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**Accelerated action and transformative pathways: realizing the decade of the
action and delivery for sustainable development****Report of the Secretary-General****Summary**

The COVID-19 outbreak has reaffirmed the need to strengthen multilateral cooperation and governance to deal with global health emergencies and economic crises. Unprecedented international support is needed to bolster developing countries' response to the pandemic and strengthen public health systems. A spirit of solidarity and cooperation likewise needs to further guide the implementation of the 2030 Agenda for Sustainable Development. To advance the decade of action and delivery for sustainable development, the response to COVID-19 and its impacts must be aligned with transformative pathways to reach the Sustainable Development Goals. The present report discusses in particular the accelerated actions required during and beyond the response to COVID-19 to reduce income inequality and eradicate extreme poverty, reduce CO₂ emissions to limit global warming to 1.5 degrees Celsius, and end hunger and food insecurity by 2030. The report serves to inform the ECOSOC high-level segment in July 2020 and is complemented by the report of the Secretary-General E/HLS/2020/5 on "Long-term future trends and scenarios - impacts in the economic, social and environmental areas on the realization of the Sustainable Development Goals."

I. Introduction

1. In accordance with the mandate provided by the General Assembly in its resolution 72/305 and the theme of “accelerated action and transformative pathways: realizing the decade of action and delivery for sustainable development”, the present report identifies policies and accelerators for building synergies across economic, social and environmental dimensions and offers action- oriented recommendations to inform the discussions of the high-level segment of the Economic and Social Council. It was informed by contributions from United Nations system entities and others and is complemented by the report E/HLS/2020/5 on “Long-term future trends and scenarios - impacts in the economic, social and environmental areas on the realization of the Sustainable Development Goals”.
2. The 2019 High-level Political Forum on Sustainable Development, convened under the auspices of the Economic and Social Council, completed the first four-year cycle of follow-up and review of the implementation of the 2030 Agenda for Sustainable Development. The first cycle included Voluntary National Reviews presented by 142 countries on progress toward the Sustainable Development Goals (SDGs), and culminated in an SDG Summit at the Heads of State and Government level in September 2019, when the HLPF was held under the auspices of the General Assembly.
3. The SDG Summit noted that the implementation of the SDGs has seen progress in some important areas.¹ For example, extreme poverty and child mortality continue to fall, and hepatitis is on the retreat, with new chronic hepatitis B viral infections approaching zero. Access to safe drinking water and electricity have increased, and the proportion of the urban population living in slums is falling, while the coverage of terrestrial and marine protected areas has expanded and improved. Many countries have also incorporated the SDGs into their national development plans and strategies and established structures and mechanisms to facilitate coherent implementation and active participation of a wide range of stakeholders. Some countries have also linked the SDGs to their national or local budgets.
4. Notwithstanding these successes, the summit noted that the world is not on track in achieving most of the 169 targets that comprise the SDGs, particularly the 21 targets designated for implementation by 2020. Recent trends in areas with cross-cutting impact across the entire 2030 Agenda such as rising inequality, climate change, hunger and food insecurity, biodiversity loss and waste from human activity, are also not moving in the right direction.
5. Recent assessments show that on current trends, the world’s social and natural biophysical systems cannot support the aspirations for universal human well-being embedded in the SDGs. Slowdown in global economic growth and rising debt levels in many countries, along with lack of adequate financing, are other factors impeding progress in SDG implementation.
6. More recently, the outbreak of the novel coronavirus (COVID-19) has had devastating impacts on people’s lives and wellbeing. COVID-19 has also increased global economic risks that could negatively impact the implementation of the SDGs, particularly in the short-term. DESA, using a World Economic Forecasting Model, has estimated that global economic growth in 2020 could be reduced from a baseline scenario of 2.5 per cent to -3.2 per cent because of the coronavirus.² In a worst-case scenario, global output would contract by 4.9 per cent. In comparison, the world economy contracted by 1.7 per cent during the global financial crisis in 2009. The DESA analysis, however, doesn’t reflect the possible effects that the coronavirus may have on global value chains and change in consumer preferences. Box 1 briefly discusses the possible economic and social effects of the coronavirus.
7. The outbreak of COVID-19 has underscored the need to strengthen multilateral cooperation and governance to deal with global pandemics. Also, had we further advanced in meeting the SDGs and the Paris Climate Accord, the world would be in a stronger position to face this challenge through better health

¹ Global Sustainable Development Report 2019, UNDESA.

² UNDESA Monthly Briefing on the World Economic Situation and Prospects, No. 136, 1 April 2020.

systems, fewer people living in extreme poverty, less gender inequality, a healthier natural environment, and more resilient societies.

8. In the long term, it remains to be seen whether the COVID-19 pandemic will cause severe setbacks in the attainment of the SDGs or rather spur governments to take extraordinary steps during the decade of action to overcome the economic and social challenges of inequality, poverty and unequal access to affordable health care.
9. At the SDG Summit in September 2019, Heads of State and Government adopted by consensus a Political Declaration “*Gearing up for a decade of action and delivery for sustainable development*”, where they stressed the need to put the world on track to achieve the SDGs by 2030. Member States especially emphasized the need for more ambitious and fast-paced SDG implementation in the decade starting in 2020, with particular attention given to transformative solutions that impact multiple sectors simultaneously. There is also recognition among Member States that realizing the aspirations of the decade of action will require a strong commitment of governments to mobilize the support from all relevant actors so that policies and partnerships across the economic, social and environmental dimensions are well coordinated and strategically supportive of the SDGs.
10. The backdrop for the launch of the decade of action was dramatically changed by the onset of COVID-19. The Secretary-General has issued a “call to action” for the immediate health response required to suppress transmission of the virus to end the pandemic; and to tackle the many social and economic dimensions of this crisis”. He has advocated for a large-scale, coordinated and comprehensive multilateral response amounting to at least 10 per cent of global GDP and stressed the need to support developing countries in managing this crisis.
11. The international community should also keep its eyes on the SDGs when combating the pandemic. As time passes, its response should pave the way for “rebuilding better” and ensuring that the response to the pandemic and its socio-economic impacts put the world back on track for realizing the SDGs and embarking on the decade of action.

