following legends:

Score	**Trend towards productive and sustainable agriculture**
1 –< 1.5	Deterioration away from productive and sustainable agriculture
1.5 –< 2.5	Slight deterioration from productive and sustainable agriculture
2.5 –< 3.5	No improvement towards productive and sustainable agriculture
3.5 –< 4.5	Slight improvement towards productive and sustainable agriculture
4.5 – 5	Improvement towards productive and sustainable agriculture
Score	**Current status of productive and sustainable agriculture**
1 –< 1.5	Very far from achieving productive and sustainable agriculture
1.5 –< 2.5	Far from achieving productive and sustainable agriculture
2.5 –< 3.5	Close to achieving productive and sustainable agriculture
3.5 –< 4.5	Very close to achieving productive and sustainable agriculture
4.5 – 5	Productive and sustainable agriculture already achieved

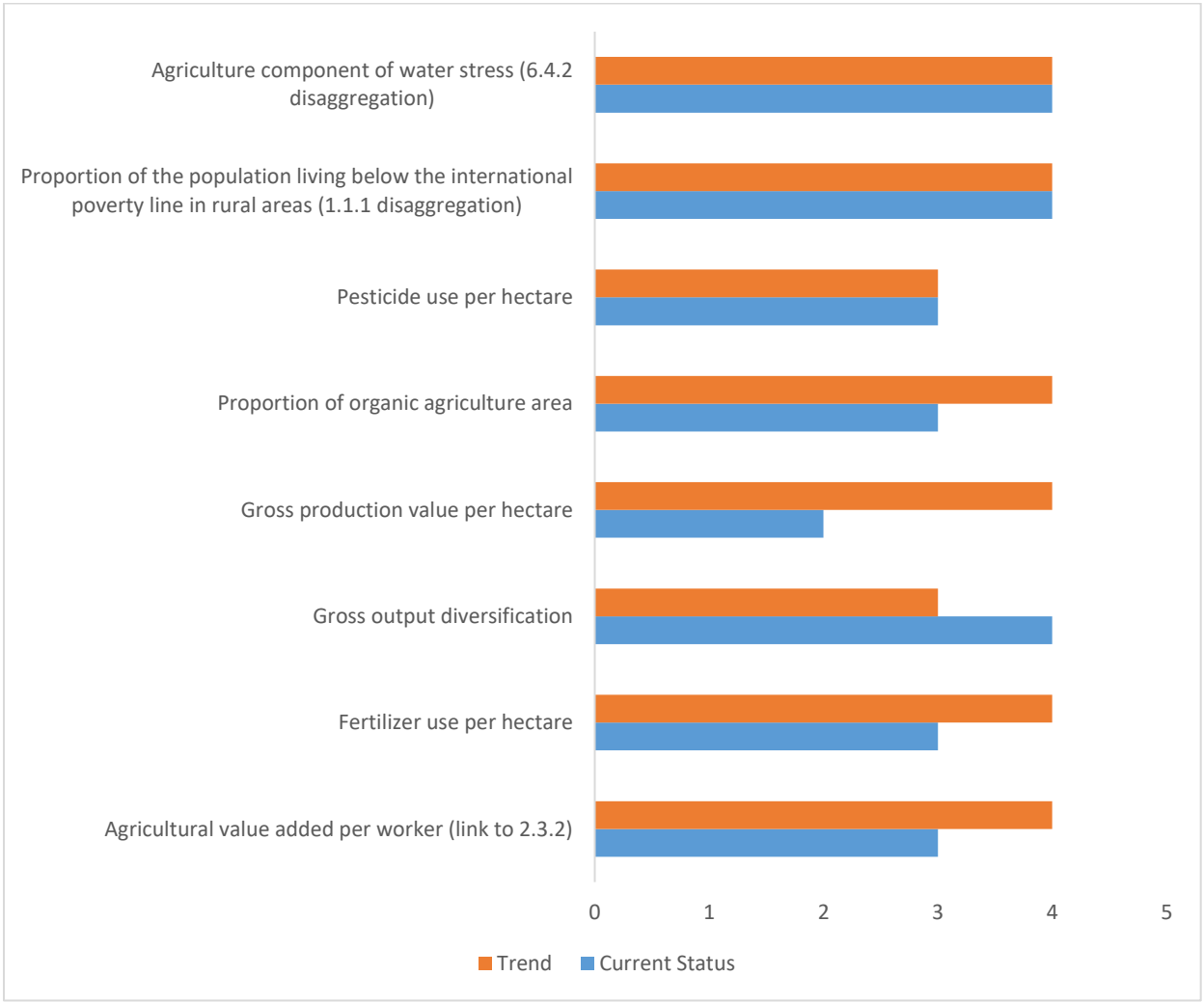
Figure 1. Progress towards productive and sustainable agriculture (weighted)



SOURCE: Own calculations based on data from the global SDG database and FAOSTAT.

Figure 1 illustrates global and regional progress toward sustainable agriculture, based on the proxy measure. Most regions, as well as the world as a whole, can be described as being "close to achieving productive and sustainable agriculture". Several regions manage to achieve an even better level, coming "very close" to the target of achieving productive and sustainable agriculture, including Oceania, SIDS, Northern America and Europe, as well as Central Asia. By contrast, the world as a whole has only achieved a slight improvement towards productive and sustainable agriculture over time, comparing the latest available figures with the baselines values of 2015, when the 2030 Agenda for Sustainable Development was adopted. In particular, progress toward sustainable agriculture seems to have stalled in many regions. Thus, for example, Western Asia and Northern Africa, Latin America and the Caribbean, Northern America as well as Oceania all register no improvement toward productive and sustainable agriculture since 2015.

Figure 2. World progress toward sustainable and productive agriculture, by thematic area (2019)



SOURCE: Own calculations based on data from the global SDG database and FAOSTAT.

Figure 2 illustrates progress toward productive and sustainable agriculture at the global level only, but through the prism of the eight constituent metrics of the proxy indicator for Target 2.4. The results indicate that gross production value per agricultural area is the main bottleneck to overall sustainability of farms globally with a "far from the target" score, although with an important improvement in recent years. A combined analysis of status and trends indicates that more attention should be afforded to pesticides application and the diversity of crop and livestock products, where progress seems to have stalled.

Meanwhile, water stress and rural poverty at the global level seem to be both very close to achieving the target, and have made relatively good progress toward the target since 2015. However, these results should be interpreted with caution in the spirit of "leaving no one behind", as global averages may mask huge regional variations. For example, while water stress may not appear as a problem for the world as a whole, there are many regions that face very high or even critical levels of water stress (see Section on Indicator 6.4.2). Likewise, while rural poverty appears to be "very close to the target" at the global level, of the roughly 120 countries with relevant data, 40 (i.e. one third) remain far or even very far from the target.

Annex. Proposed methodology for the proxy indicator of sustainable agriculture

The proposed proxy indicator to measure sustainable agriculture consists of a set of eight established measures of sustainability and productivity in agriculture, based on widely available national statistics that are largely linked to established FAO statistical reporting processes; some measures relate to other SDG indicators, also:

Dimension	2.4.1 subindicator theme	Proposed proxy measure	Numerical target
Economic	Land productivity	Gross production value per hectare	No
Economic	Risk mitigation for farmers	Gross output diversification	No
Environment	Soil quality	Fertilizer use per hectare	Yes
Environment	Water availability	Agriculture component of water stress (6.4.2 disaggregation)	Yes
Environment	Management of pesticides	Pesticide use per hectare	Yes
Environment	Biodiversity practices	Proportion of organic agriculture area	No
Social	Farmers' income	Agricultural value added per worker (link to 2.3.2)	No
Social	Food insecurity of farmers	Proportion of the population living below the international poverty line in rural areas (1.1.1 disaggregation)	Yes

The eight chosen measures mirror, to the extent possible, the 11 subindicators of SDG Indicator 2.4.1, maintaining a good balance between the social, economic and environmental dimensions recognized as the three pillars of sustainable development. They are based on extensive analysis carried out independently by FAO over the past two years, leading to the Progress towards Sustainable Agriculture (PROSA) analytical framework (Ignaciuk *et al.*, 2021*)*.

Contrary to SDG Indicator 2.4.1, whose 11 subindicators are meant to be collected at farm level, data for the eight proxy measures are collected and analysed at the national level. Also unlike the original SDG Indicator 2.4.1, whose 11 subindicators are each assigned a specific sustainability threshold to assess their current distance to that level, the eight proxy measures will be assessed both in terms of the direction and consistency of their trend and in terms of their current status. This will be done according to the system-wide methodology adopted for the global SDG Progress Chart, as well as by FAO itself for this report (United Nations, 2022). Of the eight proxy measures, only one has a clearly defined numerical target, whereas a further three have a conventionally or scientifically established upper bound. This upper bound, however, cannot serve as a normative target for the purposes of this progress assessment, given that countries that lie below the upper bound should not necessary strive to reach this bound.

Therefore, the four main progress assessment methods, considering the trend and the current status for indicators with and without a numerical target, will generally be as follows:

Trend assessment for indicators with a numerical target: ratio actual vs required (Compound ratio).	Trend assessment for indicators without a numerical target: actual growth (Compound annual growth rate) compared to the baseline.
Status assessment for indicators with a numerical target: distance to the target.	Status assessment for indicators without a numerical target: quintile distribution.

Translation of the progress assessment into a country score

For each country, the scores assigned to each subindicator based on the method described in Annex 1 and Annex 2 will be averaged, and the average score will then determine the classification of the country into one of five bands with respect to the trend towards and the current status of productive and sustainable agriculture:

Score	Trend towards productive and sustainable agriculture
1 –< 1.5	Band 1: deterioration away from productive and sustainable agriculture.
1.5 –< 2.5	Band 2: slight deterioration away from productive and sustainable agriculture.
2.5 –< 3.5	Band 3: no improvement towards productive and sustainable agriculture.
3.5 –< 4.5	Band 4: slight improvement towards productive and sustainable agriculture.
4.5 – 5	Band 5: improvement towards productive and sustainable agriculture.

Score	Current status with respect to productive and sustainable agriculture
1 –< 1.5	Band 1: very far from achieving productive and sustainable agriculture.
1.5 –< 2.5	Band 2: far from achieving productive and sustainable agriculture.
2.5 –< 3.5	Band 3: close to achieving productive and sustainable agriculture.
3.5 –< 4.5	Band 4: very close to achieving productive and sustainable agriculture.
4.5 – 5	Band 5: productive and sustainable agriculture already achieved.

A similar aggregation approach has already been implemented for SDG indicators 5.a.2, 14.6.1 and 14.b.1.

The two proposed conditions for proceeding to the calculation (if not met, no score is calculated) are:

1) a minimum of four out of eight subindicators are available for the country; and
2) a minimum of one subindicator each for the social and economic dimension and two subindicators for the environmental dimension are available.

Aggregate regional score

Regional aggregate scores will be calculated as both a simple and weighted mean of the respective country scores for the trend and current status. Hence, regions will be classified into the same five bands as countries, depending on their overall score.

Both simple and weighted mean scores have important advantages and disadvantages, which is why FAO proposes to use both for extended analytical purposes. However, for this report, weighted averages are used to display global and regional results.

By using a simple average, each country receives an equal weight in the regional aggregate score, making the indicator more sensitive to the policy changes expected by each country for making progress toward productive and sustainable agriculture, and therefore more in line with the universality principle of the 2030 Agenda.

By contrast, weighting the scores by agricultural land area shifts the focus away from individual countries to their agricultural land area, and therefore recognizes that countries that have a larger agricultural land area are able to make a proportionately larger impact on sustainable agriculture at the planetary level. In many regions, this means that larger countries will have a proportionately larger weight in the calculation and will effectively determine the overall regional score, making the contribution of smaller countries less important.

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SDG INDICATOR 2.5.1.A

Number of plant genetic resources for food and agriculture secured in medium- or long-term conservation facilities

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: improvement since the baseline year.

Target 2.5

By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

The global response to the growing threat of climate change needs to be accelerated to adequately preserve crop and crop-associated diversity.

The number of accessions of plant genetic resources for food and agriculture that were conserved *ex situ* under medium- or long-term conditions increased by 1.1 percent year-on-year in 2021, equal to about one third of the average annual growth rate of germplasm accessions over the past 26 years. After the first year of the COVID-19 pandemic, gene banks' operations (including the collection and acquisition of new germplasm) have gradually returned to normality, and the trend of a continued increase in the number of global germplasm holdings resumed after the lull observed in 2020. The newly added materials to the *ex situ* collections were mainly landrace and farmers' varieties (34 percent), research materials (16 percent) and wild samples (14 percent).

Efforts to preserve the diversity of plant genetic resources in *ex situ* collections need to be strengthened, particularly for crop wild relatives, wild food plants and neglected and underutilized crop species, in view of the increasing pressure faced by these species in both wild and agricultural settings.

Plant genetic resources are at the base of productive, resilient and adaptive agricultural systems and directly and indirectly underpin the world's food security and nutrition. It is estimated that at the end of 2021, 5.8 million accessions of plant genetic resources for food and agriculture were conserved under medium- or long-term conditions in 846 gene banks in 115 countries and 17 regional and international research centres. These estimates are based on updated reports from 39 countries and 15 research centres, representing 51.1 percent of total holdings, and on reports from recent years for the remaining countries and centres.

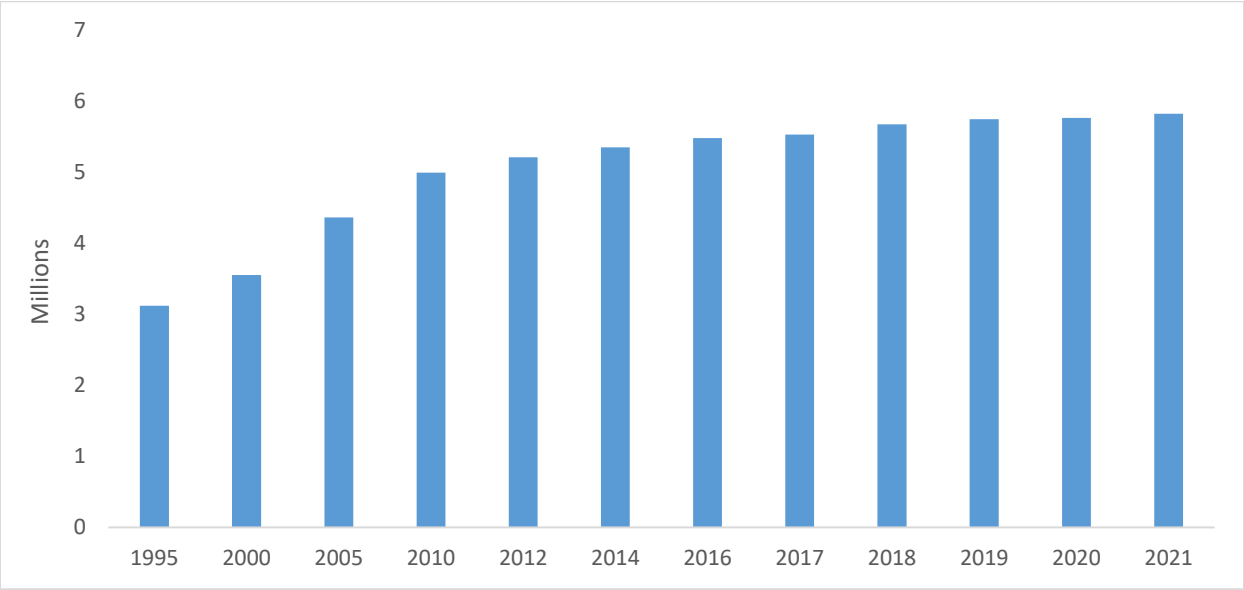
The highest net increase in gene bank holdings was observed in Oceania excluding Australia and New Zealand (+ 16.4 percent), followed by Southern Europe (+ 6 percent), Western Asia (+ 2.9 percent), Western Europe (+ 1 percent) and Western Africa (+ 0.7 percent). Over the years, the number of conserved germplasm accessions increased by more than 1 percent in 19 out of the 39 countries and four out of the 14 regional or international centres with updated reports.

Net decreases in genebank holdings of more than 1 percent occurred in one country in Europe (- 4.9 percent) and in one international centre (- 4.2 percent). Losses were ascribed to the identification and elimination of duplicate records rather than to actual reductions in stored material.

As of December 2021, 321 gene banks around the world conserved 86 250 samples from over 1 815 species listed in the International Union for Conservation of Nature's categories of global major concern. Among these are underutilized crops and wild relatives of crops that are particularly important for global and local food security and livelihoods, especially in marginal environments such as arid and semi-arid zones. These species include upland cotton, coffee, plums and mat beans, and wild relatives of maize, wheat, oats, cowpea, lupines, apricots and apples.

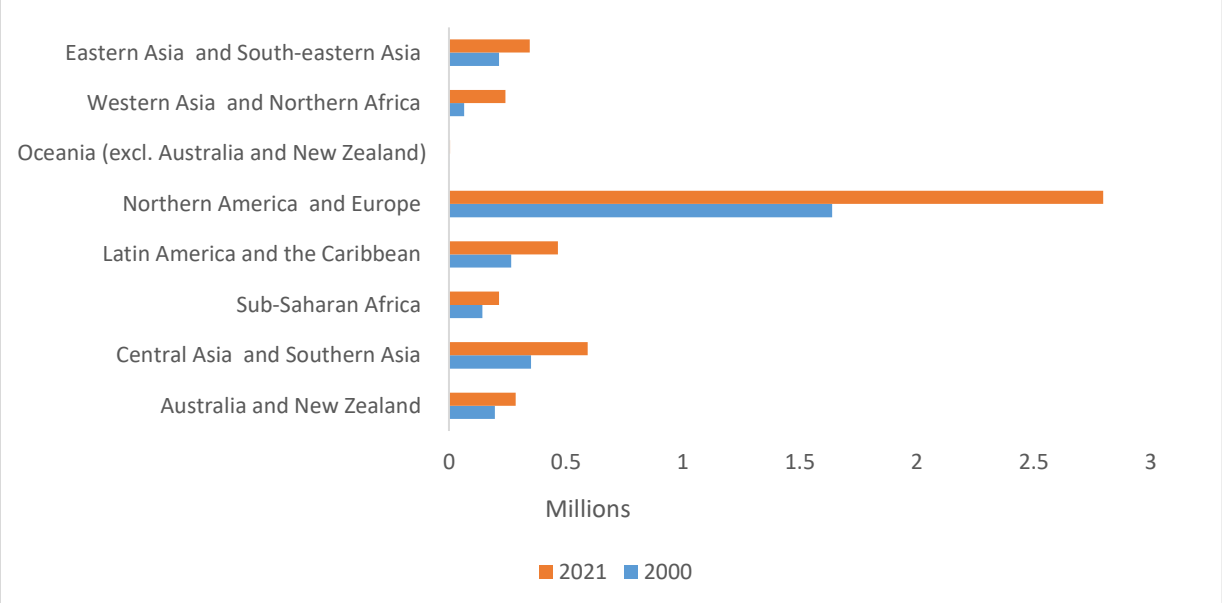
The growing threats posed by climate change to crop and crop-associated diversity under on-farm and wild conditions over the past 25 years have been alarming. Crop wild relatives, wild food plants and neglected and underutilized crop species have been among the plant groups most at risk. The global response in preserving crop diversity in standard compliant *ex situ* facilities has been insufficient to respond to the increasing threats. Vulnerable plant groups continue to be missing from gene bank collections, or their intraspecific diversity is poorly represented.

Figure 19. Number of accessions of plant genetic resources secured in medium- or long-term conservation facilities in the world (1995–2021)



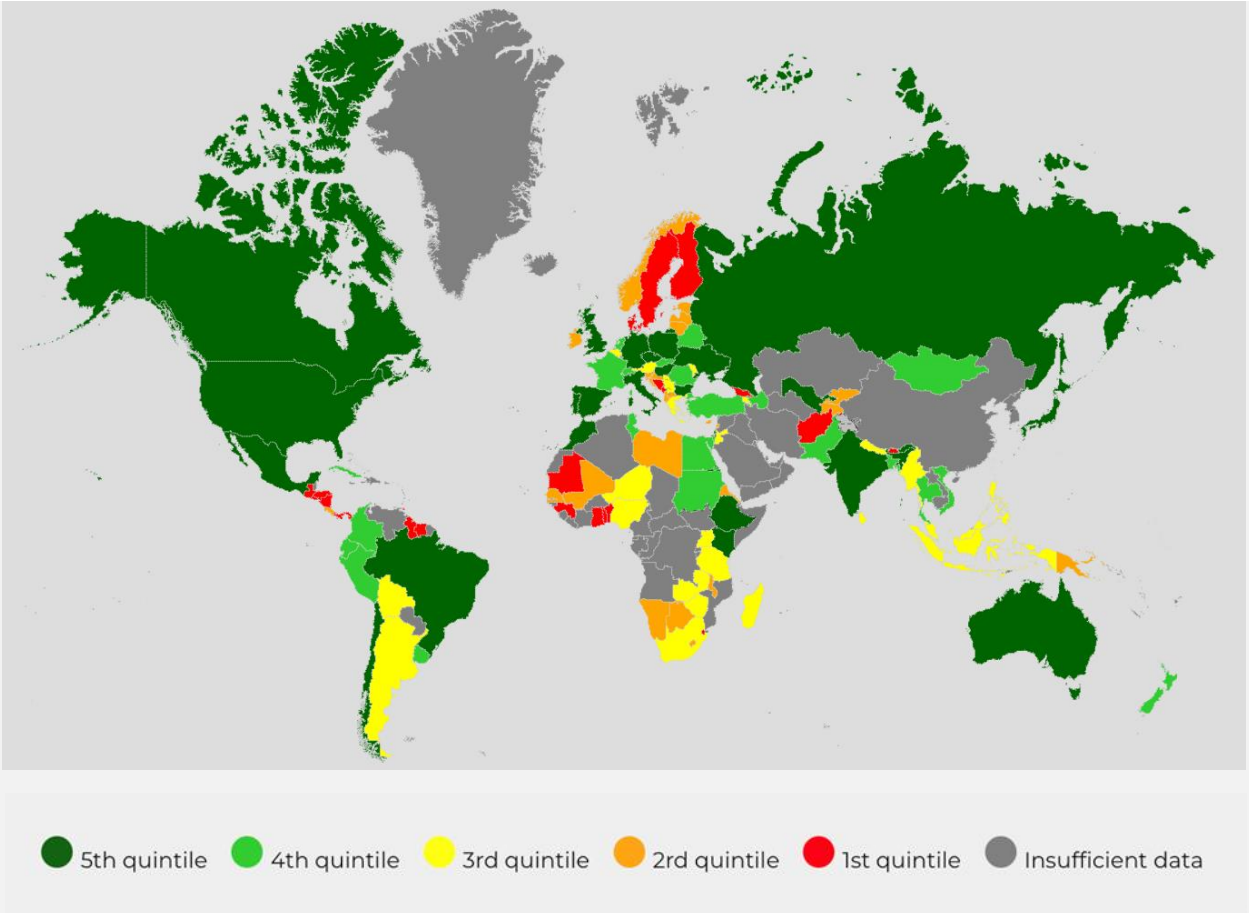
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 20. Plant genetic resources accessions stored *ex situ* (number) (2000 and 2021)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

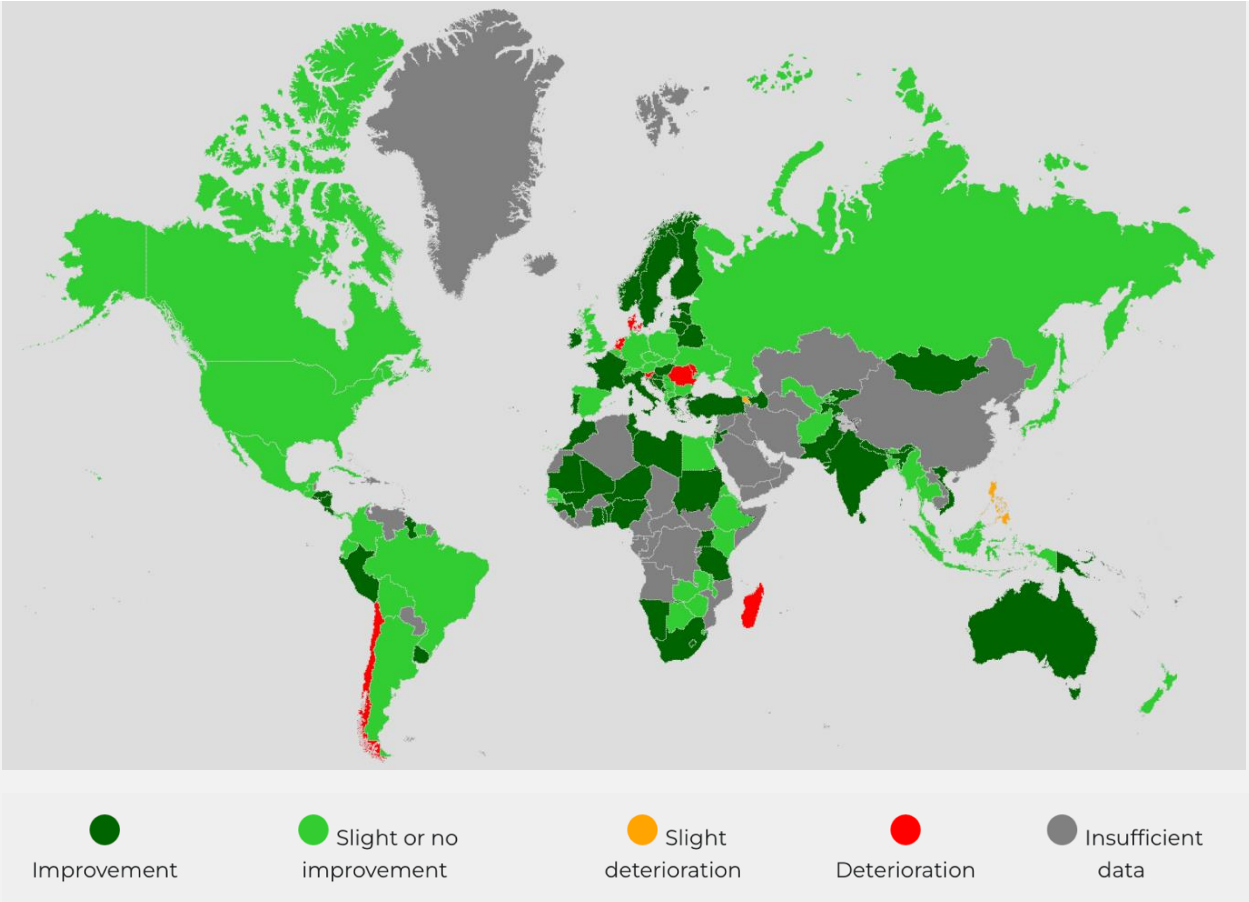
Figure 21. Number of plant genetic resources secured in medium or long-term conservation facilities (2021)



NOTE: * Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

Figure 22. Progress towards increasing the number of plant genetic resources secured in medium or long-term conservation facilities (2016–2021)



NOTE: * Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

SDG INDICATOR 2.5.1.B

Number of animal genetic resources for food and agriculture secured in medium-or long-term conservation facilities

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: not possible due to insufficient data.

Target 2.5

By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

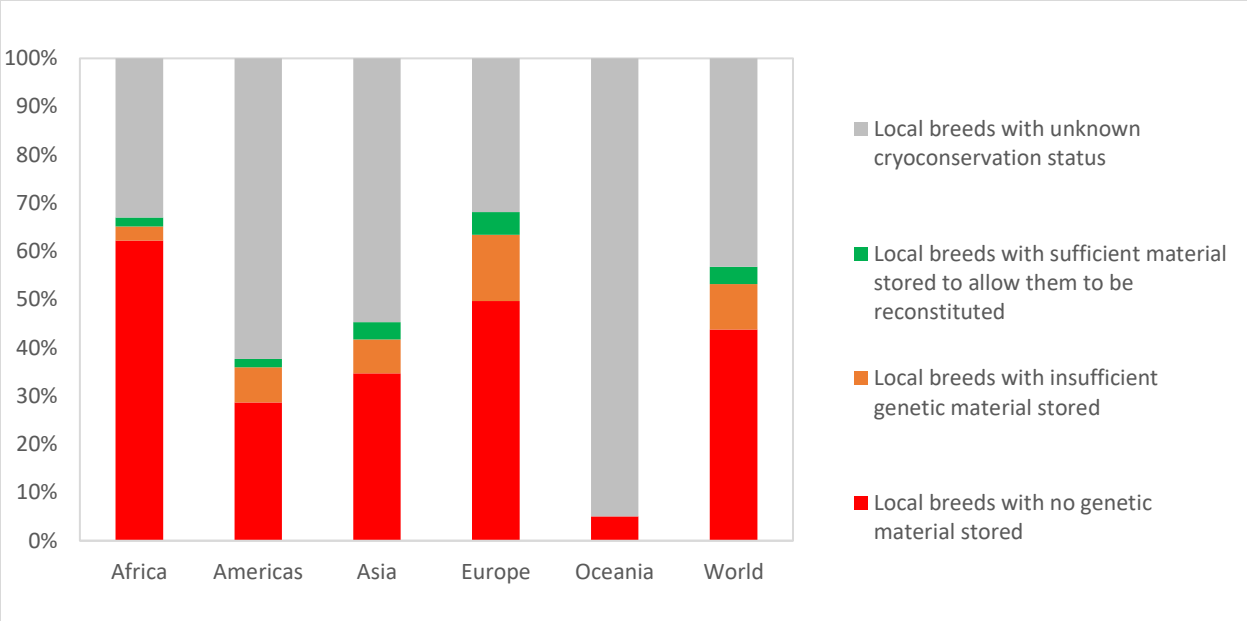
Increased efforts are needed to preserve the genetic diversity of farmed and domestic animals and thus bolster the resilience of food systems, which face increasingly frequent challenges due to the climate crisis.

To support efforts towards maintaining the diversity of farmed and domesticated animals, which mainly take place through regular livestock operations in agrifood systems, genetic materials of livestock breeds are stored to allow reconstitution in case of extinction. The cryoconservation of genetic material in gene banks is called *in vitro ex situ* conservation. This method of genetic conservation falls under the ambit of SDG Indicator 2.5.1.b, which is complementary to SDG Indicator 2.5.2, described in the next section. For indicator 2.5.1.b, the low number of countries with updated data precludes the meaningful assessment of global results.

The increasing number of local breeds for which sufficient material is stored can be interpreted as a positive trend towards the achievement of the target. Unfortunately, the genetic diversity of farmed and domesticated animals is far from being secured. As of March 2022, sufficient material is stored *in vitro ex situ* for only 277 out of 7 704 local breeds in the world, or 3.6 percent of all breeds, reflecting only a marginal increase from the 2.8 percent registered in 2020.

Given that the number of endangered local breeds is unlikely to decrease significantly in the near future, countries need to strengthen efforts to store genetic material in sufficient quantities. Currently, the number of local breeds for which sufficient material is stored is alarmingly low. In Europe, sufficient material is stored for 166 breeds (4 percent of all local breeds), while this is the case for only 18 (1.8 percent) and 81 (4 percent) local breeds in Africa and Asia, respectively. In Oceania, there are no breeds with sufficient genetic material stored for reconstitution, while in the Americas, the number remains low at 12 (1.7 percent).

Figure 23. Proportion of local breeds (including extinct ones) with sufficient, insufficient or no genetic material stored



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

Stepping up the monitoring of aquatic biodiversity

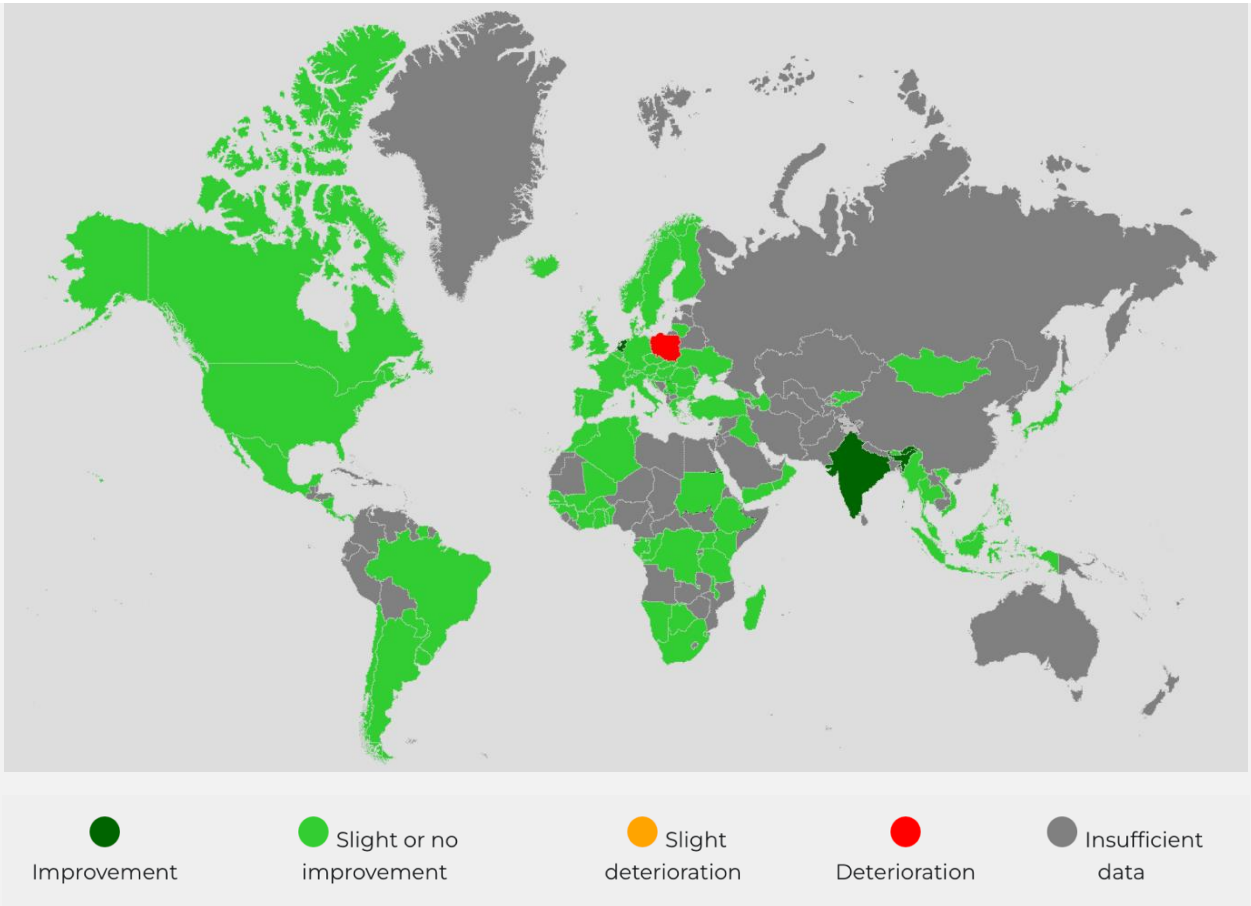
Until recently, there was little information on the status of aquatic genetic diversity for food and agriculture (AqGR). The main Source of information was a global assessment of the status of AqGR carried out by FAO in 2019, presenting findings from 92 reporting countries (FAO, 2019). This report provides a single snapshot in time and is thus inadequate to monitor progress against SDG 2.5 with respect to aquatic genetic resources.

The needs and challenges identified in the global assessment were addressed in the form of a *Global Plan of Action (GPA) for the Conservation, Sustainable Use and Development of Aquatic Genetic Resources for Food and Agriculture* (FAO, 2022). One of the strategic priorities for this GPA is to:

> Maintain and/or develop, promote and institutionalize national, regional and global standardized information systems for the collection, validation and monitoring of, and reporting on, AqGR below the level of species (i.e. genetic diversity of farmed types and stocks). (FAO, 2022, p. iii)

This priority is now being addressed through AquaGRIS, a global information system on AqGR that records and makes available information on species and farmed types used in aquaculture by country. The system enables the generation of reports on the sustainable use, development and conservation of aquaculture species, as well as on policies and national capacities. AquaGRIS also enables the generation of global, regional and country fact sheets on species. The data from AquaGRIS can be used as a basis to develop national and regional strategies for the effective management of AqGR. AquaGRIS is currently available as a prototype containing data from a subset of species and countries. A fully fledged version (to be released in 2023) is under development, and will also include information on wild relative genetic resources. AquaGRIS will enable the generation of a range of indicators of the status of AqGR and, when populated with country data, may finally enable the monitoring of progress against SDG 2.5 for aquatic biodiversity, as well as against other global instruments.

Figure 24. Progress towards securing animal genetic resources for food and agriculture in medium- or long-term conservation facilities (2020–2022)



NOTE: · Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

SDG INDICATOR 2.5.2

Proportion of local breeds classified as being at risk of extinction

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: not possible due to insufficient data.

Target 2.5

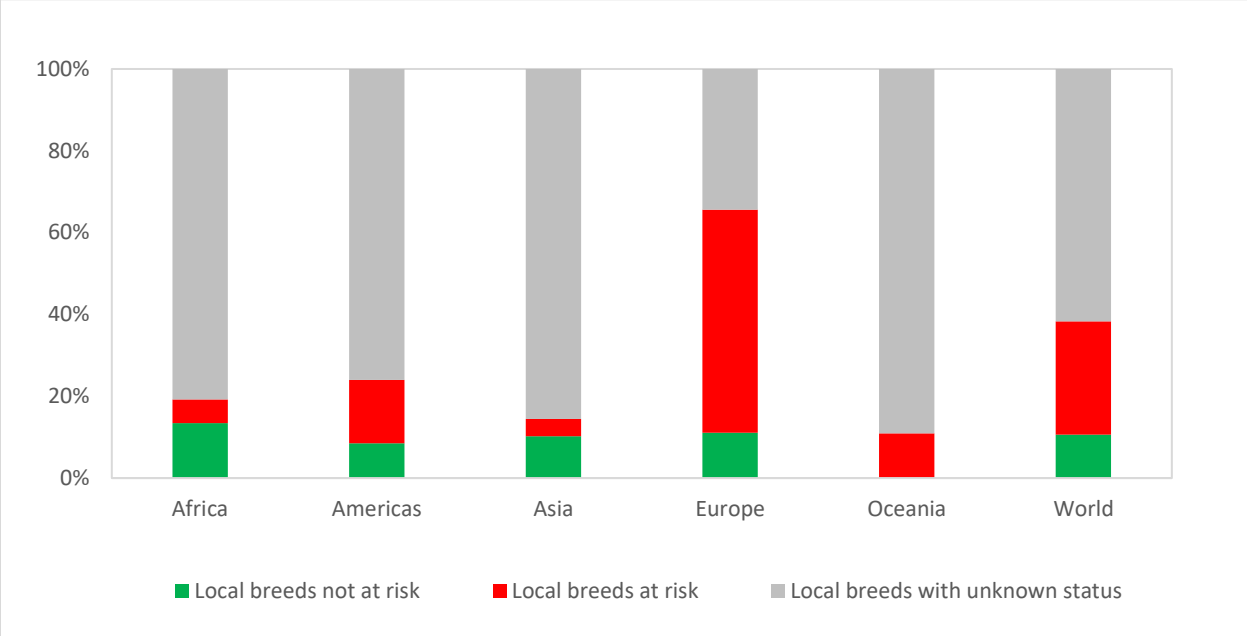
By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

The proportion of farmed and domesticated animal breeds at risk of extinction remains worryingly high. Furthermore, the limited availability of data hinders the complete understanding of the seriousness of the issue for the majority of breeds.

The diversity of farmed and domesticated animals is mainly maintained *in vivo in situ* i.e. in the form of living animals kept and used in livestock production systems. If the number of living animals in a population falls below certain thresholds, they are considered to be at risk of extinction. In such cases, livestock keepers and governments have to take conservation actions, such as improving livestock management, to maintain or increase the population and avoid extinction. Thus, *in vivo in situ* conservation and the previously discussed *in vitro ex situ* conservation are complementary, and SDG Indicator 2.5.2 and Indicator 2.5.1b, which concern these two types of conservation, must be interpreted simultaneously. For both indicators, the limited number of countries with updated data precludes the meaningful assessment of global results.

