Prototype Global Sustainable Development Report

Executive Summary

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1. Sustainable development brought together the great global issues

Since the creation of the United Nations, the world's peoples have aspired to make progress on the great global issues of peace and security, freedom, development and the environment

Peace and security, freedom, development and the environment remain prominent aspirations today, and it has been increasingly acknowledged that they are closely interlinked. High-level panels and commissions, major documents, and global conferences have all made a moral and pragmatic case for progress in the United Nations Charter goals. Insufficient development progress can threaten peace and security, and vice versa. Development provides the capacity to sustain nature's life-support systems, but can also threaten them, in turn setting back development.

The concept of sustainable development brought together development and the environment

Strong interdependencies are now recognized among the economic, social and environmental dimensions of sustainable development. Since the 1960s, natural and social scientists have highlighted a series of sustainable development issues and have recommended integrated policy actions and commensurate means of implementation, such as technology, finance, capacity-building and trade.

In the Brundtland Report, sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

Our Common Future, the report of the Brundtland Commission released in 1987, defined the concept of "sustainable development", which is grounded in equity and shared well-being both within and across generations. Sustainable development was subsequently adopted as an overarching objective by Governments at the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, or "Earth Summit" as it is more commonly known. The resulting principles of the *Rio Declaration on Environment and Development* and the global action plan, *Agenda 21*, included many goals and targets, some of which informed the Millennium Development Goals (MDGs) a decade later.

The time has come to reconnect science and policy

The policy framework itself emerged with limited direct scientific input. The World Commission on Environment and Development was dominated by politicians, and little science was present at the Earth Summit in Rio de Janeiro in 1992. Ten years later at the Johannesburg World Summit on Sustainable Development, there was some scientific presence. In 2012 at Rio+20, the United Nations Conference on Sustainable Development, science was very prominent. One reason is the emergence of sustainability science as an interdisciplinary, unified scientific endeavour in the 2000s. By 2010, this new field commanded an estimated 37,000 authors based in 174 countries.

At Rio+20, many scientific and policy assessment reports were presented in a large number of side events. Yet the absence of a comprehensive and authoritative global sustainable development report was striking - 20 years after the Earth Summit. Two reports - *Our Common Journey* by the National Research Council (1999) and *Sustainable Development in the 21st Century* by the United Nations (2012) - were important steps towards an authoritative global report that would bring together the range of existing assessments across sectors, analysing past progress and exploring future pathways, taking into account the perspectives of different scientific communities across the world, and responding to the needs of policymakers to have the best available scientific evidence on sustainable development issues in an easily digestible form.

2. A "prototype" global sustainable development report

The Rio+20 outcome document *The Future We Want* calls for a Global Sustainable Development Report to bring together dispersed information and existing assessments, and to strengthen the science–policy interface at the High-level Political Forum on sustainable development (HLPF). The 2012 Secretary-General's High-level Panel on Global Sustainability (GSP) had a similar proposal. Following Rio+20, the United Nations Secretary-General tasked the Division for Sustainable Development of the Department of Economic and Social Affairs to undertake "in-depth analysis and evaluation of trends and scientific analysis in the implementation of sustainable development, including lessons learned, best practices and new challenges, and cross-sectoral analysis of sustainable development issues".[1]

It was decided to produce a "prototype" report that could illustrate a range of potential content, alternative approaches and various ways of participation. The prototype report will be useful in supporting Member States' deliberations on the scope and methodology of future editions of the Global Sustainable Development Report. Ideally, the prototype report should inform the agenda and deliberations of the HLPF, the United Nations General Assembly and the Economic and Social Council on sustainable development.

The prototype report is a United Nations system effort with the participation of social and natural scientists, and it seeks to facilitate dialogue between scientists and decision-makers. It focuses on global sustainable development in terms of issues, impacts, institutions and technology. The report maps sustainable development assessments and related processes, and highlights emerging issues identified by scientists; assesses sustainable development progress; tells the stories of future pathways towards sustainable development based on the literature and discusses investment and technology needs; assesses various approaches to measuring sustainable development progress; identifies lessons learned from national, regional and global case studies of the climate–land–energy–water–development nexus; presents illustrative science digests for decision-makers; and suggests a number of issues for consideration.

A United Nations system task team was formed to work on the prototype report. An invitation was sent to the 53 United Nations entities comprising the Executive Committee on Economic and Social Affairs (ECESA) Plus,[2] of which 21 have actively partnered

on this task: Convention on Biological Diversity (CBD), United Nations Department of Economic and Social Affairs (UN DESA), United Nations Economic Commission for Europe (ECE), United Nations Economic Commission for Latin America and the Caribbean (ECLAC), United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), United Nations Economic and Social Commission for Western Asia (ESCWA), Food and Agriculture Organization of the United Nations (FAO), International Atomic Energy Agency (IAEA), International Labour Organization (ILO), International Maritime Organization (IMO), Office of the High-Representative for the Least Developed Countries, Landlocked Developing and Small Island Developing States (OHRLLS), United Nations Convention to Combat Desertification (UNCCD), United Nations Conference on Trade and Development (UNCTAD), United Nations Environment Programme (UNEP), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Framework Convention on Climate Change (UNFCCC), United Nations Industrial Development Organization (UNIDO), United Nations Population Fund (UNFPA), United Nations Human Settlements Programme (UN-Habitat), World Food Programme (WFP), and the World Bank. The International Monetary Fund participated as an observer. UN DESA has reached out to scientific communities across the world, including through a number of expert group meetings. A multilingual crowdsourcing platform (currently in English, Chinese and Spanish) has been used to collect a wider range of views from thousands of scientists across the world. In fact, the report's key messages and findings have emerged from the crowdsourced views and evidence rather than being decided by United Nations staff or selected scientists. While this crowdsourcing exercise proved a useful tool to identify new and emerging issues that scientists would like decision-makers to consider, protocols for evaluating non-conventional sources of scientific knowledge might be needed in the future.

3. Assessments for sustainable development

Assessments addressing broad and complex topics are typically prepared for decision-makers by drawing on large and representative groups of experts. They are problem-driven and typically synthesize scientific findings on complex issues, reducing complexities. They inevitably make judgements, but generally aim to separate clearly descriptive from normative elements of the assessment. In order to support decision-making, statements specifying probabilities and uncertainties are essential, but not easy to communicate.