Box 1 Possible economic and social effects of the novel corona virus (COVID-19)

The COVID-19 pandemic has triggered unprecedented restrictions on both the movement of people and economic activities and put the national healthcare systems in many countries under severe strain. More than 100 countries closed their borders in March, bringing the cross-border movement of people and tourism to an almost complete halt. The service sectors in Europe and North America, which account for more than a quarter of all jobs in these two regions, were particularly hard hit. The pandemic has also disrupted global supply chains and international trade, and millions of people became unemployed within a short period of time. The International Labour Organization has estimated that between 5 and 25 million jobs could be lost because of COVID-19. The economic implications of COVID-19 for developing countries are significant, particularly in terms of reduced trade and investment. Many governments have rolled out large stimulus packages to avert a sharp downturn in economic output, which could plunge the global economy into a deep recession. Many of these stimulus packages have been in excess of 2 per cent of gross domestic product of the respective countries.

The COVID-19 pandemic will not only suppress economic growth, but also adversely affect sustainable development. In Africa, the COVID-19 outbreak has put strained healthcare systems under further pressure. The most vulnerable, including women, children, the elderly and informal workers, are hardest hit. More than 50 per cent of the world’s rural population and over 20 per cent of the urban population also lack health care coverage, and some 2.2 and 4.2 billion people are without access to water and basic sanitation respectively, making it difficult for them to prevent the virus through ordinary tasks such as cleaning their hands.

Source: DESA, Economic Analysis and Policy Division, 2020.

II. A decade of action and delivery for SDG implementation

A sense of urgency amid growing economic uncertainty

12. The decade of action and delivery on SDG implementation thus takes place amid growing economic uncertainty. Global growth is predicted by DESA to average 3.3 per cent during the decade of action³. Declines in manufacturing activity and international trade partly explain the lowering of the forecast for global economic growth. The disruptions of international trade, which is driven by factors such as disputes between major economic powers, protracted political conflicts in a number of developing countries and technological change, along with excessive debt accumulation and, more recently, the fallout of the coronavirus, remains a drag on global growth. Economic growth, while necessary, will not deliver the SDGs. GDP growth is an incomplete measure of economic performance and well-being. Yet, the pursuit of higher GDP continues to shape policy considerations in most countries, even when economic growth comes at high social and environmental costs.
13. Creating an adequate number of jobs that pay living wages and benefits will matter most for SDG implementation during the decade of action by enabling households to reduce food, shelter, health and energy insecurities. The impact of COVID-19 on unemployment is thus of utmost concern.
14. The slowdown in global trade can be expected to dampen employment growth, making it difficult to absorb the growing number of young people entering the labour market. It was estimated that the world will need to create 600 million new jobs with more than 200 million in Sub-Saharan Africa alone between now and 2030 just to maintain the current rate of unemployment.⁴ Rapid technological change will also further complicate the employment outlook for many countries.
15. How countries fare in dealing with the COVID-19 pandemic, creating decent jobs, reducing economic insecurity and inequality, managing and mitigating climate risks, ending hunger and food insecurity and preventing violence and conflicts, is thus critical for accelerating SDG progress during the decade of action. Reducing societal inequalities is particularly important in this context as it underpins the achievement of most of the SDGs. According to DESA estimates in the *2019 Sustainable Development Outlook*, in the period 2000 to 2013, some two-thirds of the world's population lived in countries that experienced increased income inequality; 10 per cent witnessed no change; and 22 per cent saw a decline in this measure.
16. Inequality and employment vulnerability are mutually reinforcing. Highly unequal societies tend to have larger shares of vulnerable employment. Inequality can also affect the relative ability of poorer households to cope with economic and other shocks, making them more vulnerable to future upsets. Expanding skills and educational opportunities, creating decent and secure jobs that pay living wages and strengthening social protection will remain paramount for reducing inequality in all its forms and manifestations.
17. Despite data showing rising income and wealth inequality, the world has yet to take effective remedial action. The 2030 Agenda pledge to leave no one behind may thus remain an aspiration only, unless societies decide to directly tackle the challenges of inequality.
18. Reducing inequality and addressing critical global challenges like climate change, hunger and food insecurity will require new win-win approaches to redistribution. Redistribution need not imply less prosperity/ wellbeing for people at the top of the income distribution; it can mean more for everyone, i.e. more peace and stability for people at the top, more economic security and opportunities for the bottom and more climate resilience and sustainable development for all. Societies must redefine redistribution as a positive sum game in order to bring inequality to the front and centre of collective efforts for achieving the SDGs.

³ Would be 3.5 per cent if year 2020 is excluded.

⁴ The Sustainable Development Goals Report 2019, UNDESA.