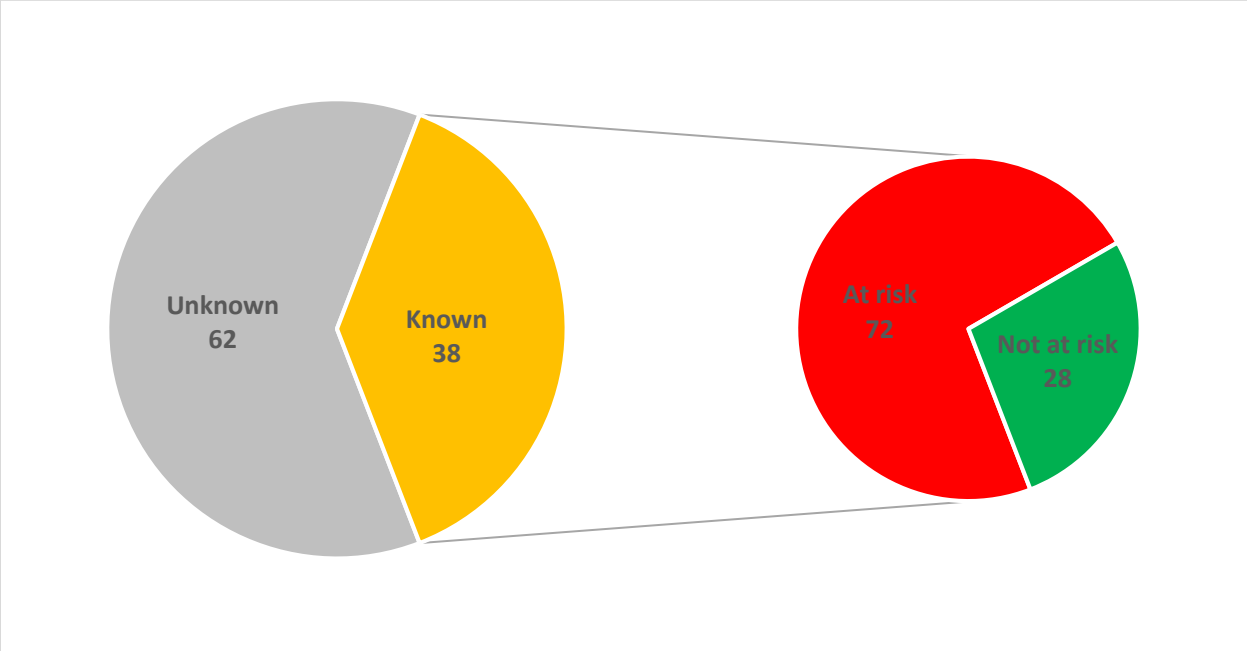
Stable or decreasing numbers of breeds at risk constitute one aspect of SDG Target 2.5, and can be interpreted as a positive step towards achieving the target. Unfortunately, the genetic diversity of farmed and domesticated animals is far from being secured. Worldwide, the risk status of the majority of local breeds remains unknown. The latest figures, for 2022, provide data for only 38 percent of breeds. Of all breeds with a known status, 72 percent are classified as being at risk of extinction. Where enough data are available to show regional results, the share of local breeds at risk in the overall number of breeds is alarmingly high: 83 percent in Europe, 69 percent in Southern Africa, 40 percent in South America and 26 percent in Northern Africa. As the number of endangered local breeds is unlikely to decrease significantly, countries must expend greater efforts to collect the data needed to accurately infer the risk of extinction.

Figure 25. Proportion of local breeds classified as being at risk, not at risk or with an unknown level of risk of extinction (2022)



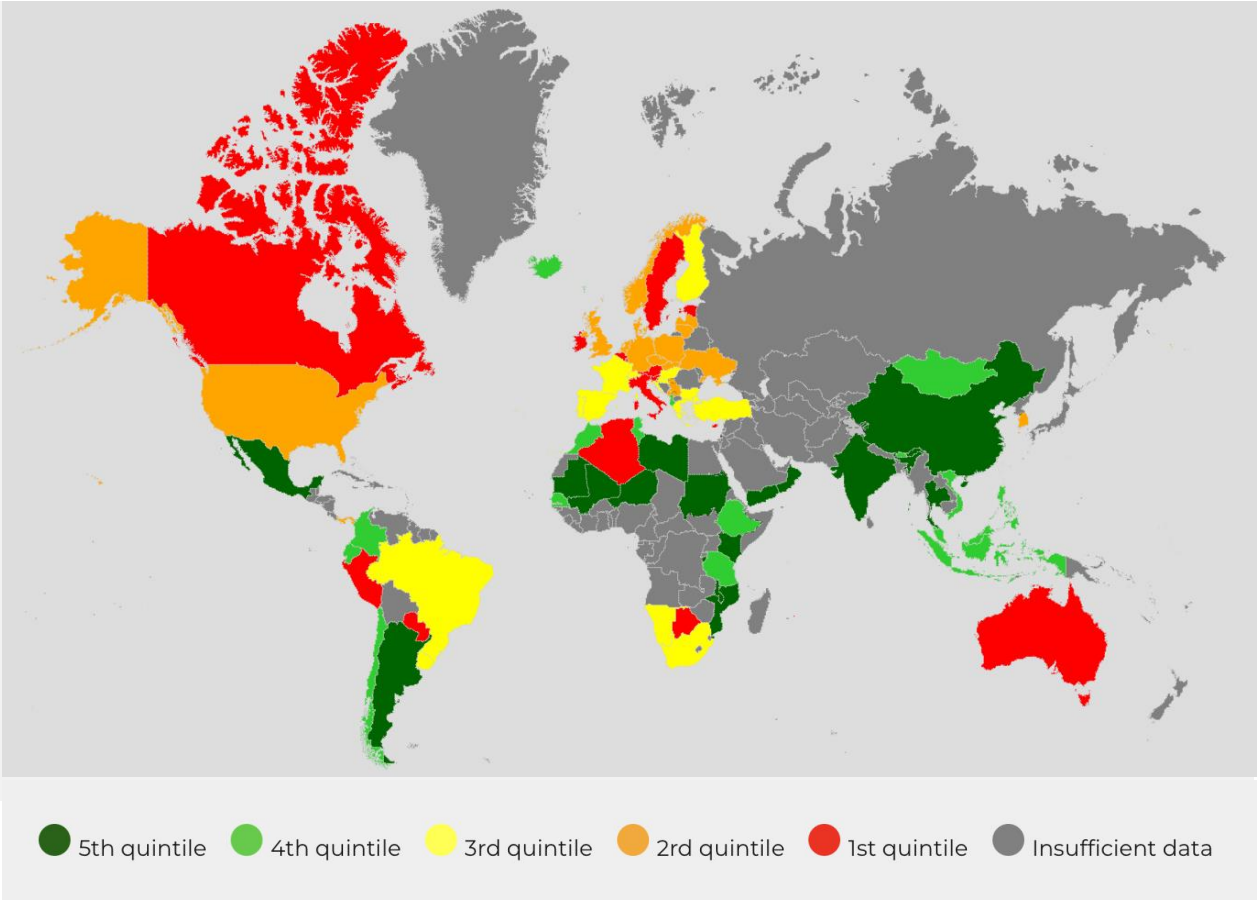
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 26. Proportion of local breeds classified as being at risk, not at risk or with an unknown level of risk of extinction (percentage) (2022)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

Figure 27. Global distribution of the proportion of local breeds at risk of extinction (2022)



NOTE: * Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

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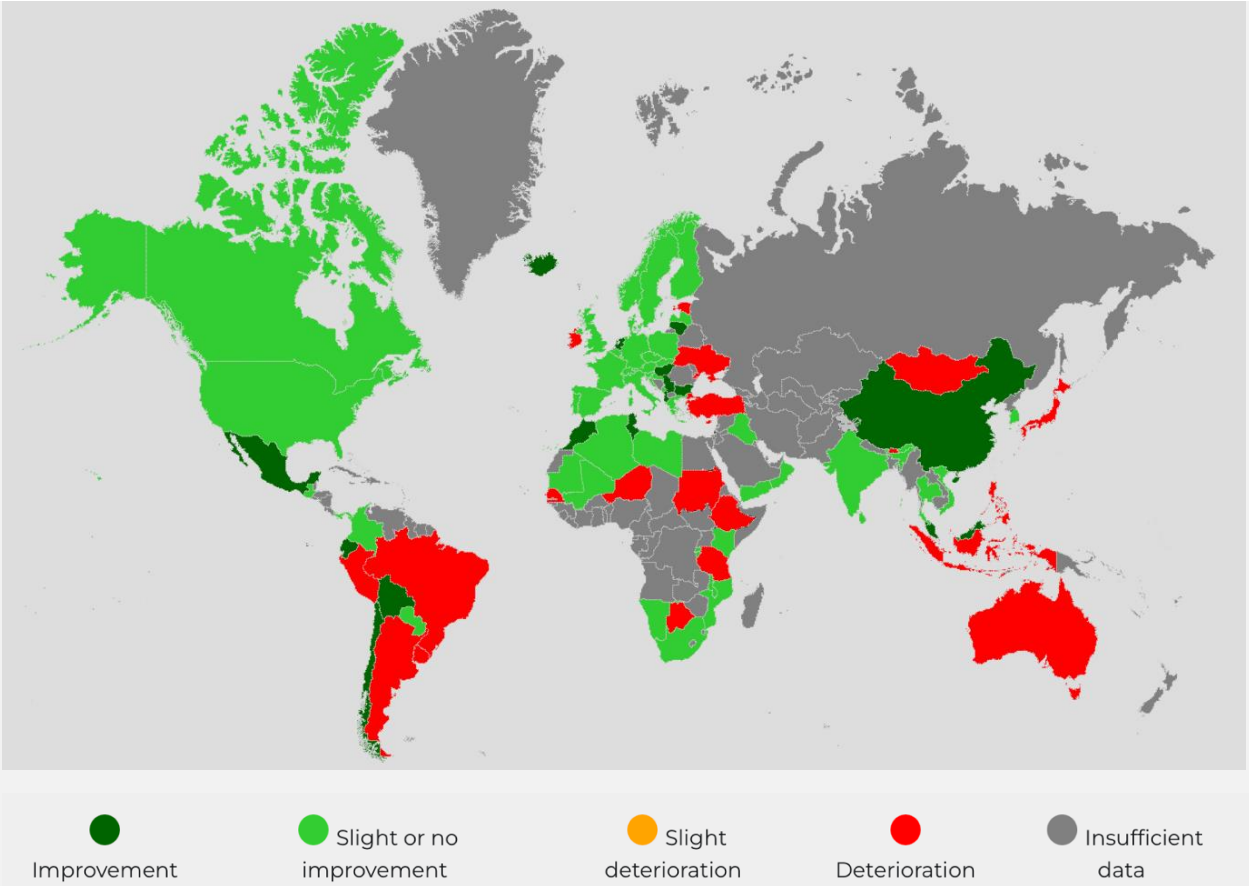
Figure 28. Progress towards the target of reducing the proportion of local breeds at risk of extinction (2015–2022)



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SDG INDICATOR 2.A.1

Agriculture orientation index for government expenditure

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: no improvement since the baseline year.

Target 2.a

Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.

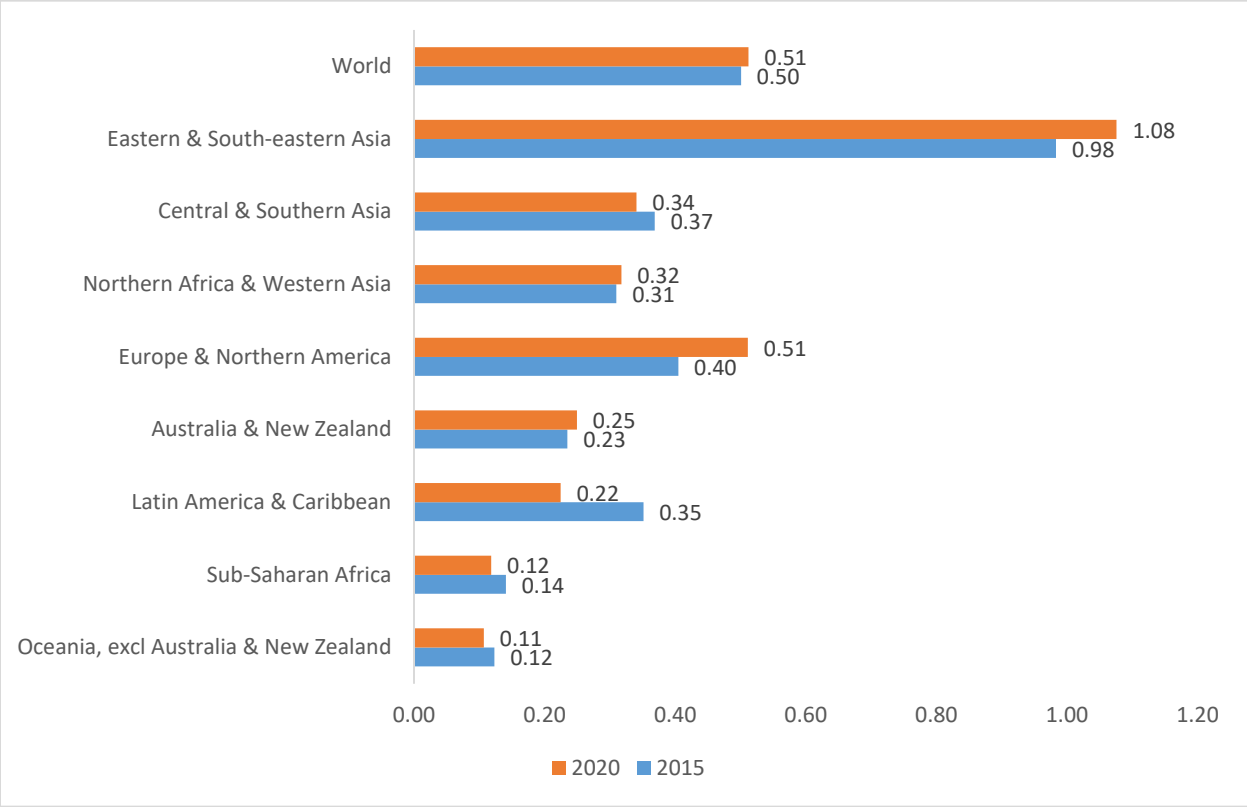
The global agriculture orientation index (AOI) showed an increasing trend between 2015 and 2019; it receded in 2020 as higher expenditures went to non-agricultural activities.

The AOI, which compares government expenditure for agriculture to the agriculture sector's contribution to GDP, registered an increasing trend at the global level between 2015 and 2019. It receded in 2020 as higher expenditures went to non-agricultural activities, particularly those related to the COVID-19 response. Nonetheless, the global AOI remained higher in 2020 (0.51) than in 2015 (0.50) (Figure 29).

Between 2015 and 2020, public spending on agriculture increased in Asia, and particularly in Eastern and South-Eastern Asia, where the AOI increased from 0.98 in 2015 to 1.08 in 2020. The greatest relative increase in AOI was registered in Europe and Northern America, where the AOI went from 0.40 in 2015 to 0.51 in 2020. Smaller increases were also registered in Australia and New Zealand (from 0.23 in 2015 to 0.25 in 2020) and Northern Africa and Western Asia (from 0.31 to 0.32).

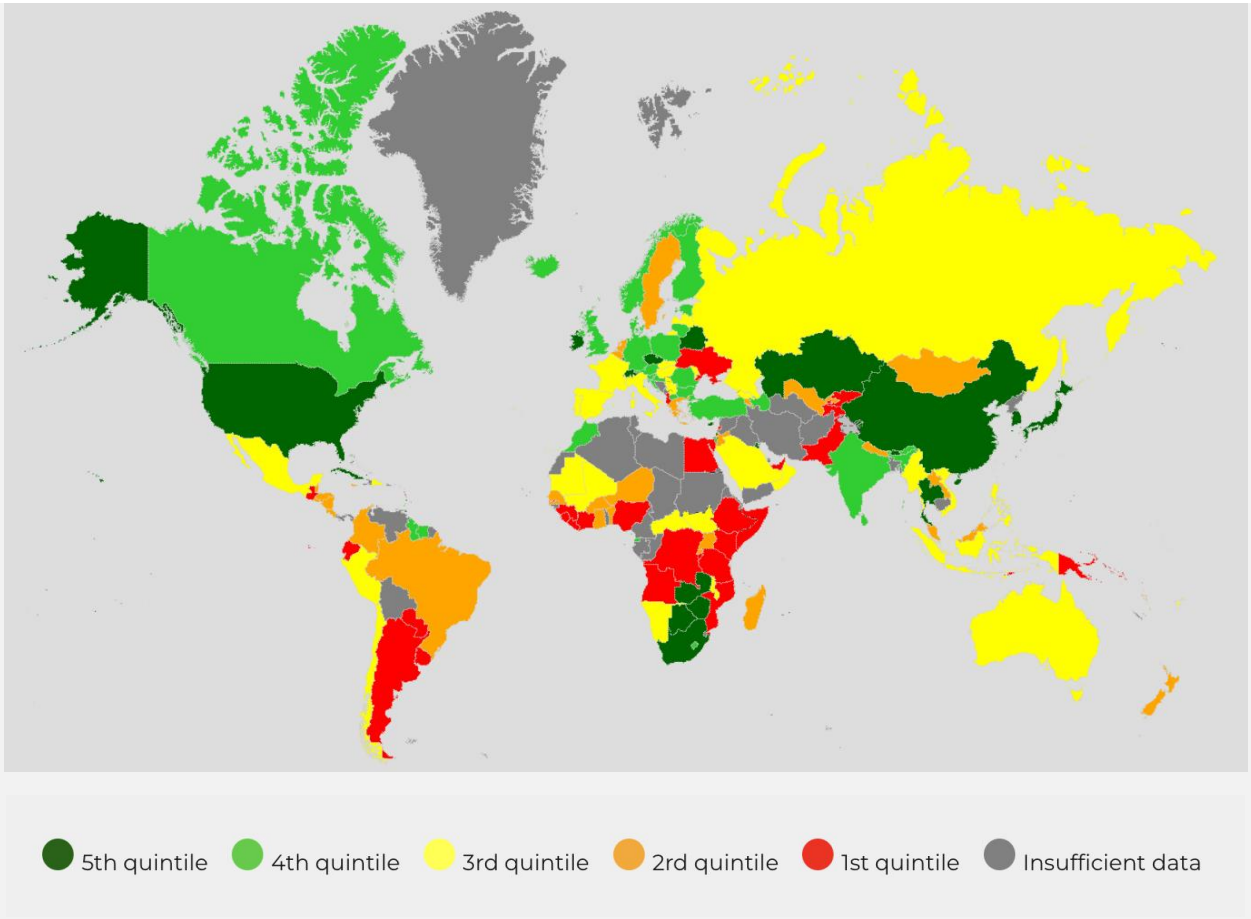
Other regions saw their AOI decline over the same period, with Latin America and the Caribbean registering the largest drop (from 0.35 to 0.22). Sub-Saharan Africa and Oceania remain the regions with the lowest AOI, at 0.12 and 0.11 in 2020, respectively. This does not bode well for efforts to reduce poverty and hunger, considering the potential of public spending on agriculture to drive inclusive economic growth. For sub-Saharan Africa in particular, low public spending on agriculture reflects poor progress toward the Malabo Declaration, which commits African countries to invest 10 percent of their public expenditures in agriculture. At the same time, while the AOI in high-income countries appears to be more oriented towards agriculture, governments in developing countries devote a much higher share of total expenditure on agriculture in comparison with their counterparts in high-income countries.

Figure 29. Agriculture orientation index by SDG region (2015 and 2020)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

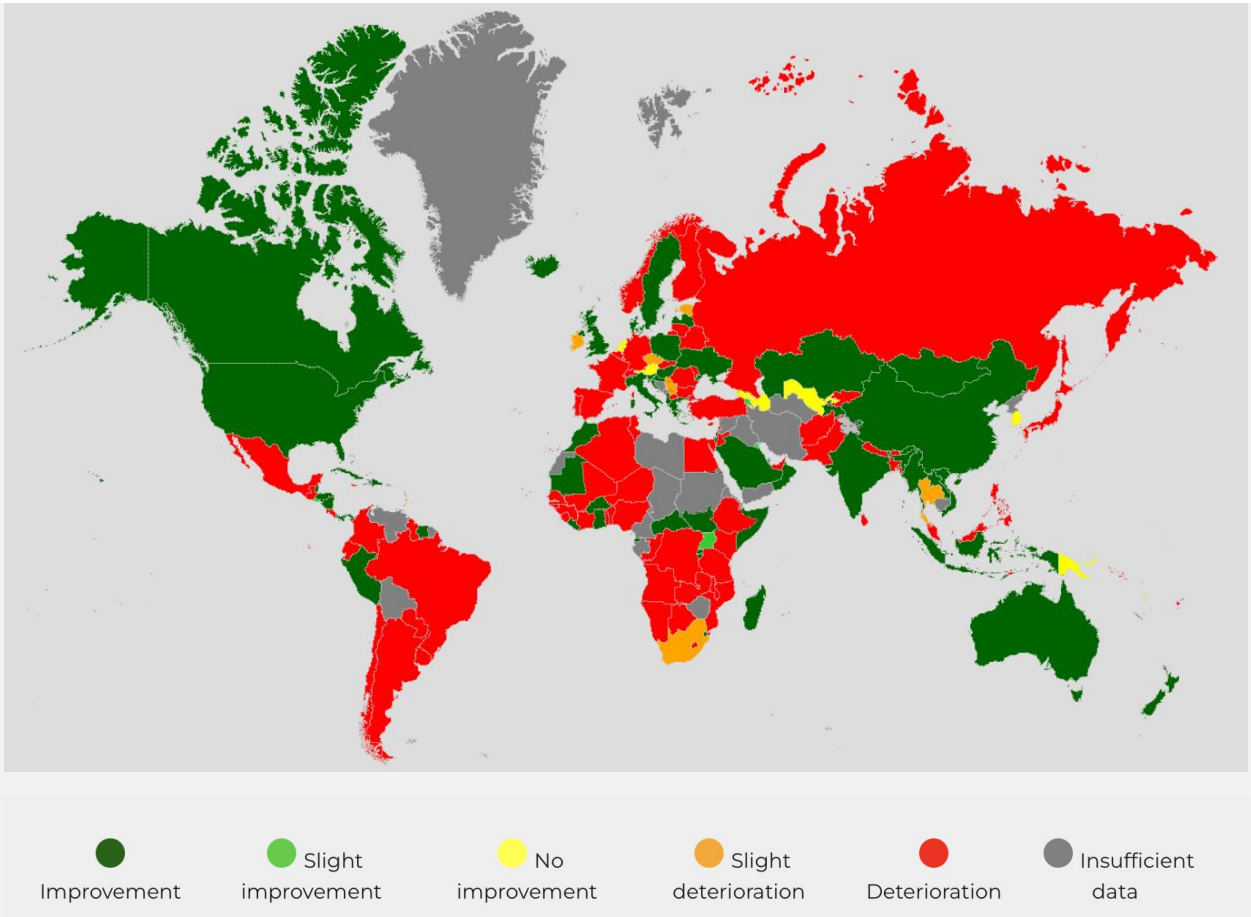
Figure 30. Global distribution of the agricultural orientation index (most recent year available)



NOTE: · Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 31. Change in agricultural orientation index (2015 to most recent year available)



NOTE: ' Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

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SDG INDICATOR 2.B.1

Agricultural export subsidies

Target 2.b

Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round.

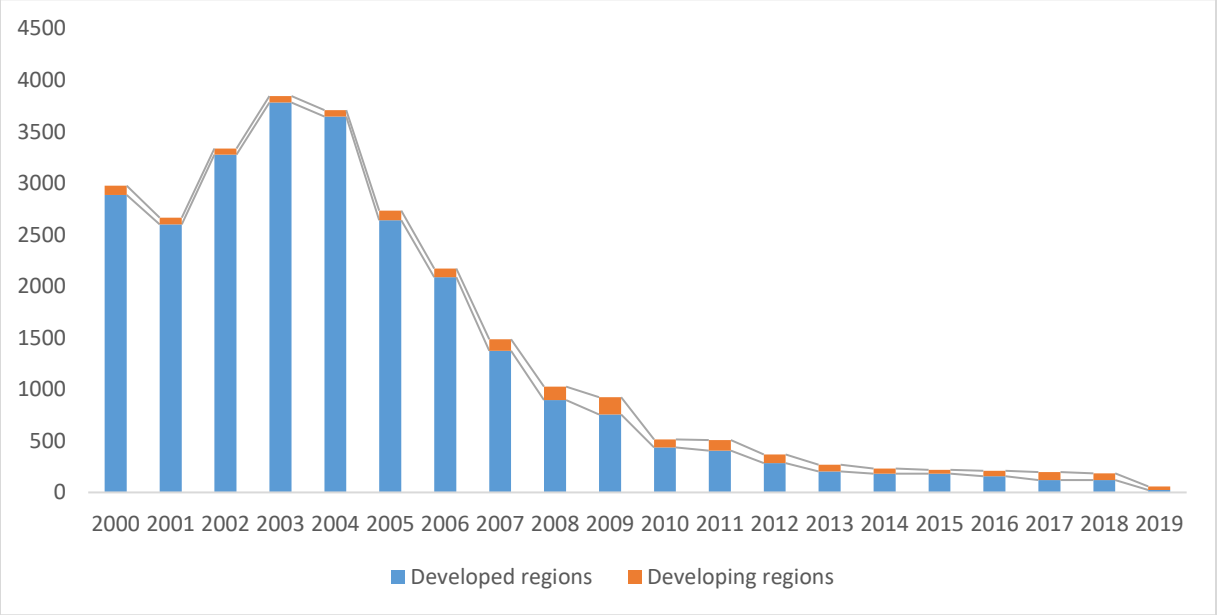
Significant progress has been made towards eliminating agricultural export subsidies globally in recent years to prevent price distortions; however, some countries still need to proceed to their full elimination.

A key tool for redressing distortions in international markets and, by extension, global inequality, is to eliminate certain export subsidies. Agricultural export subsidies, in particular, have been shown to distort market prices. They encourage surplus production in exporting countries and lead to lower prices and less production in importing countries, with detrimental effects on consumers in the short and longer term.

In view of these effects, in December 2015, World Trade Organization (WTO) Members adopted the Ministerial Decision on Export Competition, thus formally agreeing to eliminate all forms of agricultural export subsidies. Agricultural export subsidy outlays notified to the WTO show an overall downward trend since 1995 (see Figure 32). Total notified annual outlays fell from their peak of USD 3.84 billion in 2003 to USD 58 million in 2019. Thus, while agricultural export subsidies today are a fraction of what they used to be, some countries still have not proceeded to their full elimination.

As per the WTO report to the UN High-Level Political Forum 2022, leading up to the twelfth WTO Ministerial Conference, progress in the area of agriculture could complete the achievement of SDG Target 2.b to correct and prevent trade restrictions and distortions in agricultural markets.

Figure 32. Agricultural export subsidies (in millions of current USD) (2000–2019)



SOURCE: United Nations. 2022. SDG Indicators Database. In: *UN Statistics Division.* New York. Cited 8 June 2022. https://unstats.un.org/sdgs/dataportal/database

SDG INDICATOR 2.C.1

Indicator of food price anomalies

Global assessment not possible due to the methodological characteristics of the indicator

Target 2.c

Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

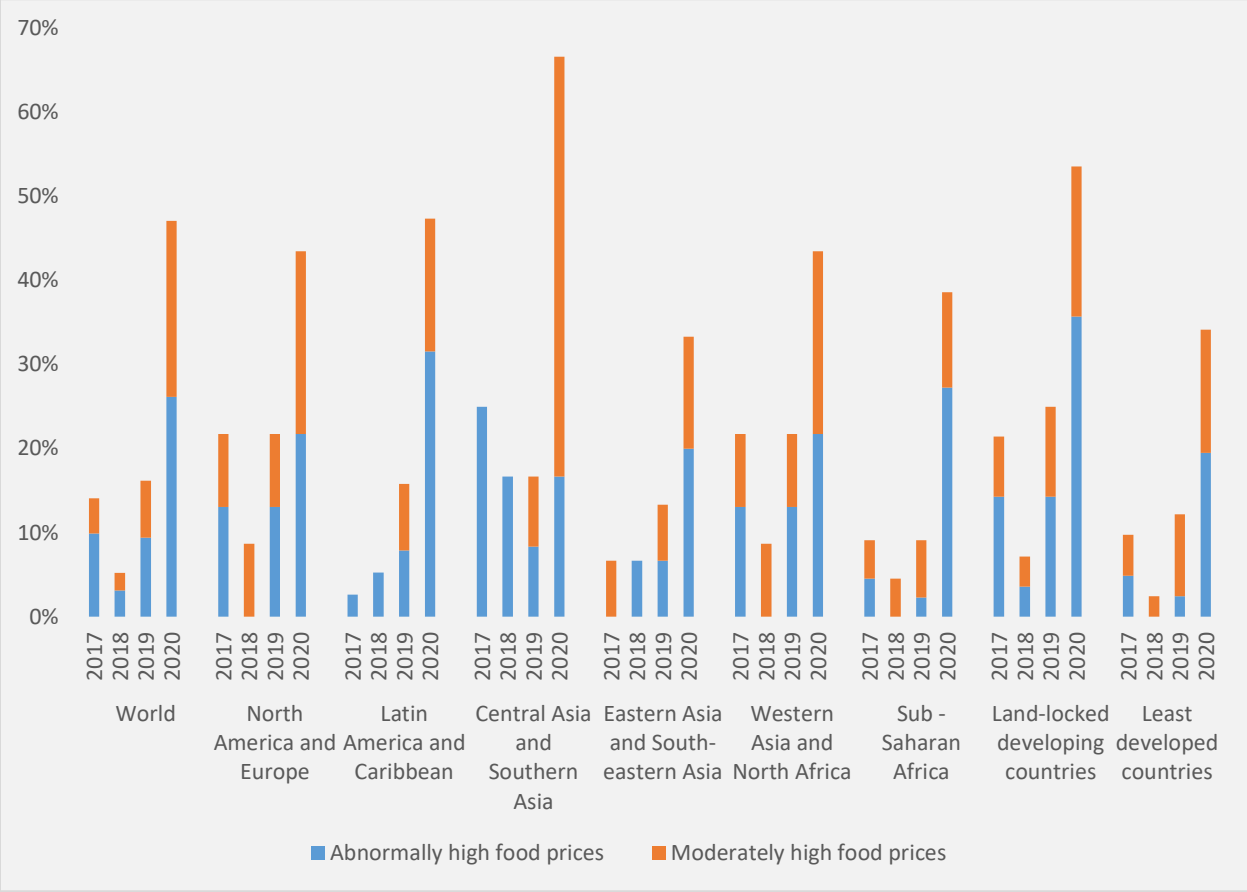
Globally, the number of countries afflicted by high food prices increased sharply in 2020.

The global share of countries afflicted by high food prices – which had remained relatively stable since 2016 – rose sharply from 16 percent in 2019 to 47 percent in 2020 (Figure 33), mainly due to trends in international markets. International prices of food items soared in the second half of 2020, following declines during the first five months of the year amid COVID-19-related stagnation in the food and non-food sectors. These price rises were caused by the increase in the international demand for cereals, vegetable oils and sugar and dairy products with the easing of COVID-19 related restrictive measures in some countries. The strong demand more than offset the abundant supplies from the 2020/21 record outputs of wheat, maize, rice and oilseed.

Domestic market factors also prompted price increases. In some countries, prices of key food items soared due to massive buying and hoarding amid the first wave of the COVID-19 pandemic, when restrictive measures related to the pandemic were introduced. An upsurge in the costs of freight and agricultural inputs as well as some logistical bottlenecks exerted additional upward pressure on food prices in domestic markets. Increases in domestic food prices were in part limited by policy measures such as fiscal support to producers and consumers.

In 2020, the proportion of countries experiencing abnormally and moderately high food prices was highest in Central and Southern Asia (67 percent) and lowest in Eastern and South-eastern Asia (33 percent). In Latin America and the Caribbean, which, together with land-locked developing countries (LLDCs), registered the highest proportion of countries experiencing abnormally high food prices, the share of countries afflicted by high prices rose by 31 percentage points year-on-year in 2020, reversing the declines in previous years. In Central and Southern Asia and Western Asia and Northern Africa, the market disruptions amid the COVID-19 pandemic further compounded pre-existing conditions, including reduced domestic availabilities of staple food and currency depreciations in some countries. In Oceania, price indices are only available for a handful of countries, making it difficult to draw conclusions about food price volatility at the regional level.

Figure 33. Proportion of countries, by region, affected by high or moderately high food prices (2017–2020)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals*. Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

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SUSTAINABLE DEVELOPMENT GOAL 5

Gender equality

Achieve gender equality and empower all women and girls.

SUMMARY TABLES

INDICATORS
5.a.1 5.a.2

Overview

The COVID-19 crisis has resulted in major setbacks to progress made in recent years towards gender equality. As a result of the crisis, violence against women and girls has intensified; child marriage, on the decline in recent years, is expected to rise; and the increased burden of unpaid care and domestic work is affecting women disproportionately. On the economic front, the livelihoods of women, who are more likely to be engaged in hard-hit sectors, suffered a stronger impact than those of men.

The pandemic has highlighted the need to act swiftly to address existing gender inequality, which remains pervasive globally. Despite its negative impact so far, the crisis could also present an opportunity to reshape systems, laws, policies and institutions to advance gender equality.

While international commitments to advance gender equality have brought about improvements in some areas in recent years, the vision of full gender equality across economic, social and political spheres remains far from fulfilled. This is the case for ownership and/or secure tenure rights over agricultural land, which is a critical factor for determining access to credit and financial services, and essential for weathering crises such as the current pandemic. Although women make up a substantial share of the agricultural labour force in developing countries, fewer women than men have ownership and/or legally secure tenure rights over agricultural land. Substantial progress still needs to be made towards the establishment and implementation of legal frameworks that protect women's land rights, as discussed in the following sections.

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.

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: not possible due to insufficient data.

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 laws.

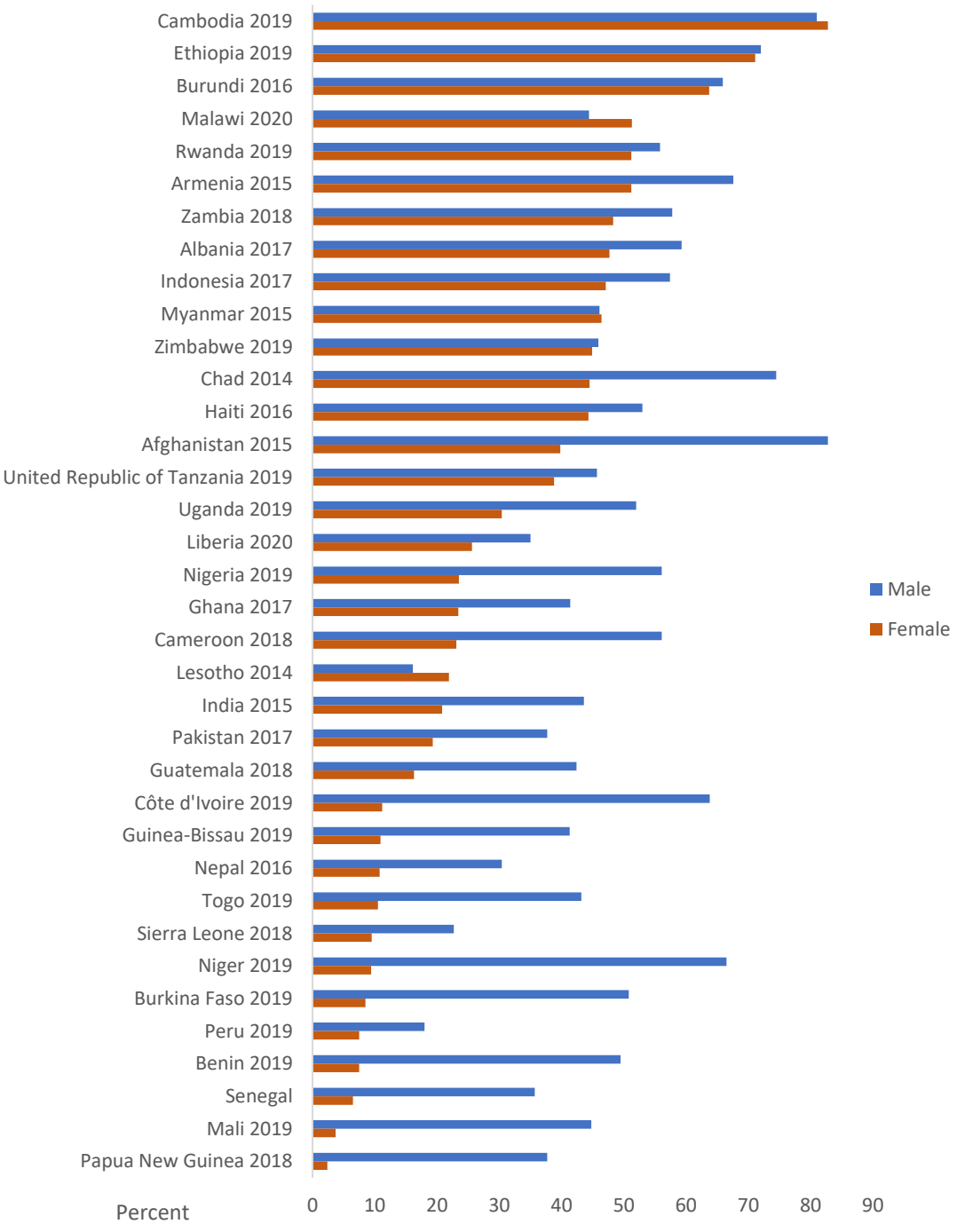
Gender equality in the ownership and secure tenure rights over agricultural land is far from achieved.

The ability to access land is a key determinant of the socioeconomic conditions of individuals that earn their livelihoods from agriculture, directly affecting their income, food security and nutrition. While data on access to land remain scarce at the global level, the existing information shows that many men and women involved in agricultural production lack ownership and/or secure tenure rights over agricultural land. In 30 out of 36 countries, less than 50 percent of women have ownership and/or secure tenure rights over agricultural land, whereas in 16 countries, less than 30 percent of women have ownership and/or secure rights (see Figure 34).[2] Meanwhile, the proportion of men with ownership and/or secure rights over agricultural land exceeds 50 percent in 18 out of 36 countries assessed.

Land ownership is an important tool to empower women and establish their economic autonomy. Owning or bearing rights to land reduces women's reliance on male partners and relatives, thus increasing their bargaining power in the economy and within households. In addition, ownership or secure rights to land improve women's chances of accessing extension services and credit, and it encourages them to invest and join producer organizations. However, significant gender disparities persist among the agricultural population, with women being less likely than men to hold secure tenure rights in most countries with available data.

[2] Where several data points are available for a given country, the latest data point is used.