International scientific assessments

Of the thousands of relevant sustainable development assessments, the prototype report consulted 205 international assessments: 57 international assessments suggested through the crowdsourcing website; 125 flagship publications of the United Nations system; and 23 outlook reports prepared by intergovernmental organizations. According to our crowdsourcing results, prominent intergovernmental scientific assessments and United Nations publications came out on top of the list of assessments that scientists considered important to bring to the attention of decision-makers.

There is a widening scope and set of goals in international assessments since 2000, in line with emergence of sustainability science

Since the 2000s, assessments have started to widen their scopes and to consider co-benefits, or synergies, and multiple goals. Notable examples are the Millennium Ecosystem Assessment (MEA; 2005), the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD; 2008), and the Global Energy Assessment (GEA; 2012). Sustainability science is a field defined by the problems it addresses rather than by the disciplines it employs, similar to health science. In 2012 alone, more than 40,000 authors from 2,200 cities around the world published some 150,000 articles on sustainable development.

There are thousands of assessments...

Most assessments focused on specific systems and sectors. The database for the Assessment of Assessments on Oceans contains 1,023 assessments, and the one for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services contains 215 assessments at multiple scales. For other areas there appear to be no comprehensive, regularly updated databases of assessments.

...that differ in terms of scope, scale, organization, process, participation, resources and perceived policy relevance

The landscape of sustainable development assessments is very diverse and it is difficult to make general observations. A handful of prominent international assessments have served as models for new initiatives (Table 1). A few of them have been huge undertakings with hundreds or thousands of scientists participating and price tags of hundreds of millions of United States (US) dollars.

The number of assessments and the resources devoted to different sectors and themes seems to be proportional to the associated economic stakes. Thus, the field of climate change assessments has become the most prolific over the past 20 years.

The Intergovernmental Panel on Climate Change model of scientific assessments has served as an institutional model for an increasing number of assessments, including at the national level

The Intergovernmental Panel on Climate Change (IPCC) model of intergovernmental scientific assessments has been very influential in shaping more recent assessments that aimed to strengthen the science–policy interface. In fact, IPCC-style assessments have also been instituted at the national level, for example in Austria and Hungary. The IPCC model has been the most successful institutional model of formalizing the science–policy interface. It has put key problems identified by scientists high on policymakers' agendas, and it has also enabled science to inform solutions. It is not clear if any other model has the potential to mobilize the scientific community to the same extent. At the same time, the IPCC model of assessment has received criticism from scientists and others. Transparency, plurality of perspectives and effective participation of scientists from developing countries have been identified as must-haves to ensure global credibility. Major efforts are required to support science capacity in developing countries and to strengthen the institutional mechanisms to support evidence-based policymaking everywhere.

The United Nations flagship publication model has advantages of being low cost and having a wider stakeholder participation and a plurality of views

United Nations publications can tap a wider range of knowledge beyond the peer-reviewed academic literature. They are directly linked to a United Nations process that facilitates consideration

Table 1. Simple typology of international sustainable development assessments

Type	Refer to as	Examples	Description	Link to political process	Participants nominated/ selected by	Drafted by	Text approved by	Frequency	Normative or descriptive	Type of knowledge assessed
Intergovernmental scientific assessments (IGSA)	IPCC model	Intergovernmental Panel on Climate Change (IPCC), Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)	Regular IGSA	Formal	Governments	Scientists	Governments, peers	Regular	Primarily descriptive	Academic, peer-reviewed
	IAASTD model	International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)	Ad hoc stakeholder IGSA	Formal	Multi-stakeholder Bureau	Scientists	Governments	Ad hoc	Primarily descriptive	Academic and traditional/local knowledge of stakeholders
	GEO model	Global Environment Outlook (GEO)	Regular United Nations science publication with formal link	Formal	Governments, stakeholders	Scientists guided by United Nations	Peers	Regular	Descriptive and normative	Academic, peer-reviewed, United Nations
	Asian Highway model	Asian Highway expert group	Intergovernmental United Nations expert group	Formal	Governments	United Nations staff guided by experts	United Nations	Regular	Descriptive	Governments, United Nations, academic, private sector
Scientific, technocratic assessments	CDP model	United Nations Committee for Development Policy (CDP)	Standing United Nations expert groups with formal reporting to Governments	Formal	United Nations Secretary-General	United Nations staff guided by Committee members	Committee	Regular	Normative	Academic, peer-reviewed, United Nations
	GSP model	High-level Panel on Global Sustainability (GSP)	Ad hoc initiatives of the Secretary-General	Formal, weak	United Nations Secretary-General	United Nations staff guided by Panel	Panel	Ad hoc	Normative	United Nations, Governments, academic, NGOs, stakeholders
	United Nations flagship model	Global Biodiversity Outlook (GBO), World Economic and Social Survey (WESS)	United Nations flagship publications, drawing on United Nations expert groups, and linked to United Nations process	Formal, weak	United Nations	United Nations staff jointly with experts	United Nations	Ad hoc or regular	Descriptive and normative	Academic, NGOs, United Nations, Governments, stakeholders
	Pre-Summit stocktaking	United Nations SD21 study	Stocktaking made in preparation for high-level international conferences	Formal, weak	United Nations	Lead authors, sometimes with United Nations staff	United Nations	Ad hoc	Descriptive	Academic, practitioners' views
Scientific research collaborations	GEA model	Global Energy Assessment (GEA)	Collaborative scientific collation of scientific knowledge	Informal	Peers	Scientists	Authors, Peers	Ad hoc	Descriptive and normative	Academic, peer-reviewed
	MEA model	Millennium Ecosystem Assessment (MEA)	Identification of scientific basis and knowledge gaps for action	Non-governmental	Selected by science panel, endorsed by board	Scientists	Peers	Ad hoc	Descriptive and normative	Academic, peer-reviewed, stakeholders
	Census of Marine Life model	Census of Marine Life; Future Earth	Collaborative scientific research programme	Non-governmental	Peers	Scientists	Authors, Peers	Ad hoc	Descriptive	Academic, own research

Note: Decreasing role of Governments from top to bottom.

by decision-makers. A diversity of views can provide a wider range of options to decision-makers. Hence, overlaps among United Nations assessment publications do have their benefits, while a loose coordination among assessments and outlooks could benefit decision-makers.