III. Transformative pathways to accelerate SDG implementation

19. If countries are to achieve the SDGs by 2030, they will need to adopt national implementation strategies that make sustainability the core objective of all policies.
20. The *2019 Global Sustainable Development Report (GSDR)*⁵, a quadrennial publication prepared by a group of 15 independent scientists appointed by the Secretary-General to inform the work of the HLPF, has identified six entry points that offer great promise in achieving transformation in SDG implementation at the necessary scale and speed: (i) human well-being and capabilities; (ii) sustainable and just economies; (iii) food systems and nutrition patterns; (iv) energy decarbonization with universal access; (v) urban and peri-urban development; and (vi) global environmental systems. The GSDR also emphasizes that there is no single pathway in each of the six areas that will ensure successful implementation of the SDGs. Countries must instead pursue combination of policies within and across these areas.
21. This report focuses on three possible transformative pathways, which, if implemented effectively, could have significant impact across the entire 2030 Agenda during the decade of action. The first transformative pathway highlights the critical role that reduced income inequality can play in amplifying the effects of economic growth in eradicating extreme poverty by 2030. The second transformative pathway illustrates the high economic, social and environmental benefits of rapid and sustained reductions in CO₂ emissions during the decade of action so that zero net emissions can be achieved by 2050 and global warming limited to 1.5 degrees Celsius. The third transformative pathway focuses on the importance of shifting to sustainable food and agricultural systems in order to end hunger and food insecurity by 2030.
22. These three transformative pathways are highlighted because of the critical role they play in the achievement of the sustainable development agenda. The Committee for Development Policy at its 22nd session in February 2020, for example, stressed the importance of addressing inequality and climate change for the implementation of the 2030 Agenda during the decade of action. Current trends in both areas, according to the Committee, are driving the implementation of the 2030 Agenda backwards, with rising inequalities in income and multiple other dimensions of well-being, along with a weak global response to climate change, leaving many people behind. Inequality and climate change are also at the core of the systems of synergies and trade-offs that make up the SDGs, and failure to act on them will mean deviation from the path set by the 2030 Agenda. Ending hunger and food insecurity, moreover, remains a silent emergency, and the SDGs cannot be achieved without success in this area.
 - (a) **Advancing sustainable and just economies:** *make reduction in income inequality a key strategy to eradicate extreme poverty by 2030*
23. Progress in reducing poverty has slowed in recent years, reflecting weak GDP per capita growth in many regions. Nearly 9 per cent of the world's population continues to live on income below the extreme poverty line of \$1.90 per day. The number of people living in extreme poverty has also risen in several African countries where such levels are already very high. Poverty rates have also edged higher in parts of Latin America and the Caribbean as well as Western Asia.⁶
24. As growth in GDP per capita is expected to remain weak in many countries, the eradication of extreme poverty will need to rely to a greater extent on measures to reduce high levels of income inequality. For example, if the 2.5 per cent GDP per capita growth rate in the least-developed countries in the past ten years is maintained during the decade of action, income inequality would need to be reduced by 75 per cent to eradicate extreme poverty by 2030. An average annual GDP per capita growth rate of 6 per cent over the remaining decade of the SDG period would require income inequality to be halved in order to eradicate poverty by 2030. However, the highest observed 10-year reduction in the Gini coefficient is around 30 per cent in several Commonwealth of Independent States.⁷ For non-LDCs in Africa, eradicating extreme

⁵ Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development*, (United Nations, New York, 2019).

⁶ World Economic Situation and Prospects 2020, UNDESA.

⁷ World Economic Situation and Prospects 2020, UNDESA.

poverty, without steep declines in income inequality, would require GDP per capita to grow by 8.7 per cent annually during the decade of action, compared to 0.5 per cent recorded over the most recent decade.⁸

25. The goal of eradicating extreme poverty by 2030 (SDG 1), which is central to achieving many other SDGs, is thus unlikely to be reached by 2030 unless strong and sustained growth in GDP per capita is accompanied by significant reduction in income inequality. While developing countries have made some headway in reducing income inequality, a more fundamental transformation is needed going forward. Scenarios using the World Economic Forecasting Model of DESA illustrate well the magnitude of the challenge that lies ahead,⁹ quantifying the relationship between economic growth and reduction in income inequality and their effects on eradication of extreme poverty by 2030 through three scenarios, presented in Table 1.

Table 1 The interlinkages between economic growth, reduction in income inequality and eradication of poverty in developing countries

Scenario	Average annual GDP per capita growth	Projected reduction in income inequality	Share of global population in extreme poverty by 2030	Share of African population in extreme poverty by 2030	Share of LDC population in extreme poverty by 2030
Baseline	3.9%	No change	7.6%	26.6%	36.7%
First	6.9%	No change	6.1%	21.7%	31.4%
Second	6.9%	-25% ¹⁰	4.3%	15.7%	25.1%

Source: DESA, Economic Analysis and Policy Division (forthcoming).