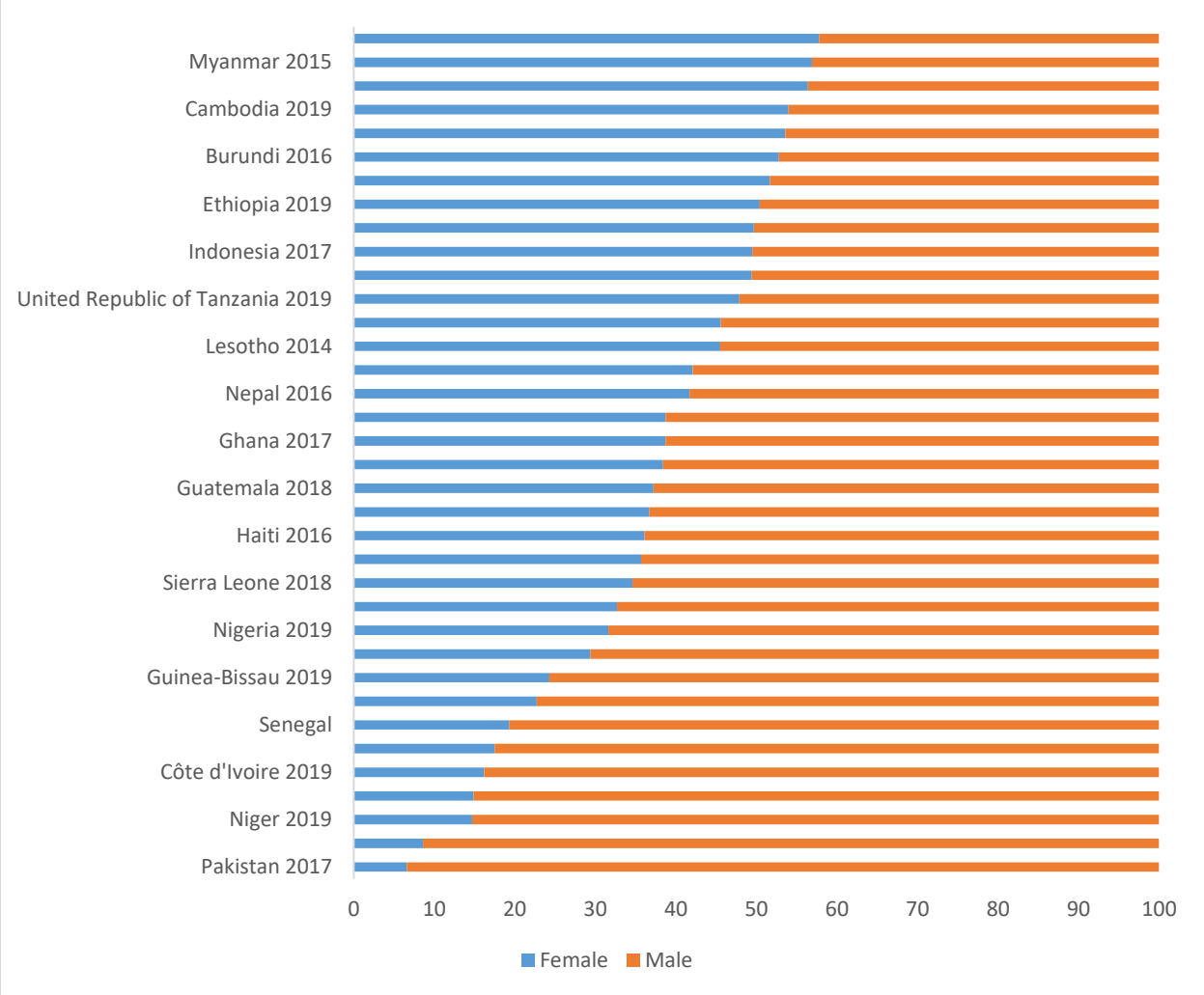
Figure 34. Women and men with ownership or secure tenure rights over agricultural land, as a share of the adult agricultural population (most recent year available)



NOTE: the questions in the analysed surveys may differ between countries. Where several data points are available for a given country, the data for the most recent year are used.
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

The available data from 36 countries show that in the vast majority of countries (28 out of 36), more men than women are owners or right bearers of agricultural land (Figure 35). This corroborates the conclusion that women are in a disadvantaged position compared to men within the agricultural population, as land plays a key role in individuals' empowerment. In addition, the share of men among landowners reaches over 70 percent in nine countries (Figure 35). Therefore, it may be concluded that land ownership patterns are heavily skewed in favour of men in the vast majority of cases, and that gender equality is yet to be achieved in ownership and secure rights over agricultural land.

Figure 35. Share of men and women among owners/holders of secure tenure rights over agricultural land



NOTE: the questions in the analysed surveys may differ between countries. Where several data points are available for a given country, the data for the most recent year are used.
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

A more in-depth analysis of land ownership in a number of specific countries shows that in Uganda and Nigeria, 40 percent of the agricultural population had a legally recognized document or the right to sell or bequeath their agricultural land in 2019.[3] In both countries, the share of men with secure tenure rights exceeded 50 percent, while that of women did not exceed 30 percent. Moreover, among those with secure tenure rights, only one third are women in Nigeria, and two fifths in Uganda.

Among the countries assessed, Malawi (2020) and Cambodia (2019) are the only countries where the proportion of women with secure tenure rights over agricultural land is higher than that of men. In Malawi, women have a higher likelihood of possessing the right to sell and/or bequeath land than men, although men were more likely to have their name on a legal document. In Cambodia, the difference between women and men with ownership rights is smaller, and disaggregated data by different proxies do not show any significant difference between women and men.

In Zimbabwe, around 45 percent of men and women engaged in agriculture have secure tenure rights over agricultural land (2019). Women constituted more than half of all agricultural landowners in Cambodia, Malawi and Zimbabwe.

The data show a slight improvement in agricultural land tenure rights over time for both men and women in Ethiopia, Malawi and Uganda.[4] In Peru, estimates remain rather stable over the period from 2014 to 2019: around 13 percent of the total agricultural population has ownership rights over land (defined as the possession of a document for a parcel by the holders). In the United Republic of Tanzania, 42 percent of the agricultural population had ownership rights over agricultural land in 2019, slightly lower than the previous data point in 2015, but still higher than the 39 percent registered in 2009.

[3] The data available for Cambodia, Malawi, Nigeria, Uganda and Zimbabwe allow for the computation of SDG Indicator 5.a.1 in full alignment with the internationally agreed methodology.

[4] The surveys compared include the same set of questions and data sources.

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

Status assessment: not possible due to the insufficiency of data.

Trend assessment: not possible due to insufficient data.

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 laws.

Significant reforms are still needed in a majority of countries to repeal discriminatory legal provisions and/or close gender gaps in land and property rights.

Gender-responsive policies and legal frameworks are fundamental to advancing women's rights to land. There is an increasing recognition that women's ownership of and/or control over land is critical for poverty reduction, food security and overall sustainable development.

However, measuring the status of and progress towards the establishment and implementation of such legal frameworks is a complex process. SDG Indicator 5.a.2 measures the extent to which national frameworks (including customary law) guarantee women's equal rights to land ownership and/or control by testing these frameworks against six criteria drawn from international law and internationally accepted good practices (Figure 36).

Criteria	Explanation
Criterion A: is the joint registration of land compulsory or encouraged through economic incentives?	Criterion A assesses whether the legal and policy framework includes provisions requiring the joint registration of land or encouraging joint registration through economic incentives for both married and unmarried couples.
Criterion B: does the legal and policy framework require spousal consent for land transactions?	This criterion examines whether national laws provide for mandatory spouse or partner consent for land transactions, such as the sale, mortgage or lease of family land or the family home, which can directly affect women's land rights if they do not participate in the decisions.
Criterion C: does the legal and policy framework support	Criterion C examines the extent to which national laws on intestate inheritance establish equal inheritance rights for

Criteria	Explanation
women's and girls' equal inheritance rights?	surviving children and the surviving spouse(s), regardless of sex.
Criterion D: does the legal and policy framework provide for the allocation of financial resources to increase women's ownership and control over land?	This criterion identifies any legal provision that commits the government to allocating financial resources to increase women's ownership and control over land or access to productive resources, including land. For this criterion to be met, the funds must be anchored into a national law that explicitly mentions the purpose of improving women's land rights.
Criterion E: in legal systems that recognize customary land tenure, does the legal and policy framework explicitly protect the land rights of women?	In countries where customary law has been incorporated into the legal framework, this criterion assesses whether the constitution and/or any land-related law that recognizes customary land tenure explicitly protect women's land rights.
Criterion F: does the legal and policy framework mandate women's participation in land management and administration institutions?	Criterion F identifies provisions within the legal framework requiring mandatory participation of women (quotas) in land-related management and administration institutions.

Evidence collected from 52 reporting countries representing different regions, religious and cultural contexts and legal systems reveals that women´s land rights are frequently less protected than those of men in national laws. About 46 percent of legal frameworks offer limited protection of women's land rights, while nearly 25 percent provide medium levels of guarantees. Only 29 percent of the reporting countries provide sufficient protection of women's rights to land in their legal frameworks.

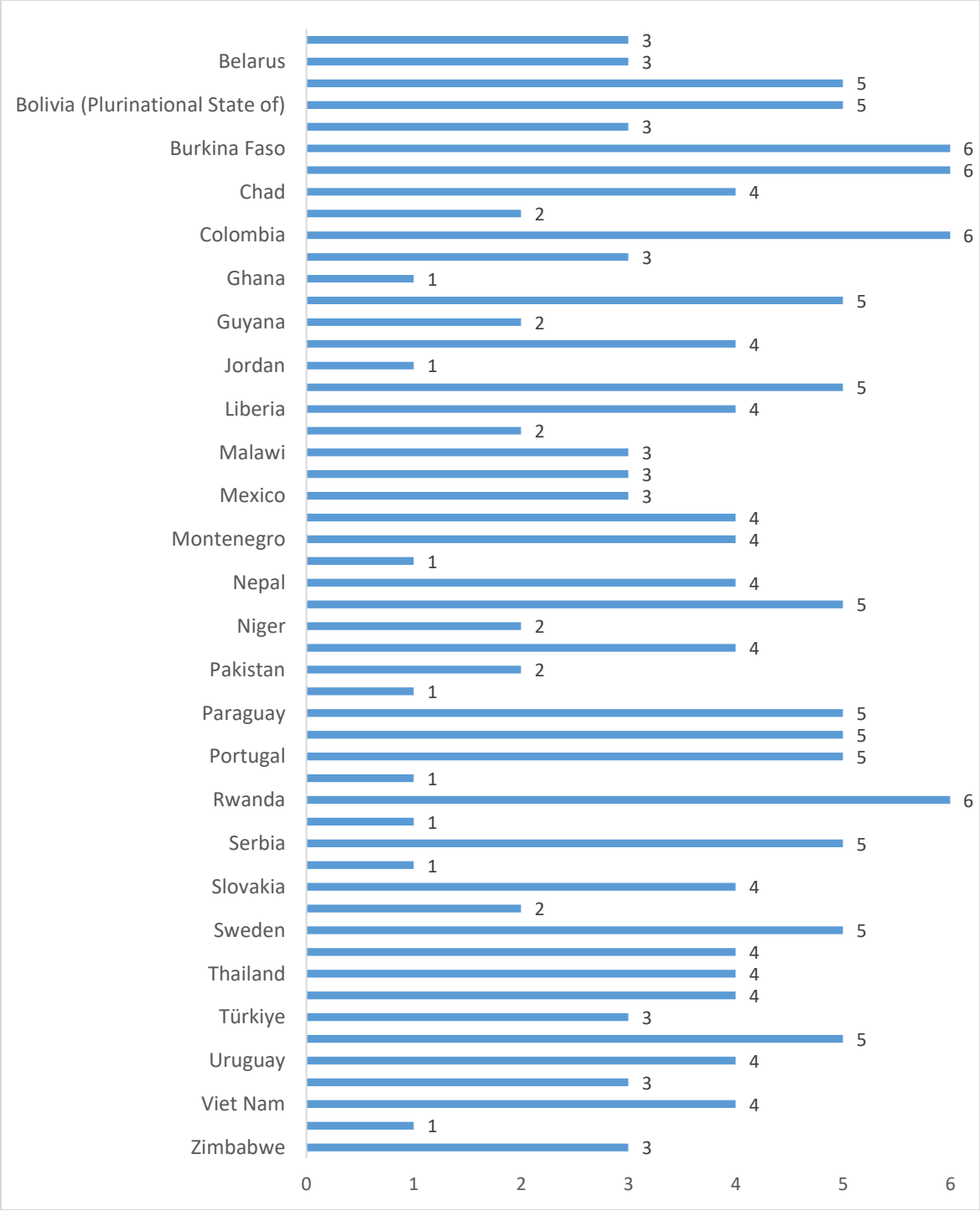
Noticeable progress has been achieved in succession law. About 64 percent of countries provide equal inheritance rights for spouses and children, although women's rights in informal unions or polygamous households are often not protected. In countries where customary and/or religious laws govern family matters, women's and girls' inheritance rights tend to be unprotected.

The picture regarding the management and control of property rights in matrimonial regimes is mixed. On the one hand, 56 percent of reporting countries protect spouses from being dispossessed of marital property, requiring spousal consent for land transactions. On the other hand, while 60 percent of countries have full or partial community property as the default matrimonial property regime, only 39 percent encourage joint land registration by either mandating it (85 percent) or offering financial incentives to that end (15 percent). Therefore, women's rights in marital property essentially remain insecure in case of widowhood and divorce. Moreover, the rights of women living in informal unions are only protected in 23 percent of countries, mainly in Latin America and Europe.

In countries where customary law is recognized (65 percent), only half prioritize the principle of non-discrimination in case of conflict. It is also worth noting that while 35 percent of countries do not recognize customary law, land matters are nonetheless often governed by customary practices. In these cases, particularly in contexts where patriarchal systems prevail, women's land rights remain insecure.

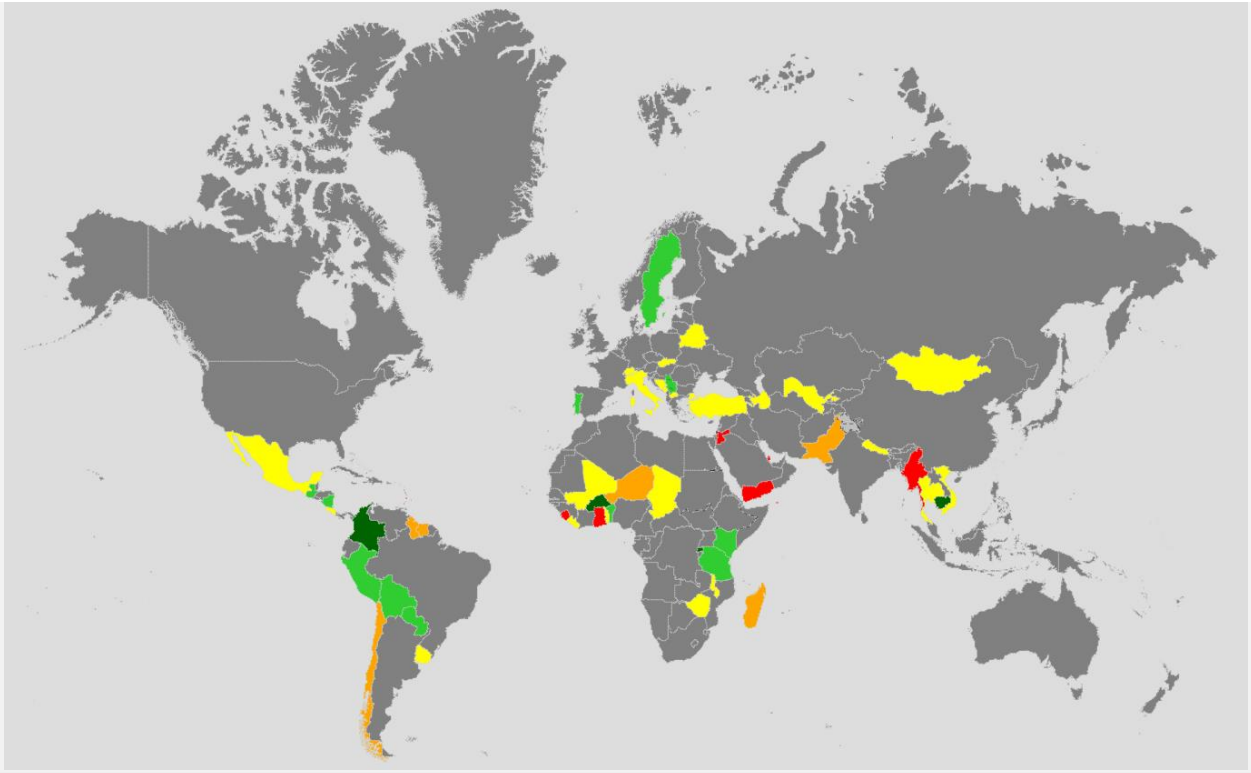
Some countries have adopted temporary special measures in line with the Convention on the Elimination of All Forms of Discrimination Against Women to support the realization of women's rights to land in the law and in practice, though such measures remain highly uncommon. For instance, mandatory quotas to foster women's participation in relevant institutions and the allocation of financial resources to increase their land ownership and/or control have only been identified in 38 percent and 20 percent, respectively, of the reporting countries.

Figure 36. Degree to which the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control (1 = lowest; 6 = highest)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 37. Current status of progress by countries towards establishing legal frameworks that guarantee women's equal right to land ownership and/or control (most recent year available)



NOTE: ' Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

SUSTAINABLE DEVELOPMENT GOAL 6

Clean water and sanitation

Ensure availability and sustainable management of water and sanitation for all.

SUMMARY TABLES

INDICATORS
6.4.1 6.4.2

Overview

Access to safe water, sanitation and hygiene is one of the most basic human needs, and crucial for health and wellbeing. Progress in this field has hitherto been insufficient, and billions of people will still lack access to these basic services in 2030 unless progress quadruples in speed. Demand for water is rising due to rapid population growth, urbanization and increasing water needs from agriculture, industry and energy sectors. Decades of misuse, poor management, overextraction of groundwater and contamination of freshwater supplies have exacerbated water stress in many regions of the world. In addition, countries are facing growing challenges linked to degraded water-related ecosystems, water scarcity caused by climate change, underinvestment in water and sanitation, and insufficient cooperation on transboundary waters.

SDG INDICATOR 6.4.1

Change in water use efficiency over time

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: improvement since the baseline year.

Target 6.4

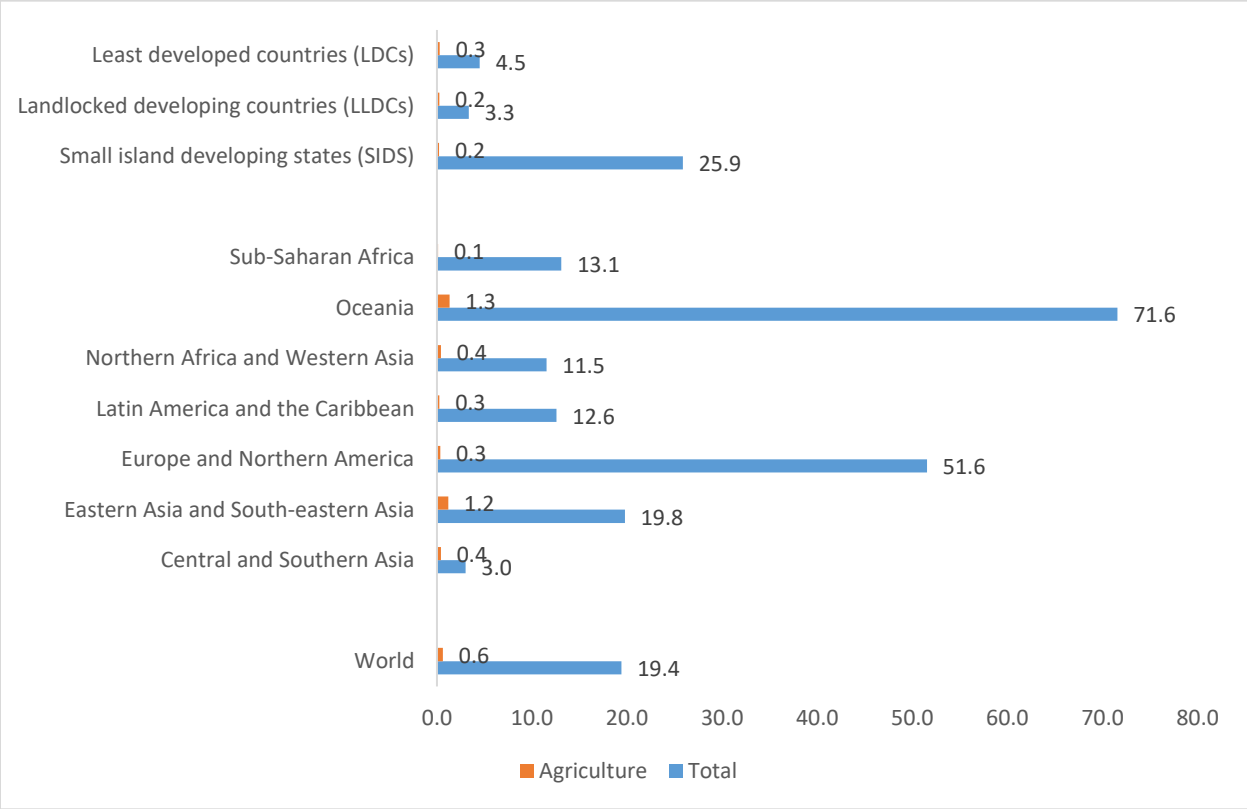
By 2030, substantially increase water use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Water use efficiency rose by 12 percent from 2015 to 2019 worldwide, and the share of countries with a water use efficiency equivalent to 20 USD/m^3 or less decreased marginally.

Water use efficiency rose from 17.4 USD/m^3 in 2015 to 19.4 USD/m^3 in 2019 worldwide, representing an efficiency increase of 12 percent. In 2019, estimates for water use efficiency ranged from below 3 USD/m^3 in economies that depend largely on agriculture, to over 50 USD/m^3 in highly industrialized, service-based economies. This suggests that a country's economic structure has a direct link to its overall water use efficiency levels. Around 57 percent of countries registered a water use efficiency equivalent to 20 USD/m^3 or less in 2019, compared to 58 percent in 2015.

However, global values hide vast regional differences. Central and Southern Asia and Eastern Asia and South-eastern Asia show the highest growth rates from 2015 to 2019, while Latin America and the Caribbean shows a decrease in water use efficiency (Figure 38).

Figure 38. Worldwide water use efficiency (USD/m³) (2019)

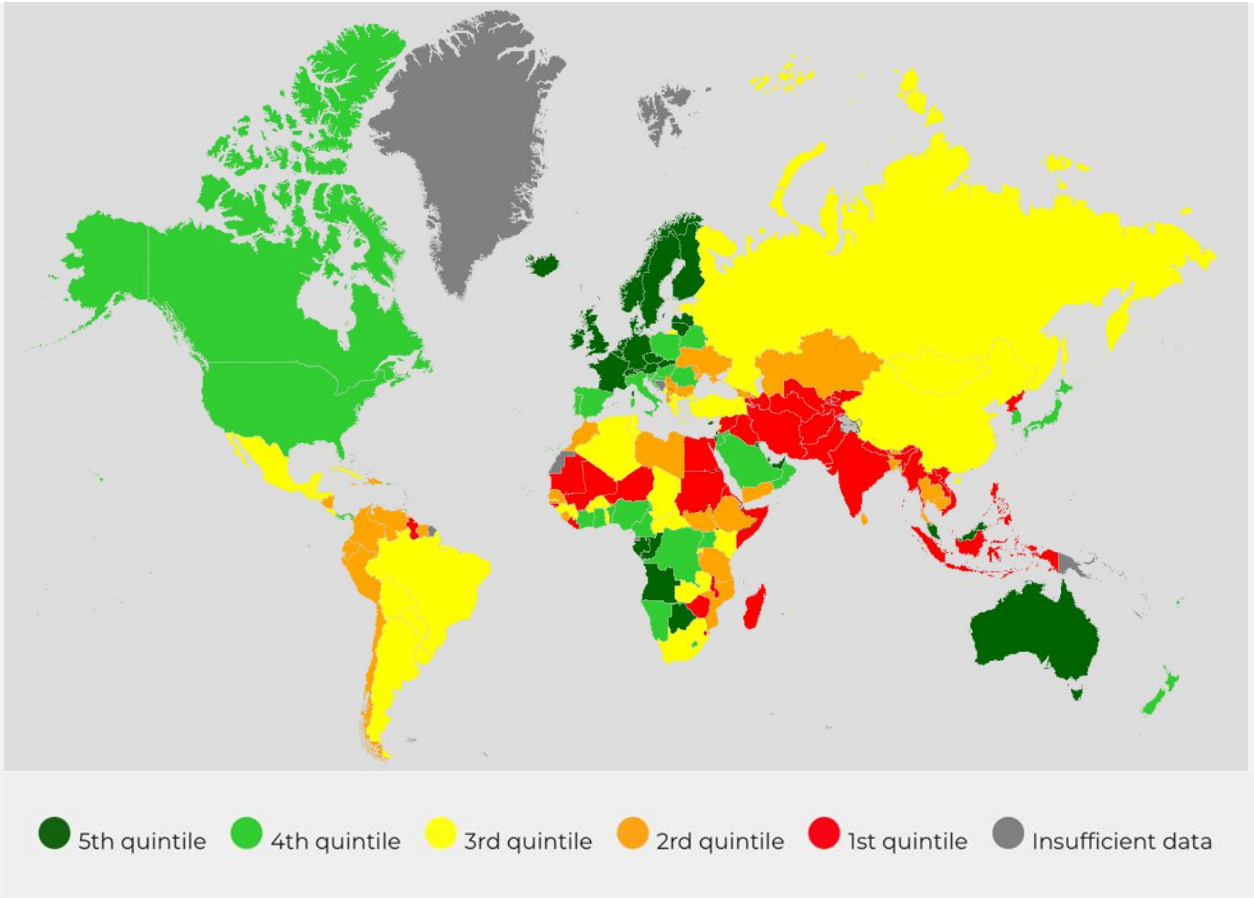


SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

All economic sectors have seen an increase in their water use efficiency since 2015. In 2019, the mining, manufacturing and constructions sector achieved a water use efficiency equivalent to 32.43 USD/m³ and the services sector 114.02 USD/m³, while agriculture lagged behind with only 0.63 USD/m³. Despite the significant differences between sectors, increases in water use efficiency since 2015 have been similar across sectors: 12.5 percent for agriculture, 13 percent for manufacturing and 10 percent for the services sector. Nonetheless, it is evident that water use efficiency in agriculture should improve manifold for the sector to reach levels that are comparable with those of the other sectors.

Increasing agricultural water productivity (the value of output in relation to the quantity of water beneficially consumed) is key for improving water use efficiency, particularly in agriculture-based economies. Another important strategy to increase overall water efficiency is reducing water losses, for example by tackling leakages in municipal distribution networks and optimizing industrial and energy cooling processes.

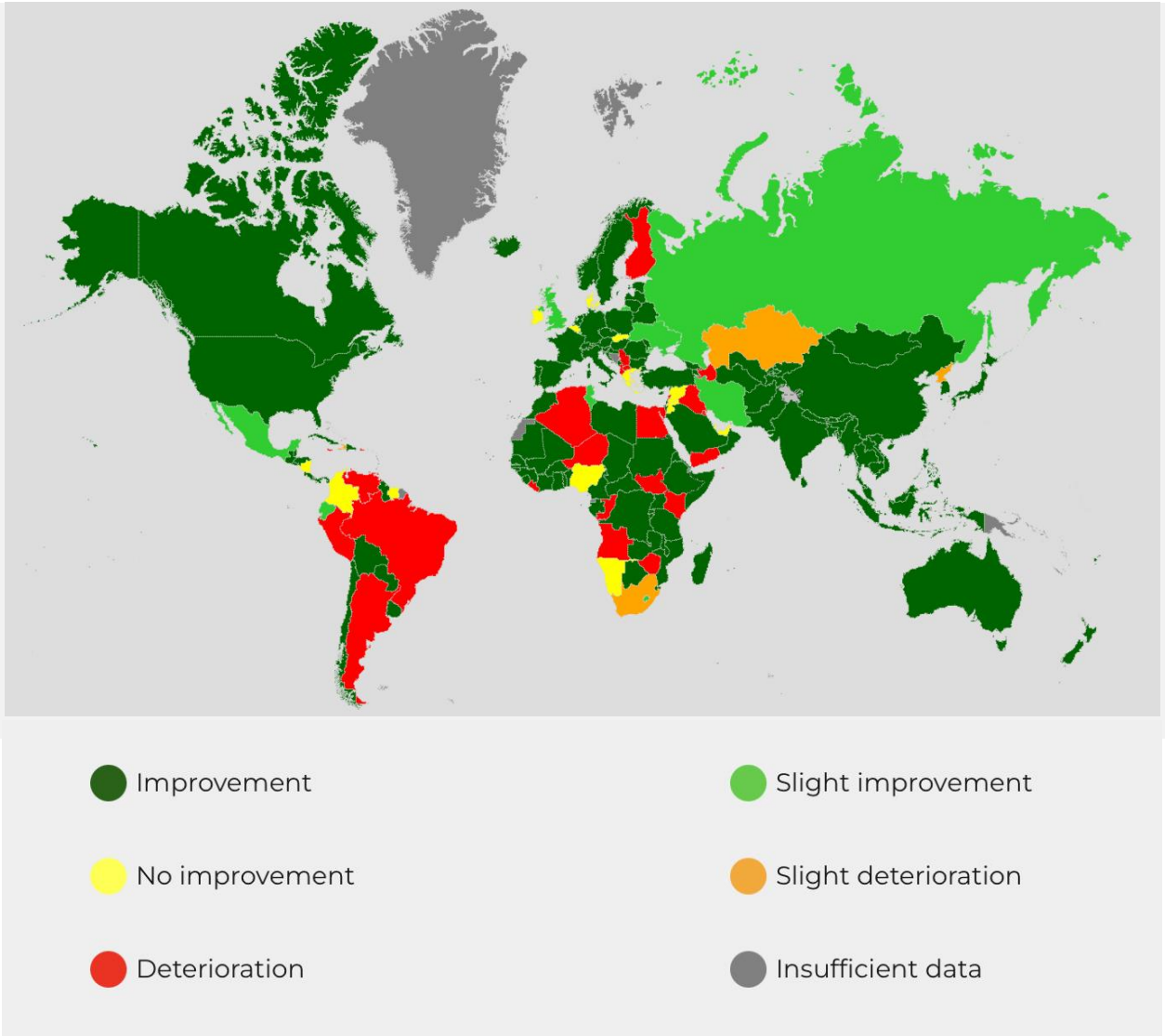
Figure 39. Global distribution of water use efficiency (2019)



NOTE: ' Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

Figure 40. Change in water use efficiency from 2015 to 2019



NOTE: ˙ Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

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SDG INDICATOR 6.4.2

Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: an assessment at the global level was not performed because the value of the global indicator is below 25 percent.

Target 6.4

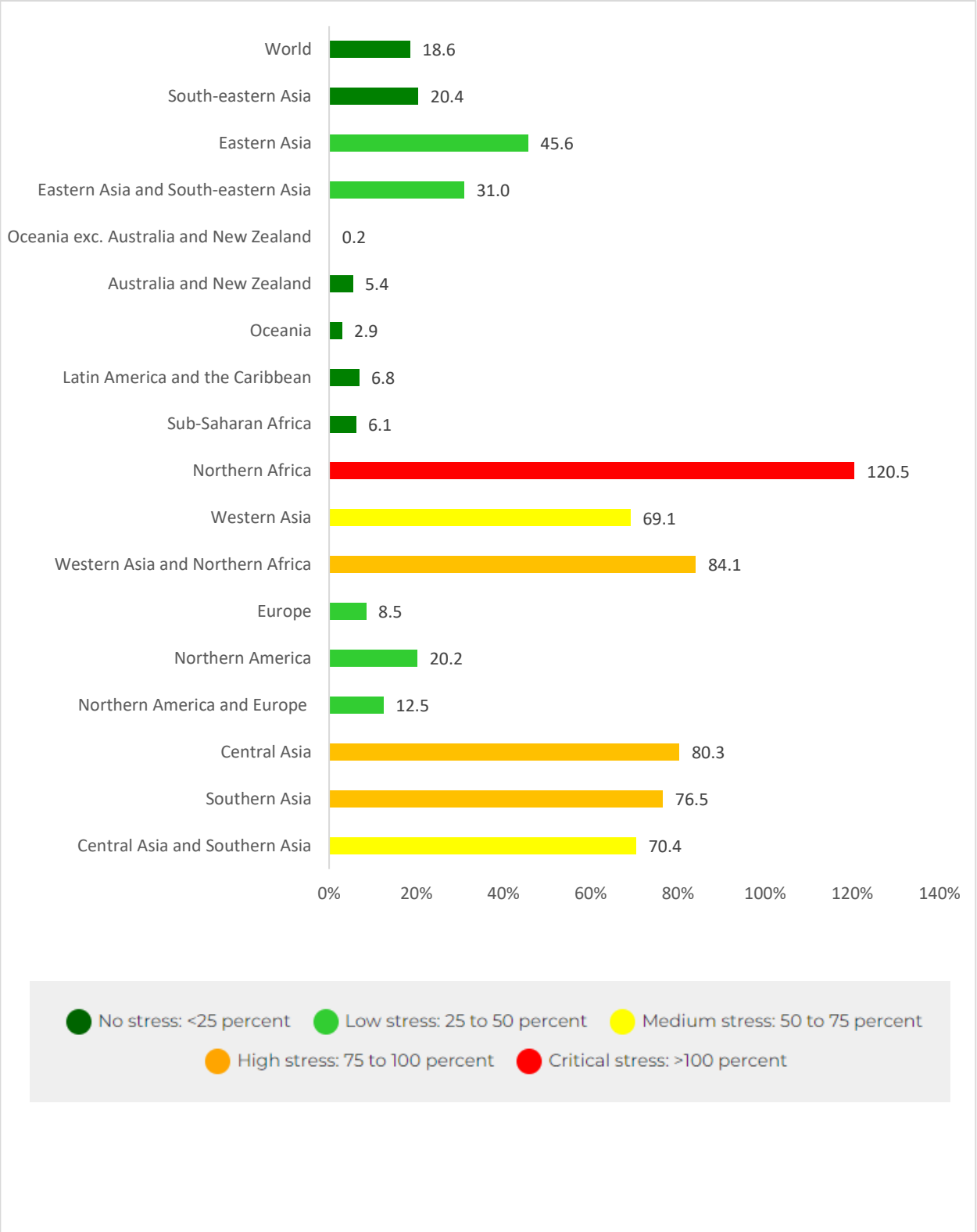
By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Water stress continues to rise in already critically affected regions.

High water stress – the withdrawal of too much freshwater from natural sources compared to the freshwater available – can have devastating consequences for the environment and can hinder, or even reverse, economic and social development. At the global level, SDG Indicator 6.4.2 remained at a safe level according to the latest data (18.6 percent), but this figure masks substantial regional variations. In 2019, Southern Asia and Central Asia had high levels of water stress (76.5 percent and 80.3 percent, respectively), whereas Northern Africa had critical water stress (120.5 percent) (Figure 41). The global water stress level increased by 0.3 percentage points between 2015 and 2019. At the regional level, the increase in water stress levels has been significant in Western Asia and Northern Africa, registering an increase of 12.7 percentage points. Meanwhile, Central and Southern Asia is the only region that saw an improvement in water stress levels over the period, with a decline of 0.9 percentage points (Figure 42).

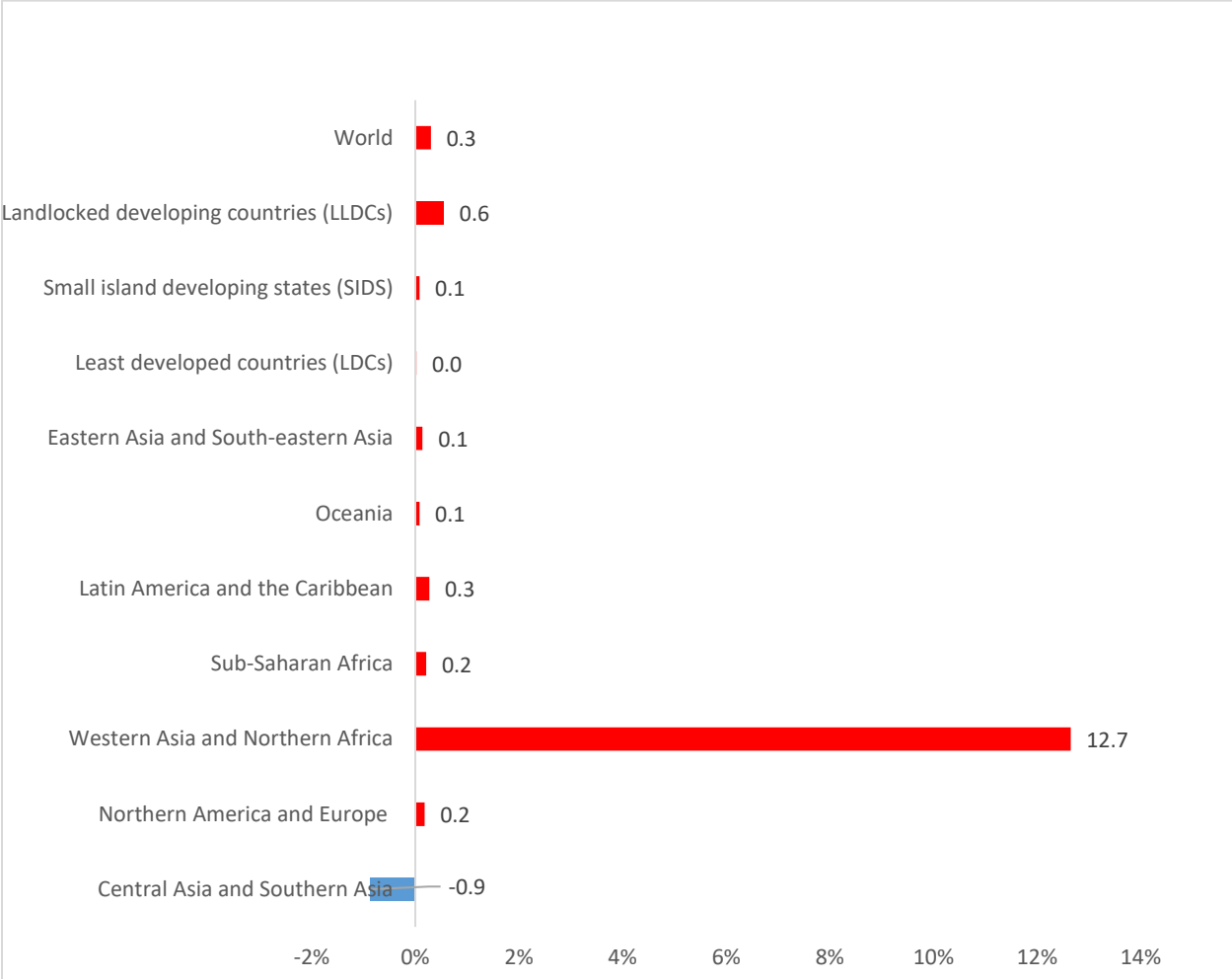
While high levels of water stress require urgent attention due to their damaging consequences, water stress in other regions, such as sub-Saharan Africa and Central and South America, is low enough to allow some countries to sustainably increase water use, provided that adequate precautions are taken. In regions affected by high water stress, urgent and concrete measures are required to save water and increase water use efficiency.