Some global assessments may be less relevant for countries with special needs than subregional or national assessments

Global assessments might not necessarily reflect the unique situation of small island developing states (SIDS), least developed countries (LDCs) landlocked developing countries (LLDCs) since the vulnerability factors that are most relevant for these countries are not always reflected as being crucial in global assessments. Similarly, smaller developed and developing countries do not necessarily see their particular challenges and action priorities reflected in the global sustainable development debate and related assessments. Hence, there may be a need to build global assessments on national ones.

National sustainable development assessments

Approaches, methodologies and outcomes vary greatly among countries, making direct cross-country comparisons difficult. National sustainable development reports were submitted by 69 countries in preparation for Rio+20 in 2012. Only four of these reports were from developed countries, even though such reports exist for roughly half of all developed countries. The overwhelming majority of the national reports submitted for Rio+20 were from developing countries in Africa, Latin America and the Caribbean. Yet many countries continue to face great capacity constraints in assessing and advancing sustainable development knowledge. The country coverage of MDG progress reports (148 countries) has been three times better than the average for United Nations Commission on Sustainable Development (CSD) progress reports and twice better than for Rio+20 reports, indicating the relatively low importance placed on sustainable development by United Nations entities and Member States, to date.

Assessments indicate big differences in terms of national priorities under the sustainable development agenda

A total of 405 national assessment reports on specific thematic topics were submitted to the CSD for implementation cycles from 2004 to 2011. Most reports were submitted on topics including: chemicals and waste; desertification, land degradation, and drought; and sustainable consumption and production. Topics in the mid-range included mining, rural development, sustainable transport, water and sanitation, sustainable cities and human settlements, and atmosphere. Climate change was the least represented topic among national reports.

Emerging issues

The United Nations crowdsourcing platform registered 1,115 contributions from scientists around the world who voted on each other's ideas and put forth 96 issues they would like decision-makers to consider for action. The top eight on the list include: (1) regional conflicts due to global competition for natural resources; (2) the climate–land–energy–water–development nexus; (3) political instability and social unrest from increased wealth inequalities; (4) child labour; (5) non-existent or decreasing environmental justice in developing and developed countries; (6) youth unemployment; (7) persistence of poverty in poor and even in rich countries; and (8) anthropogenic reductions in net primary productivity of biological resources. Other priorities are listed in the prototype report.[3]

4. Review of progress from 1950 to 2013

The challenge is to eliminate poverty and hunger; feed, nurture, house, educate and employ more than nine billion people; secure peace, security and freedom; and preserve the Earth's basic life-support systems

The prototype report looks at a timescale of three generations into the past (1950-2013) and two generations into the future (until 2050). The challenge is to learn from what we have tried, in order to put our societies and economies firmly on the path to sustainable development by 2050. The report takes an integrated approach that looks at clusters of issues and their interlinkages rather than specific sectors or specific topics.

Sustainable development trends and progress

Historical progress towards sustainable development has been mixed; some progress has come at the expense of worsening trends in other areas

The world has managed to feed, nurture, house, educate and employ an additional 800 million people every decade from 1970 to 2000, and even 1.1 billion people in the 2000s. In the past 12 years alone, we have built cities for 770 million people (equivalent to 93 New York cities) - more than in any decade before. These are enormous achievements. Today's global gross domestic product (GDP) is more than 10 times larger than in 1950, and the average per capita GDP is 4 times larger. Yet we have not managed to employ our much greater wealth and technological capacity to eliminate poverty and hunger. Today, 850 million people go hungry, and this number has hardly changed over several decades. There are 200 million more slum dwellers today than 20 years ago (Tables 2 and 3).

Table 2: Global number of people, in billions, 1950-2012

	1950	1970	1990	2000	2012
In absolute poverty: living on less than US$1.25 per day (PPP)	-	-	1.95	1.78	1.17
Employed but living on less than US$1.25 per day	-	-	0.83	0.69	0.38
Living on less than US$2.15 per day	-	-	3.1	3.3	2.7
Below relative poverty line in developing world	-	-	2.5	2.7	2.8
Hungry	-	1.0	0.8	0.8	0.85
Without safe drinking water	-	-	1.25	-	0.74
Without access to sanitation	-	-	1.80	-	2.44
Without access to electricity	-	1.8	2.0	1.65	1.27
Migrants	-	-	0.16	-	0.21
Above 60 years of age	0.2	0.25	0.5	0.6	0.81
Internet users	0	~0	0.003	0.36	2.4
Urban residents	0.75	1.35	2.28	2.86	3.63
Slum dwellers	-	-	0.67	0.78	0.87
Population of LDCs	0.20	0.31	0.51	0.66	0.88
World population	2.5	3.7	5.3	6.1	7.1

The poor have suffered most of the impacts of the rapid increase in material consumption

The unabated rise in the scale of material consumption has increased global environmental, social and economic pressures. There is more and more evidence that we are jeopardizing several of the Earth's basic life-support systems. People trapped in chronic poverty have probably suffered the most from these impacts. And future generations will most likely face much greater challenges to meeting their own needs.