26. The baseline scenario, which is the most likely outcome, assumes continuation in the SDG period of the most recent forecast of 3.9 per cent global growth in GDP per capita in developing countries as well as no change in income inequality. In this scenario, roughly 7.6 per cent of the world's population would remain in extreme poverty by 2030, including about 26.6 per cent of people living in Africa and 36.7 per cent of those in the least-developed countries, far off the global ambition.
27. The first scenario assumes that annual growth in GDP per capita in developing countries rises to 6.9 per cent (3 percentage point annual increase for each country) in the remaining SDG period but with income inequality unchanged. In this scenario, the share of the world's population living in extreme poverty by 2030 would decline to about 6.1 per cent, from the baseline of 7.6 per cent, and in Africa and the LDCs to 22-32 per cent, still well off the global target.
28. The second scenario is based on the first scenario's projection for the remaining SDG period of 6.9 per cent growth in GDP per capita but assuming the reduction in cumulative income inequality by 25 per cent over the decade in all developing countries. Under this scenario, the extreme poverty rate declines to about 4.3 per cent of the world's population and 16-25 per cent in both Africa and the LDCs.
29. The three above scenarios demonstrate that achieving the goal of eradicating extreme poverty by 2030 will require policies that promote an effective combination of both economic growth and reductions in income

⁸ Ibid.

⁹ The conclusions of these scenarios do not fully reflect the impact of the COVID-19 crisis. Their relevance will depend on the duration of the crisis and the depth of the losses of income owing to the crisis, as well the speed of the recovery.

¹⁰ The decline in inequality is measured as the percentage decline in the standard deviation of log income, as described in WESP 2020 and Bourguignon (2003).

inequality. For example, analysis based on the World Economic Forecasting model of DESA shows that global poverty can be brought to less than 3 percent by 2030 if an annual average global growth of 10 per cent in GDP per capita is achieved and if income inequality is reduced by half. However, neither of these two strategies may be economically realistic when examined against the recent performance of developing countries in both areas.

30. Table 2 presents three scenarios for GDP growth and reduction in inequality in developing countries during the decade of action, namely (a) *growth only* scenario, (b) *growth and inequality* reduction scenario and (c) '*poverty miracle*' scenario. Table 2 also includes for comparison the most recent prediction of DESA for economic growth and poverty reduction for developing countries as presented in the 2020 World Economic Situation and Prospects. The purpose of Table 2 is to illustrate how sensitive the poverty headcount in developing countries is to different combinations of economic growth and the reduction in income inequality. The average annual growth in GDP per capita ranges from 3.9 in the DESA forecast to 9.8 per cent in the '*poverty miracle*' scenario. The growth and inequality scenario and the '*poverty miracle*' scenario also envisage significant cumulative reductions in income inequality during the decade of action of 25 and 50 per cent, respectively. Twenty-one developing countries, of which 11 are in Africa have achieved cumulative reductions in income inequality of 25 per cent in a single decade in the past twenty years.
31. Table 2 shows the outcomes of the three scenarios by the end of the decade of action. The *growth only* scenario, which assumes an annual average growth in GDP per capita of 8 per cent during the decade of action, would reduce extreme poverty from the most recent estimate of 736 million people to about 518 million people by 2030, a decline of 30 per cent.
32. The *growth with inequality* reduction scenario, which assumes a cumulative reduction in income inequality of 25 per cent by the end of the decade of action, would lower the number of people in extreme poverty from 736 million to 361 million by 2030, a decline of 51 per cent.
33. The '*poverty miracle*' scenario, which relies on the highly ambitious assumptions of 9.8 per cent annual average growth in GDP per capita and 50 per cent reduction in cumulative income inequality, would lower the number of people in extreme poverty from 736 million to 227 million by 2030, a decline of 69 per cent.
34. Table 2 shows that complete eradication of extreme poverty will be difficult to achieve during the decade of action, even under the '*poverty miracle* scenario', unless sustained economic growth and significant reduction in inequality is also accompanied by additional targeted international support focused on countries in the Africa region.¹¹

Table 2 Possible scenarios for eradicating poverty in developing countries during decade of action

	DESA WESP 2020	Growth only scenario	Growth and inequality scenario	'Poverty miracle' scenario
Annual growth in GDP p/capita (2021-2030)	3.9%	6.9%	6.9%	9.8%
Annual GDP growth (2021-2030)	5.0%	8.0%	8.0%	11.0%
Cumulative inequality decrease (2021-2030)			-25.0%	-50.0%
2030 Poverty headcount rate (%)	9.0%	7.3%	5.1%	3.2%
2030 Poverty headcount (millions)	646.4	518.8	361.5	227.5

¹¹ In the '*poverty miracle*' scenario, extreme poverty would be eradicated in the Asia-Pacific and Latin America regions, but not in Africa. That's why the Africa region would need additional international support to eradicate extreme poverty.

Source: DESA, Economic Analysis and Policy Division (forthcoming).