Figure 41. Water stress levels by geographical region and subregion (2019)



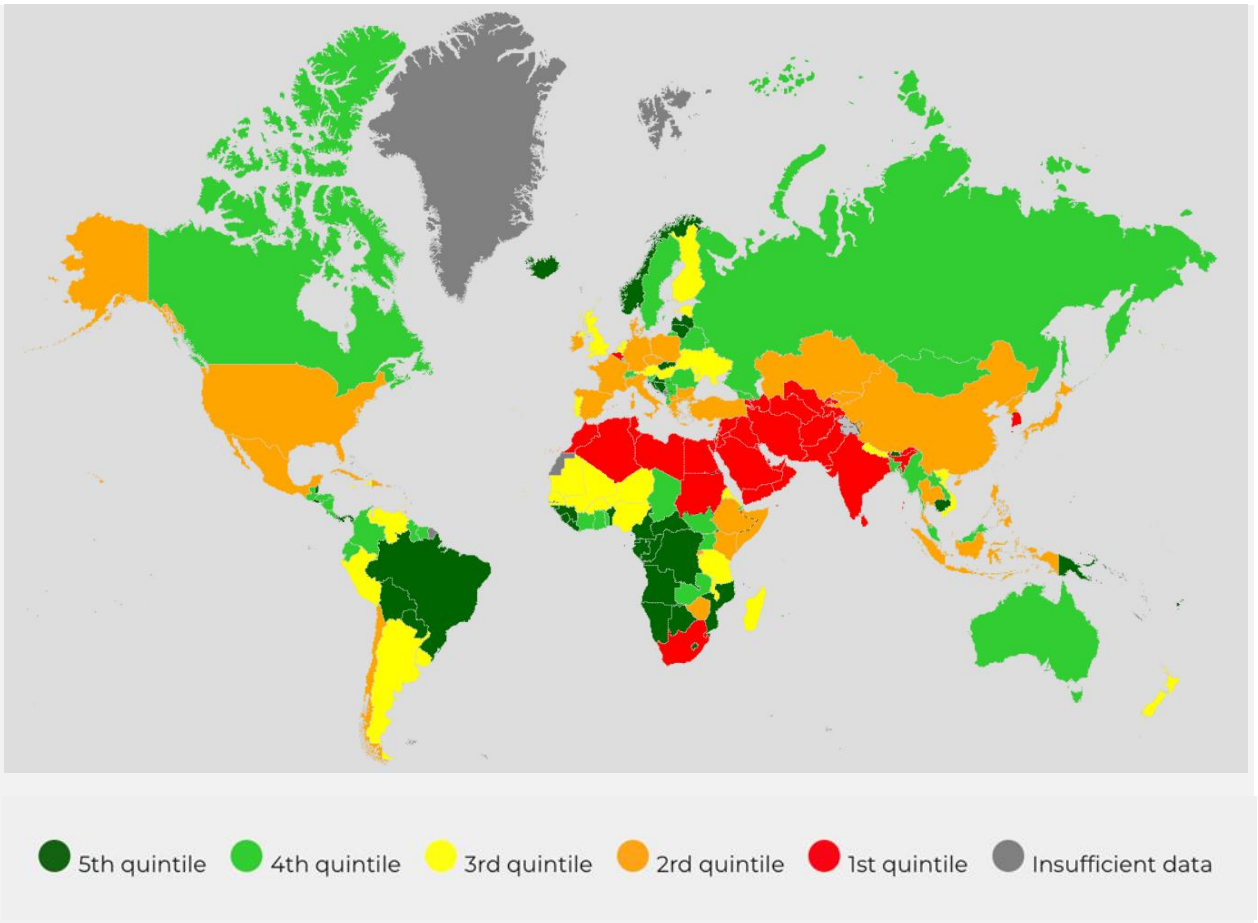
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 42. Change in water stress levels from 2015 to 2019



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 43. Global distribution of water stress levels (2019)



NOTE: * Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

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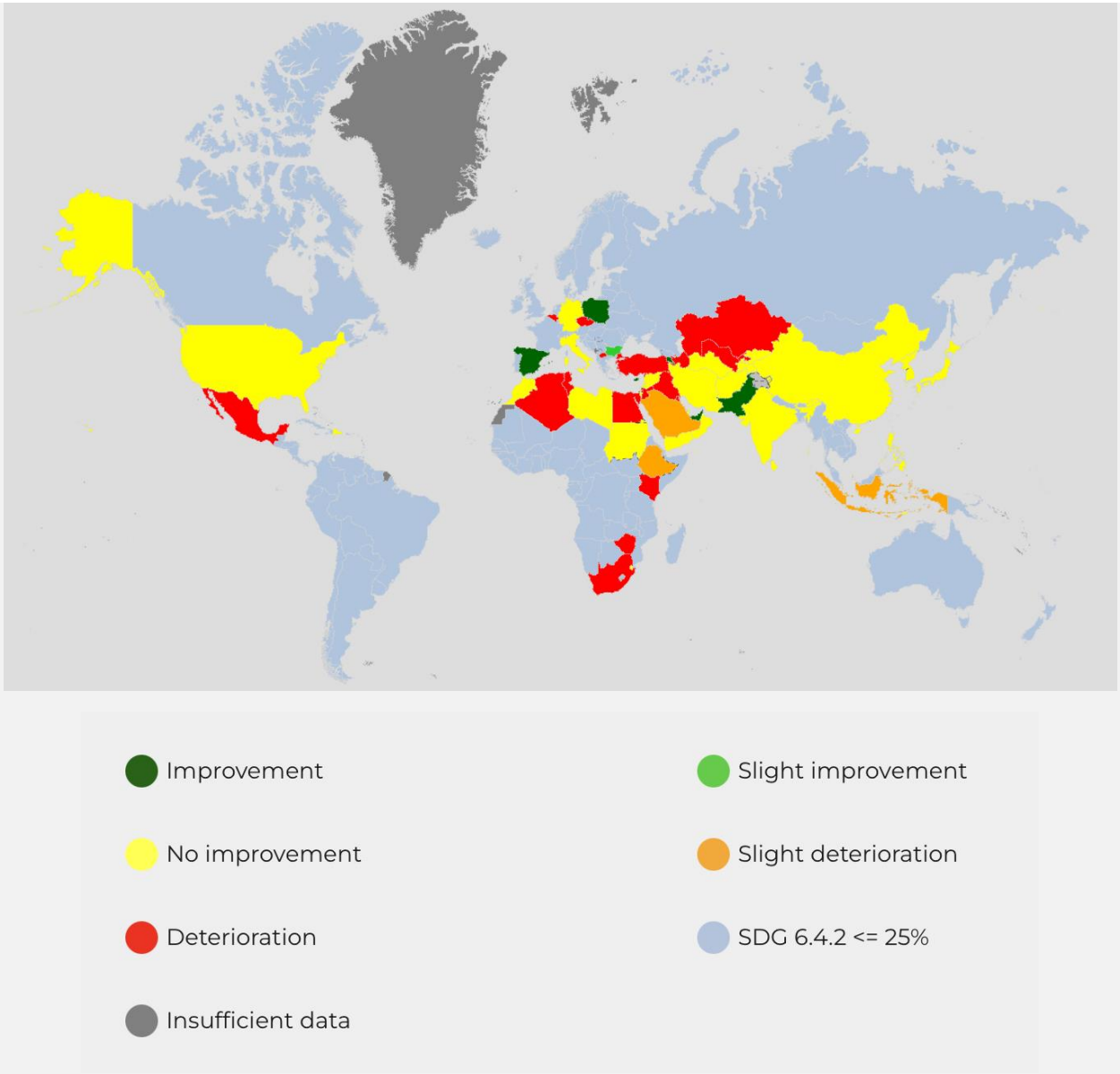
Figure 44. Progress made by countries towards ensuring sustainable withdrawals of freshwater (2015–2019)



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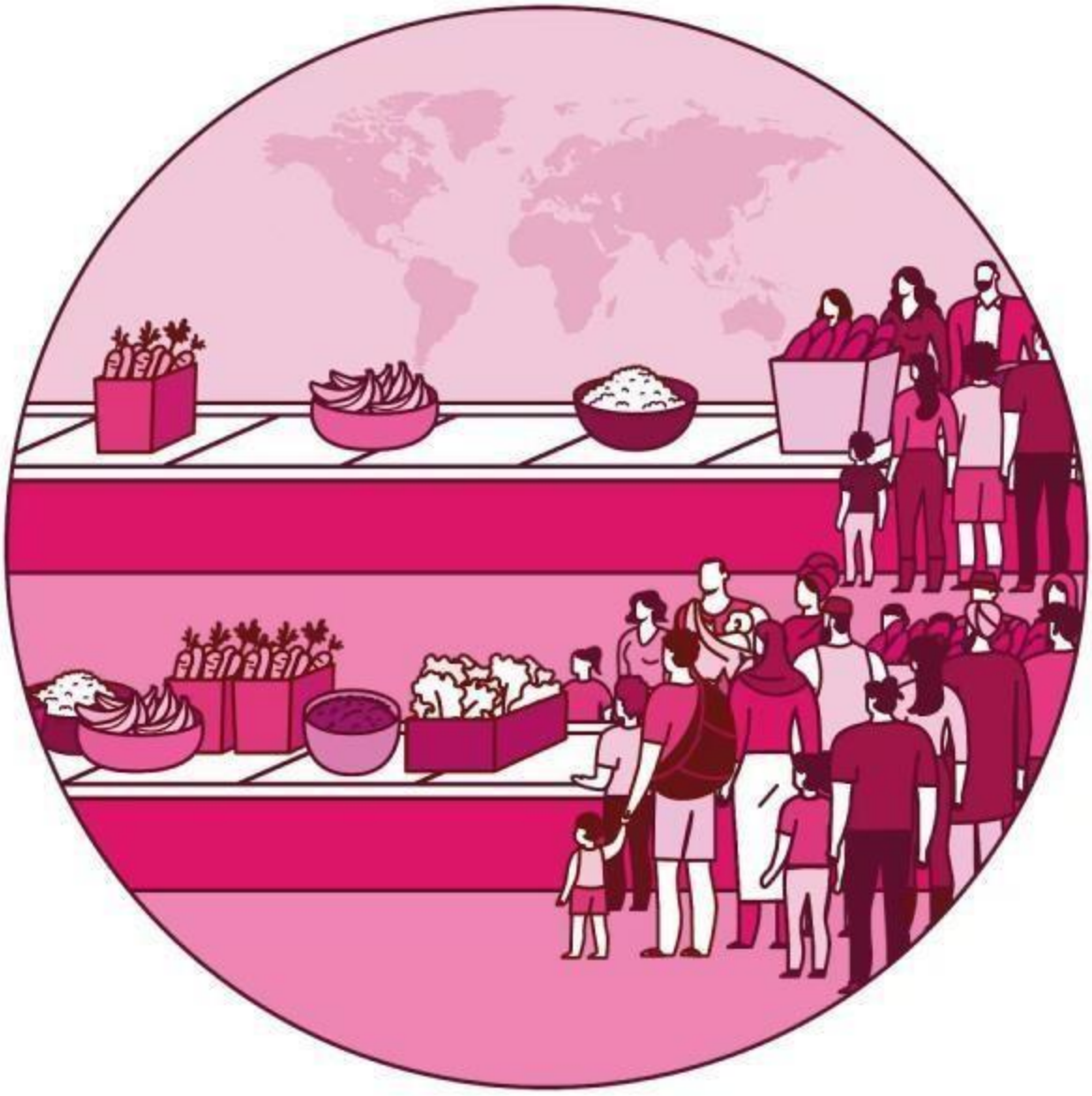


SUSTAINABLE DEVELOPMENT GOAL 10

Reduced inequalities

Reduce inequality within and among countries.

INDICATOR
10.a.1

Overview

Poverty and inequality in their many forms are significant global challenges that have been exacerbated by the COVID-19 crisis, which has disproportionately affected the poorest and most vulnerable people and countries. It is estimated that the COVID crisis has set back low-income countries a full ten years in their SDG progress in this dimension.

The 2030 Agenda for Sustainable Development recognizes that international trade is one of the key drivers of economic growth, and that the benefits of this growth should be inclusive and contribute to the reduction of poverty and inequality worldwide. There are several trade-related SDG targets, across various goals, that seek to remove different trade barriers and limit the undesirable consequences of trade.

Target 2.b calls on countries to correct and prevent trade restrictions and distortions in world agricultural markets. Therefore, a brief analysis of global trends in the related indicator is included in this chapter, even though strictly speaking, the target and indicator belong to Goal 2. Additionally, Targets 17.10, 17.11 and 17.12 reinforce the call for an equitable multilateral trading system that is mindful of the particular situation of developing and least developed countries (LDCs).

These targets are complemented by Target 10.a, which seeks to improve market access conditions for exports from LDCs as an integral element of the special and differential treatment for LDCs foreseen in the WTO agreements. Most developed countries grant (nearly) full duty-free and quota-free market access to imports from LDCs, and an increasing number of developing countries are in the process of extending a similar treatment to most imports from LDCs. The average tariff applied by countries to imports from LDCs is a useful indicator to check the implementation of duty-free, quota-free market access.

SDG INDICATOR 10.A.1

Proportion of tariff lines applied to imports from least developed countries and developing countries with zero tariff

Target 10.a

Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization (WTO) agreements.

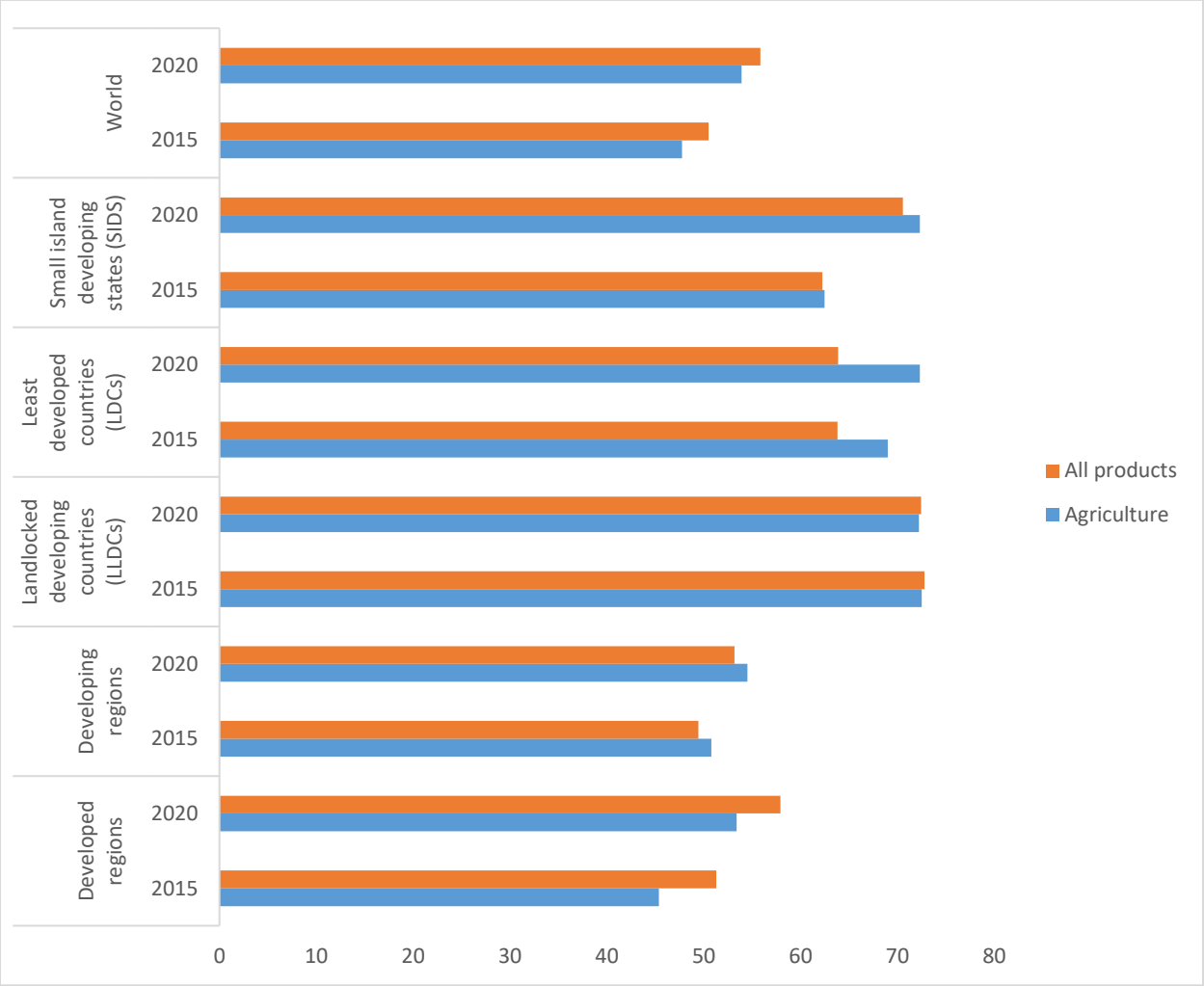
Duty-free access for developing and least developed countries' exports to international markets has improved in recent years, particularly for agricultural products. However, the overall growth of exports from LDCs remains worryingly low.

Target 10.a of Agenda 2030 seeks to improve market access conditions for exports from developing countries and LDCs by giving them special and differential treatment in accordance with WTO agreements. SDG Indicator 10.a.1 shows the extent to which special and differential treatment is applied in import tariffs, and is calculated as the proportion of zero-duty tariff lines for imports from LDCs and developing countries. The indicator effectively shows to what extent developing countries and LDCs have free access to developed countries' markets.

As shown in Figure 45, developing countries and LDCs enjoy either full or nearly full duty-free and quota-free access to most international markets. Between 2015 and 2020, the proportion of products exported by LDCs that could enter international markets free of duty remained constant at 63.8 percent. Meanwhile, this share increased for developing countries (from 49.4 to 53.1 percent) and small island developing states (SIDS) (from 62.3 to 70.6 percent). Over the same period, the proportion of agricultural products exported by developing countries, LDCs and SIDS that could enter international markets duty-free increased from 69 to 72.3 percent, from 50.8 to 54.5 percent and from 62.4 to 72.3 percent, respectively.

Thus, the preferential treatment afforded to agricultural exports from developing countries was similar, and even somewhat more favourable, than that afforded to other types of exports. Nonetheless, and despite the improvement since 2015, the principle of special and differential treatment, a key engine to reduce global inequality, is far from fully implemented. In addition, it should be noted that progress in export expansion from LDCs is slow. Although exports from LDCs have grown considerably since 2000, their share in overall world trade stood at less than 1 percent in 2019 – a figure that has remained virtually stagnant for a decade. Meanwhile, the share of LDCs in the world's population has risen from 10.7 percent in 2000 to over 13 percent in 2020.

Figure 45. Proportion of exports from least developed and (small island/landlocked) developing countries and developed and developing regions with zero tariff treatment in international markets



SOURCE: United Nations. 2022. SDG Indicators Database. In: *UN Statistics Division.* New York. Cited 8 June 2022. https://unstats.un.org/sdgs/dataportal/database

The use of non-tariff measures (policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods) often impedes imports more than border duties.[5] Trade costs associated with non-tariff measures amount to as much as 1.6 percent of global GDP – far more than ordinary custom tariff (United Nations Inter-agency Task Force on Financing for Development, 2020).

A considerable number of non-tariff measures are regulatory measures that respond to a public demand for protection against environmental and health hazards (UNCTAD, 2022).

[5] For a classification of non-tariff measures, see the website of the United Nations Conference on Trade and Development (UNCTAD, 2022).

The agriculture sector is regulated more than the manufacturing and natural resources sectors, with most global agricultural trade subject sanitary and phytosanitary measures and technical barriers to trade, in addition to more traditional forms of non-tariff measures, such as quotas or price mechanisms (UNCTAD & WHO, 2018). The widespread use of non-tariff barriers in agriculture has a bigger impact on low-income countries, where the relative importance of agriculture in the economy is higher than in higher-income countries. Non-tariff measures also tend to affect those countries whose export baskets are tilted towards agricultural products (many countries in Latin America, Eastern Africa and Southern Asia) more. Overall, non-tariff measures add substantial costs to exports from most countries, both developed and developing, including most emerging economies. To minimize undue burdens on small producers and low-income countries, governments and the international community need to take decisive steps towards improving the design and implementation of non-tariff measures.

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Responsible consumption and production

Ensure sustainable consumption and production patterns.

INDICATOR
12.3.1.a

Overview

Global hunger has been on the rise since 2015, reversing years of progress. Reducing food losses and waste – which have adverse social, economic and environmental impacts – is crucial to counter this challenge. Countries across all regions and income groups register high levels of food losses and waste, necessitating action across the value chain, from harvesting to consumption. Global food loss estimates remain steady between 2016 and 2020, with substantial variations across regions and subregions. In 2019, 13.3 percent of all food produced was lost at pre-consumption and retail stages, and 17 percent of the food available to consumers went into the waste bins of households, retailers, restaurants and other food services outlets, according to the United Nations Environment Programme's Food Waste Index Report (UNEP, 2021).

This situation has been made worse by the impacts of the COVID-19 pandemic. Sustainable consumption and production, a fundamental part of sustainable global pandemic recovery strategies, is about maximizing the socioeconomic benefits of resource use while minimizing its impacts.

SDG INDICATOR 12.3.1.A

Food loss index

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: slight deterioration since the baseline year.

Target 12.3

By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

Globally, food loss estimates have remained steady between 2016 and 2020, although with substantial variations across regions and subregions.

The global percentage of food lost after harvesting at the farm, transport, storage, wholesale and processing levels is estimated at 13 percent in 2016 and 13.3 percent in 2020. These percentages correspond to a food loss index of 98.7 in 2016 and 101.2 in 2020 (see Figure 47).[6]

At the regional level, sub-Saharan Africa has the highest losses at 21.4 percent. LDCs and SIDS also register high losses, with 18.9 percent and 17.3 percent, respectively (see Figure 46). Structural inadequacies in these regions result in food being lost in large quantities between the farm and retail levels. Eastern and South-Eastern Asia also registers high food losses (15.1 percent), due to large losses in value chains for fruits and vegetables. The lowest losses occur in Latin America and the Caribbean (12.3 percent) and Europe and Northern America (9.9 percent). All regions except Central and Southern Asia register an increase in estimated losses in 2020 as compared to 2016, with the highest increases seen in SIDS (up 1 percent), Oceania (up 1.2 percent) and Northern Africa and Western Asia (up 1.7 percent).

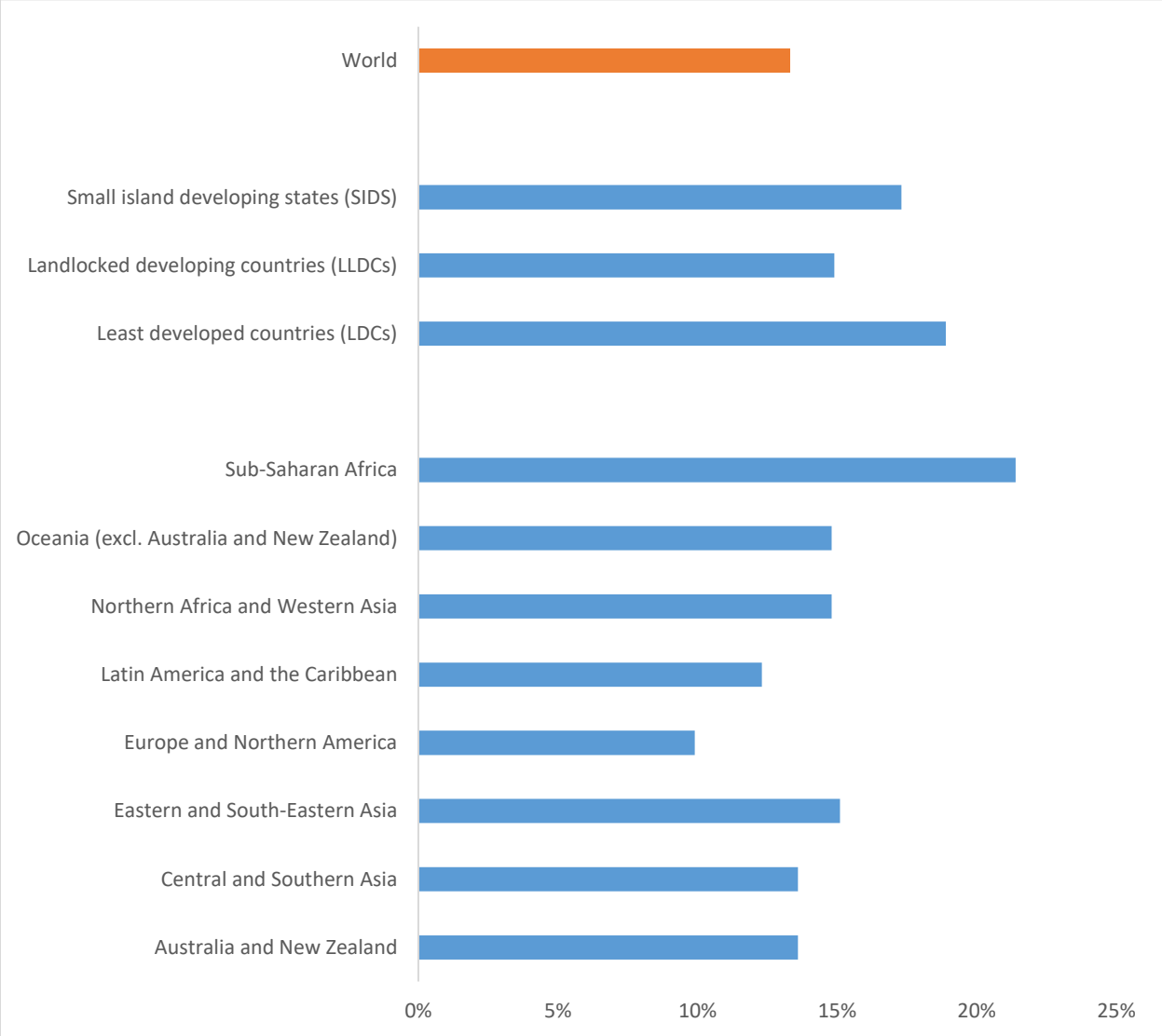
At the subregional level, Western Africa has the highest loss percentage at 24.8 percent, followed by Southern Africa at 21.8 percent (see Figure 48). Higher-income countries usually have lower food loss estimates, with the estimate for Europe standing at 6.3 percent. Within Europe, Eastern Europe has the lowest food losses (4.6 percent), followed by Western Europe (6.5 percent) and Southern Europe (7.1 percent). Some subregions showed no change in loss percentages between 2016 and 2020. However, most subregions registered upward or downward changes. These changes are consistent with the changes observed at global and regional levels, and correspond to the changes in the food loss index (Figure 49).

[6] The food loss index (FLI) focuses on food losses that occur from production up to (and not including) the retail level. It measures the changes in percentage losses for a basket of ten main commodities by country in comparison with a base period. Changes in the food loss index should be interpreted as oscillations and do not identify any clear structural pattern or change.

They could be due to oscillations in the estimation model used, and are not necessarily an indication of any structural changes happening in the regions.

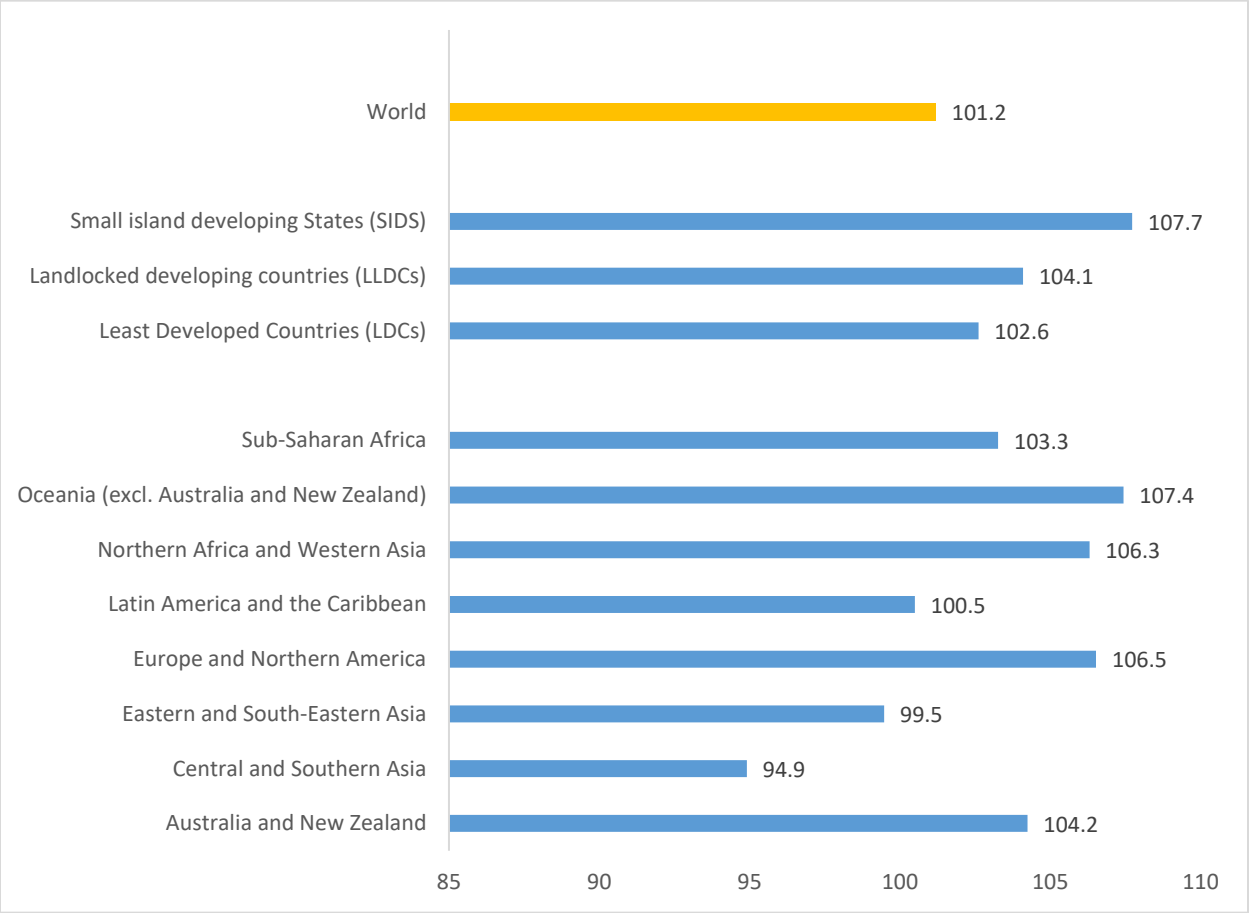
While data regarding food losses at country level are still scarce, the estimates at the global, regional and subregional levels are indicative of the magnitude of the problem. They clearly demonstrate that countries must start formulating policies that are geared specifically towards the reduction of food losses.

Figure 46. Global and regional food loss estimates (percentage of all food produced) (2020)



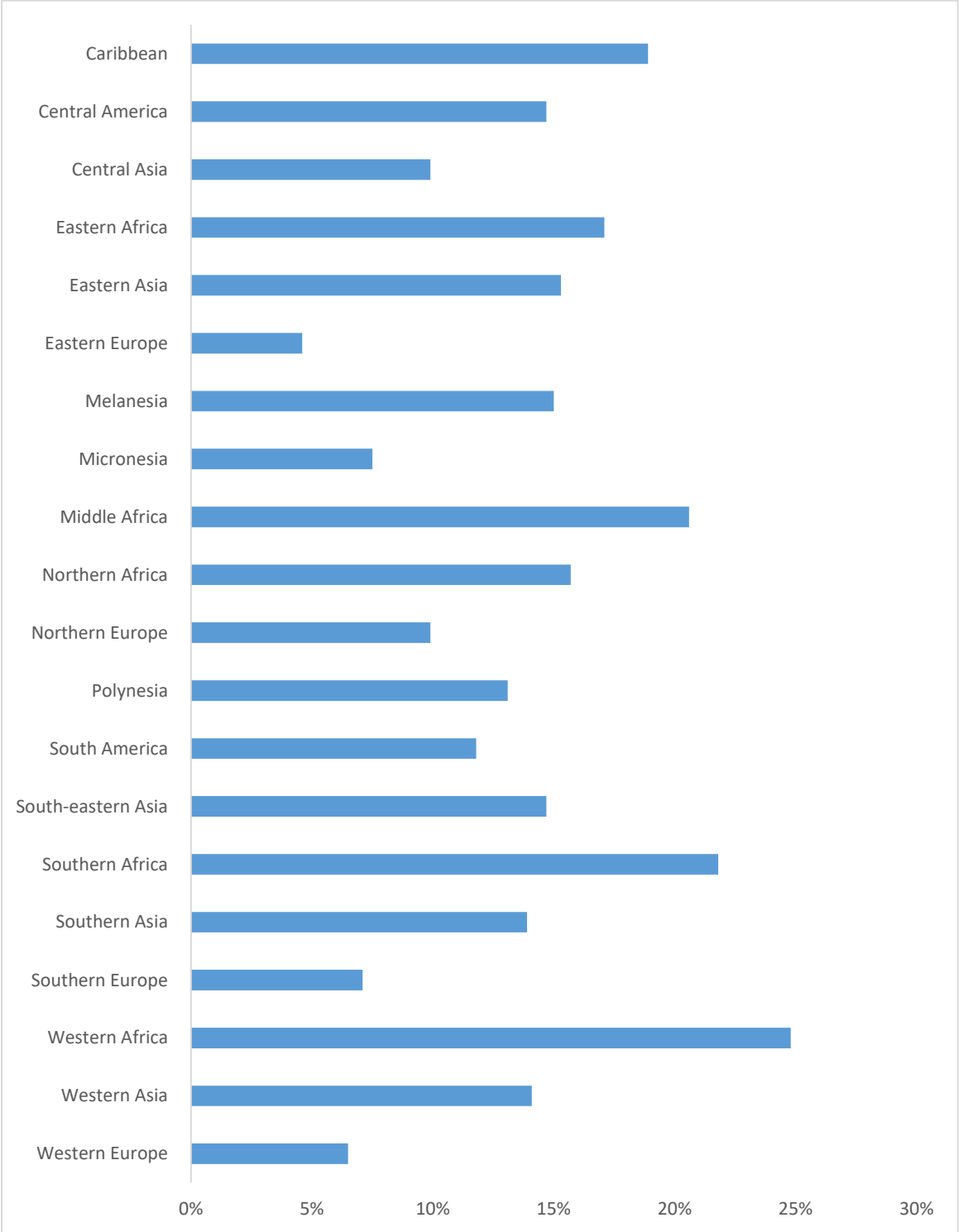
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 47. Food loss index by region (2020)



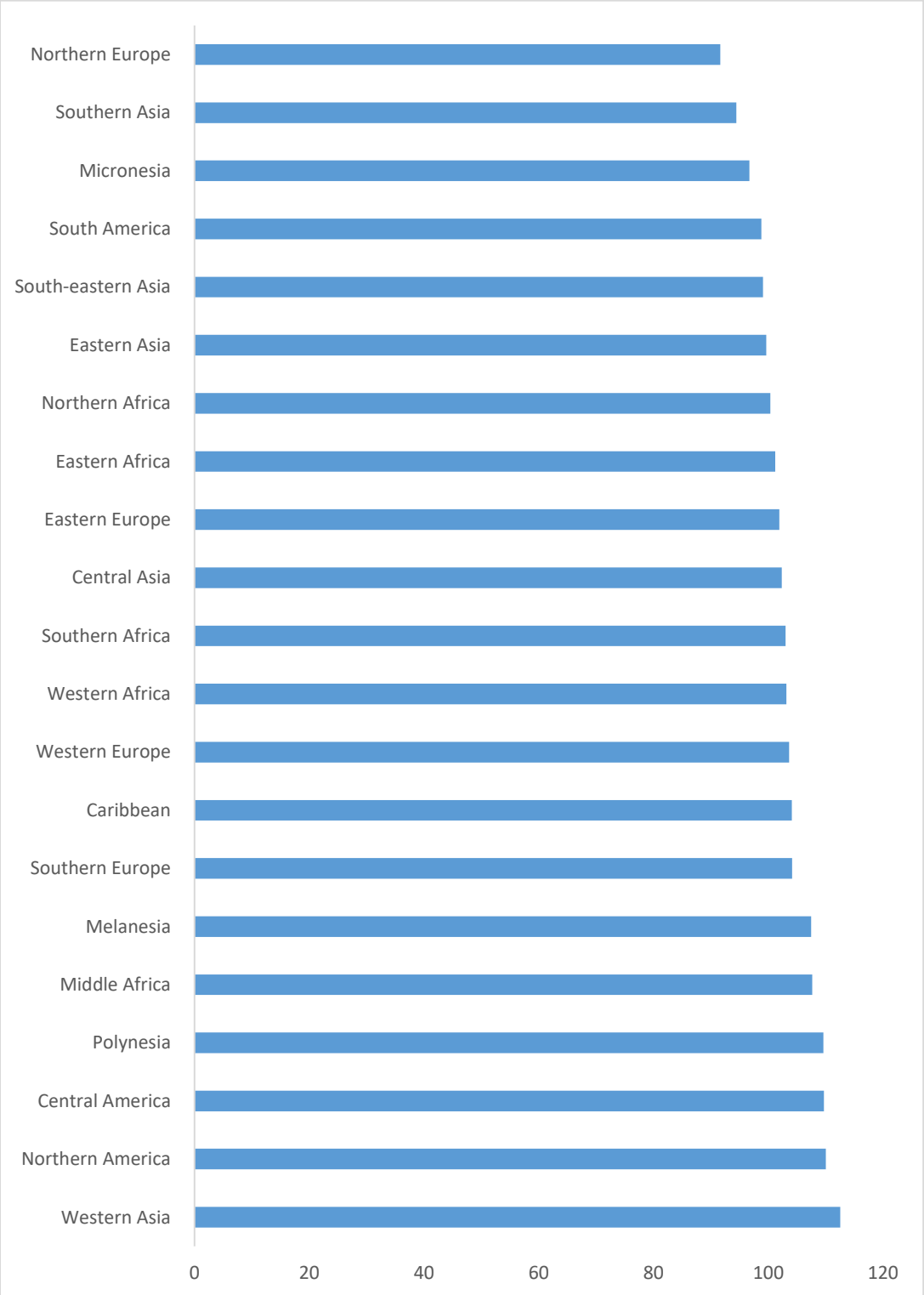
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 48. Food loss estimates by subregion (in percentage) (2020)



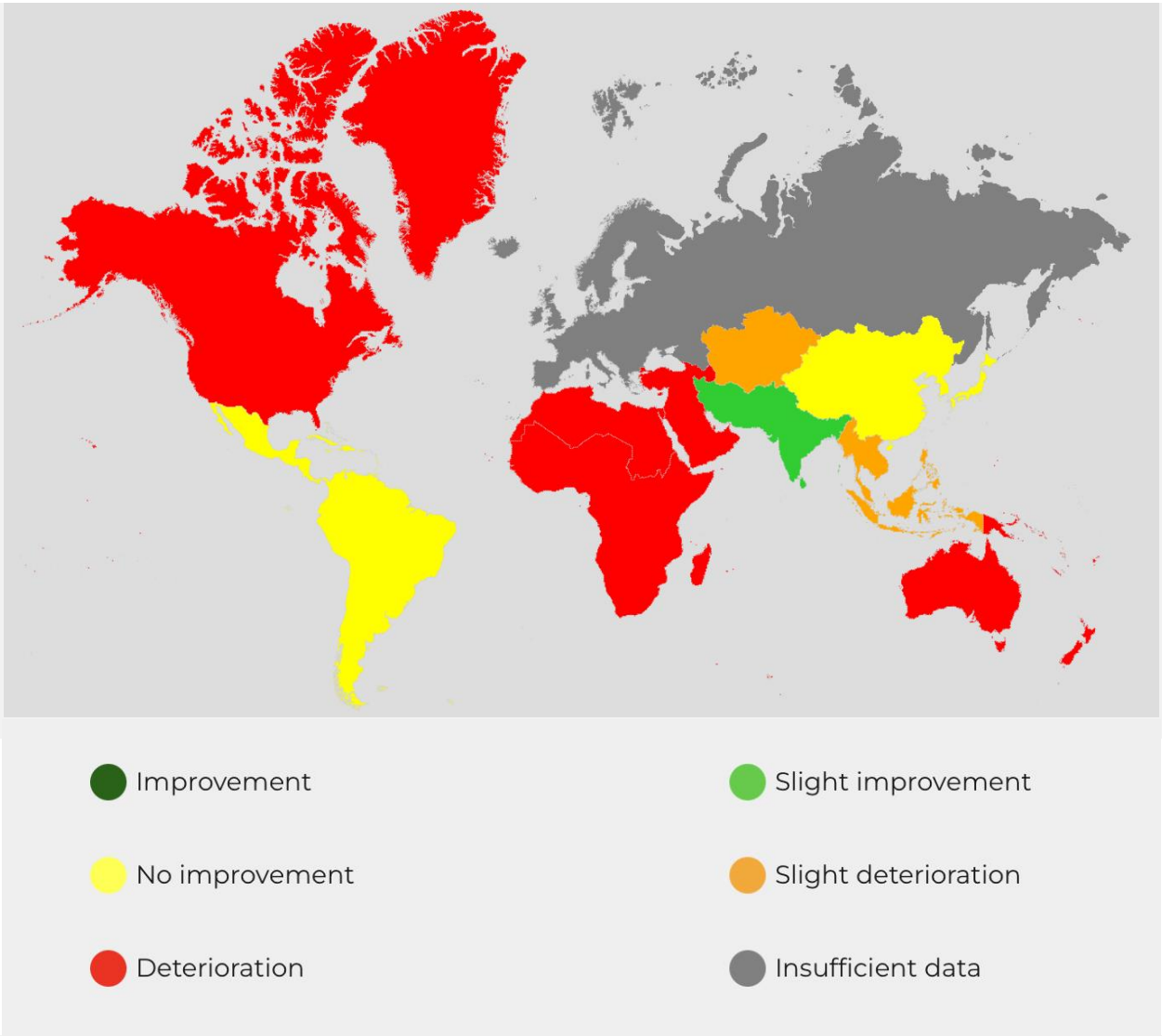
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 49. Food loss index by subregion (2020)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 50. Progress made by countries towards reducing food loss (2016–2020)

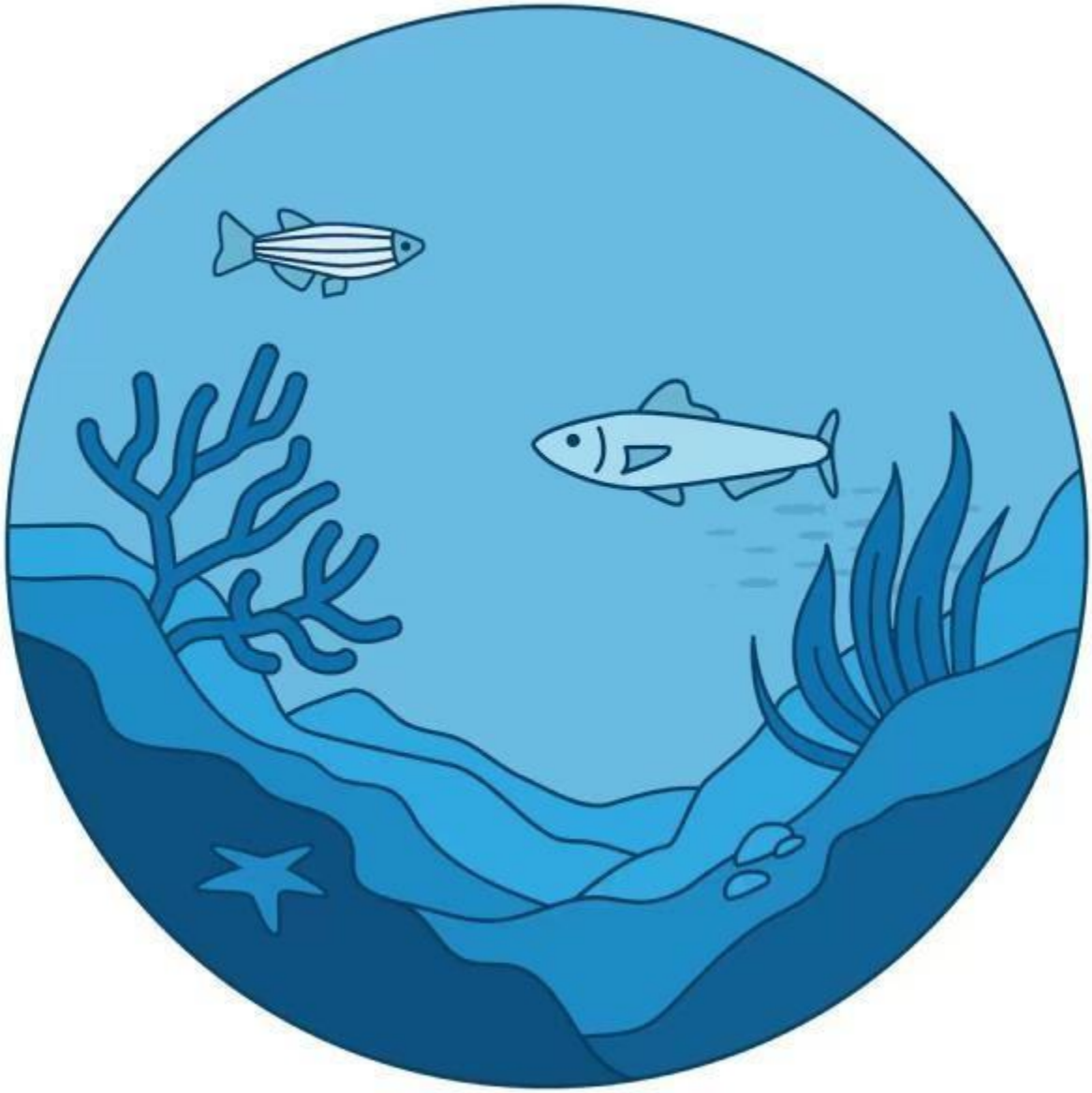


NOTE: ' Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

Reference:

UNEP (United Nations Environment Programme). 2021. *UNEP Food Waste Index report 2021*. Nairobi.