Progress of implementation of *Agenda 21* and the *Rio Principles*

UN DESA undertook a comprehensive review of the implementation of *Agenda 21* and the *Rio Principles* in the context of the Sustainable Development in the 21st Century (SD21) project for Rio+20.[3]

Success on Agenda 21 has been highly variable and limited, with progress deemed good on only 5 of 39 chapters

Table 3: Overview of global sustainable development trends

Sustainability	Development
NATURE	**PEOPLE**
There is evidence of anthropogenic interference in half of terrestrial ecosystems and one quarter of the world's freshwater supply.	The global population has reached 7.1 billion people in 2012, and 80 million are added each year.
Biodiversity continues to decrease at rates 100 to 1,000 times pre-human levels.	Human life expectancy has been extended by 22 years, but with persistent gaps between regions and a widening gap between men and women and since 1950.
Global CO_2 emissions from fossil-fuel burning, cement manufacture, and gas flaring have increased at an accelerated rate. They increased from 24.8 $GtCO_2$ in 2000 to 35.1 $GtCO_2$ in 2012 - the largest increase in any decade in human history.	There is better global health and shifting disease, but more years of injury and illness.
41% of the oceans showed high human-induced impacts on marine ecosystems in 2012.	The 2000s were the first decade since 1980 when both the absolute numbers and the proportion of people in absolute poverty declined. However, the number of relative poor in the developing world has continued to increase since 1980.
LIFE SUPPORT	850 million people suffer from hunger, which is slightly more than in 1990 but 150 million less than in 1970.
Human settlements now cover 7% of the world's ice-free land cover, and croplands another 21%.	Universal primary education has been achieved in most parts of the world. The literacy rate of 15–24-year-olds in developing countries reached 88% in 2011. In stark contrast to 20 years earlier, today women dominate tertiary education in most parts of the world.
The protected terrestrial and marine areas have been greatly expanded in developed and developing countries.	740 million people lack access to safe drinking water (500 million fewer than in 1990) and 2.4 billion people lack access to basic sanitation (650 million more than in 1990). Water pollution continues to claim the lives of millions.
Half of the world's forests have been lost to domestication. Tropical forests declined at around 12-14 million ha per year in both the 1990s and 2000s, and a similar amount have been degraded.	There have been great improvements in modern energy access since 1990, but in 2010 there were still 1.27 billion people without access to electricity and 2.59 billion without access to clean cooking fuels.
In contrast, temperate and boreal forests have been undergoing reforestation since the 1980s.	Ageing has increased, even in many developing countries. 810 million people are now over than 60 years old.
Global arable land and permanent crops expanded by 160 million ha since 1961, due to expansion in developing economies, but the world likely reached peak farmland by 2010.	In 2010 there were 215 million international migrants (59 million more than in 1990) and 740 million internal migrants.
Humanity claims about 24% of the global terrestrial net primary production, more than ever before.	383 million employed people are getting by on less than US$1.25 per day - half the number of 1990, but there has been no reduction in LDCs, LLDCs and SIDS.
Local and regional freshwater shortages and water stress are widespread in one third of the planet.	Intergenerational social mobility earning, wage and educational mobility varies widely across countries.
The proportion of overexploited fish stocks tripled from 10% in 1970 to 30% in 2012.	There has been mixed progress on human security and human rights.
Many concentrations of local air pollutants have decreased, but the health burden of local air pollution remains large, especially in megacities of developing countries.	The overall well-being of people - as measured by the human development index - has substantially improved since 1950.
The ozone layer is on a long-term path to stabilization by 2020/2030.	**ECONOMY**
Coastal zones where half the world's population lives, are degraded.	Affluence has increased amid persistent poverty. The world economy doubled since 1990 to US$69 trillion in 2012. The per capita genuine progress indicator has slightly decreased since 1978.
COMMUNITY	Consumption remains grossly inadequate for the poorest people.
There are now more State-based armed conflicts than during the cold war.	Greater material consumption and less per unit of value, but progress in technology access and performance has fallen far short of the requirements for sustainability.
Yet the number of deaths from non-State armed conflicts, including terrorism, has been greatly reduced.	From 1988 to 2008, all gains in real income have been reaped by the very wealthy in all countries and by the rising middle class in developing countries.
The diversity of cultural heritage, traditions, and traditional knowledge - and 90% of indigenous languages - are threatened, but there are indications of some revivals.	Income inequality is growing in many parts of the world.
	Trade has grown at more than twice the rate of economic growth since 1950.
	Total assistance to developing countries more than doubled since 2000, to US$126 billion in 2012.
	The proportion of net official development assistance to donors' gross national income regained their 1990 levels of 0.32% in 2010, up from 0.22% in 2002. Estimates for 2012 are 0.29%.
	Energy almost tripled between 1970 and 2010 - reaching 493 EJ. Renewable energy share increased from 5.4% in 1970 to 7.0% in 2000 and 8.2% in 2010.
	Water withdrawals are increasing, but slowing down.
	SOCIETY
	Developed and developing countries alike have seen extraordinary changes in terms of values, attitudes, and behaviour, in particular the attitudinal and behavioural shifts in sex and reproduction, the role of women, the environment and human rights.
	There are fewer stable families in most developed and developing countries than in past decades. In developed countries, the crude marriage rate halved since 1970 and the divorce rate increased. The average duration of marriages has stayed constant, at 10-15 years.
	There is widening governance and globalization. Power has shifted from the nation state upward to the global level and downward to the local level, and at all levels from the public to the private. There is now a crisis of multilateralism.
	In most countries where a high level of societal consensus existed on intergenerational equity, it has been lost or has come under pressure.

Note: Yellow indicates trends that scientists have expressed concerns about, green indicates what is typically considered a trend towards sustainable development, and black indicates a neutral or mixed trend.

Based on expert assessment, most of the 39 chapters were rated as having made only limited progress. Three chapters (chapter 4 on Changing consumption patterns; chapter 7 on Promoting sustainable human settlement development; and chapter 9 on Protection of the Atmosphere) were rated as having made no progress or having witnessed a regression. Only five chapters were rated as having achieved good progress or better (chapters 27 and 18 on the Involvement of non-governmental organizations (NGOs) and local authorities, chapter 35 on Science for sustainable development, chapter 38 on International institutional arrangements, and chapter 39 on International legal instruments and mechanisms). *Agenda 21*'s biggest success has been to drive ambition regarding which sustainable development outcomes are achievable on a sector-by-sector basis. For example, our understanding of biodiversity, of the contribution that agriculture makes to development, and of the role of indigenous peoples in society has been advanced in no small part through *Agenda 21*. Further, *Agenda 21* has engendered a much stronger notion of participation in decision-making. However, its sectoral format may have been unhelpful in fostering integrated analysis and decision-making.