- (b) **Energy decarbonization with universal access:** *commit to rapid and sustained CO₂ reductions during the decade of action and achieve zero net emissions by 2050 in order to limit global warming to 1.5 degrees Celsius*
35. According to the 2018 *Special Report of the Intergovernmental Panel on Climate Change*, human activities are estimated to have caused approximately 1 degree Celsius global warming by 2017 above pre-industrial levels. Global warming is likely to reach 1.5 degrees Celsius between 2030 and 2052 if current trends continue. As the Special Report highlights, climate-related risks for natural and human systems for 1.5 degrees Celsius global warming depend on the magnitude and rate of warming, geographic location, levels of development and vulnerability, and on the choices and implementation of adaptation and mitigation strategies.
36. Human-induced global warming compared to the pre-industrial levels has already caused multiple observed changes in the climate system. These include increases in mean temperature in most land and ocean regions; hot extremes in many inhabited regions; heavy precipitation in several regions; and higher probability of drought and precipitation in some regions. By 2100, global sea level rise is projected to be around one meter lower with global warming of 1.5 degrees compared to 2 degrees Celsius. Sea level rise is also expected to continue to rise well beyond 2100 and the magnitude of this rise will ultimately depend on future emission pathways pursued by countries.
37. Limiting global warming to 1.5 degrees Celsius is projected to lower the impacts on biodiversity and terrestrial, freshwater and coastal ecosystems and to retain more of their services to humans. Restricting global warming to 1.5 degrees Celsius is also projected to reduce increases in ocean temperature as well as associated rise in ocean acidity and decreases in ocean oxygen levels. Consequently, ensuring that global warming doesn't exceed 1.5 degrees Celsius is expected to reduce risks to marine biodiversity, fisheries, and all types of ecosystems and their functions and services to humans. Certain population groups are particularly at higher risk of adverse consequences of global warming of 1.5 degrees Celsius and beyond. These include disadvantaged and vulnerable populations, indigenous peoples and local communities dependent on agricultural and coastal livelihoods. Regions at disproportionately higher risk include the Arctic ecosystem, dryland regions, small island developing States and the LDCs.
38. According to the 2018 Special Report, different pathways can achieve the net emissions reductions necessary to limit global warming to 1.5 degrees Celsius.
39. The Special Report highlights four scenarios that would enable countries to achieve zero net emissions by 2050 and limit global warming to 1.5 degrees Celsius with no or limited overshoot but applying different policies. Select drivers of the four scenarios are presented in Table 3.

Table 3 Select scenario drivers by 2030

(all figures in percentages with decreases in brackets)

	First scenario	Second scenario	Third scenario	Fourth scenario
CO ₂ emissions	(58)	(47)	(41)	4
Coal share in energy mix	(77)	(61)	(75)	(59)
Nuclear share in energy mix	59	83	98	106
Renewable energy in electricity production	60	58	48	25
Methane emissions	(24)	(48)	1	14

	First scenario	Second scenario	Third scenario	Fourth scenario
from agriculture				
Carbon dioxide removal	Afforestation	Small use of carbon capture and storage	Very high use of carbon capture and storage	Exceptionally high use of carbon capture and storage

Source: 2018 Special Report of the Intergovernmental Panel on Climate Change.

40. In the *first scenario*, social, business and technological innovations result in lower energy demand while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only Carbon Dioxide Removal option considered, neither fossil fuels with Carbon Capture and Storage nor Bioenergy with Carbon Capture and Storage are used. This scenario envisages 58 per cent reductions in CO₂ emissions by 2030 and major decline in the share of coal in the energy mix, but commensurate increase in the use of nuclear as well as renewable energy in electricity production. Reducing methane emissions from agriculture is also an important part of this scenario. The first scenario has strong focus on ambitious CO₂ emissions reductions during the decade of action with no Carbon Capture and Storage till 2100.
41. The *second scenario* has broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, along with notable shift towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for Bioenergy with Carbon Capture and Storage. This scenario is slightly less ambitious than the first one in terms of the speed of CO₂ emissions reductions during the decade of action but relies to greater extent on decreased methane emissions in the agricultural sector. The second scenario envisages 47 per cent reductions in CO₂ emissions by 2030 and 61 per cent decline in the share of coal in the energy mix, but commensurate increase in the use of nuclear as well as renewable energy in electricity production.
42. The *third scenario* assumes that societal as well as technological developments follow historical patterns. Emission reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reducing demand. This scenario is based on a slower speed of CO₂ emissions reductions during the decade of action, compared to the first two scenarios, or 41 per cent, a doubling in the use of nuclear energy and a 48 per cent increase in the use of renewables in electricity production, along with very heavy reliance on the use of Carbon Capture and Storage as means to remove CO₂ from the atmosphere from 2050 onwards.
43. The *fourth scenario* is resource- and energy-intensive in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means e.g. major use of Carbon Dioxide Removal from 2050 through the deployment of Bioenergy with Carbon Capture and Storage. This scenario, like the third one, is based on a major shift towards the use of nuclear as primary energy source, particularly after 2030, along with heavy reliance on Carbon Capture and Storage. This is the only scenario where CO₂ emissions are projected to increase by 2030, or 4 per cent. Primary energy from coal at the same time is expected to decline by 59 per cent in this scenario but the use of nuclear energy would increase by 106 per cent, also by 2030. The share of renewable energy in electricity production is also expected to grow at a much slower rate in the fourth scenario than the others, or 25 per cent by 2030. In addition, the agricultural sector is projected to increase methane emissions by 14 per cent by 2030, a major departure from the first two scenarios.
44. According to the 2018 Special Report, pathways reflecting current levels of nationally-stated ambition, will not limit global warming to 1.5 degrees Celsius even if supplemented by very substantial increases in the scale and ambition of emissions reductions after 2030. The current global emissions trajectory thus increases the risk of a considerable overshoot by 2050, which would require the greatly expanded use of Carbon Capture and Storage in the second half of the century. However, technologies for Carbon Capture and Storage have not yet been proven to work at scale and therefore run the risk of being less practical, effective or economical than required. There is also risk that the use of CO₂ removal technologies may end up competing with agriculture, human settlements and natural habitats for land and water, which could

adversely affect sustainable development. This implies that global CO₂ emissions will need to start declining well before 2030, leaving scenarios 1 and 2 as the only viable pathways to limit global warming to 1.5 degrees Celsius.