SUSTAINABLE DEVELOPMENT GOAL 14

Life below water

Conserve and sustainably use the oceans, seas and marine resources.

SUMMARY TABLES

INDICATORS
14.4.1 14.6.1 14.7.1 14.b.1

Overview

The world's oceans and seas support more than three quarters of world trade and provide livelihoods for more than six billion people. However, increased acidification, eutrophication and plastic pollution continue to endanger the planet's largest ecosystem. The long-term repercussions of these challenges are further exacerbated by the COVID-19 pandemic, which has led to a steady increase in the quantity of single-use plastic entering the world's waters as medical waste. As a result of the initial lockdowns during the COVID-19 pandemic, most countries experienced a 40 to 80 percent decline in fish production, with small-scale fishing communities being hit hardest. The pandemic also led to a dramatic reduction in tourism, causing substantial income losses for coastal and island communities.

There is an urgent need to step up the protection of marine environments and boost investments in ocean science. In addition, more efforts are urgently needed to support small-scale fishery communities and ensure the sustainable management of oceans. Indeed, despite efforts to conserve the oceans, the sustainability of global fishery resources continues to decline, albeit at a reduced rate compared to past years. While many countries have made progress towards combatting illegal, unreported and unregulated fishing, a more concerted effort is needed. In addition, as a result of the COVID-19 pandemic, increased support for small-scale fishers is crucial to allow them to continue earning a livelihood and feeding local communities.

SDG INDICATOR 14.4.1

Proportion of fish stocks within biologically sustainable levels

Status assessment: very far from target.

Trend assessment: deterioration/movement away from the target.

Target 14.4

By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.

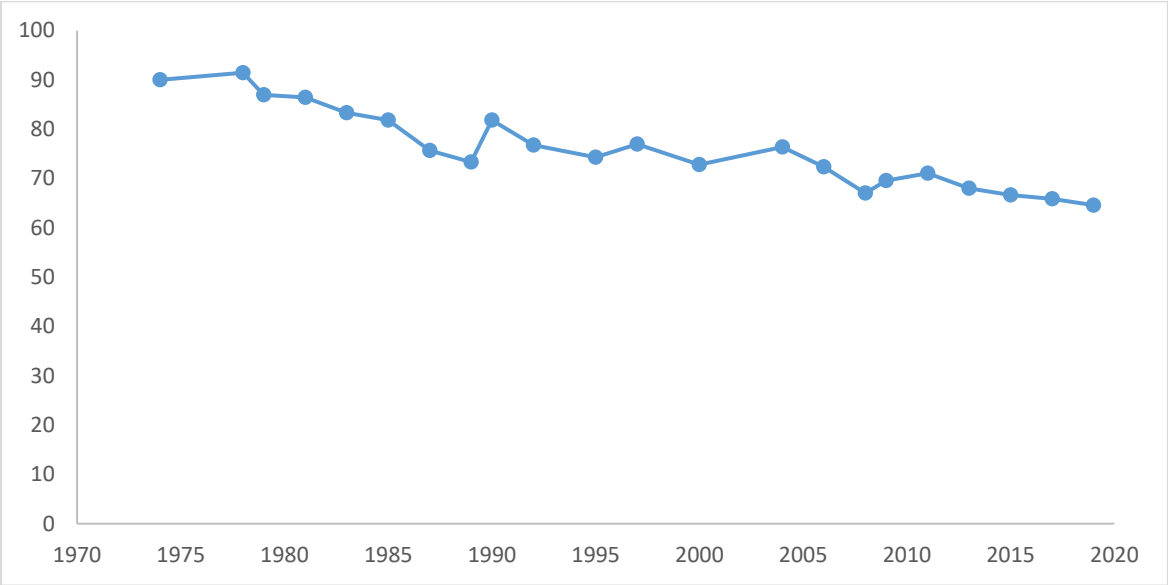
The sustainability of global fishery resources continues to decline, although the rate of decline has decelerated in recent years.

The proportion of global fishery resources at biologically sustainable levels has declined from 90 percent in 1974 to 64.6 percent in 2019. Meanwhile, global marine fish landings have remained relatively stable at around 80 million tonnes since 1995. Fish stocks with biologically sustainable levels constituted 82.5 percent of total landings of assessed fish stocks in 2019. Although this share continues to decline, the rate of decline has slowed down over the past decade (Figure 51).

The proportion of sustainable fish stocks varies greatly between different regions. In 2019, the Southeast Pacific surpassed the Mediterranean and the Black Sea as the marine region with the highest percentage of stocks fished at unsustainable levels (66.7 percent). It was followed by the Mediterranean and the Black Sea (63.4 percent) and the Southwest Atlantic (46.7 percent). The Eastern Central Pacific, Southwest Pacific, Northeast Pacific and Western Central Pacific had the lowest proportion (13 to 21 percent) of stocks fished at biologically unsustainable levels.

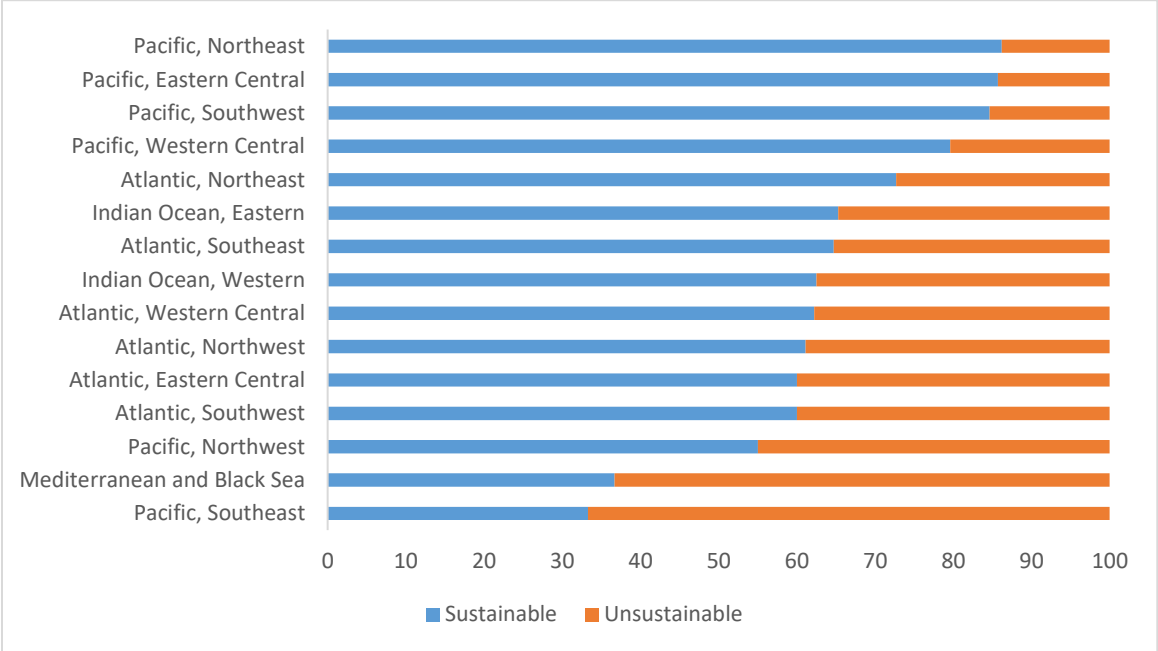
Assessed and effectively managed fisheries have seen their stocks rise or recover with average abundance above the level that can produce maximum sustainable levels. However, stock status and trends are worse in areas with less rigorous fisheries management. The adoption of effective management practices has generally been slow, particularly in many developing countries. This situation is reflected in the responses to FAO's first call for country reports on SDG Indicator 14.4.1 in 2020. The responses came mostly from developed countries, and indicated a proportion of biologically sustainable stocks that was higher than the world average. Until 2019, this indicator was reported at the regional and global levels only. However, a new process to collect and report data at the national level has been established recently. To date, FAO has collected data and produced national indicator values for 58 out of the 165 countries that have a marine border.

Figure 51. Proportion of fish stocks within biologically sustainable levels (1970–2020)



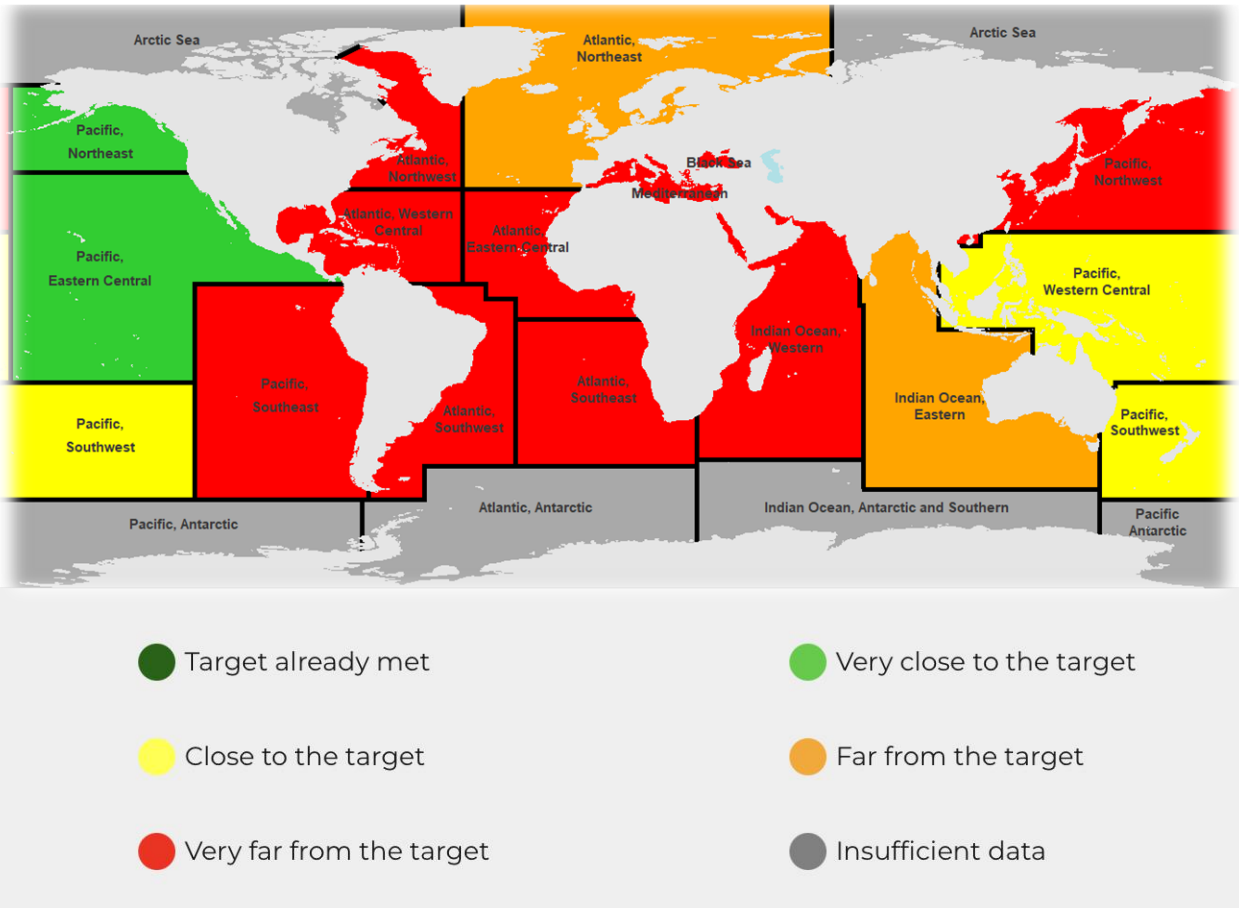
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 52. Fish stock sustainability status for major fishing areas (2019)



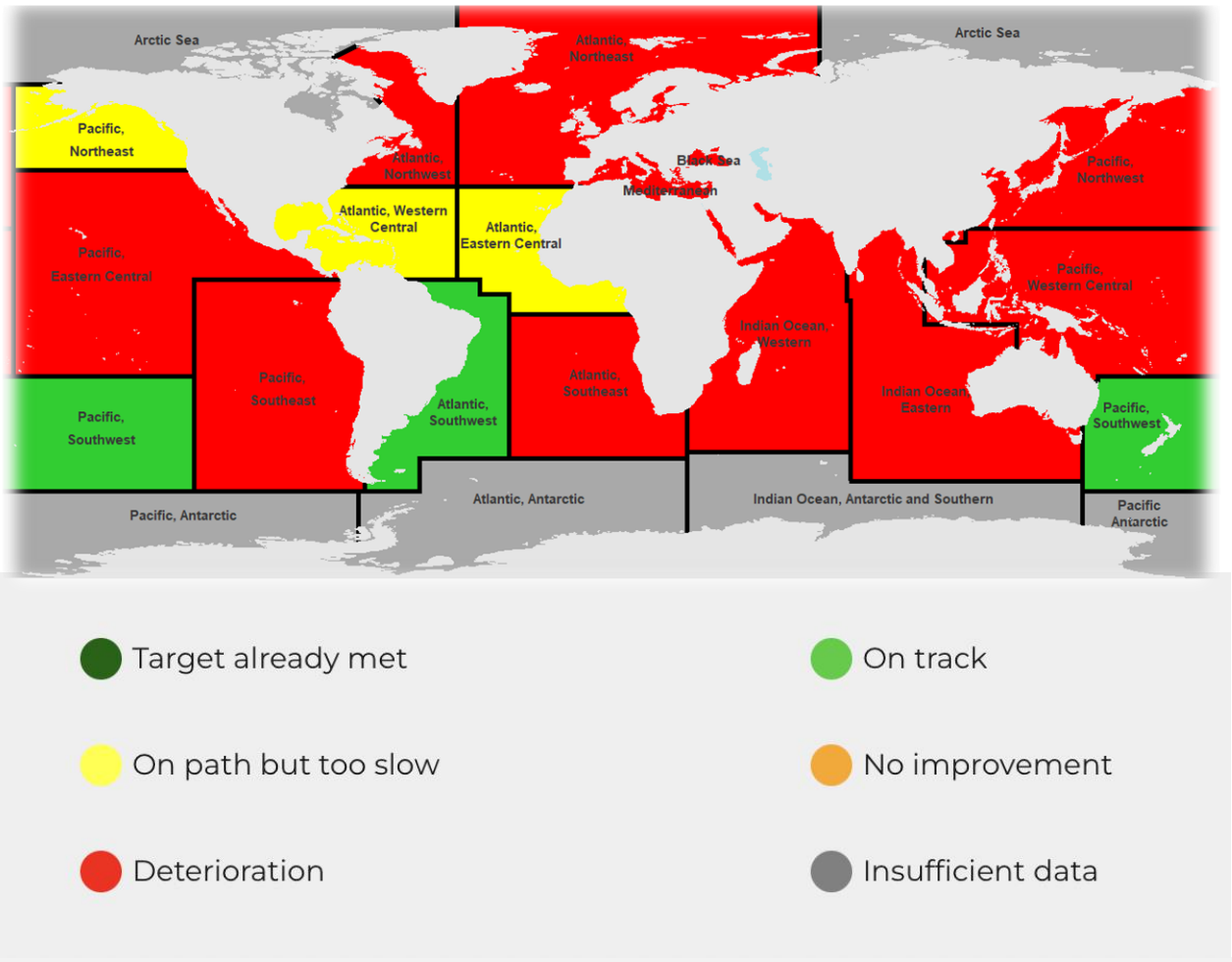
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 53. Current distance to the target of attaining fish stocks within biologically sustainable levels by fishing area (2019)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

Figure 54. Progress towards restoring the proportion of fish stocks with biologically sustainable levels by fishing area (2015–2019)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section, 2022).

SDG INDICATOR 14.6.1

Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing

Status assessment: very close to the target.

Trend assessment: slight improvement.

Target 14.6

By 2020, prohibit certain forms of fisheries subsidies, which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.

While progress has been made towards combatting illegal, unreported and unregulated fishing, a more concerted effort is needed.

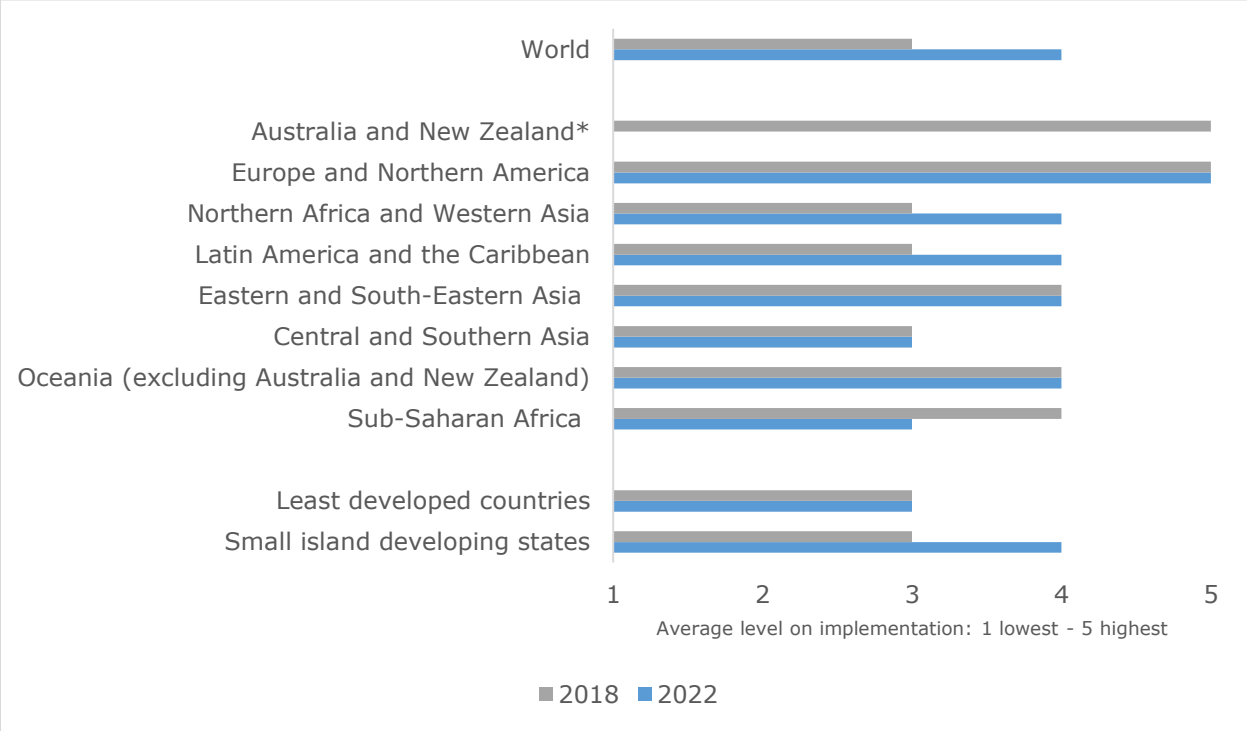
Illegal, unreported and unregulated (IUU) fishing threatens the social, economic and environmental sustainability of global fisheries, hindering countries' abilities to manage their fisheries effectively. Adopting and implementing relevant international instruments is key to curbing IUU fishing. There is a need for cooperation between all actors to magnify individual efforts and foster interlinkages, starting at the national level with interinstitutional cooperation through to cooperation between different states and intergovernmental and non-governmental organizations to work together towards this common goal. More transparency is needed: governments should share information on the identity and compliance history of fishing vessels, as well as information that enables the traceability of fish products throughout the value chain, with other concerned actors. In addition, countries should seek compliance with the international framework aimed at combatting IUU fishing at all stages ("from sea to plate"). To this end, countries should put in place a strong legislative framework and develop their capacities for monitoring, control and surveillance, as well as effective enforcement. These elements are essential for the proper implementation of international instruments aiming to combat IUU fishing.

There is a framework of international instruments providing a powerful suite of tools to combat IUU fishing, covering the responsibilities of flag, coastal, port and market states. The Agreement on Port State Measures is the first binding international agreement that specifically targets IUU fishing. It lays down a minimum set of standard measures for signatories to apply when foreign vessels seek entry into or are in their ports. The agreement came into force in June 2016; as of June 2022, there were 71 parties to the agreement, including the European Union.

Between 2018 and 2022, the average global degree of implementation of international instruments aimed at combatting IUU fishing as measured by SDG Indicator 14.6.1 increased from 3 to 4 (out of a maximum score of 5) (Figure 55). Countries have made good overall progress: nearly 75 percent of countries scored highly in 2022, compared to 70 percent in 2018. SIDS, which are faced with specific challenges in fully implementing these instruments due to the large amounts of waters under their jurisdiction, also registered an improvement: from a medium level of implementation in 2018 and 2020 to a high level in 2022. In LDCs, which also face challenges in implementing these instruments, implementation has remained at a medium level from 2018 through to 2022. Most other regions have either remained at the same level of implementation or improved, the exception being sub-Saharan Africa.

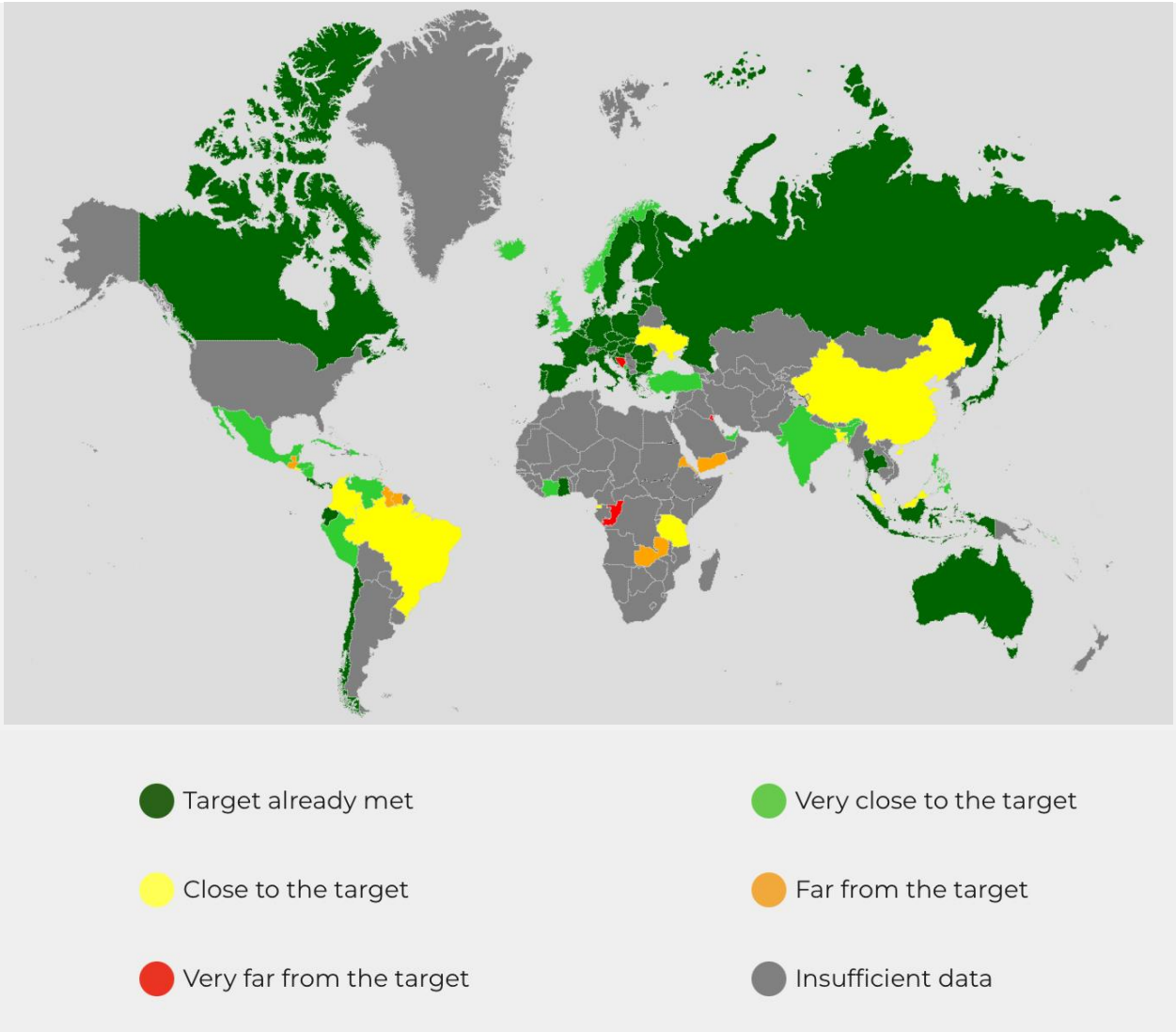
A combined reading of the regional results suggests that while improvements are being made, further efforts are needed to implement the relevant international instruments and fully exploit their potential to combat IUU fishing.

Figure 55. Degree of implementation of instruments to combat IUU instruments, by regions and income groups (2018 and 2022)



Note: * the number of reporting states was insufficient to create an aggregated score for this regional grouping in 2022.
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

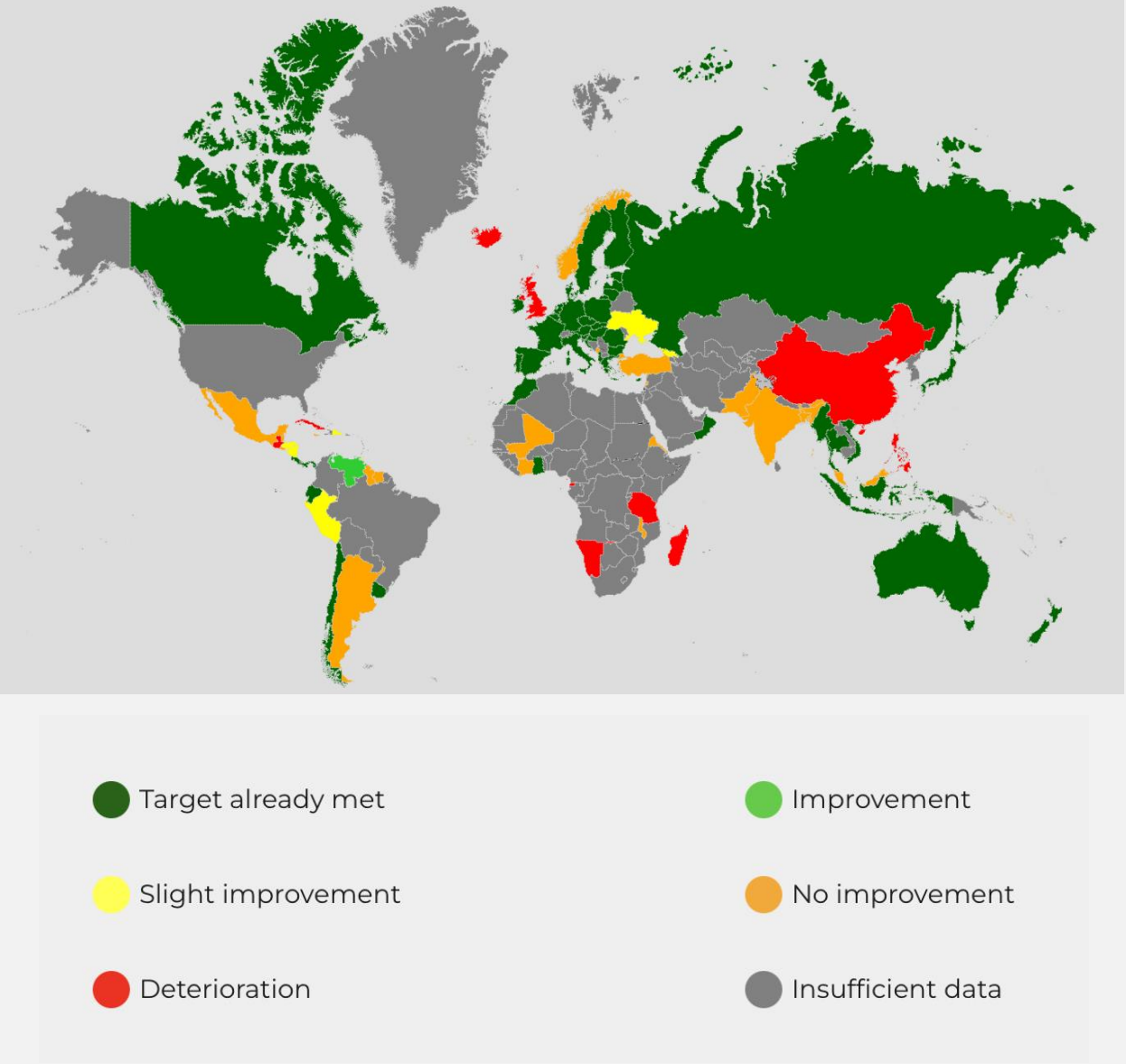
Figure 56. Current distance to the target of SDG Indicator 14.6.1 (2022)



NOTE: ' Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

Figure 57. Progress made by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing (2018–2022)



NOTE: · Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

SDG INDICATOR 14.7.1

Sustainable fisheries as a proportion of gross domestic product in small island developing states (SIDS), least developed countries (LDCs) and all countries

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: slight deterioration since the baseline year.

Target 14.7

By 2030, increase the economic benefits to small island developing states (SIDS) and least developed countries (LDCs) from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.

Effective fisheries management is essential to guarantee the environmental sustainability of fisheries and ensure equitable development for all stakeholders involved in the fisheries industry.

Capture fisheries are the only major human food source that relies on a wild food. Ensuring that fish stocks are monitored and managed in such a manner as to ensure their sustainable exploitation is key to maintaining the important role that fisheries have played for millennia in local economies and in terms of food security. Today, sustainable fisheries account for approximately 0.1 percent of global GDP; in certain regions and least developed countries, this share stands at between 0.5 percent and 1.5 percent, reflecting the greater dependence of the world's poorest on fisheries (FAO, 2022a). The sustainable management of fish stocks remains crucial to ensure that fisheries continue to generate economic growth and support equitable development, meeting the needs of today without compromising the ability of future generations to do the same.

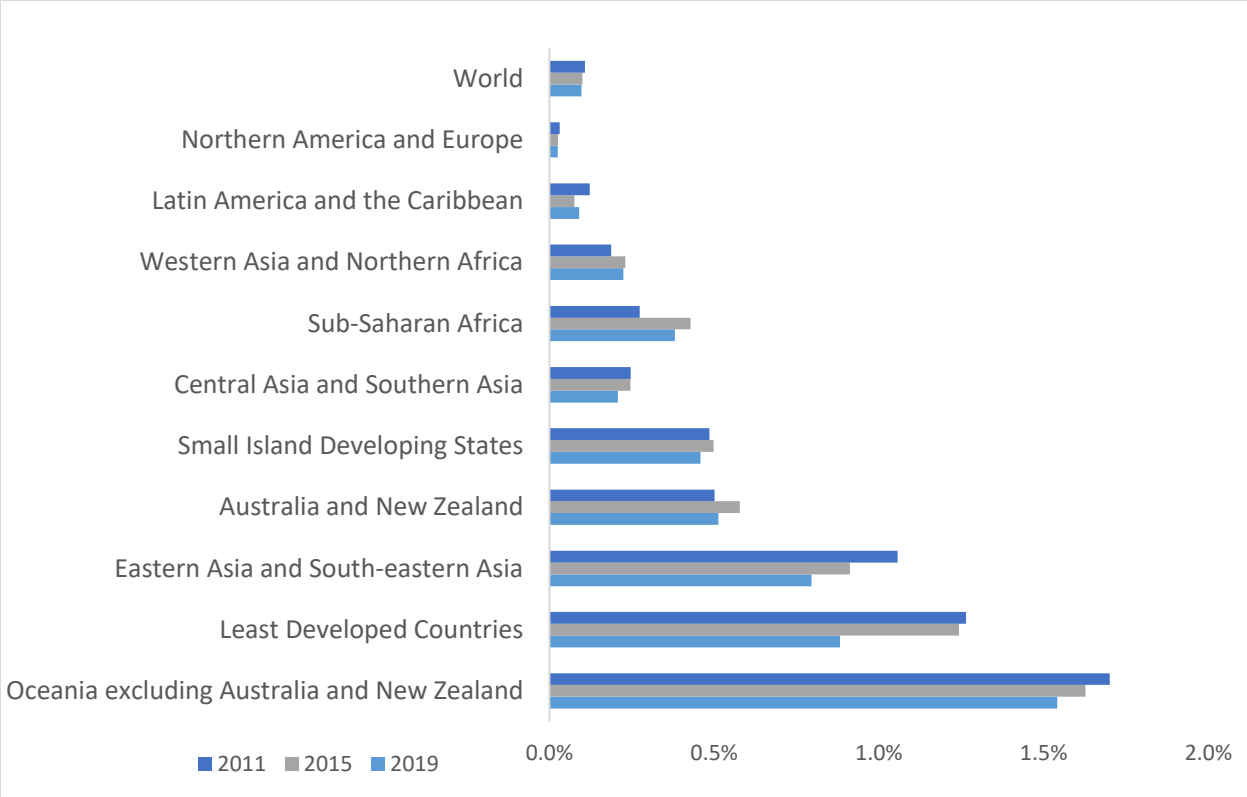
As the global population continues to grow, so too does the demand for fish. Fisheries are now able to feed more people than ever before, providing livelihoods for millions worldwide while alleviating hunger and malnutrition. As fisheries and aquaculture have expanded, so too have the economic dividends from the sector and its contribution to sustained economic growth. At the global level, the value added of this sector has increased consistently by several percentage points year-on-year. This has led to a positive trend in the contribution of sustainable fisheries in regions such as Western Africa, where it rose as a proportion of GDP from 0.24 percent in 2011 to 0.34 percent in 2019 (Figure 58).

Wild stocks face a number of human-induced external pressures, such as overfishing, plastic pollution, habitat loss and climate change. The economic dividends from fisheries can only be sustained through the prudent management of fish stocks, avoiding overexploitation and

depletion. At the global level, the decline in fish stocks within biologically sustainable levels continues (see the section on Indicator 14.4.1), highlighting the need for improved regulations and effective monitoring. The declining sustainability of several stocks in the Pacific Ocean has led to a worsening overall trend for regions such as Eastern and South-eastern Asia, where sustainable fisheries fell from 1.06 percent of GDP in 2011 to 0.80 percent in 2019.

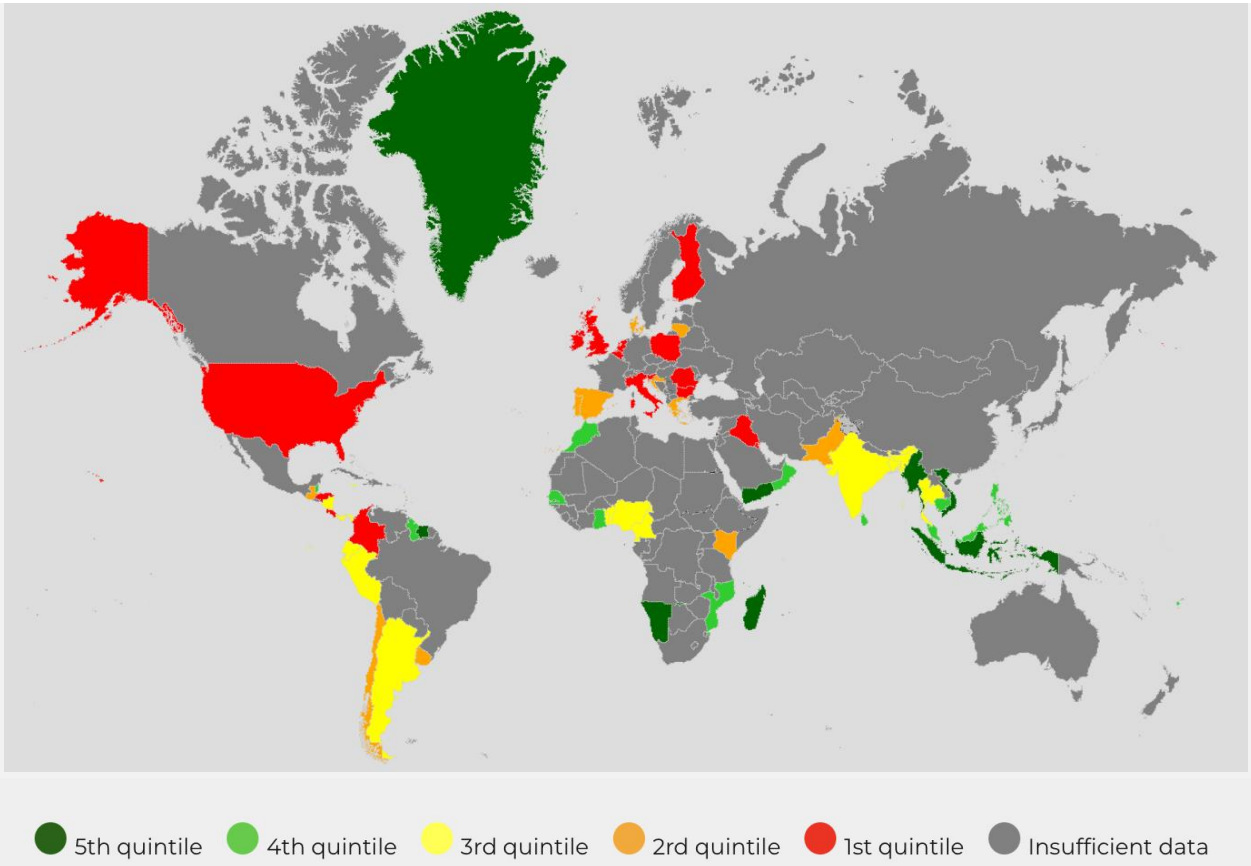
The COVID-19 pandemic poses further challenges for the industry. Reduction or postponement of fish assessment surveys, temporary suspension of obligatory fisheries observer programmes, and postponement of science and management meetings will delay the implementation and monitoring of a number of necessary measures. On the economic side, demand declined immediately after the implementation of the first lockdown measures, with the drop in hospitality sales being particularly significant. Together with the broader logistical challenges and disruptions to production, this has negatively impacted the profitability of the sector. While many of the longer-term impacts of COVID-19 remain to be seen, it is essential that the right government policy framework is in place and that fisheries management is improved to ensure that fisheries recover in a sustainable manner and the sector's benefits are maximized.