Progress on the Rio Principles has been slow; limited progress was made on only 17 of the 27 principles

The review of the *Rio Principles* shows that many have been transposed into further international laws or national instruments, but have not necessarily resulted in meaningful action. Without effective compliance and enforcement mechanisms there is little to ensure that States comply with the objectives and aspiration of the Principles. One exception is Principle 10 on access to environmental information, which is enshrined in the Aarhus Convention and which covers most European Union members.

Progress has been mixed in the achievement of goals or commitments in 19 SDG-relevant focus areas

Initial discussions of the United Nations Open Working Group on Sustainable Development Goals (OWG on SDGs) considered 19 focus areas as potential topics for future SDGs. In its final report of August 2014, they were focused further to 17 areas. An analysis of the initial 19 focus areas (many of which build on the MDGs) suggests that in 11 of the 19 focus areas progress towards goals is off track, in 4 areas there is limited or mixed progress; yet another 4 areas show good progress or early achievement (poverty eradication, food security and sustainable agriculture, water and sanitation, and health). Clearly, the level of progress depends, inter alia, on the level of ambition of the goal or commitment in the first place. Early achievement of a goal might reflect faster than anticipated progress - or it might reveal that the goal was less ambitious than it could have been. For example, it is doubtful whether the target of improving the lives of 100 million slum dwellers was sufficiently ambitious, given the rate at which the population of slums has grown since 1990.

Making sense of the debate on sustainable development progress

Views expressed on sustainable development progress oftentimes appear to be contradictory…

- Typical views include the following: *Scaling-up:* Elements of a sustainable future are already evident. What is needed is to quickly scale up related initiatives.
- *Implementation gap:* We know what should be done and we have the means to do it. All that is needed is political will to implement commitments in terms of finance, technology and capacity development.
- *Green economy:* Current environmental trends are unsustainable. Markets are the most efficient way to guide us on the right path. What is needed is full internalization of environmental externalities and expansion of markets for ecosystem services.
- *Change behaviour:* We are on a fundamentally unsustainable path. Drastic changes in behaviour and lifestyles are necessary to achieve the transition towards sustainable development.
- *Biotic regulation:* Humans surpassed the Earth's carrying capacity decades ago. Only an immediate stop to ecosystem destruction, as well as population control and large-scale restoration of ecosystems, might restore global biotic regulation and prevent the collapse of ecosystems and the human species.

…but are not necessarily so when the underlying assumptions are made explicit

Different conclusions are reached by choosing different scopes and completely different timescales, and arguments are made at very different levels, referring to: (a) sustainable development as an overarching goal, including the scientific basis that underpins it; (b) the overall approach that should be followed to achieve sustainable development; (c) the nature and content of sustainable development strategies; (d) the details of blueprints or action plans (e.g. *Agenda 21*) upon which action is based; (e) progress and shortcomings in the implementation of specific actions and plans. Making these differences explicit might help resolving many of the perceived differences in the sustainable development debate.

The consequences of continuing along our present course of incremental progress until 2050

No one knows which path the world will take in the next 40 years. But there has been an impressive consensus among experts since the 1970s about the major sustainability issues and the broad direction of trends, even though the precise magnitude and dynamics of the future sustainability challenge and improvements in eco-efficiency remain[s] unknown. The majority of - but not all - scientists are concerned about the outlook for the next two generations.

Excessive material consumption by six billion people at the expense of another three billion people living in poverty

The dynamics-as-usual world is one of excessive material consumption by six billion people in both the "North" and the "South" which will be at the expense of three billion people living in poverty (i.e. earning less than US$2.15 per day). The poorest people suffer most of the negative consequences of others' overconsumption, which by its sheer scale is overtaking Earth's planetary limits, heightening the risk of global ecosystem collapse. Even without such a collapse, the world in 2050 appears to be deeply undesirable insofar as it would deprive billions of people of the better lives that are, in principle, within their reach. Such a potential collapse is not included in any of the mainstream trend scenarios. Hence, the following 2050 picture is an optimistic view of the consequences of continuing as in the past: a more crowded world with persistent poverty and hunger; one billion people still lacking access to basic services; billions excluded from otherwise improved global health; an energy-hungry, fossil-fuelled world; a "thirsty" world with two-

thirds of the world population under water stress; a global economy repeatedly racked by price shocks and supply disruptions; fewer deaths from indoor air pollution but further deterioration of urban air quality; fewer forests; the global collapse of ocean fisheries; an accelerated increase in greenhouse gas (GHG) emissions and global warming; continued loss of biodiversity; massive human interference with the phosphorus and nitrogen cycles well beyond safe thresholds; and a resurgence of resource-related conflicts. We can also expect some positive developments such as universal primary and secondary education, and greatly enhanced women's empowerment.

5. Future pathways towards a better future in 2050: sustainable development scenarios

The challenge before us is to achieve a global sustainability transition by 2050. We will need to eliminate poverty and hunger; feed, nurture, house, educate and employ more than nine billion people; secure peace, security and freedom; and preserve the Earth's basic life-support systems.

Scientists responded to the question "What kind of world would you like to see for yourself, your children and grandchildren in 2050?"

The 15 most popular ideas identified through crowdsourcing capture areas of immediate development and social concern such as poverty, hunger, vitamin deficiencies, social protection, universal access to basic services and universal education, as well as human rights and access to justice, redress and remedy for all. Least frequently mentioned were suggestions to reduce water stress, reduce air pollution and various climate change targets. The prototype report sketches future sustainable development pathways derived from scenarios of leading modelling teams.

The following scenarios were used: (a) Global Energy Assessment Scenarios by the International Institute for Applied Systems Analysis (IIASA), Austria; (b) Rio+20 Scenarios by Planbureau voor de Leefomgeving (PBL), the Netherlands; (c) Alternative Pathways towards Sustainable Development and Climate Stabilization (ALPS) by the Research Institute of Innovative Technology for the Earth (RITE), Japan; (d) Shared Development Agenda Scenarios for Rio+20 by the Stockholm Environment Institute (SEI), Sweden; (e) Green Growth Scenarios for Rio+20 by the Organisation for Economic Co-operation and Development (OECD); (f) Great Transition Scenarios (2010 update) by Tellus, United States of America; (g) Exploratory World Induced Technical Change Hybrid (WITCH) scenarios by Fondazione Eni Enrico Mattei (FEEM), Italy; (h) Global Resource Scenarios of the Climate–Land–Energy–Water Nexus by the Royal Institute of Technology (Kungliga Tekniska Högskolan [KTH]), Sweden, and UN DESA; (i) Sustainable Development Global Simulation by the National Academy of Sciences of Ukraine, Geophysical Center of Russian Academy of Science and Ukrainian Branch of World Data Center. In addition, a number of prominent recent reviews of scenarios were considered, where appropriate, including WWF's Living Planet, UNEP's GEO-5 Scenario Review, the World Business Council for Sustainable Development's Sustainable Vision 2050 and the World Economic Forum's Global Risk Report. These scenarios have presented alternative future pathways towards a world in 2050 that would be more sustainable in important environmental and social dimensions, and would promise a decent quality of life for all people (Table 23 in chapter 4 of the prototype report).