45. The economic argument for pursuing either scenario 1 or 2 is equally powerful. According to recent research by scholars at Stanford University, limiting global warming to 1.5 degrees rather than 2 degrees Celsius may save the global economy tens of trillions of US dollars, with the benefits far exceeding the costs of achieving this global target.¹² More specifically, according to this research, a large number of countries, where some 90 per cent of the world's population reside, would benefit economically from limiting global warming to 1.5 rather than 2 degrees Celsius. By contrast, an increase in global warming from 1.5 to 2 degrees Celsius could result in cumulative economic losses amounting to some \$30 trillion by the end of the century, according to the Stanford study. The Stanford scholars have also shown that the gap between economic output of the world's richest and poorest countries is 25 per cent larger today than it would have been without global warming.¹³
46. Countries thus need to commit to a transformative pathway during the decade of action so that limits global warming to 1.5 degrees Celsius, such as either scenario 1 or 2 above. This would require countries to scale-up nationally-determined contributions; develop strategies to reach net zero emissions by 2050; commit to a comprehensive programme of support for climate adaptation and resilience; and ensure sufficient financing for a sustainable, green economy.
47. Today, very few countries, regions, cities, communities or businesses have taken the necessary steps to achieve the ambition of a 1.5 degrees Celsius global warming pathway. The decade of action thus needs to launch an era of rapid and sustained CO₂ emissions reductions by all states. This will call for far-reaching transitions in land use, energy, industry, buildings, transport and cities. Global net human-caused emissions of carbon dioxide will need to fall by 45 per cent from the 2010 level in order to achieve zero net emissions by 2050. Achieving this goal would not only provide clear benefits to people and natural ecosystems, but also help ensure more sustainable and equitable societies.

(c) Food systems and nutrition patterns: shift to sustainable food and agricultural systems to end hunger and food insecurity by 2030

48. Ending hunger is the main objective of SDG2, with food and agriculture linked to progress across multiple SDGs. The absolute number of people in the world affected by undernourishment, or chronic food deprivation, is estimated to have reached 820 million in 2018, rising for the fourth consecutive year.¹⁴ More than 2 billion people also suffer from some form of micronutrient deficiency.¹⁵ Important drivers of malnourishment include conflicts, income inequality and climate vulnerability. The COVID-19 pandemic is expected to lead to more than a quarter of a billion people suffering acute hunger by the end of the year, according to new figures from the World Food Programme.
49. The global demand for food and non-food agricultural products continues to rise, driven by dietary changes, population growth, the rise in income, and increased urbanization. To meet the growing demand for agricultural products in a more sustainable way, food and agricultural systems need more investment, including in research and development, to promote technological change. This is especially true for regions currently lagging behind in productivity and also the most food-insecure areas, such as Sub-Saharan Africa.

¹² Burke, M., Davis, W. Matthew, Diffenbaugh, N. S., Large potential reduction in economic damages under UN mitigation targets, *Nature*, Volume 557, May 2018.

¹³ Diffenbaugh, N.S., Burke, M., *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 116, May 14, 2019.

¹⁴ FAO, IFAD, UNICEF, WFP and WHO. 2019. *The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns*. Rome, FAO.

¹⁵ The future of food and agriculture: alternative pathways to 2050, Food and Agricultural Organization, United Nations, Rome, 2018.

50. Global food and agricultural systems are currently facing many challenges such as providing sufficient food and other agricultural products to meet growing and changing global demand; eradicating hunger and food insecurity; preserving and enhancing the productivity and sustainable use of available natural resources; and adapting to and mitigating the impacts of climate change.
51. Changes in crop and livestock production in terms of output volume, composition and technology, for example, have implications not only for CO₂ emissions, but also for the contribution of agriculture to economy-wide emissions and mitigation efforts. While the overall CO₂ efficiency of agriculture has substantially improved, increased output from this sector has produced almost unabated emissions over the last 25 years.
52. The world's population is projected by the United Nations to grow to 9.7 billion by 2050 compared to 7.3 billion in 2015, with significant increases expected in both Africa and South Asia. The demand for food is thus likely to grow considerably in these regions. The changing demographics of populations and spatial locations are also expected to influence food demand moving forward. For example, it is projected that some two-thirds of the world's population will live in urban areas by 2050. Also, if low and middle-income countries grow economically at high rate in the coming decades, it will significantly increase demand for food.
53. Globally, agricultural systems produce enough food for everybody, but more than 800 million people do not have the means to obtain sufficient food and are thus forced to go hungry. This lack of food security is the most extreme form of inequality.
54. The Food and Agricultural Organization of the United Nations has extensively studied what changes are required in food and agricultural systems to end hunger and food insecurity by 2030.¹⁶ This includes scenario analysis involving modeling of a wide range of key variables with a view to better understanding the likely evolution of food and agricultural systems up to 2030 and 2050. These scenarios are based on the UN-medium variant population forecasts mentioned above, but differ in terms of projections for other important variables such as economic growth, consumer preferences, technological progress, climate change and natural resource use.
55. A key message of the FAO analysis is that it will not be necessary to substantially increase agricultural production by 2030 in order to meet the SDG targets for ending hunger and achieving food security. These targets can be met with modest expansion of agricultural output as long as agricultural systems become more sustainable, while income and food are more equitably distributed across and within countries.
56. The shift to sustainable food and agricultural systems thus constitutes a key transformative pathway for ending hunger and food insecurity by 2030 with potential impact across the entire 2030 agenda. Ending hunger and food insecurity is also fundamental to achieving all the SDGs. In the FAO analysis, the transformation of food and agricultural systems is captured in a *towards sustainability* scenario, which is briefly discussed below along with the likely implications of an alternative *business-as-usual* scenario. Select drivers of the two scenarios are highlighted in Table 4.
57. In the *towards sustainability* scenario, production processes experience a shift towards more sustainable, less resource-intensive technologies in response to changing consumer preferences. This results in higher prices being paid for natural resources and commodities from low and middle-income countries and increased outward investment from high-income countries that boosts economic growth in developing regions like Sub-Saharan Africa.