Figure 58. Sustainable fisheries as a percentage of gross domestic product, per region and income group (2011–2019)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

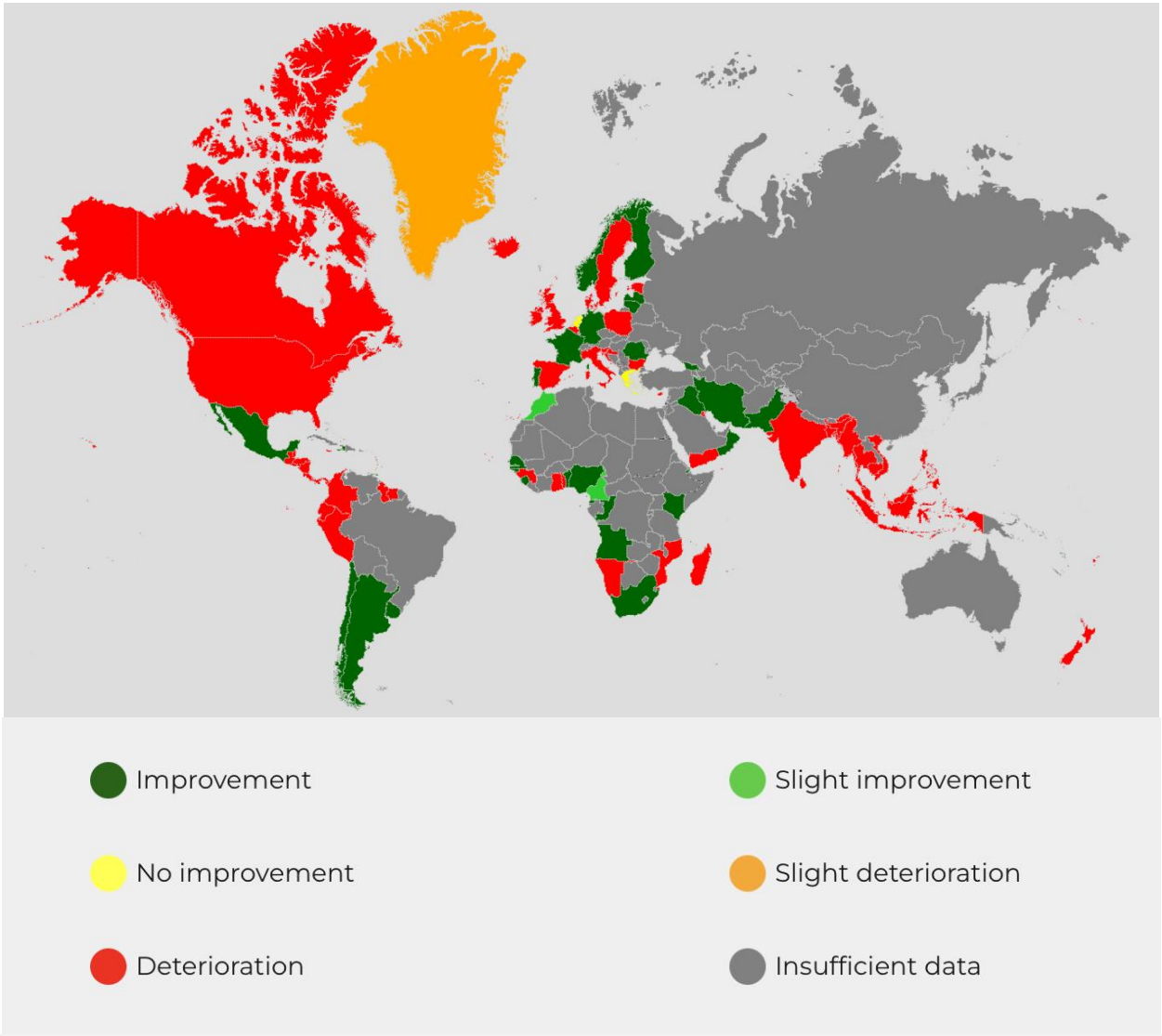
Figure 59. Global distribution of sustainable fisheries as a percentage of GDP (SDG Indicator 14.7.1) (2019)



NOTE: * Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

Figure 60. Progress made by countries towards increasing sustainable fisheries as a percentage of gross domestic product (2015–2019)



NOTE: ' Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

SDG INDICATOR 14.B.1

Degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries

Status assessment: target already met.

Trend assessment: target already met.

Target 14.b

Provide access for small-scale artisanal fishers to marine resources and markets.

In the International Year of Artisanal Fisheries and Aquaculture 2022, the degree of adoption of regulatory frameworks supporting small-scale fisheries remains high, though the number of countries reporting data has decreased.

Since 2015, the adoption of regulatory frameworks supporting small-scale fisheries and promoting participatory decision-making processes has expanded in most regions. The average global score has risen to 5 out of 5 in 2022, up from 4 out of 5 in 2020, and 3 out of 5 in 2018. Regional scores have generally remained stable or improved, with most regions earning a score of 4 out of 5. However, Northern Africa and Western Asia scored lower in 2022 than in 2020. The number of countries reporting data has been lower in 2022 than in previous years for all regions except Latin America and the Caribbean, indicating that efforts to encourage countries to report must be stepped up, and that there is no room for complacency.

The International Year of Artisanal Fisheries and Aquaculture 2022 has catalysed efforts toward providing access for small-scale artisanal fishers to marine resources and markets, as called for by SDG Target 14.b. Almost half a billion people depend at least partially on small-scale fisheries, which account for 90 percent of worldwide employment in the capture fisheries sector. Accelerating progress in the degree of application of a legal/regulatory/policy/institutional framework that recognizes and protects access rights for small-scale fishers, as measured through SDG Indicator 14.b.1, is much needed. COVID-19 has disproportionally affected small-scale fisheries communities, who were unable to catch, process or sell fish for long periods due to sanitary restrictions and collapsing markets, in particular those depending on tourism.

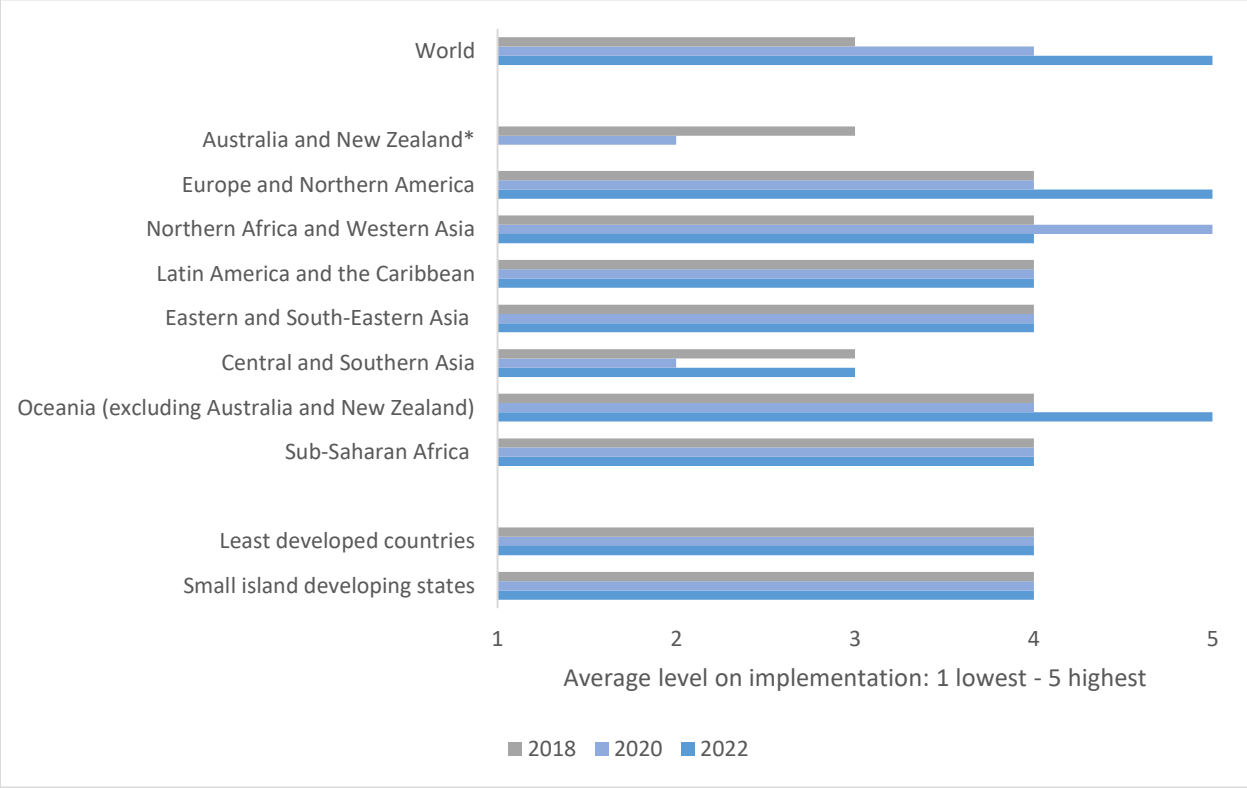
SDG Indicator 14.b.1 consists of a composite score that relies on three main elements. A first element is the development and application of enabling frameworks, which mainly requires that legislation is supportive of small-scale fisheries. Some countries, like Cabo Verde, are taking the lead in crafting such legislation, which specifically includes the *Voluntary*

Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) (FAO, 2015).

Secondly, SDG Indicator 14.b.1 aims to assess concrete action in support of small-scale fisheries. Some countries are adopting a strategic approach through the participatory development of national plans of action to implement the SSF Guidelines, for example Madagascar, Malawi, Namibia and the United Republic of Tanzania.

Thirdly, SDG Indicator 14.b.1 measures the participation of small-scale fisheries actors in decision-making. Results from a study by FAO, Duke University and WorldFish show that comanagement is globally recognized as being necessary for inclusive governance (FAO, 2021). Based on 58 country and territory case studies covering 55 percent of the global small-scale fisheries catch, the study estimates that for every ten metric tonnes of small-scale fisheries catch, only four tonnes are formally governed by provisions for comanagement.

Figure 61. Progress in Indicator 14.b.1, by region and income group (2018, 2020 and 2022)



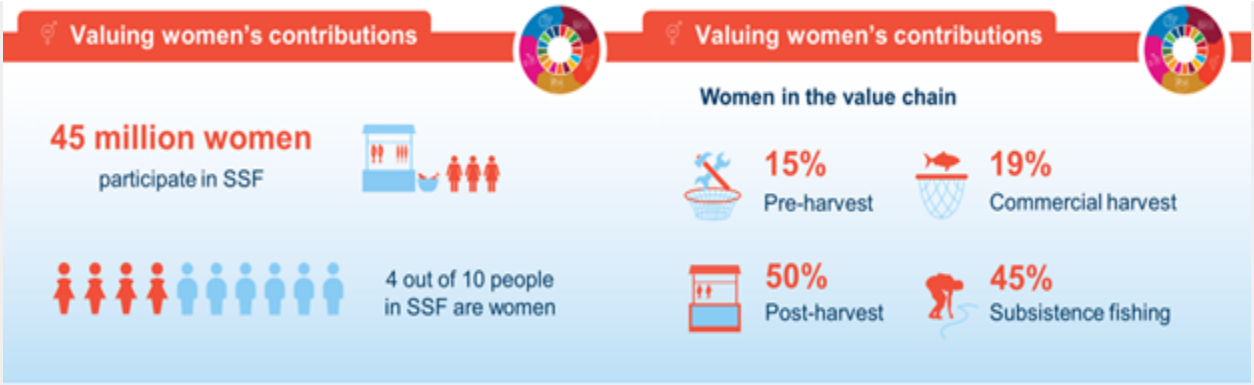
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

Gender is crucial to the understanding of the small-scale fisheries sector. However, gender-specific information is persistently absent in the already meagre data on small-scale fisheries available. An estimated 45 million women participate in small-scale fisheries globally, representing 40 percent of the total estimated small-scale fisheries labour force (see Figure 62). This means that for every ten people participating in small-scale fisheries, four are women, who are either working for wages or fishing for home consumption. Women are particularly active in the post-harvest phase, representing half of all those engaged in processing, transporting, trading, selling and related activities.

Hence, women are well represented in fishery activities, and especially informal and unpaid activities, including subsistence fishing (e.g. gleaning) and activities that support fishing businesses and operations, which largely go under the radar. While women participate in small-scale fisheries in substantial numbers, they are under-represented in governance arenas and face significant barriers to meaningful participation in management and decision-making. In many contexts, women have less opportunities to engage in small-scale fishery activities than men, yet would benefit disproportionately from such activities, especially in terms of income and nutrition.

To help address these barriers, the Global Action Plan of the International Year or Artisanal Fisheries and Aquaculture 2022 includes a pillar dedicated to gender equality (FAO, 2022b and FAO, 2022c).

Figure 62. Valuing women's contributions to small-scale fisheries (SSF)



SOURCE: FAO. 2022. *The contributions of small-scale fisheries to sustainable development*. Rome. www.fao.org/3/cb8233en/cb8233en.pdf

"We think about the future of our children"
Yohanis Ayamiseba, Indigenous fisherman from Indonesia

Practicing the Indigenous Sasi system has restored fish stocks in the village of Menarbu

Yohanis Ayamiseba, 56, is a fisherman from the Roon Tribe in Menarbu Village, Wondama Bay, Indonesia. The people of Menarbu depend entirely on the sea for their livelihoods, because in their area, it is impossible to grow vegetables for sale outside their village.

On his boat, equipped with an outboard motor, Mr Ayamiseba goes out fishing using fishing lines, a snorkel and a kalawai (spear). Part of his catch is for food, and the rest he sells in the village to meet his family's daily needs for soap, sugar, coffee and tea.

A few years ago, Mr Ayamiseba noticed that the condition of the sea and of the fish was deteriorating day by day. He and the people of Menarbu sat together to talk about their future: could the fishers continue fishing? What about their children and grandchildren?

In 2018, they agreed to introduce sasi, an Indigenous Peoples-based coastal resource management system, in their village. He says fish stocks have thrived and incomes have risen since the community decided to adopt this method, which protects the coastal marine ecosystem through a number of rules, including on when different species of fish can be harvested.

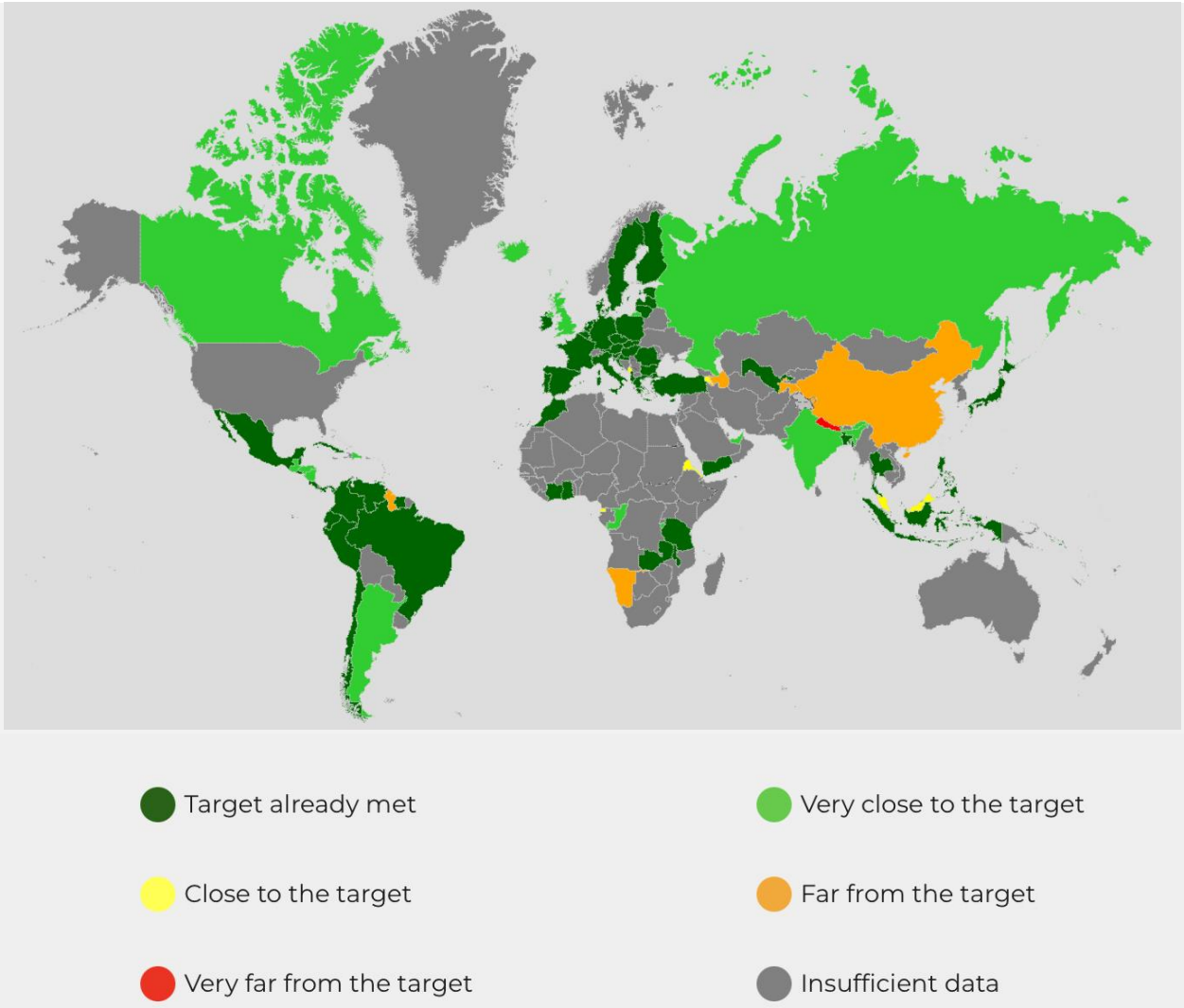
Sasi is a traditional conservation system and natural resource management model based on Indigenous Peoples' cosmogony. It is a holistic approach that is based on effective self-governance and collective decision making over territories and natural resources. The effectiveness of the Sasi system has been recognized by other communities, goverments, and other actors.

"Our area is protected because we think about the future of our children and grandchildren," said Mr Ayamiseba, who serves as head of the Sasi Management Group (Kadup) of Menarbu.

"Hopefully, our children and grandchildren will not only hear stories and see pictures, but will be able to touch, see and feel the experience (of fishing) for themselves," he added.

Mr Ayamiseba believes the fishing conditions in Menarbu are now very good, and maybe even still improving, because they are still following the sasi rules. The challenge now lies in finding market outlets for their products: the market in Wasior is very far and gasoline is expensive, he said.

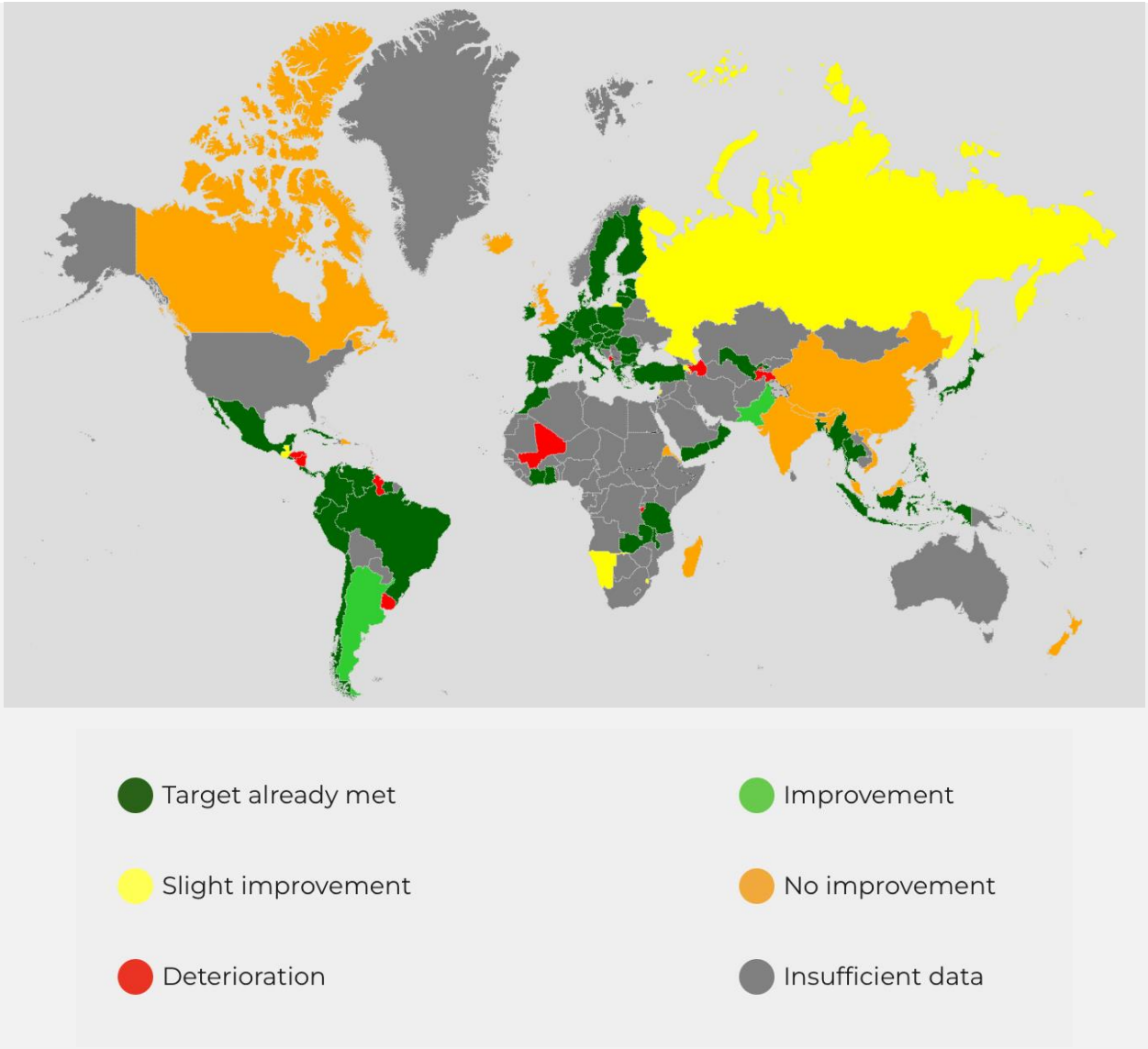
Figure 63. Current distance to the target of SDG Indicator 14.b.1 (2022)



NOTE: · Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

Figure 64. Progress towards the target of SDG Indicator 14.b.1 (2018–2022)



NOTE: ˙ Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

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SUSTAINABLE DEVELOPMENT GOAL 15

Life on land

Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.

SUMMARY TABLE

INDICATORS
15.1.1 15.2.1 15.4.2 15.6.1

Overview

Continuing global deforestation, land and ecosystem degradation, and biodiversity loss pose major risks to human well-being and sustainable development. Even as efforts are made in sustainable forest and natural resource management, commitments and instruments designed to conserve, restore and sustainably use forests and biodiversity need to be implemented urgently to ensure healthy, resilient societies.

The world's total forest area has decreased by 100 million ha since 2000, though the rate of forest loss appears to have slowed down in recent years. The vegetation cover of mountain areas has remained roughly stable at about 73 percent over the 2000–2020 period. There are encouraging indications that the adoption of sustainable forest management practices has improved over the past decade. Meanwhile, a growing number of countries is taking measures to facilitate the exchange of plant genetic material to promote access and benefit sharing.

SDG INDICATOR 15.1.1

Forest area as a proportion of total land area

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: deterioration since the baseline year.

Target 15.1

By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

In 2020, forests covered 31.2 percent of the world's total land area, reflecting a decline of 100 million ha over the course of past two decades.

The proportion of the world's total land area that is covered by forests decreased from 31.9 percent in 2000 (4.2 billion ha) to 31.5 percent in 2010, and to 31.2 percent (4.1 billion ha) in 2020. These percentages represent a loss in forest area of almost 100 million ha over the past two decades. The rate of loss has slowed down slightly over the past ten years.

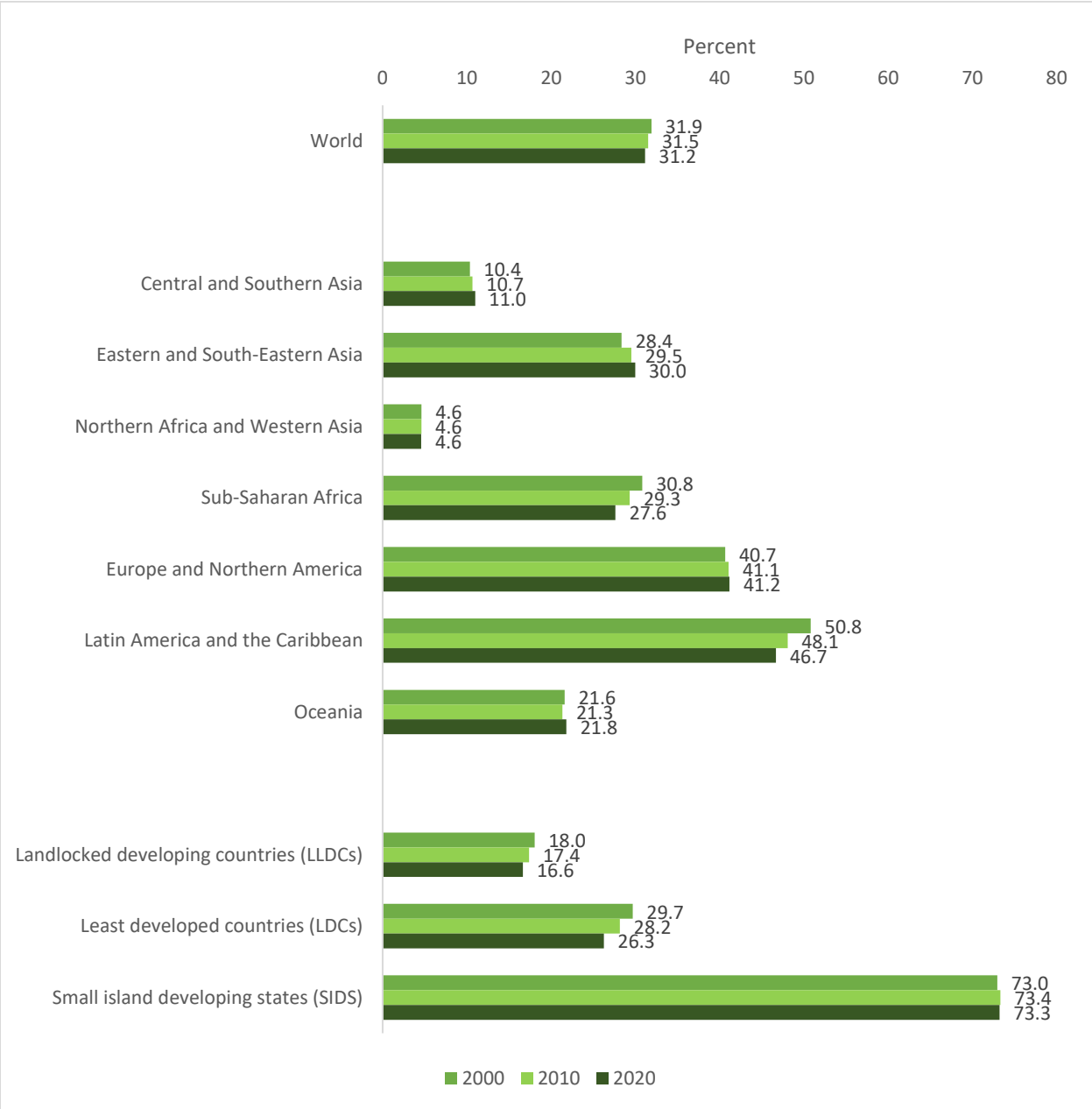
The global trend toward forest loss is the result of contrasting regional dynamics. Asia, Europe and Northern America have actually achieved an overall increase in forest area from 2000 to 2020 due to afforestation, landscape restoration efforts and the natural expansion of forests. The expansion of forest area, however, slowed down from 2010 to 2020 as compared to the period from 2000 to 2010.

By contrast, large forest area losses have occurred in Latin America, the Caribbean and sub-Saharan Africa over the past twenty years, mainly due to the conversion of forests into agricultural land for crops and grazing. LDCs are particularly affected by forest area losses. Forests play an important role in the livelihood and well-being of rural and urban populations. They notably contribute towards regulating the water cycle and mitigating climate change, and hold most of the world's terrestrial biodiversity. The loss of forests contributes to global warming and damages wildlife; it negatively impacts upon the livelihoods of the poor and affects land uses such as agriculture, and environmental services.

Although the effects of the COVID-19 pandemic on forests are still to be measured, it is likely that the pandemic has negatively impacted forest resources and increased the risk of deforestation and associated biodiversity loss. Forests play a key role in securing the livelihoods of the most vulnerable, and in increasing their resilience against crises such as the COVID-19 pandemic. In the absence of adequate social programmes to support these populations, there is a risk of increased pressure on forest cover and environmental integrity.

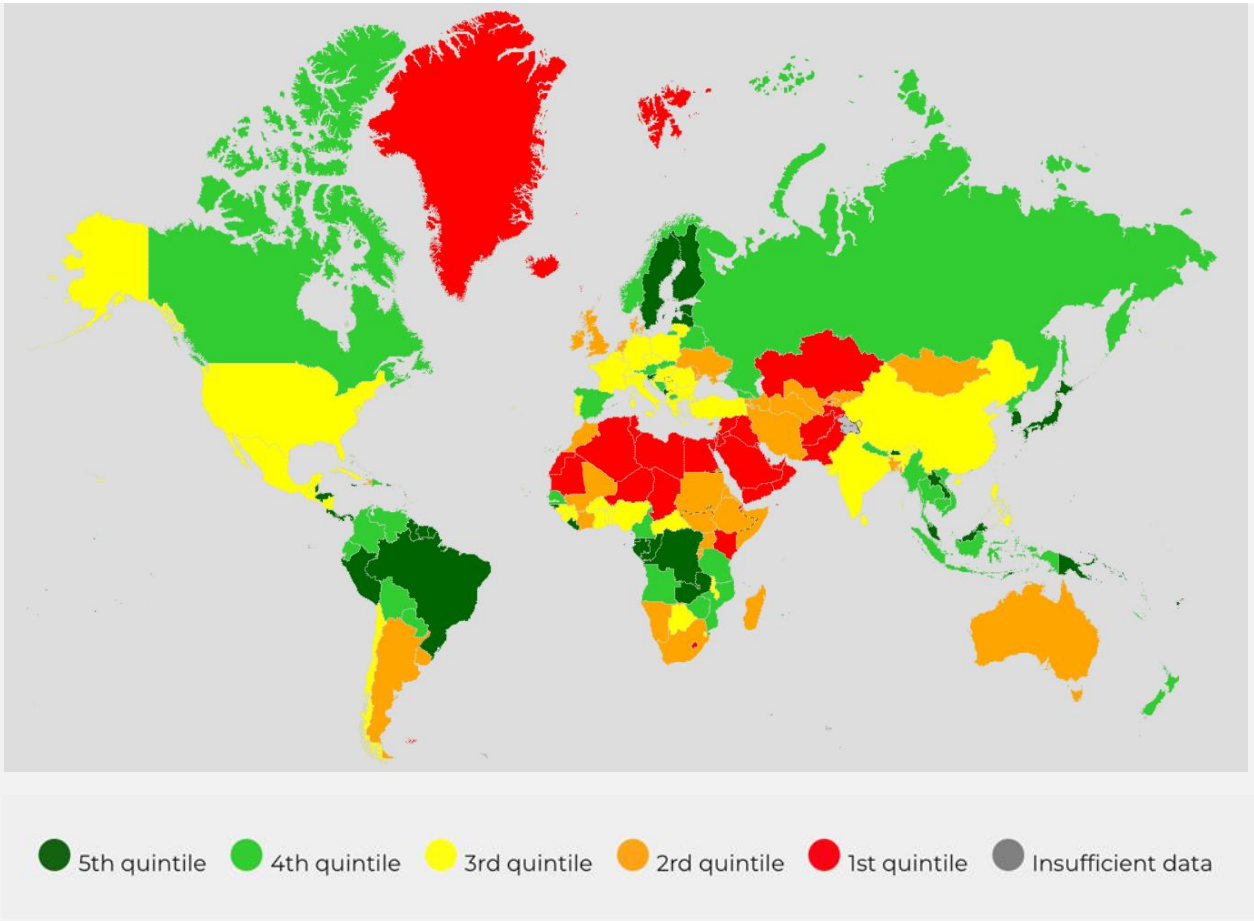
Maintaining momentum in halting deforestation and forest degradation, and restoring damaged ecosystems is crucial to improving the climate resilience of ecosystems, avoiding biodiversity losses and enhancing rural livelihoods, especially in the tropics and in LDCs.

Figure 65. Forest area as a proportion of total land area (percent) (2000, 2010 and 2020)



Note: this annual update of Indicator 15.1.1 uses the latest data from the Global Forest Resources Assessment 2020, which is based on the best country data and information currently available (FAO, 2022).
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

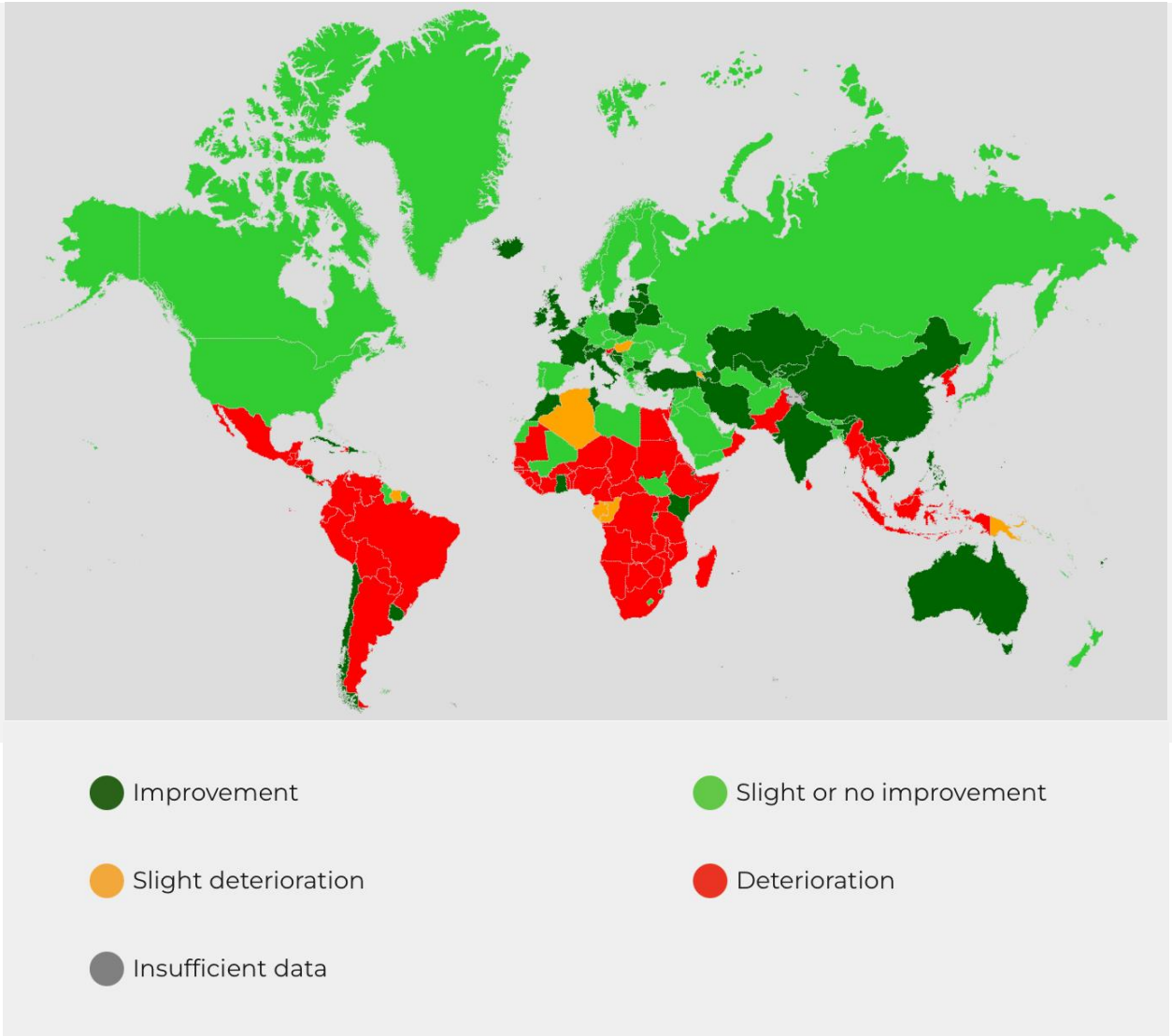
Figure 66. Global distribution of forest area as a percentage of total land area (2020)



NOTE: ' Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined.

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

Figure 67. Forest area as a percentage of total land area (2015–2020)



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SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

SDG INDICATOR 15.2.1

Progress towards sustainable forest management

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: not carried out due to methodological reasons.

Target 15.2

By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

Despite global progress towards sustainable forest management, forest losses remain high.

There has been global progress towards sustainable forest management over the past decade. The total forest area under a certification scheme has increased by 35 percent (or 120 million ha) since 2010. Between 2020 and 2021, the certified forest area increased by 27 million ha. This positive trend is mainly noticeable in Europe and Northern America, where 22 million ha were certified last year, and 87 million ha since 2010.