The pathways lead towards a world where, by the latter half of the 21st century, all regions will be developed, poverty will be eradicated, and the demand on natural sources and sinks will not exceed their regeneration capacity…

The sustainable development scenario in this report reflects an integrated focus on the three dimensions of sustainable development, as well as an explicit integration of dynamic planetary limits to ecosystem capacity. Explicit attention is given to achieving and sustaining MDG-related goals relating to basic access to services, education and health, and to reducing aggregate income disparities across countries and regions in the long term. This scenario implies new economic structures, different allocations of capital between public and private sectors, and cooperative management of the commons at the global and national levels. If we follow this suggested sustainable development pathway, we could expect a world in 2050 where hunger and poverty have been effectively eliminated; a world with universal access to improved water sources and basic sanitation, to electricity and modern cooking fuels; a world with GDP per capita of more than US$10,000 everywhere (in purchasing power parity [PPP] terms); a world with much greater energy efficiencies and energy conservation; a world with greatly reduced local air pollution, slowly reversed deforestation, and restored fish stocks; a world with global average temperature change limited to 2°C above pre-industrial levels. Biodiversity could possibly be stabilized at 2020 levels.

…but this world in 2050 will still be far from a utopia

Yet this world in 2050 still has its share of problems and challenges. Billions of people would still be under water stress, and flood risks would have worsened in many places. Chemicals would likely continue to pose serious threats to human health. Human interference with the global phosphorus and nitrogen cycles would most likely continue to rise, despite great efforts.

We need to push technology performance and diffusion to their limits - increasing eco-efficiency by at least a factor of 3.2

We know it is technically feasible to improve global eco-efficiency by a factor of four or five by 2050. This would allow global wealth to be at least doubled, while halving resource and energy use. The pathway described here shows the way towards a factor of 3.2 improvement - somewhat less than what is technically feasible, but still highly ambitious.

Sources: IIASA-GEA (Riahi et al., 2012);[4] PBL (van Vuuren et al., 2012);[5] SEI (Nilsson et al., 2012);[6] OECD (2012);[7] RITE-ALPS (Akimoto et al., 2012);[8] FEEM (2011);[9] GSG (Raskin et al., 2010).[10]

To achieve this, we need global cooperation to accelerate environmentally sound technology transfer and diffusion…

Cooperation needs to be enhanced in order to accelerate the transfer and diffusion of environmentally sound technologies. Technology transfer is happening too slowly to tackle the big sustainable development challenges. And technological capabilities in developing countries need to be substantially strengthened if they are to partake actively of the major technological transformations that lie ahead.

So far, technology needs have not been mapped systematically in the area of clean and environmentally sound technology facilitation, and views vary significantly as to whether international programmes

to help build capacity correspond to existing needs. Moreover, the data needed to assess the magnitude and nature of the technology gap are both limited and fragmented, and technology needs must be surveyed at the country level.

...to direct wisely the US$1 trillion that are spent on research and development every year...

The good news is that the research contribution of middle- and low-income countries more than doubled over the last 15 years. And continued gains in the education, skills and capabilities of billions of people in coming decades hold tremendous potential both to boost productivity and incomes and to help solve our global sustainability challenges.

...and to meet the global investment requirements

To achieve a sustainability transition, special efforts are needed to meet the estimated global investment requirements. While assessing financing needs for sustainable development presents considerable conceptual and practical challenges, analyses of investment requirements for sustainable development in the coming decades conclude that financial needs are significant: of the order of the several trillion dollars per year. Figure 1 presents estimates for investment requirements in various sectors, obtained from the literature.