Table 4 Select scenario drivers by 2030

	Towards sustainability scenario	Business-as-usual scenario
Global population	8.5 billion	8.5 billion

¹⁶ Ibid.

Average global GDP per capita annual growth rate	2.1 per cent	2.1 per cent
Average GDP per capita annual growth in Africa	6 per cent	5.3 per cent
GDP per capita growth in South Asia	6.1 per cent	5.3 per cent
LICs & MICs share of HICs income	18 per cent	15 per cent
Reduction in Gini coefficient	27 per cent	8 per cent
Growth in agricultural output	22 per cent	32 per cent
Global increase in dietary calories per person/day	7 per cent	6 per cent
Increase in dietary calories per person/day in Sub-Saharan Africa	16 per cent	11 per cent
Per capita food consumption share of LICs & MICs of HICs	88 per cent	82 per cent
Prevalence of malnourishment in Sub-Saharan Africa	2.6 per cent	11 per cent
Global agricultural CO ₂ emissions	(3 per cent)	16 per cent

Source: The future of food and agriculture: alternative pathways to 2050, FAO, 2018.

58. Annual average growth in per capita is particularly high in the Sub-Saharan Africa and South Asia regions or about 6 per cent up to 2030 driven in particular by higher prices for agricultural outputs and reduction in income inequality, with the Gini coefficient decreasing by 27 per cent. Agriculture also becomes more capital-intensive in low and middle-income countries than high-income countries. There is also significant increase in research, development and innovation, including the use of environmentally sound technologies as well as precision technologies and applied robotics, in the agricultural sector. Food preferences, furthermore, are expected to shift to less emphasis on animal-based foods and vegetable oils and fats, thereby creating incentives for farmers to adopt more sustainable farming practices.
59. In the *towards sustainability* scenario, high growth in non-agricultural sectors, particularly in Sub-Saharan Africa, accelerates economic transformation. Dietary calories per person/day increase globally by more than 7 per cent by 2030 and in Sub-Saharan Africa by 16 per cent. Nearly all people in Sub-Saharan Africa receive the necessary calorie intake by 2030. Universal access to clean water and sanitation, primary and secondary education and health services, is also a critical driver in this scenario and recycling becomes the primary source of raw material supply. Boosted investment ensures the transition towards a more sustainable use of natural resources and climate change mitigation and a shift to a “circular” economy. Global CO₂ emissions from agriculture in the *towards sustainability* scenario, as a result, are reduced by 3 per cent by 2030.
60. In the *business-as-usual* scenario, on the other hand, there is limited innovation in production processes and little progress towards sustainability, including hardly any changes in the energy mix. Lifestyle changes are also minimal. The varying effectiveness of social protection systems across countries lead to differentiated results in terms of reducing poverty and income inequality and achieving food and nutrition security. Dietary calories per person/day increase globally by 6 per cent by 2030 and in Sub-Saharan Africa by 11 per cent. More than 11 per cent of people in Sub-Saharan Africa are still malnourished by 2030 in this scenario, compared to 20.4 per cent in 2012. Many developing countries also find it difficult to provide quality education, improve access to health services and maintain clean water and sanitation. Fossil fuels remain the main energy source with renewables only slowly emerging. Agriculture, furthermore, is much less capital-intensive in low and middle-income countries than in high-income countries. Global CO₂ emissions, moreover, are projected to increase by 16 per cent by 2030 in the business-as-usual scenario.

Growing agricultural and economy-wide CO₂ emissions, as a result, further exacerbate climate change with global warming reaching between 3 and 4 degrees Celsius by 2100.

61. Only the *towards sustainability* scenario can end hunger and food insecurity by 2030, according to the FAO analysis. Sub-Saharan Africa would particularly benefit from this scenario with malnourishment nearly eradicated by 2030. The *towards sustainability* scenario achieves strong reduction in malnourishment with fewer land requirements, reduced CO₂ emissions and less global GDP growth. An important message of this scenario is that sustainable production and behaviours improve food security through higher GDP per capita, greater income equality and more effective use of natural resources. Low and middle-income countries, for example, will be able to satisfy their increasing national demand through domestic production boosted by adequate research and infrastructure investment and within the limits imposed by their natural resource base. The gap is bridged through imports from regions where populations are no longer increasing, natural resources are available to sustainably produce agricultural surpluses and food demand is oriented towards less resource-intensive items and restrained by low waste. In the *towards sustainability* scenario, international trade takes on a strategic role in moving food and agricultural systems towards economic, social and environmental sustainability.
62. An important message of this analysis is that significant changes will be required in food and agricultural systems during the decade of action if ending hunger and food insecurity is to be achieved by 2030. Change is needed both in terms of raising awareness of consumers of the imperative of sustainable development and by enhancing the efficiency of agricultural production processes. This generally involves switching to lower emissions technologies and/or incentivizing the consumption of less carbon dioxide intensive products e.g. by internalizing the environmental costs in the pricing of goods and services.