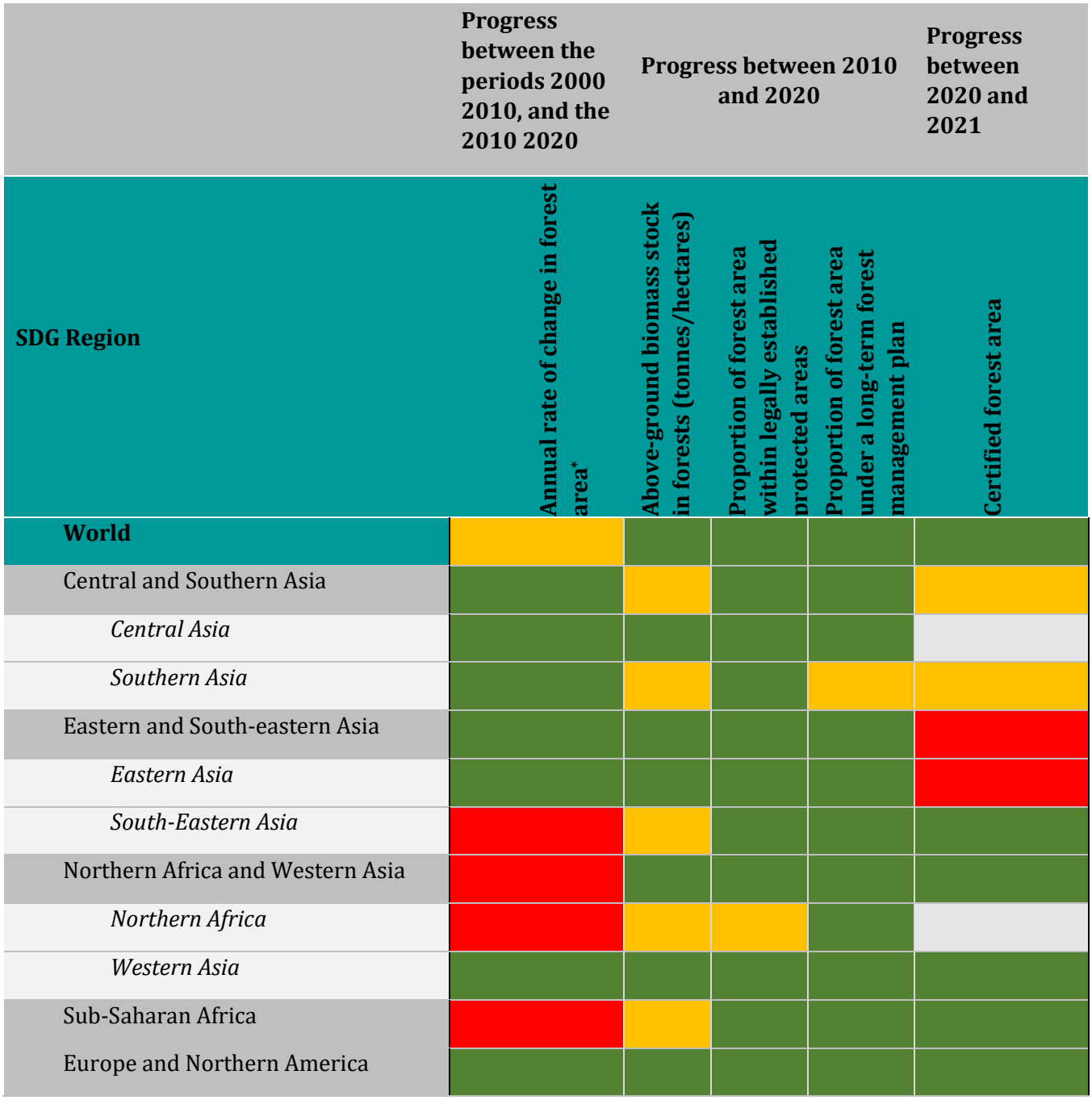
Globally, the proportion of forest area within protected areas increased from 17 to 18 percent between 2010 and 2020. The subregion with the highest proportion of forest in protected areas was Central Asia (59 percent), which also recorded the highest increase over the period (12 percent). Europe and Northern America had the lowest proportion of forests within protected areas in 2020 (6 percent).

Forest area under a management plan increased by 7 percent from 2010 to 2020. Most forests in Europe and Asia are under a management plan, with high increases recorded in Central Asia and Eastern Asia. By contrast, in Latin America and the Caribbean, Oceania and sub-Saharan Africa the proportion of forest under management plans remains below one third (although it is slowly increasing). The global amount of above-ground biomass in forests has slightly increased due to a notable rise in Eastern Asia, Europe and Western Asia.

The annual rate of change in forest area remains relatively stable at the global level at around - 0.1 percent, indicating that the loss of forests continues, albeit at a slightly slower rate compared to the previous decade. Forest area expanded in Asia, Europe and Northern America in 2010–2020, while significant forest losses were recorded in Africa, South-eastern Asia and Latin America and the Caribbean. These losses are mainly driven by the expansion of crop and livestock production. Deforestation and forest degradation remain major challenges, especially in the tropics, LDCs, LLDCs and SIDS, indicating the need for more action to reduce deforestation and implement sustainable forest and land management practices.

Forests are the largest carbon and biodiversity reservoirs on Earth. They are an essential source of foods, goods and services and are vital to the livelihoods of the poorest populations and rural communities. Global and regional efforts to conserve forest ecosystems and sustain their social, economic and environmental functions should be stepped up, with particular emphasis on the tropics and developing countries.

Figure 68. Dashboard for SDG 15.2.1 sub-indicators

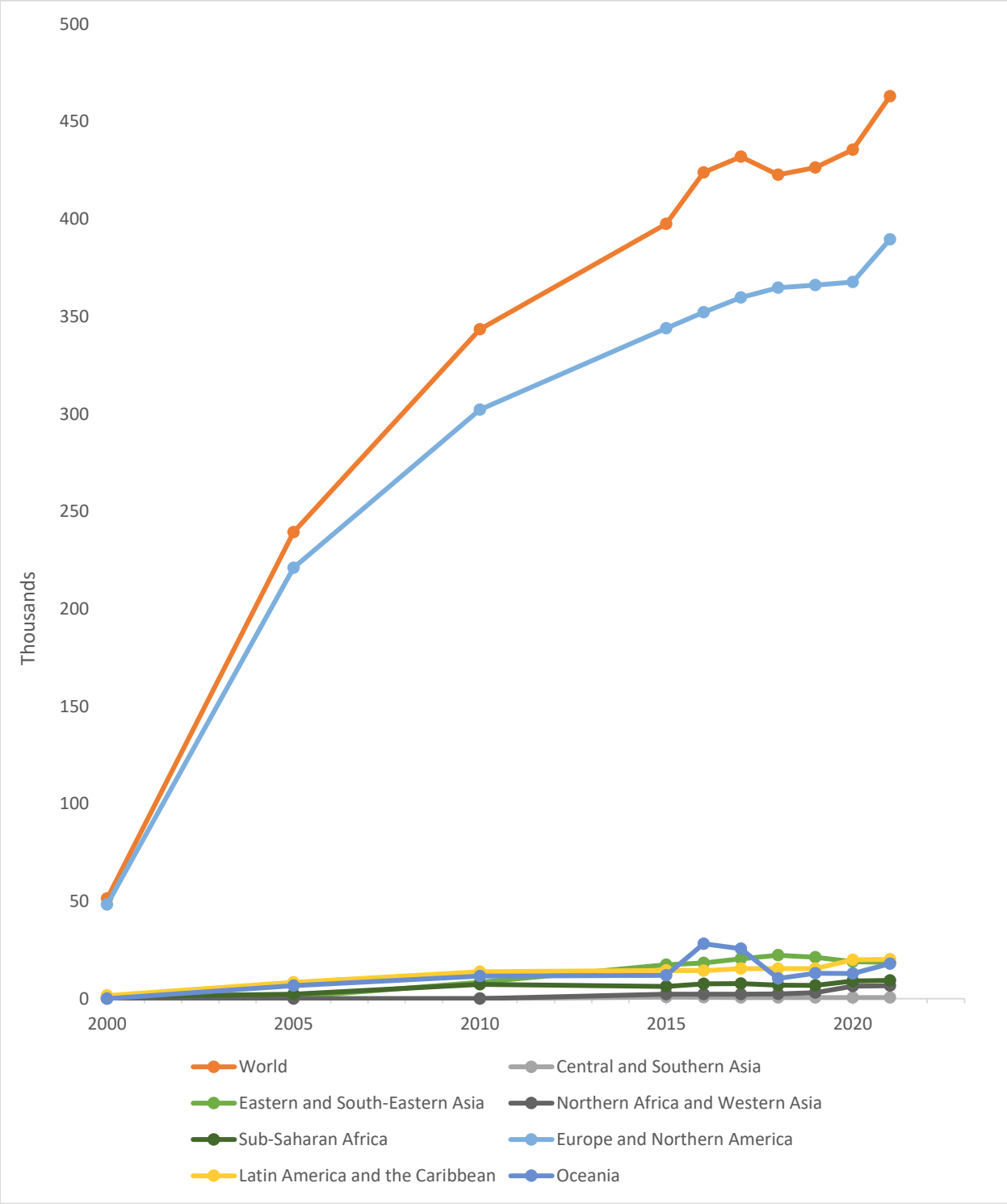


	Progress between the periods 2000 2010, and the 2010 2020	Progress between 2010 and 2020				Progress between 2020 and 2021
SDG Region	**Annual rate of change in forest area***	**Above-ground biomass stock in forests (tonnes/hectares)**	**Proportion of forest area within legally established protected areas**	**Proportion of forest area under a long-term forest management plan**		**Certified forest area**
Europe						
Northern America						
Latin America and the Caribbean						
Oceania						
Oceania (excl. Australia and New Zealand)						
Australia and New Zealand						
Landlocked developing countries						
Least developed countries						
Small island developing states						

Positive change No/small change Negative change No certified area

NOTE: * the annual rate of change in forest area is calculated using a compound interest formula.
SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

Figure 69. Certified forest area (in thousand hectares) (2000–2020)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en (modified to comply with the UN Geospatial Information Section)

SDG INDICATOR 15.4.2

Mountain green cover index

Status assessment: not possible due to absence of numerical yardstick in target.

Trend assessment: slight or no improvement since the baseline year.

Target 15.4

By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.

Global mountain green cover has remained stable at about three quarters of the world's mountain area over the period from 2000 to 2020.

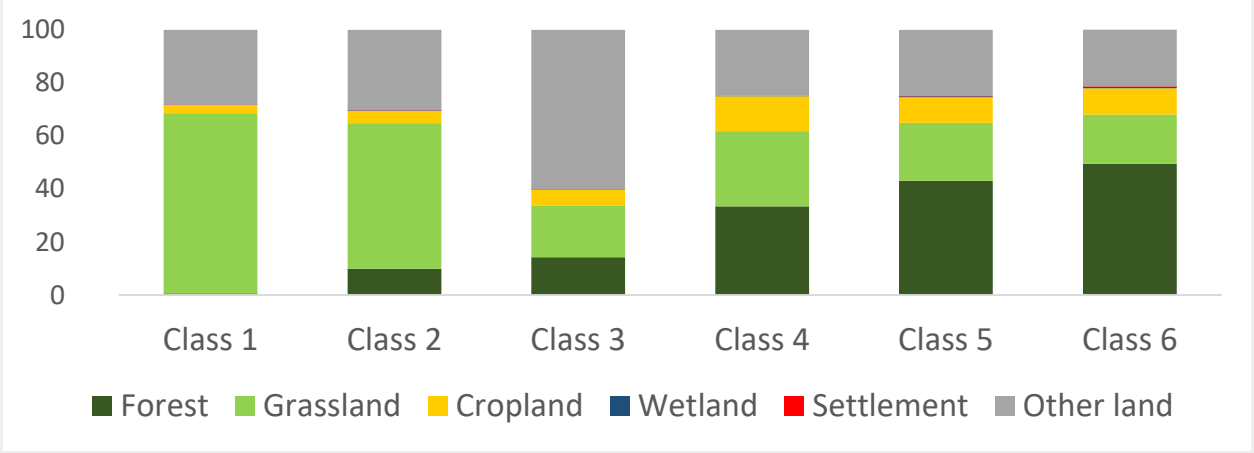
Despite constituting only about one quarter of the Earth's land area, mountain regions contribute disproportionally to global biodiversity, hosting more than 85 percent of the world's species of amphibians, birds and mammals (Rahbek *et al.*, 2019). In addition, they provide vital resources such as clean water to a significant proportion of the global population. However, mountains are threatened by multiple drivers of change, including climate change, land conversion, pollution, species introduction and overexploitation of natural resources. The interaction of these factors can irreversibly affect mountain ecosystems and their biodiversity.

An analysis of mountain green cover and its changes over time can provide information about the status of mountain ecosystems and their capacity to support sustainable development. SDG Indicator 15.4.2, the mountain green cover index, has remained roughly stable at about 73 percent over the 2000–2020 period, with a slight decrease (0.09 percentage points) since 2015. The role of bioclimatic factors in the level of mountain green cover is evident at the regional level (Figure 71). Tropical and subtropical regions characterized by low- or mid-altitude mountain ranges tend to show the highest green cover values (i.e. Oceania). Conversely, regions characterized by high-altitude mountain ranges located in temperate and boreal zones, where mountain environmental conditions are less favourable to vegetation growth, tend to show lower green cover values (i.e. Northern America and Europe). Regions with a high proportion of arid areas, such as Northern Africa, also tend to register lower mountain green cover values.

Interpreting the green coverage of mountain areas

Green mountain cover figures should be interpreted with caution. The figures themselves indicate neither details of species change, nor changes in the tree line or the conversion of natural ecosystems to agriculture. Furthermore, not all green cover changes can be considered positive, since, for example, an increase in green cover can be the result of glacier retreat and snow cover loss. Variations in species composition and tree line are important for identifying the long-term impacts of climate change in mountain regions. Therefore, analysing the variations in each of the elevation zones over time is important in determining appropriate management and adaptation measures.

Figure 70. Global mountain cover by mountain class and land cover type (percent) (2020)

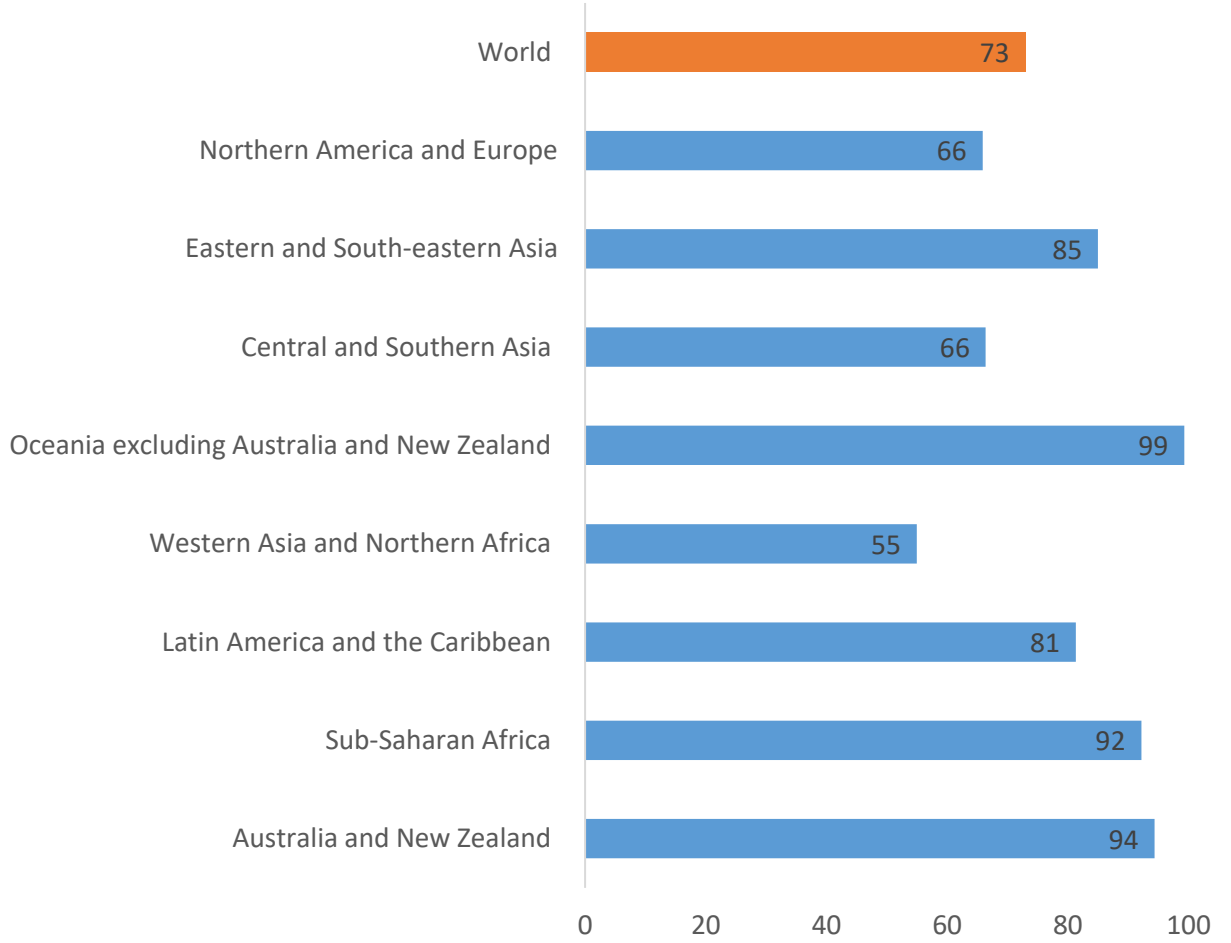


United Nations Environment Programme World Conservation Monitoring Centre global mountain classification

Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
> 4500 metres	3 500–4 500 metres	2 500–3 500 metres	1 500–2 500 metres	1 000–1 500 metres & slope > 5o OR LER > 300 metres	300–1 000 metres & LER > 300 metres

SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 71. Mountain green cover index by region (percent) (2020)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Figure 72. Global distribution of mountain green cover index (2018)

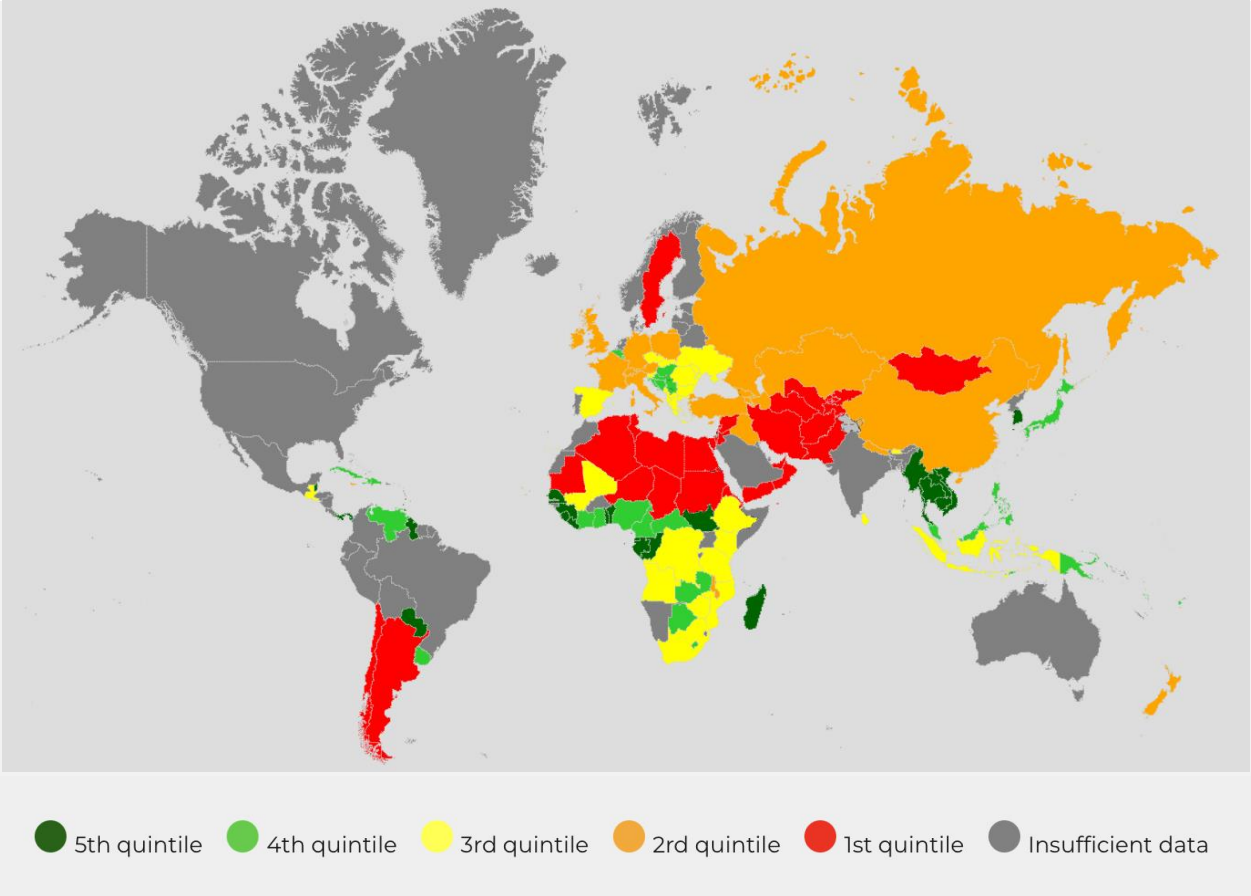


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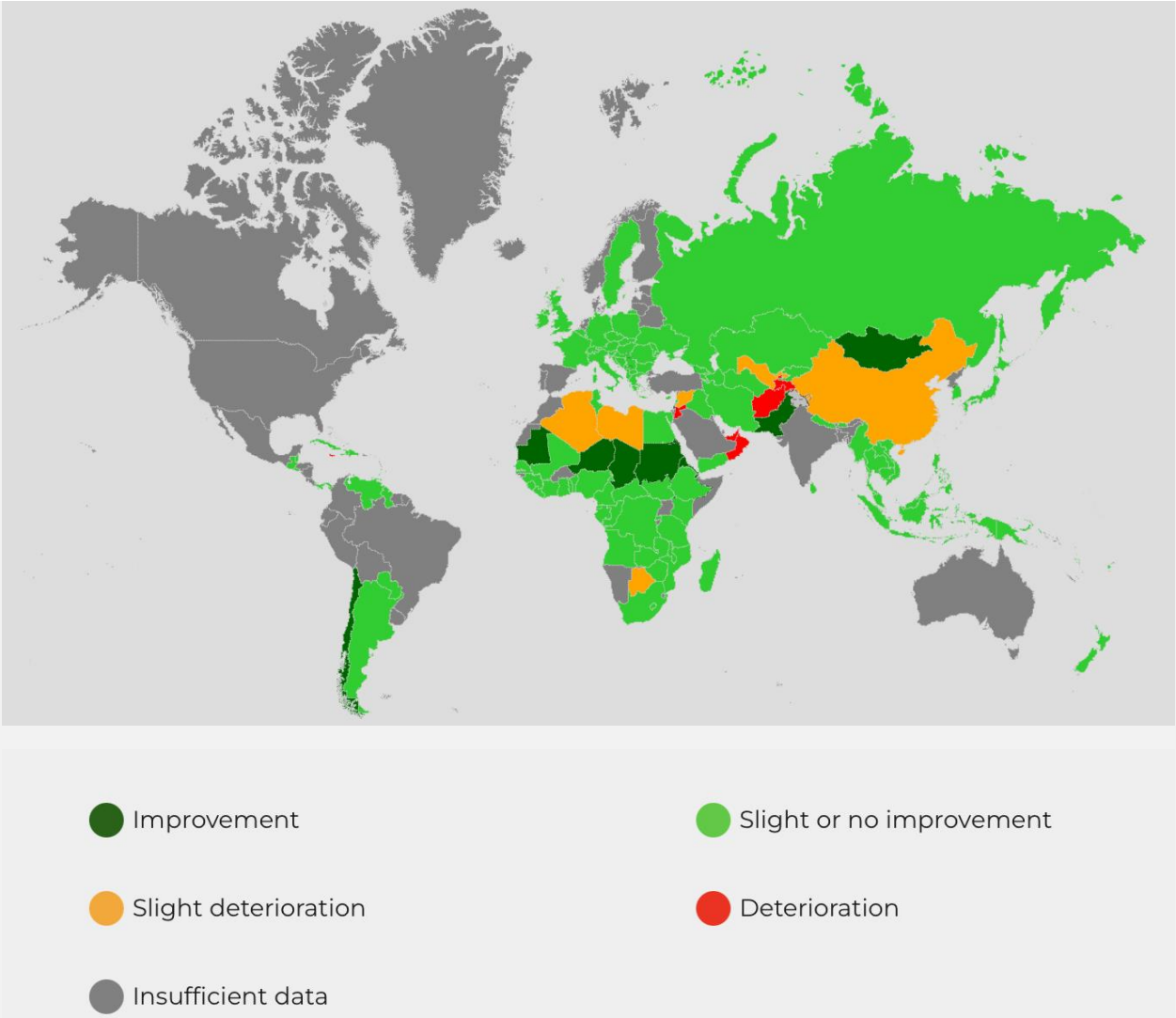
Figure 73. Progress in improving mountain green cover index by region (2015–2018)



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SDG INDICATOR 15.6.1

Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits

Target 15.6

Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed.

A growing number of countries are taking measures to ensure access to and benefit sharing of plant genetic resources for food and agriculture, but more must be done.

At the end of 2021, 68 countries had at least one legislative, administrative or policy measure in place to ensure the fair and equitable sharing of benefits arising from the use of genetic resources and associated traditional knowledge, in accordance with the Nagoya Protocol. Furthermore, 79 countries reported to have measures in place to implement the International Treaty on Plant Genetic Resources for Food and Agriculture.

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization entered into force on 12 October 2014 as a supplementary agreement to the Convention on Biological Diversity. Many countries, both parties and non-parties to the Nagoya Protocol, have made considerable progress towards putting in place access and benefit sharing frameworks.

As of 10 June 2022, 137 countries and the European Union have ratified the protocol. The secretariat of the Convention on Biological Diversity is engaging with countries to facilitate the process of publishing internationally recognized certificates of compliance.

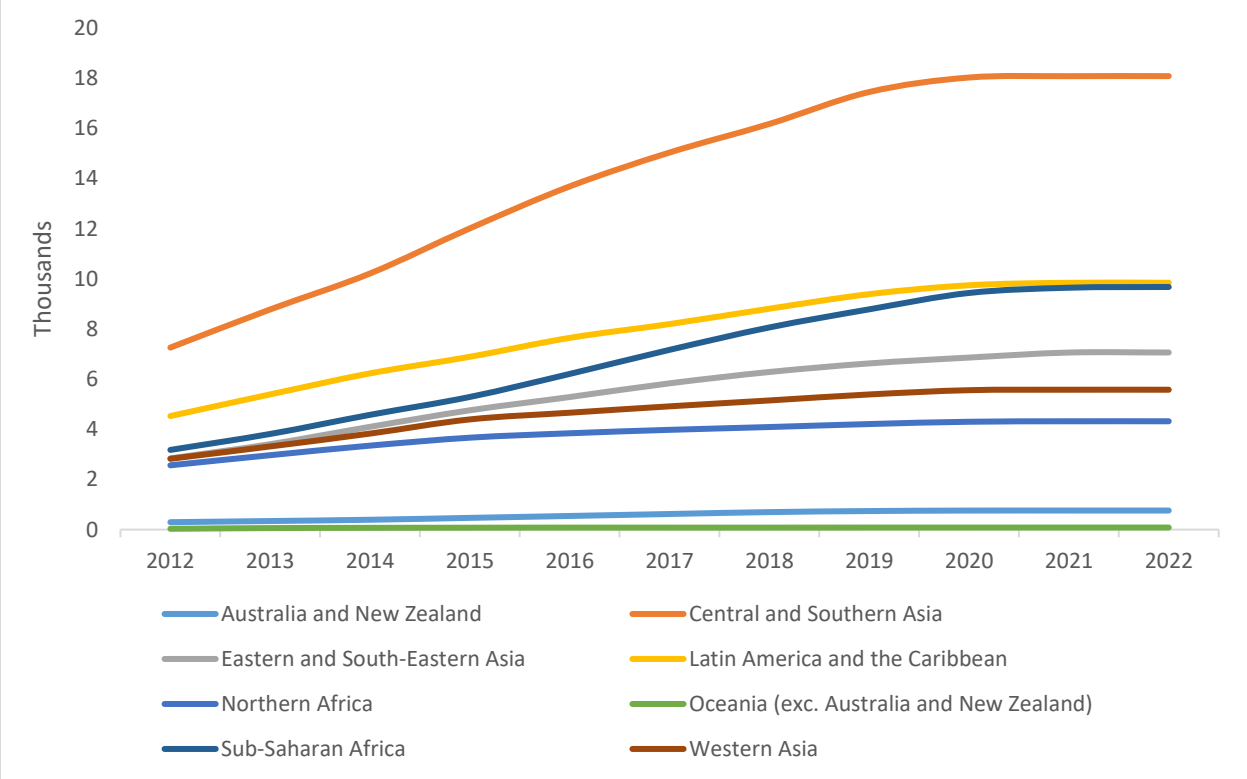
Data series	Trend assessment
Countries that are contracting parties to the International Treaty on Plant Genetic Resources for Food and Agriculture	Improvement
Countries that have legislative, administrative and policy frameworks or measures reported through the Online Reporting System on Compliance of the International Treaty on Plant Genetic Resources for Food and Agriculture	Improvement
Total reported number of standard material transfer agreements transferring plant genetic resources for food and agriculture to the country	Improvement

Facilitating access to plant resources

The Treaty on Plant Genetic Resources for Food and Agriculture facilitates access to plant genetic material for farmers and plant breeders to allow them to develop new crop varieties that can adapt agricultural production to changing environments, with the aim of enhancing global food security. The exchange of plant material provides an opportunity for sharing the monetary and non-monetary benefits arising from the use of such material with farmers in developing countries, and constitutes an important incentive for them to continue conserving and sustainably using plant genetic material.

In February 2021, there were 148 contracting parties to the treaty. To date, more than 85 000 contracts – known as standard material transfer agreements, used to facilitate the exchange of plant genetic material (see Figure 74 below) – have been concluded.

Figure 74. Number of standard material transfer agreements transferring plant genetic resources for food and agriculture in the world (2012–2022)



SOURCE: FAO. 2022. Indicators. In: *Sustainable Development Goals.* Rome. Cited 24 June 2022. www.fao.org/sustainable-development-goals/indicators/en

Reference

Rahbek, C., Borregaard, M.K., Colwell, R.K., Dalsgaard, B., Holt, B.G., Morueta-Holme, N., Nogues-Bravo, D., Whittaker, R.J. & Fjelds*å*, J. 2019. Humboldt's enigma: what causes global patterns of mountain biodiversity? *Science*, 365 (6458): 1108–1113.

Annexes

Data sources and statistical methods used for the FAO Sustainable Development Goals (SDG) Progress Report

Seven years into the implementation of the 2030 Agenda for Sustainable Development, the demand from governments, donors and international organizations for an assessment of whether the established SDG targets will be achieved or not, at which level (global, regional or national), and whether inequalities between different population groups and geographical areas will be eradicated by the end of 2030, is becoming increasingly pressing. To improve the first United Nations (UN) SDG Progress Chart, a dedicated task team was created in February 2020 under the aegis of the Inter-agency and Expert Group on SDG indicators (IAEG-SDG). This task team, of which FAO is a member, has developed guidance notes and further streamlined the methodology and design of the SDG Progress Chart, which is now produced on an annual basis. This report draws on the UN SDG Progress Chart's overall methodology to analyse trends, which relies on established quantitative approaches to assess the status of achievement and the progress made over time towards the SDG indicators.

Annex A.1. of the present technical compendium briefly describes the SDG indicators under FAO's custodianship, along with the main data sources used for their computation. Annex A.2 presents the methodology used for the progress assessment. The first section of Annex A.2 discusses the general approach adopted for assessing the current status and the trend of SDG indicators, while the second section provides indicator-specific fiches that detail the specific combination of methods used, taking into account all relevant characteristics of each indicator (normative direction, nature of indicator and existence of a numerical yardstick).

A major distinction is made between indicators that underpin targets with a numerical yardstick, and those that underpin targets without a numerical yardstick. Only a minority (about 30 percent) of all SDG targets have an explicit numerical yardstick, which poses serious challenges for the assessment of progress. Some international organizations have come up with creative ways of bypassing this problem, for instance by setting global or regional targets based on indicators' distributions, or using the average value of the indicators in the top five performing countries as a benchmark. However, such methods carry important risks, as they effectively blur the boundaries between the roles of

statisticians and legislators, and completely disregard the initial conditions in which disadvantaged countries started their development trajectory.

Therefore, where there is no numerical yardstick, this report will only assess whether the trend is going in the right direction or not, and, if so, whether progress is being made at a good or only fair pace. To assess levels of achievement, the report will provide a summary picture of the current situation by associating each country to its corresponding quintile of the distribution of indicator values.

It should be noted that not all indicators under FAO custodianship are eligible for this type of progress assessment. Indeed, five out of the 21 indicators are not included in this assessment because they did not meet the required criteria (which is in most cases due to the sparsity of data).

Annex A.1 – Definitions and data sources

A.1.1 SDG indicators under FAO custodianship

SDG Indicator 2.1.1: prevalence of undernourishment (PoU)

The prevalence of undernourishment is an estimate of the proportion of the population whose habitual food consumption is insufficient to provide the dietary energy levels that are required to maintain a normal active and healthy life. The computation of Indicator 2.1.1 is based on a model determining the probability that a randomly selected individual in a population regularly consumes a quantity of food that is insufficient to meet his/her normal energy requirements. Due to the probabilistic nature of the inference and the margins of uncertainty associated with estimates of each of the parameters in the model, the theoretical margins of errors for the PoU would very likely exceed plus or minus 2.5 percent in most cases. For this reason, FAO does not publish national PoU estimates that are lower than 2.5 percent.

The parameters used for the computation of the PoU (and their main data sources) include:

- Average dietary energy consumption (DEC) per capita per day – food balance sheets or dietary intake survey data (both with limitations; thus, the indicator is usually reported as a three-year average);
- Coefficient of variation (CV) of dietary energy consumption – household income expenditure surveys (HIES);
- Skewness of dietary energy consumption (SK) – HIES; and
- Minimum dietary energy requirement (MDER) per day – demographic data, the UN Population Division's World Population Prospects data (age, sex, height).

SDG Indicator 2.1.2: prevalence of moderate or severe food insecurity, based on the food insecurity experience scale (FIES)

Indicator 2.1.2 measures the percentage of individuals in a population who have experienced food insecurity (constrained access to food due to a lack of money or other resources) at moderate or severe levels during the reference period.

Data to compute this indicator are collected using a module with eight questions. The responses to these questions are analysed using the item response theory (Rasch model) to obtain measures of the severity of food insecurity of household or individuals (treated as a latent trait) that can be compared between countries. The module (available in about 200 languages) should be incorporated into large-scale, nationally representative population surveys. To fill gaps until all countries collect their own FIES data, FAO has been including

this module in the Gallup World Poll since 2014, and collects data at the national level for about 140 countries.

SDG Indicator 2.3.1: productivity of small-scale food producers

To compute Indicator 2.3.1, small-scale food producers are defined as those falling in the bottom 40 percent of the cumulative distribution of land size, livestock heads and total on-farm revenues (with a total revenue cap of PPP USD 34 387). In line with recommendations from the Manual for Measuring Productivity published by the Organisation for Economic Co-operation and Development in 2001, productivity is measured as the value of agricultural output (in PPP USD) divided by labour input (in annual number of working days). Agricultural output is calculated as the quantity of agricultural products produced by small-scale food producers, multiplied by the constant sales price received during the same year.

Given that Indicator 2.3.1 is measured for a specific population of producers i.e. those considered small-scale, the ideal data source for measuring this indicator is a single survey that collects all the required information with reference to individual production units. The most appropriate data source for collecting information on the total volume of agricultural production and on labour inputs on agricultural holdings are agricultural surveys. Other possible sources are household surveys with an integrated agricultural module, and agricultural censuses.

SDG Indicator 2.3.2: average income of small-scale food producers

As for Indicator 2.3.1, small-scale food producers are defined as those falling in the bottom 40 percent of the cumulative distribution of land size, livestock heads and total on-farm revenues (with a total revenue cap of PPP USD 34 387). In line with the resolution adopted by the Seventeenth International Conference of Labour Statisticians, income is calculated as the gross on-farm income of an agricultural holding, which is defined as the operating surplus (revenues minus operating costs) and expressed in constant PPP USD.

Given that Indicator 2.3.2 is measured for a specific population of producers i.e. those considered small-scale, the ideal data source for measuring this indicator is a single survey that collects all the required information with reference to individual production units. The most appropriate data source for collecting information on the total volume of agricultural production and associated costs are agricultural surveys. Other possible sources are household surveys with an integrated agricultural module, agricultural censuses and administrative records that integrate other sources.

SDG Indicator 2.4.1 proportion of agricultural area under productive and sustainable agriculture

This indicator is calculated as the area under productive and sustainable agriculture (assessed based on 11 subindicators covering the economic, social and environmental

dimensions), divided by the total agricultural land area (according to the World Census of Agriculture definition). The preferred data collection instrument is farm surveys, which should include a minimum set of questions needed to compute Indicator 2.4.1. To this end, FAO has prepared a sample survey questionnaire, whereas the indicator is also aligned with efforts supported by FAO to develop farm surveys as the most relevant instrument for the collection of agricultural data (see the AGRISurvey programme and the 50x2030 Initiative).

At present, very few countries have enough data to produce all 11 metrics selected to track agricultural sustainability, despite FAO's efforts to strengthen countries' capacities and improve data collection on SDG Indicator 2.4.1. To address this issue, FAO has developed a methodology to produce a provisional proxy of the indicator that, though not meant to replace SDG Indicator 2.4.1, is able to provide a good estimate of countries' progress towards sustainable and productive agriculture. The proposed proxy consists of a set of eight established measures of sustainability and productivity in agriculture that are based on widely available national statistics linked to FAO's consolidated statistical reporting processes (some of which are related to other SDG indicators). The eight chosen measures mirror, to the extent possible, the 11 subindicators of Indicator 2.4.1, maintaining a good balance between the social, economic and environmental dimensions recognized as the three pillars of sustainable development. They are based on extensive analysis carried out by FAO over the past two years, which has led to the Progress Towards Sustainable Agriculture (PROSA) analytical framework. Contrary to SDG Indicator 2.4.1, whose 11 subindicators are meant to be collected at farm level, data for the eight proxy measures are collected and analysed at the national level.

SDG Indicator 2.5.1.a: plant genetic resources for food and agriculture

Indicator 2.5.1.a measures the total number of unique accessions of plant genetic resources with an actual or potential value for food and agriculture secured in medium- or long-term conservation facilities. The indicator provides an indirect measurement of the total genetic diversity that is secured for future use. Positive variations of the indicator are associated with an increase in secured agrobiodiversity, while negative variations are associated with a loss.

Official national focal points and managers of regional or international gene banks are requested to provide the list of accessions in medium- or long-term conservation facilities. Data are reported to and accessible from the World Information and Early Warning System (WIEWS), a platform established by FAO to facilitate information exchange and enable periodic assessments of the state of the world's plant genetic resources for food and agriculture.

SDG Indicator 2.5.1.b: animal genetic resources for food and agriculture

Indicator 2.5.1.b measures the total number of animal genetic resources for food and agriculture secured in medium- or long-term conservation facilities. The indicator provides

an indirect measurement of the total genetic diversity that is secured for future use. Positive variations of the indicator are associated with an increase in secured agrobiodiversity, while negative variations are associated with a loss. The indicator is calculated as the number of local breeds with enough genetic material stored in gene banks to allow the recreation of a breed in case of extinction. A local breed is a breed of mammalian or avian livestock that is found only in a particular country.

National governments nominate national coordinators for the management of animal genetic resources, who provide data to FAO's Domestic Animal Diversity Information System (DAD-IS).

SDG Indicator 2.5.2: proportion of local breeds classified as being at risk of extinction

Indicator 2.5.2 monitors the percentage of local livestock breeds with a known risk status that are classified as being at risk of extinction at a certain moment in time.

The indicator focuses on the number of live animals kept on farms or in the field (*in situ*, *in vivo*), but also includes the number of animals kept under *ex situ*, *in vivo* programmes, such as in zoos. The indicator divides breeds into three categories, according to their level of risk of extinction: not at risk, at risk and unknown. The data needed to compute Indicator 2.5.2 can be collected using livestock population surveys or breed censuses that integrate complementary data from breeders' associations. Data are reported to FAO's DAD-IS by the same national coordinators for the management of animal genetic resources as those for Indicator 2.5.1.b, nominated by their governments.

SDG Indicator 2.a.1: agriculture orientation index for government expenditures

Indicator 2.a.1 is defined as the share of agriculture in overall government expenditure, divided by the share added by agriculture to gross domestic product (GDP). Agricultural activities are defined according to the International Standard Industrial Classification of All Economic Activities (ISIC Rev. 4) and include agriculture, forestry, fishing and hunting. The measure is a currency-free index, calculated as the ratio of two shares. An agriculture orientation index (AOI) greater than one reflects a stronger orientation towards the agriculture sector, which receives a share of government spending that is higher than its relative contribution to the economy. An AOI of less than one reflects a weaker orientation towards agriculture, while an AOI equal to one reflects neutrality in a government's orientation to the agriculture sector.