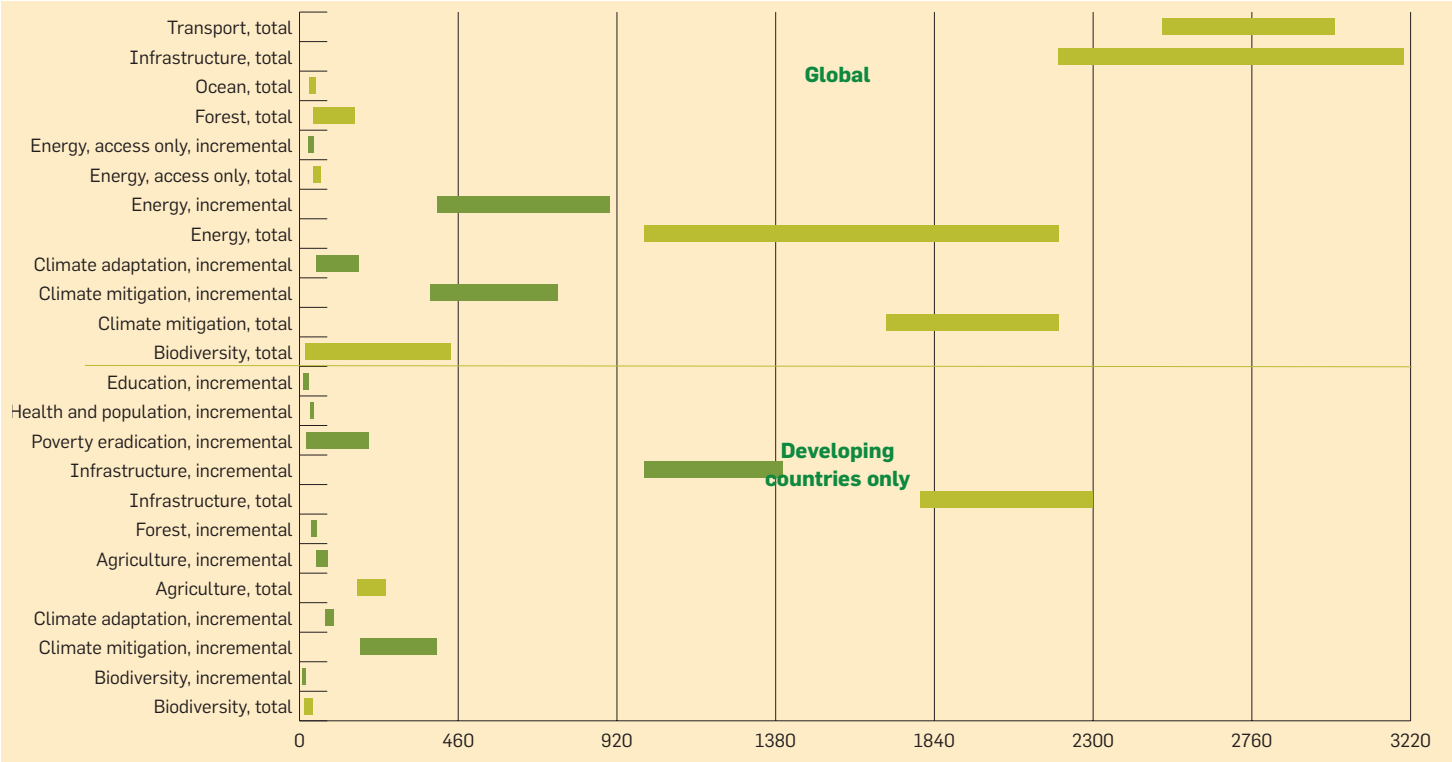
The global scenarios show what could be achieved if we were able to overcome - at a global level - all socioeconomic and political constraints and make major technological advances

While these scenarios differ in various aspects, they are nevertheless fairly similar in spirit and content. When measured against goals suggested by some scientists, the scenarios' levels of ambition are limited both in terms of their scope and their target levels, even though they are highly optimistic in the assumption that we can overcome major socioeconomic and political constraints.

The sustainable development scenarios show a high level of agreement on overall policy conclusions

Despite a variety of modelling approaches and sustainable development goals, the sustainable development scenarios for Rio+20 agree to a large degree in terms of their overall conclusion: there are numerous, feasible pathways towards sustainable development. The scenarios show the challenges, benefits and limits to achieving the multiple objectives of sustainable development, such as eradicating poverty, improving living standards, reining in material consumption, and increasing end-use resource efficiency. Making progress in one dimension can lead to both synergies and trade-offs. Complex trade-offs related to the global commons need to be tackled globally. There is no single solution or policy for sustainable development. Politicians' sustainable development goals have become increasingly ambitious, while their attainment has become increasingly difficult. Education, research and development and population goals potentially have very large synergies with the development and environmental dimensions. A broad pursuit of sustainable development is far superior in performance over pursuing single-issue objectives in isolation (e.g. to promote economic growth first and deal with its environmental costs later).

Figure 1: Orders of magnitude of investment requirements from various sectors from the literature



Note: Dark green bars represent incremental needs and green light bars represent total needs. Source: UN DESA (2013)[11]

Lessons learned from scenarios at the global science–policy interface for sustainable development

There is no agreement on the role of science and scenarios in policymaking. Scenario models reflect specific worldviews that have greatly shaped the views of decision-makers since the 1970s, and the underlying assumptions of models should be made clearer, as decision-makers have tended to cherry-pick model results. It is easier to agree on goals and targets than on policies, actions or indicators. There is no consensus on limits, but almost everyone agrees that technology is important. More effort is required to develop sustainable development models that are able to minimize if not resolve trade-offs across the different dimensions of sustainable development or different policy objectives.

For the past 40 years, global models have been looking for applications, rather than vice versa. The result has been fragmented modeller communities who focus on applications by seizing windows of opportunity, such as periodic global assessments or the preparations for Rio+20. More resources are needed for model development that is tailored to broad, new problems.

6. How to measure sustainable development progress

The challenge for measuring progress is that there is no agreed set of goals for sustainable development ...

A clear definition of the SDGs and related policy commitments is needed, in order to assess options for measuring and monitoring progress. At present, there is no agreement either on the definition of goals, targets and indicators, or on assessment metrics.

... but by using existing thematic assessments in key initial focus areas of the Open Working Group on SDGs, we show how SDG progress could be monitored in the future

There are thematic assessments for all the initial key focus areas discussed by the OWG on SDGs. The Global Sustainable Development Report could regularly bring together these and other assessments to monitor progress towards the achievement of the future SDGs. At the end of this Executive Summary we provide an overview of relevant assessments, past trends, agreed goals/commitments and expected future trends.

There are three fundamentally different approaches to measuring overall progress towards sustainable development

The first approach uses indicators and official data to measure progress against a number of internationally agreed commitments. Hence, whether a trend is considered to be making good progress depends primarily on the level of ambition during the original goal- or target-setting process, which is not necessarily rooted in scientific or objective criteria.

The second approach is based on aggregate indicators of sustainable development progress that have been suggested by analysts and scientists. This approach is also primarily based on official data. The aggregate indicators differ greatly in terms of their focus, reflecting the different perspectives and values of the individual analysts that created them.

The third approach is a variation on the first and the second approaches. It uses data intelligence and complements official data from surveys with highly spatially disaggregated non-official data from a variety of sources such as remote sensing, mobile phones, road traffic, and user-based crowdsourcing. The third approach uses already available data and can more easily and more quickly fill data gaps in the poorest regions, but it is technically most demanding.