IV. Mobilizing the support of the United Nations system for the decade of action

63. The immediate priority of the United Nations is to support countries in responding to the health and other socio-economic implications of COVID-19. It is important at the same time to ensure that this crisis does not undermine our collective commitment to the implementation of the SDGs. To help ensure that the UN system is well-prepared to support countries in addressing the impact of the pandemic, a COVID-19 Strategy and UN Response and Recovery Fund to assist low- and middle-income countries overcome this crisis, have been launched. The UN Sustainable Development Group has also developed a system-wide framework for the immediate socio-economic response to COVID-19.
64. The 2020 High-level Political Forum provides a much-needed opportunity to discuss the progress made by the international community in responding to the impact of the COVID-19 crisis and to renew the collective resolve of Member States to accelerate the implementation of the SDGs.
65. Extensive consultations with Member States and United Nations entities have been undertaken on how the United Nations can best support accelerated implementation of the SDGs during the decade of action. These consultations have particularly highlighted the importance of amplifying the support of the UN system around three key challenges: (a) eradicating poverty and reducing inequality, (b) driving climate action and supporting healthy planet, and (c) achieving gender equality and the empowerment of women and girls. A Steering Group chaired by the Deputy Secretary-General will guide the amplified support of the UN system to Member States during the decade of action.
66. At the country level, the UN resident coordinators are now better positioned to expand the provision of integrated policy and programmatic support to national governments for SDG implementation. Governments can also call upon the UN system in the design of transformative pathways and resource mobilization strategies to accelerate SDG implementation at the country level. The UN system, furthermore, will work closely with governments in the generation of high-quality SDG statistics; in outreach and advocacy efforts; and by actively mobilizing the engagement of local authorities and the private sector in the SDG implementation process.
67. At the regional level, the Secretary-General's proposals to strengthen the regional architecture of the UN system aim to help make the UN system more effective in supporting SDG implementation.

68. At the global level, the UN system can provide wide-ranging support to Member States to accelerate the implementation of the SDGs in areas such as engagement with intergovernmental bodies, data, analysis, standards and rule-setting, thought leadership, public engagement, outreach and advocacy and partnership-building. The UN system can work with Member States and other actors in raising the level of ambition and the impact of the outcomes of major upcoming intergovernmental processes in important areas such as oceans, sustainable transport, gender equity, climate change and biodiversity. The UN system through higher quality technical support can enhance the ability of key intergovernmental bodies such as the High-level Political Forum on Sustainable Development to monitor and accelerate SDG implementation. The annual SDG Moment to be organized by the Secretary-General during the General Debate of the General Assembly offers an opportunity to generate momentum among all stakeholders for a decisive decade of action on SDG implementation. The effective execution of the Secretary-General's strategy and roadmap on financing the 2030 Agenda, as well as the ongoing reforms of the UN development system, can further facilitate accelerated implementation of the SDGs.

V. Conclusion

69. The SDG Summit reaffirmed that the SDGs can be achieved by 2030 if the speed and level of ambition is stepped-up during the decade of action. This will require Member States to renew the spirit of cooperation and multilateralism that characterized the adoption of the 2030 Agenda and the Paris Climate Accord. Countries also need to actively leverage the capacity, commitment and energy of civil society, businesses and the scientific community when accelerating the SDG implementation process.
70. The COVID-19 outbreak underscores how interconnected the world has become and why cooperation among States is now more important than ever. An effective response to this global pandemic requires countries to intensify cross-border cooperation in areas such as procurement of health equipment, vaccines, treatments and exchange of lessons learned along with commitment to coordinate economic policymaking. The COVID-19 outbreak should not be allowed to weaken multilateralism, but rather serve as a reminder that international cooperation is in need of further strengthening.
71. This report makes the following recommendations as Member States embark on a decisive decade of action and delivery for sustainable development:
- (a) The COVID-19 outbreak has reaffirmed the need to strengthen multilateral cooperation and governance to deal with global health emergencies. The fast-spreading character of COVID-19 and similar pandemics requires strong functional capacity at the global level to effectively and efficiently coordinate the actions of States. In this context it is important to reflect on the changes required for the United Nations to play such a coordinating role. The COVID-19 pandemic also highlights the need to strengthen public health systems, particularly in developing countries.
 - (b) The spirit of solidarity and cooperation that has characterized the international response to the COVID-19 pandemic needs to be extended to the implementation of the SDGs, particularly at the country level where governments can promote a whole-of-society approach by mobilizing all stakeholders in the identification of high-impact transformative pathways that capitalize on synergy across multiple sectors simultaneously.
 - (c) Reducing income inequality in society must become a key strategy to eradicate extreme poverty by 2030. The pledge to leave no one behind will remain an aspiration only, unless societies decide to tackle the challenge of inequality head-on.
 - (d) Member States need to commit to rapid and sustained CO₂ emissions reductions during the decade of action in order to achieve zero net emissions by 2050 and limit global warming to 1.5 degrees Celsius. This will require 45 per cent reductions in global CO₂ emissions by 2030.
 - (e) Ending hunger and food insecurity by 2030 will require countries to shift to sustainable food systems, which can be achieved with modest expansion of agricultural output as long as agricultural systems become more sustainable, while income and food are also more equitably distributed across and within countries.

(f) The United Nations system has a critical role to play in enabling countries to achieve the SDGs by 2030. This will call for strong commitment of all UN entities to common approaches in SDG planning, programming and implementation and effective partnership between the UN system and Member States at all levels.