National governments are requested to compile government expenditure data according to the Government Finance Statistics (GFS) and the Classification of the Functions of Government (COFOG), and data on agriculture value added share of GDP according to the System of National Accounts (SNA). Data on government expenditure are collected from

national governments using the annual Government Expenditure in Agriculture (GEA) questionnaire developed by FAO. Comparable data can also be derived from the International Monetary Fund's (IMF) database on GFS. Data on agriculture value added are obtained from the UN Statistics Division (UNSD), which provides national accounts estimates for 220 countries and territories.

SDG Indicator 2.c.1: indicator of food price anomalies (IFPA)

Indicator 2.c.1 measures the number of price anomalies in a food commodity price series over a given period of time, where a price anomaly is defined as a weighted compound growth rate (CGR) that is greater than the historic mean CGR by one standard deviation or more. The indicator measures price anomalies for five staple cereal commodities (maize, rice, wheat, sorghum and millet), as well as officially reported general food price indices (food consumer price index or CPI). The same indicator can be used by countries to monitor any other food commodity that they consider critical and/or at risk of high price volatility.

Commodity level price data are harvested from national market information systems and national statistical agencies' websites. Food CPI data originate from the IMF and UNSD (for countries not covered by the IMF). FAO's food CPI dataset consists of a complete and consistent set of time series from January 2000 onwards.

SDG Indicator 5.a.1: women's ownership of agricultural land

Indicator 5.a.1 is divided into two subindicators: (a) proportion of the 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.

The indicator considers as owners or holders of tenure rights all individuals in a reference population (adult agricultural population) who meet at least one of these conditions: a) being listed as owners or holders on a certificate that testifies security of tenure over agricultural land; b) having the right to sell agricultural land; and c) having the right to bequeath agricultural land.

The adult agricultural population is composed of all adult individuals (over 18 years old) belonging to an agricultural household. Agricultural households are defined as households who operated land for agricultural purposes and/or raised or tended livestock during the past 12 months, regardless of the final destination of the production. It is important to note that households whose members were engaged in agriculture only through wage labour are excluded from the reference population.

Preferred data sources for computing Indicator 5.a.1 are agricultural surveys, integrated or multipurpose household surveys, population censuses and agricultural censuses. Given the limited number of surveys providing data to compute the two subindicators, FAO has started using demographic and health surveys (DHS) to compute proxies of 5.a.1. These surveys,

which collect standardized information in a considerable number of countries, allow measuring self-reported (agricultural and non-agricultural) land ownership in the adult agricultural population. Using DHS surveys, the agricultural population is represented by all individuals belonging to households where at least one member owned agricultural land or livestock, or was self-employed in agriculture, during the past 12 months. FAO's 2022 SDG Progress Report reports a proxy for Indicator 5.a.1 for Afghanistan, Albania, Armenia, Burundi, Cambodia, Cameroon, Chad, Ethiopia, Guatemala, Haiti, India, Indonesia, Lesotho, Liberia, Myanmar, Nepal, Pakistan, Papua New Guinea, Rwanda and Zambia.

SDG Indicator 5.a.2: women's equal rights to agricultural land

Indicator 5.a.2 measures the extent to which a country's legal framework supports women's land rights by testing the framework against six proxies drawn from international law and internationally accepted good practices. For each country, the indicator gives values from 1 to 6, according to the number of proxies that are included in its legal framework, with a value of 1 corresponding to the absence of all proxies, and 6 indicating their full inclusion:

- Mandatory joint registration, or economic incentives for the joint registration of land;
- Spousal consent for land transactions;
- Equal rights to inherit for women and girls;
- Budgetary commitments to strengthen equal land rights for women;
- Where customary systems are in place, women's land rights are protected;
- Mandatory quotas to increase the participation of women in land institutions.

This indicator is computed based on the assessment of a country's laws by official national legal experts, who use the methodological guidelines and questionnaire developed by FAO for this purpose.

SDG Indicator 6.4.1: change in water use efficiency over time

Indicator 6.4.1 provides a measure of water use efficiency over time. It is computed as the ratio between the value added of a given major industrial sector (according to ISIC Rev. 4) and the volume of water used by that sector (USD/m^3). Water used is defined as the water that is abstracted directly or received by an industry or by households from another industry. This is different from water abstraction or water withdrawal, which is defined as the water removed from a river, lake, reservoir or aquifer.

Data on water use are collected by national institutions and communicated to FAO using the AQUASTAT Water and Agriculture questionnaire. Data on value added for each sector are obtained from UNSD, which provides national accounts estimates for 220 countries and territories.

As few countries publish data on water use by sector on a regular basis, one of the main constraints for the computation of this indicator is the difficulty to obtain up-to-date data. Furthermore, data on the numerator (value added) on the one hand and those on the

denominator (water use) on the other may refer to different years, thus requiring imputation.

SDG Indicator 6.4.2: level of water stress

Indicator 6.4.2 measures the level of water stress, or freshwater withdrawal as a proportion of a country's available renewable freshwater resources. This is computed as the ratio between total freshwater withdrawn by all major industrial sectors (according to ISIC Rev. 4) and total renewable freshwater resources, taking into account environmental flow requirements. Values of the indicator are assessed against five levels of severity stress: less than 25 percent (no stress), 25 to 50 percent (low stress), 50 to 75 percent (medium stress), 75 to 100 percent (high stress) and over 100 percent (critical).

Data for this indicator are usually collected by national ministries and institutions with water-related mandates, such as national statistical offices and ministries for water resources, agriculture or the environment. Official counterparts at country level are the national statistics office and/or the line ministry for water resources. FAO requests countries to nominate a national correspondent to act as focal point for data collection and communication. Data are mainly published within national statistical yearbooks, national water resources and irrigation master plans, and other reports (such as those from projects, international surveys or results and publications from national and international research centres). Data for the indicator are collected through FAO's AQUASTAT Water and Agriculture questionnaires, which are filled out by the relevant institutions in each country.

SDG Indicator 12.3.1.a: food loss index (FLI)

Indicator 12.3 is divided into two subindicators covering different stages of the supply chain. Subindicator 12.3.1.a, the food loss index (FLI), focuses on food losses that occur from production up to (but not including) the retail level. This indicator measures the change in percentage losses for a basket of ten main commodities (by country) in comparison with the baseline of 2015. Meanwhile, subindicator 12.3.1.b focuses on food waste, and covers the retail and consumption levels. While indicator 12.3.1.a is under FAO's custodianship, indicator 12.3.1.b is under the custodianship of the United Nations Environment Programme.

The FLI is a composite of ten commodities, by value of production, within five commodity groups. Each country defines its own basket of commodities by selecting the two most important commodities per commodity group. The commodities in the basket are then weighted according to their economic value. Thus, the FLI covers a wide diversity of diets, while being comparable at the aggregate level.

Currently, the primary data source for the index are the estimated loss quantities in the food balance sheets collected by FAO under the annual production questionnaires it sends to countries. However, as countries usually report on only a limited number of commodities in food balance sheets, FAO advocates the collection of nationally representative data on the

top two commodities for each of the main commodity groups, based on surveys with a frequency of three to five years.

SDG Indicator 14.4.1: proportion of fish stocks within biologically sustainable levels

Indicator 14.4.1 measures the sustainability of the world's marine capture fisheries based on their abundance. A fish stock whose abundance is at or greater than the level that can produce the maximum sustainable yield (MSY) is classified as biologically sustainable. In contrast, when abundance falls below the MSY level, the stock is considered biologically unsustainable.

MSY is defined as the greatest amount of catch that can be harvested continuously from a stock under constant and current environmental conditions (e.g. habitat, water conditions, species composition and interactions, and anything that could affect birth, growth or death rates of the stock) without affecting the long-term productivity of the stock. The indicator measures the sustainability of fish resources based on a good balance between human use and ecological conservation.

Given the highly migratory nature of many fish stocks, the indicator has hitherto been monitored at global and regional levels only. However, in 2019 FAO launched a new effort to collect national data on fish stocks that are found only within one country's exclusive economic zone. The indicator requires the development of a reference list of stocks and, for each stock included, the completion of a stock assessment that uses fish catch statistics, fishing effort data, biological information and surrogate biomass measures.

SDG Indicator 14.6.1: Combating illegal, unreported and unregulated fishing

Indicator 14.6.1 reflects the progress made by countries towards the implementation of international instruments aiming to combat illegal, unreported and unregulated (IUU) fishing. The indicator is based on the replies of countries to selected sections of the questionnaire on the implementation of the Code of Conduct for Responsible Fisheries and related instruments (CCRF). The responses to the questionnaire are converted into five scores with different associated weights, indicating the:

- Adherence and implementation of the 1982 United Nations Convention on the Law of the Sea (10 percent);
- Adherence and implementation of the 1995 United Nations Fish Stocks Agreement (10 [percent);
- Development and implementation of a national plan of action to combat IUU fishing in line with the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (30 percent);
- Adherence to and implementation of the 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (30 percent);

- Implementation of flag state responsibilities in the context of the 1993 FAO Compliance Agreement and FAO Voluntary Guidelines for Flag State Performance (20 percent).

Depending on their responses regarding the adherence to and implementation of these instruments, countries score an indicator value between 0 and 1. Based on this score, each country is categorized into one of five levels of implementation, ranging from 1 (lowest) to 5 (highest).

SDG Indicator 14.7.1: Sustainable fisheries as a percentage of GDP

Indicator 14.7.1 measures the contribution of sustainable marine capture fishing to countries' GDP. It is computed by adjusting the value added of marine capture fishery with a sustainability multiplier that is based on an assessment of fish stock sustainability within FAO fishing areas. A country's sustainability multiplier is the average sustainability of stocks, weighted according to the share of overall marine capture in each fishing area where the country performs fishing activities. When a country fishes in only one FAO fishing area, its sustainability multiplier will be equal to the average sustainability of stocks in that area.

GDP and value added information is collected through national accounts, whereas the sustainability multiplier is currently based on the regional value of SDG Indicator 14.4.1, weighted according to the country's share in fish catch across major fishing areas. Nationally reported statistics are taken as the first component of this indicator and are used to estimate fisheries and aquaculture as a percentage of GDP. This result is then transformed into a final estimate of sustainable fisheries as a percentage of GDP, using catch data published by FAO. The latter are a combination of nationally reported data and estimates, and data on stock status published by FAO.

SDG Indicator 14.b.1: Promoting small-scale fisheries

Indicator 14.b.1 is based on responses by FAO Members to the sections of the CCRF questionnaire that cover the implementation of three key measures to promote and facilitate access rights to small-scale fisheries. Responses are converted using an algorithm into a score, with each measure having a different weight:

- Existence of instruments that specifically target or address the small-scale fisheries sector (40 percent).
- On-going specific initiatives to implement the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF) (30 percent).
- Mechanisms to allow small-scale fishers and fish workers to contribute to decision-making processes (30 percent).

The score ranges from 0 to 1, based on which each country is categorized into one of five levels of implementation, ranging from the lowest (1) to the highest (5).

The indicator is based on the biennial questionnaire of the CCRF, a common, long-standing data reporting mechanism. The questionnaire is sent to all FAO Members since 1995. In 2016, a new module was added to the questionnaire to collect information on the implementation status of the three variables on the promotion of small-scale fisheries, and produce the indicator's baseline.

SDG Indicator 15.1.1: Forest area as a proportion of total land area

Indicator 15.1.1 measures the share of forest area in total land area. Forest area is defined as land spanning more than 0.5 hectares, with trees higher than 5 m and a canopy cover of more than 10 percent, or with trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural or urban land use.

Data to compute Indicator 15.1.1 are collected through FAO's Global Forest Resources Assessment (FRA). All data are provided to FAO by official national focal points in the form of standardized country reports, which include the original data and reference sources, as well as descriptions of how these have been used to estimate forest area for different points in time.

SDG Indicator 15.2.1: Sustainable forest management

Indicator 15.2.1 provides a proxy of countries' progress towards sustainable forest management by means of five subindicators:

- Forest area annual net change rate (percent);
- Above-ground biomass stock in forests, per hectare (tonnes per hectare);
- Proportion of forest area located within legally established protected areas (percent);
- Proportion of forest area under a long-term forest management plan (percent); and
- Forest area under an independently verified forest management certification scheme (thousands of hectares).

Data on all five subindicators are collected every five years through FAO's FRA (with the exception of the subindicator on the proportion of forest area under a long-term management plan, which was not collected in 2015). All data are provided to FAO by official national focal points in the form of standardized country reports, which include the original data and reference sources, as well as descriptions of how these have been used to estimate forest area for different points in time.

SDG Indicator 15.4.2: Mountain green cover index (MGCI)

Indicator 15.4.2 measures changes in the area of green vegetation in mountain areas (forest, shrubs, pastureland and cropland). The mountain green cover index (MGCI) is defined as the share of green cover area in the total surface of the mountain area of a country for a given reporting year, where the green cover area is all mountain area covered by cropland,

grassland, forest and wetland. The aim of the index is to monitor the evolution of the green cover and thus assess the conservation status of mountain ecosystems.

FAO calculates the indicator using the land cover products of the European Space Agency Climate Change Initiative (ESA CCI), which have been produced using a combination of RS data such as the 300 metres MERIS, 1 kilometre SPOT-VEGETATION, 1 kilometre PROBA-V and 1 kilometre AVHRR. The ESA CCI products consist of a series of annual land cover maps at 300 metres resolution, covering the period from 1992 to 2018. However, the data source is not prescriptive, provided that countries adhere to the methodology. FAO shares country figures with the SDG focal points in national statistical offices for validation before publication. On this same occasion, FAO requests countries to provide their own estimates for the indicator, if available.

SDG Indicator 15.6.1: number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits

Custodian agency: Convention on Biological Diversity.

Contributing agency: FAO, International Treaty on Plant Genetic Resources for Food and Agriculture.

The indicator is defined as the number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits. It refers to the efforts by countries to implement the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (2010), and the International Treaty on Plant Genetic Resources for Food and Agriculture (2001).

The International Treaty on Plant Genetic Resources for Food and Agriculture stipulates that contracting parties ensure the conformity of their laws, regulations and procedures with their obligations under the Treaty (Article 4). Under the Multilateral System of Access and Benefit-sharing (Articles 10 to 13), countries grant each other facilitated access to their plant genetic resources, while users of plant genetic material from the multilateral system are encouraged to share their benefits with this system. Such benefits should primarily flow to farmers in developing countries who promote the conservation and sustainable use of plant genetic resources. Pursuant to Article 21, the Governing Body has adopted procedures and operational mechanism to promote compliance and address issues of non-compliance. The monitoring and reporting procedures request each contracting party to submit a report on the measures it has taken to implement its obligations under the Treaty, including access and benefit-sharing measures. Contracting parties report using a standard format and through the Online Reporting System on Compliance. Additionally, information on the number of standard material transfer agreements is gathered from the data store of the Treaty through Easy-SMTA. SMTA is a mandatory contract that contracting parties of the

Treaty have agreed to use whenever plant genetic resources falling under the multilateral system are made available.

A.1.2 Non-FAO indicators

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

Custodian agency: UN-Habitat and World Bank

Contributing agency: FAO

Indicator 1.4.2 measures land ownership as the most the relevant component of Target 1.4 (ensure men and women have equal rights to economic resources, as well as access to …, ownership of and control over land and other forms of property, inheritance, natural resources). It is an outcome indicator that measures the results of policies aiming to strengthen tenure security for all, including women and other vulnerable groups.

It covers: (a) all types of land use (such as residential, commercial, agricultural, forestry, grazing, wetlands based on standard land-use classification) in both rural and urban areas; and (b) all land tenure types recognized at country level, such as freehold, leasehold, public land, customary land. An individual can hold land in his/her own name, jointly with other individuals, as a member of a household, or collectively as member of group[7], cooperative or other type of association. Secure tenure rights are measured through two sub-components, both necessary to provide a full measurement of tenure security: (i) legally recognized documentation; and (ii) perception of the security of tenure.

For the purpose of constructing the indicator, perceptions of rights to land are considered secure if:

1. The landholder does not report a fear of involuntary loss of the land within the next five years due to, for example, intra-family, community or external threats; and
2. The landholder reports having the right to bequeath the land.

The data sources used to inform the indicator are census, multi-topic household surveys conducted by national statistical organizations and, depending on availability,

[7] *Group rights* include shared or collective rights, and examples include the ejido in Mexico, indigenous territories in Honduras, perpetual DUAT for rural communities in Mozambique. Collective rights occur in a situation where holders of rights to land and natural resources are clearly defined as a collective group and have the right to exclude third parties from the enjoyment of those rights.

administrative data on land tenure reported by national land institutions (in most cases land registries and cadasters).

Since this indicator and indicator 5.a.1 are interlinked, the custodian agencies of 1.4.2 and 5.a.1 have agreed to work closely with country and regional statistical agencies and global partners to support for country data collection, analysis and reporting. In particular, they have developed a joint module that can help countries to collect both indicators using the same survey instrument and a handbook that provide guidance on the implementation modalities (FAO, The World Bank & UN-Habitat, 2019). Similar capacity building support will be developed for land agencies to set up gender disaggregated electronic reporting systems.

SDG Indicator 1.5.2: Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)

Custodian agency: United Nations Office for Disaster Reduction (UNISDR)

Contributing agency: FAO

This indicator measures the ratio of direct economic loss attributed to disasters in relation to GDP. Direct economic loss refers to the monetary value of total or partial destruction of physical assets existing in the affected area.

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy agenda of disaster risk reduction. Among the global targets, "Target C: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030" will contribute to sustainable development and strengthen economic, social, health and environmental resilience, as well as climate change adaptation.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress towards the implementation of the Sendai Framework, which was endorsed by the UNGA (UNDRR, 2016). The relevant global indicators for the Sendai Framework are used to report for this indicator.

Disaster loss data is greatly influenced by large-scale catastrophic events. UNISDR recommends countries report the data by event, so that complementary analysis can be undertaken to obtain trends and patterns in which such catastrophic events (that can represent outliers in terms of damage) can be included or excluded.

FAO has developed an e-learning course to support countries to generate precise and holistic data for the agricultural sector ("Introduction to FAO's damage and loss assessment

methodology" (FAO, 2020). This course can be used for national Disaster Risk Reduction/Management, resilience and to help monitor the achievement of global targets.

SDG Indicator 2.b.1: Agricultural export subsidies

Custodian agency: World Trade Organization

Agricultural export subsidies are defined as budgetary outlays (direct payments, export loans, tax benefits) given to traders to cover the difference between internal market prices and world market prices and therefore to subsidize exports.

For this indicator, data are available by country and by products or groups of products. The purpose of this indicator is to give detailed information on the level of export subsidies applied annually per product or group of products, as notified by WTO Members.

An overall global indicator measuring the total annual applied export subsidies budgetary outlays is calculated by summing all the available data after having converted them into a single currency (US$).

SDG Indicator 10.a.1: Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff

Custodian agency: International Trade Centre (ITC), United Nations Conference on Trade and Development (UNCTAD), The World Trade Organization (WTO)

The indicator is defined as the proportion of the total number of tariff lines applied to products imported from least developed and developing countries corresponding to a 0 percent tariff rate in HS chapter 01-97.

The main information used to calculate indicators 10.a.1 is import tariff data. Information on import tariffs might be retrieved by contacting directly National statistical offices, permanent country missions to the UN, regional organizations or focal points within the customs, ministries in charge of customs revenues (Ministry of economy/finance and related revenue authorities) or, alternatively, the Ministry of trade.

The calculation of this indicator will allow observing on how many products Developing countries and LDCs will have free access to Developed countries markets. When compared to the tariff rates applied to other countries, this indicator will allow assessing to which extent special and differential treatment has been accorded in terms of import tariffs. The evolution of this indicator will indicate progress on the phasing out of tariff rates on goods imported from developing and least developed countries.

Annex A.2 – Methods to assess the current status and trend of SDG indicators

Monitoring the implementation of the 2030 Agenda is a cornerstone in the global SDG framework. It enables the assessment of whether the established SDG targets will be achieved or not, and at which level (global, regional or national), by the end of 2030 (Gennari and D'Orazio, 2020). To do so, two distinct measurement objectives should be addressed:

- (i) monitoring the level of achievement of an SDG target, i.e. assessing the current status of an indicator as described by the latest available data; and
- (ii) assessing whether the target can be achieved by 2030, i.e. measuring and/or forecasting progress over time.

The following sections discuss the statistical approaches adopted by FAO to implement these two components of progress assessment. Section A.2.1 discusses the method used for evaluating the current status of achievement of SDG targets. Section A.2.2 presents the trend assessment methodology. Section A.2.3 provides indicator-specific fiches, with details on the specific combination of methods used in view of the characteristics of each indicator (normative direction, nature of indicator, existence of a numerical yardstick).

A.2.1 Methods for current status assessment

Indicators with a numerical target

The assessment of the level of achievement of an SDG indicator consists in measuring how close its latest available value is to the ideal value. When this ideal value is explicitly set in the formulation of the relevant target, the current status is assessed measuring the normalized difference between the indicator value for a given country i in year *t* (x_{it}) to its target value in the same country x_{i^*}. It should be noted that, in the case of absolute numerical targets i.e. when all countries in the world should achieve the same aspirational value of the indicator by the end of 2030, $x_{i^*} = x^* \; \forall \; i$. In symbols, the normalized distance can be expressed as:

$$d_{it} = \begin{cases} \frac{x_i^* - x_{it}}{d_{max}} = \frac{x_i^* - x_{it}}{x_i^* - x^{(w)}} \; when \; normative \; direction = increase \; over \; time \\ \frac{x_{it} - x_i^*}{d_{max}} = \frac{x_{it} - x_i^*}{x^{(w)} - x_i^*} \; when \; normative \; direction = decrease \; over \; time \end{cases}$$

where $x^{(w)}$ is the indicator value producing the maximum theoretical distance from the target.

For indicators expressed as proportions i.e. indicators with theoretical values ranging between 0 and 1, this is equivalent to computing a simple distance measure, in symbols:

$$d_{it} = \begin{cases} x^* - x_{it} \; when \; normative \; direction = increase \; over \; time \\ x_{it} - x^* \; when \; normative \; direction = decrease \; over \; time \end{cases}$$

Both expressions (1) and (2) take the value 0 for indicators having already reached the target at the time of the assessment.

Analogously, the distance of a generic region g from the target in year t can be measured as:

$$d_{gt} = \begin{cases} \frac{x_g^* - x_{gt}}{d_{max}} = \frac{x_g^* - x_{gt}}{x_g^* - x^{(w)}} \; when \; normative \; direction = increase \; over \; time \\ \frac{x_{gt} - x_g^*}{d_{max}} = \frac{x_{gt} - x_g^*}{x^{(w)} - x_g^*} \; when \; normative \; direction = decrease \; over \; time \end{cases}$$

for indicators expressed as counts, totals, means or scores, and as

$$d_{gt} = \begin{cases} x^* - x_{gt} \; when \; normative \; direction = increase \; over \; time \\ x_{gt} - x^* \; when \; normative \; direction = decrease \; over \; time \end{cases}$$

for indicators expressed as proportions.

According to values obtained for d_{vt} (v=i for countries, and v=g for regions), countries and regions are classified according to the following categories:

Symbol	Meaning	General outcome
+++	Target already met	Optimal
++	Very close to the target	Very positive
+	Close to the target	Positive
-	Far from the target	Negative
--	Very far from the target	Very negative

1.2 Indicators without a numerical target

In the case of indicators without a numerical target, the distance to the target cannot be calculated. However, for analytical purposes, it is useful to provide a summary picture that describes the current worldwide distribution of the indicator. For this reason, FAO's Progress Assessment associates each country with its corresponding quintile. Quintiles divide the entire distribution of countries into five equal groups, according to their indicator value: the first quintile contains the bottom fifth of countries on the indicator scale (i.e. the

first 20 percent of countries with the lowest value), the second quintile represents the second fifth (from 20 to 40 percent) and so on, with the fifth quintile representing the top 20 percent countries with the highest values. Quintiles are calculated at country level only, and not at the regional level. A.2.2. Methods for trend assessment

A.2.2 Methods for trend assessment

Indicators with a numerical target
A simple method for assessing the trend of numerical indicators having a numerical target consists in comparing the actual growth of an indicator with the growth required to reach the target.
Under this approach, the FAO progress assessment methodology assumes geometric growth over time, which allows deriving the following two mathematical expressions:

Actual growth: (setting t_0 as baseline year)

$$CAGR_a = \left(\frac{x_{it}}{x_{it_0}}\right)^{\frac{1}{t-t_0}} - 1$$

Required growth:

$$CAGR_r = \left(\frac{x_i^*}{x_{it_0}}\right)^{\frac{1}{2030-t_0}} - 1$$

where x_{it} and x_{i}^* (with $x_{i}^* = x^{it}$ for absolute targets) are defined as in the previous section, and x_{i0} indicates the value of an SDG indicator in the baseline year t_0
When the SDG target is 0 ($x^*=0$), it is necessary to replace x^* with a value very close to it, but strictly greater than 0, to obtain a meaningful estimate of $CAGR_r$. This is justified also on theoretical grounds, given the measurement errors associated with the SDG indicator estimation process.
The ratio between the actual and required annual compound growth rate is then used for the assessment.

Ratio actual vs. required:

$$CR = \frac{CAGR_a}{CAGR_r}$$

Indicators expressed as scores require an ad-hoc procedure which consists in categorizing all the possible combinations of the latest and baseline values taken by the score. More details are provided in the indicator-specific fiches presented in section A.2.3.

Indicators without a numerical target
In the case of indicators without a numerical target, only the actual growth since the baseline year can be assessed:

$$CAGR_a = \left(\frac{x_{it}}{x_{it_0}}\right)^{\frac{1}{t-t_0}} - 1$$

Different criteria can be used to assess the $CAGR_a$, depending on the sign of the normative direction. For some indicators, an unchanged situation over time can be judged positively.

Legend and interpretation of symbols related to trend assessment

Symbol	Meaning	General outcome	Note
TAM	Target already met	Positive	ONLY for indicators having a numerical target explicitly defined by the 2030 Agenda.
>>	Significant improvement	Positive	
>	Slight improvement	Positive	
>=	Slight or no improvement	Positive	Needed only for indicator where the no-change over time is a positive outcome (normative direction of the indicator is "NO increase" or "NO decrease" over time; the target of the indicator include terms like "maintain").
=	No improvement (stagnation)	Negative	
<	Slight deterioration	Negative	
<<	Significant deterioration	Negative	

A.2.3: Indicator-specific methodologies

SDG 2.1.1

Target value: 0 percent (operationalized with a target of 2.5 percent to account for measurement errors and allow the CR computation).
Normative direction: decrease
Last available data refer to 2021 for regions, 2020 for countries (three-year average 2019–2021).
Assessment of the current status (last available data): simple distance from the target (x^*).

Criteria for assessing the current distance from the target

Bounds	Group	Symbol
$d_{it} = 0$	PoU ≤ 2.5	+++
$0 < d_{it} \leq 0.05$	Very close to the target	++
$0.05 < d_{it} \leq 0.10$	Close to the target	+
$0.10 < d_{it} \leq 0.25$	Far from the target	-
$d_{it} > 0.25$	Very far from the target	--

Assessment of the trend from 2015 (baseline year): actual growth compared to the required growth to reach the target (CR).

Criteria for assessing the trend by comparing actual with required growth

Level or ratio CR	Colour	Assessment category
$x \leq x^*$	Dark green	PoU ≤ 2.5
CR ≥ 0.95	Green	On-track to achieve the target (>>)
0.10 < CR < 0.95	Yellow	On-path, but too slow to achieve the target (>)
-0.10 ≤ CR ≤ 0.10	Orange	No improvement (stagnation) since baseline (=)
CR < -0.10	Red	Deterioration/movement away from the target (<<)

SDG 2.1.2

Target value: 0 percent (operationalized with a target of 5 percent to account for measurement errors and allow the CR computation).
Normative direction: decrease.
Last available data refer to 2021 for regions, 2020 for most countries (three-year average 2019–2021).
Assessment of the current status (last available data): simple distance from the target (x^*).

Criteria for assessing the current distance from the target

Bounds	Group	Symbol
$d_{it} \leq 0$	Target already met	+++
$0 < d_{it} \leq 0.05$	Very close to the target	++
$0.05 < d_{it} \leq 0.10$	Close to the target	+
$0.10 < d_{it} \leq 0.25$	Far from the target	-

Bounds	Group	Symbol
$d_{it} > 0.25$	Very far from the target	--

Assessment of the trend from 2015 (baseline year): actual growth compared to the required growth to reach the target (CR).

Criteria for assessing the trend by comparing actual with required growth

Level or ratio CR	Colour	Assessment category
$x \leq x^*$	Dark green	Target already met
$CR \geq 0.95$	Green	On-track to achieve the target (>>)
$0.10 < CR < 0.95$	Yellow	On-path, but too slow to achieve the target (>)
$-0.10 \leq CR \leq 0.10$	Orange	No improvement (stagnation) since baseline (=)
$CR < -0.10$	Red	Deterioration/movement away from the target (<<)

SDG 2.3.1

Target value: double the value of the baseline year (relative target).
Normative direction: increase
Last available data refer to sparse data.
Assessment of the current status (last available data): normalized distance to the target (x^*_i)

Criteria for assessing the current distance from the target

Bounds	Group	Symbol
$d_{it} \leq 0$	Target already met	+++
$0 < d_{it} \leq 0.20$	Very close to the target	++
$0.20 < d_{it} \leq 0.40$	Close to the target	+
$0.40 < d_{it} \leq 0.60$	Far from the target	-
$d_{it} > 0.60$	Very far from the target	--

Assessment of the trend from baseline year: actual growth compared to the required growth to reach the target (CR).

Criteria for assessing the trend by comparing actual with required growth

Level or ratio CR	Colour	Assessment category
$x \geq x^*$	Dark green	Target already met (TAM)
$CR \geq 0.95$	Green	On-track to achieve the target (>>)
$0.10 < CR < 0.95$	Yellow	On-path, but too slow to achieve the target (>)
$-0.10 \leq CR \leq 0.10$	Orange	No improvement (stagnation) since baseline (=)
$CR < -0.10$	Red	Deterioration/movement away from the target (<<)

SDG 2.5.1.a

Target value: n.a.
Normative direction: increase
Last available data refer to 2021
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional and global level).
Assessment of trend from 2016 (baseline year): actual growth (compound annual growth rate or CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$-0.005 \leq CAGR_a \leq 0.01$	Green	Slight or no-improvement since baseline-year (>=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 2.5.1.b

Target value: n.a.
Normative direction: no decrease.
Last available data refer to 2022
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional and global levels). The assessment was not performed due to the flat distribution of the indicator, which does not allow to identify quintiles.
Assessment of trend from 2020 (baseline year): actual growth (CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$-0.005 \leq CAGR_a \leq 0.01$	Green	Slight or no-improvement since baseline-year (>=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 2.5.2

Target value: n.a.
Normative direction: no increase.
Last available data refer to 2022.
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional and global levels).
Assessment of trend from 2015(baseline year): actual growth (CAGR). Assessment at global level was not conducted due to insufficient data.

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a < -0.01$	Dark green	Improvement since baseline-year (>)
$-0.001 \leq CAGR_a \leq 0.005$	Green	Slight or no-improvement since baseline-year (>=)
$0.005 < CAGR_a \leq 0.001$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a > 0.01$	Red	Deterioration since baseline-year (<<)

SDG 2.a.1

Target value: n.a.
Normative direction: increase.
Last available data refer to 2020 or 2019, depending on data availability.
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at the regional and global level).
Assessment of trend from 2020(baseline year): actual growth (CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$0.005 < CAGR_a \leq 0.01$	Green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	Yellow	No improvement since baseline-year (=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 5.a.2

Target value: 6 (maximum value of the score).
Normative direction: increase
Last available data refer to sparse data, ranging from 2019 until 2021.
Assessment of the current status (last available data): normalized distance to the target ($x^* = 6$)

Criteria for assessing the current distance from the target

Bounds	Group	Symbol
$d_{it} = 0$	Target already met	+++
$d_{it} = 0.2$	Very close to the target	++
$d_{it} = 0.4$ or $d_{it} = 0.6$	Close to the target	+
$d_{it} = 0.8$	Far from the target	-
$d_{it} = 1$	Very far from the target	--

No trend assessment was performed due to the absence of more than one data point per country.

SDG 6.4.1

Target value: n.a.
Normative direction: increase
Last available data refer to 2019
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at the regional and global levels).
Assessment of the trend from 2015 (baseline year): actual growth (CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$0.005 < CAGR_a \leq 0.01$	Green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	Yellow	No improvement since baseline-year (=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 6.4.2

Target value: n.a.
Normative direction: decrease if indicator value >25%.
Last available data refer to 2019
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at the regional and global level).
Assessment of the trend from 2015 (baseline year): actual growth (CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a < -0.01$	Dark green	Improvement since baseline-year (>>)
$-0.01 \leq CAGR_a < -0.005$	Green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	Yellow	No improvement since baseline-year (=)
$0.005 < CAGR_a \leq 0.01$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a > 0.01$	Red	Deterioration since baseline-year (<<)

SDG 12.3.1.a

Target value: n.a.
Normative direction: decrease
Last available data refer to 2020
Assessment of the current status (last available data): not performed, country level data not available.
Assessment of the trend from 2016 (baseline year): actual growth (CAGR) for regions and the world. Country level data not available.

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a < -0.01$	Dark green	Improvement since baseline-year (>>)
$-0.01 \leq CAGR_a < -0.005$	Green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	Yellow	No improvement since baseline-year (=)
$0.005 < CAGR_a \leq 0.01$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a > 0.01$	Red	Deterioration since baseline-year (<<)

SDG 14.4.1

Target value: 100 percent (operationalized with a target of 95 percent to account for measurement errors).
Normative direction: increase
Last available data refer to 2019
Assessment of the current status (last available data): distance to the target (x^*). Data available only at global level and for marine zones.

Criteria for assessing the current distance from the target

Bounds	Group	Symbol
$d_{it} \leq 0$	Target already met	+++
$0 < d_{it} \leq 0.10$	Very close to the target	++
$0.10 < d_{it} \leq 0.20$	Close to the target	+
$0.20 < d_{it} \leq 0.30$	Far from the target	-
$d_{it} > 0.30$	Very far from the target	--

Assessment of the trend from 2015 (baseline year): actual growth compared to the required growth to reach the target (CR) – data available only for global and marine zones.

Criteria for assessing the trend by comparing actual with the required growth

Level or ratio CR	Colour	Assessment category
$x \geq x^*$	Dark green	Target already met (TAM)s
$CR \geq 0.95$	Green	On-track to achieve the target (>>)
$0.10 < CR < 0.95$	Yellow	On-path, but too slow to achieve the target (>)
$-0.10 \leq CR \leq 0.10$	Orange	No improvement (stagnation) since baseline (=)
$CR < -0.10$	Red	Deterioration/movement away from the target (<<)

SDG 14.6.1

Target value: 5 (maximum value of the score).
Normative direction: increase
Last available data refer to 2022
Assessment of the current status (last available data): normalized distance to the target ($x^* = 5$).

Criteria for judging the current distance from the target

Bounds	Group	Symbol
$d_{it} = 0$	Target already met	+++
$d_{it} = 0.25$	Very close to the target	++
$d_{it} = 0.5$	Close to the target	+
$d_{it} = 0.75$	Far from the target	-
$d_{it} = 1$	Very far from the target	--

Assessment of the trend from 2018 (baseline year): comparison of scores.

Criteria for assessing the trend by comparing the latest score with the previous score

Rule	Colour	Assessment category
Baseline=1 to 5 AND Latest=5	Dark green	Target already met (TAM)
(Latest-Baseline) ≥ 2 AND Latest<5	Green	Improvement (>>)
(Latest-Baseline)=1 AND Latest<5	Yellow	Slight improvement (>)
Baseline=Latest (both NOT equal to 5)	Orange	No improvement (stagnation) since baseline (=)
Latest<Baseline	Red	Deterioration/movement away from the target (<<)

SDG 14.7.1

Target value: n.a.
Normative direction: increase
Last available data refer to 2019
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional and global levels).
Assessment of the trend from 2015 (baseline year): actual growth (CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>)
$0.005 < CAGR_a \leq 0.01$	Green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	Yellow	No improvement since baseline-year (=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 14.b.1

Target value: 5 (maximum value of the score).
Normative direction: increase
Last available data refer to 2022
Assessment of the current status (last available data): normalized distance to the target ($x^* = 5$).

Criteria for judging the current distance from the target

Bounds	Group	Symbol
$d_{it} = 0$	Target already met	+++
$d_{it} = 0.25$	Very close to the target	++
$d_{it} = 0.5$	Close to the target	+
$d_{it} = 0.75$	Far from the target	-
$d_{it} = 1$	Very far from the target	--

Assessment of the trend from 2018 (baseline year): comparison of scores.

Criteria for assessing the trend by comparing the latest score with the previous score

Rule	Colour	Assessment category
Baseline=1 to 5 AND Latest=5	Dark green	Target already met (TAM)
(Latest-Baseline)≥2 AND Latest<5	Green	Improvement (>>)
(Latest-Baseline)=1 AND Latest<5	Yellow	Slight improvement (>)
Baseline=Latest (both NOT equal to 5)	Orange	No improvement (stagnation) since baseline (=)
Latest<Baseline	Red	Deterioration/movement away from the target (<<)

SDG 15.1.1

Target value: n.a.
Normative direction: no decrease
Last available data refer to 2020
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional and global levels).
Assessment of the trend from 2015 (baseline year): actual growth (CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.001$	Dark green	Improvement since baseline-year (>>)

Values of actual growth rate	Colour	Assessment category
$-0.0005 \leq CAGR_a \leq 0.001$	Green	Slight or no-improvement since baseline-year (>=)
$-0.001 \leq CAGR_a < -0.0005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.001$	Red	Deterioration since baseline-year (<<)

SDG 15.4.2

Target value: n.a.
Normative direction: no decrease
Last available data refer to 2020
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional and global levels).
Assessment of the trend from 2015 (baseline year): actual growth (CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.001$	Dark green	Improvement since baseline-year (>>)
$-0.0005 \leq CAGR_a \leq 0.001$	Green	Slight or no-improvement since baseline-year (>=)
$-0.001 \leq CAGR_a < -0.0005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.001$	Red	Deterioration since baseline-year (<<)

SDG 15.6.1

Indicator 15.6.1 is monitored by three subindicators

I1: Countries that have legislative, administrative and policy framework or measures reported through the Online Reporting System on Compliance of the International Treaty on Plant Genetic Resources for Food and Agriculture.

Target value: n.a.
Normative direction: no decrease
Last available data refer to 2022
Assessment of the current status (last available data): not performed due to methodological reasons.
Assessment of the trend from 2016 (baseline year): actual growth (CAGR) (only at regional and global levels considering the number of countries that possess the attribute within the geographical aggregate, no assessment at country level).

Criteria for assessing the trend by comparing actual with the required growth

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$-0.005 \leq CAGR_a < 0.01$	Green	Slight or no-improvement since baseline-year (>=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

I2: Countries that are contracting parties to the International Treaty on Plant Genetic Resources for Food and Agriculture.

Target value: n.a.
Normative direction: no decrease
Last available data refer to 2022
Assessment of the current status (last available data): not performed due to methodological reasons.
Assessment of the trend from 2016 (baseline year): actual growth (CAGR) (only at regional and global levels considering the number of countries that possess the attribute within the geographical aggregate, no assessment at country level).

Criteria for assessing the trend by comparing actual with the required growth

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$-0.005 \leq CAGR_a < 0.01$	Green	Slight or no-improvement since baseline-year (>=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

I3: Total reported number of standard material transfer agreements transferring plant genetic resources for food and agriculture to the country (number).

Target value: n.a.
Normative direction: no decrease
Last available data refer to 2022
Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional and global levels). The assessment was not performed due to the flat distribution of the indicator, which does not allow to identify quintiles.
Assessment of the trend from 2015 (baseline year): actual growth (CAGR).

Criteria for assessing the actual growth (CAGR)

Values of actual growth rate	Colour	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$-0.005 \leq CAGR_a < 0.01$	Green	Slight or no-improvement since baseline-year (>=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SOURCE: Gennari P. & D'Orazio M. 2020. A statistical approach for assessing progress towards the SDG targets. Statistical Journal of the IAOS, 36: 1129–114

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Tracking progress on food and agriculture-related SDG indicators 2022

ISBN 978-92-5-136737-7

CC1403EN/1/09.22