There have been a large number of initiatives for measuring and monitoring progress with indicator sets or indices

An impressive number of initiatives have recently been undertaken to devise and implement better measures of progress towards sustainable development. In this prototype report, we review them, including: the European Union's beyond GDP initiative; the Measure of Economic Welfare (MEW), the Index of Sustainable Economic Welfare (ISEW), and the Genuine Progress Indicator (GPI); the World Bank's wealth estimates and adjusted net savings; the United Nations Commission for Sustainable Development indicators of sustainable development; the United Nations Statistical Commission's System of Environmental-Economic Accounting project (SEEA); the Joint UNECE/OECD/Eurostat Working Group on statistics for sustainable development-Task Force on measuring sustainable development; the OECD's Better Life Initiative: Measuring well-being and progress; and the United Nations Development Programme's human development index and human sustainable development index. These initiatives use their own conceptual frameworks and sets of statistical measures. Most recently, Rio+20 called for a programme of work on broader measures of progress to complement GDP in order to better inform policy decisions.

The traditional ways of measuring sustainable development progress share a number of shortcomings

These include high costs of official statistics and capacity constraints, low spatial resolution, low temporal frequency and no tracking of interactions between spatial and temporal scales. Therefore, the "big data" approach - i.e. the use of remote sensing (satellite-based) and communication technologies - has great potential for assessing long-term sustainable development progress and to complement and improve official statistics.

There is a need for capacity-building to improve the availability and quality of data on sustainable development

High-quality and sustainably produced statistics are crucial both for setting targets and for monitoring progress. Measuring progress requires comprehensive monitoring and a robust accountability mechanism. Further investment in national statistical systems and capacity development may be needed for national data collection, data processing and analysis, and to capture high-quality, further disaggregated data. The two agendas - on defining sustainable development goals and on progress measurement - are linked and, if properly coordinated, they can lead to strengthened synergy and stronger overall progress. Indicators corresponding to the future SDGs are most important for monitoring future progress, but they will need to be complemented by composite indices of sustainable development progress.

A toolbox for monitoring sustainable development progress will need to be developed to support decision-makers.

7. Special theme: The climate-land-energy-water-development nexus

National planning and assessment continue to follow almost exclusively sectoral lines...

A tendency to ignore interlinkages among sectors and across national borders has meant that success in one area or location has all too often come at the expense of increasing problems elsewhere. The links among food, fuel and climate crises are a case in point. Energy, water and food security, land-use issues, development policy and climate policy continue to be addressed in isolation.

...even though they are strongly linked, especially in drought sensitive areas and in small island developing states

Water, energy and land are all needed to grow food. Some food crops can also be used as biofuel. Power plants require water. Energy-intensive seawater desalination increasingly provides water for drinking and agriculture. Water and energy infrastructure is needed to spur development and vice versa.

In many parts of the world, a changing climate exacerbates some of these already-strained links

For example, increasing droughts due to climate change call for increased energy inputs for irrigation and limit the use of hydropower plants. In some SIDS, as well as in drought-sensitive areas, the impacts of a changing climate are already a reality.

A pioneering pilot assessment of the climate–land–energy–water–development nexus (CLEWD) in Mauritius has shown the practical benefits of integrated analysis for policymaking. The assessment of CLEWD has helped in identifying innovative policy that avoids costly mistakes of isolated sectoral policymaking - e.g. suggesting, in the Mauritian case, wind-based power for water desalinization as a preferred investment to water-intensive biofuels expansion. This is a good example of a strong science–policy interface in action.

In a very short time, the Mauritius case study has inspired many similar applications. Our prototype report presents case studies in Australia, Brazil, Burkina Faso, Canada, Cuba, Chile, China, Germany, India, Jamaica, Lithuania, Mauritius, Qatar, South Africa, Syria, Thailand, United States of America, United Kingdom, Tarawa/Kiribati, Comoros, Madagascar, Seychelles, Zanzibar, California, and the river basins of the Danube and the Nile, as well as a number of local applications. These applications use different entry points - energy security, water security or food security - but they share the same approach.

Global CLEWD model indicates greenhouse gas mitigation costs turn out to be much less than currently suggested by sectoral models

A global CLEWD model has been developed as an open-source, open-data support to emerging national and regional applications. Interestingly, when CLEWD interlinkages are taken into account, GHG mitigation costs turn out to be much less than currently suggested by separate global energy models. When we are realistic about trade-offs between different resources under a changing climate, most of the cheaper sectoral baseline scenarios will not be feasible. Feasible baseline scenarios without climate mitigation policies will require higher investments, and integrated approaches that achieve a range of sustainable development goals may turn out to be cheaper than the feasible business-as-usual alternatives.

The CLEWD case studies illustrate the benefits of integrated approaches; in particular they helped identify better, innovative solutions

CLEWD results also provide important lessons for the ongoing discussions on the definition of the SDGs. In fact, they indicate a need to include clusters of strongly interlinked issues in the SDG discussions, beyond the sectoral and thematic approach.

Higher-level strategic CLEWD assessments might replace some of the lower-level project assessments

Concerns have been voiced about an increasingly complex hierarchy of assessments, which is perceived as burdensome by some parts of many Governments and the private sector. In order to make scenario modelling relevant and sustainable at the same time, this problem must be acknowledged and some of the lower-level (project) assessments might be replaced by fewer higher-level, strategic assessments.

The right cluster of themes for integrated policy is case-specific

The CLEWD nexus approach is a pragmatic approach to integrated assessment for selected clusters of strongly interlinked issues. It is not specific to the particular set of issues. In some cases, these clusters can be narrower (e.g. energy–water), while in others they need to be wider (e.g. including biodiversity). Carrying out a CLEWD-type nexus assessment requires cooperation among different disciplines and various parts of government, with potentially important overall governance and economic benefits. In the future, the Global Sustainable Development Report could look at other clusters deemed important by government policymakers.

8. Selected science digests

A potential function of the Global Sustainable Development Report may be to provide digests of recent scientific findings to government officials who follow the United Nations sustainable development debate

As an example, and to illustrate contributions young scientists could make to future editions of the Global Sustainable Development Report, the prototype report includes a short, adapted version of three digests related to oceans (ocean acidification, marine microbial ecology and bioreactors) and food security (protein substitutes and the livestock sector) that were provided by a group of young researchers and validated by science peers.

The potential value added of these digests is to shed light on specific aspects of broader themes highlighted in intergovernmental documents such as the Rio+20 outcome document

Intergovernmental documents such as the Rio+20 outcome document are generally relatively broad and do not necessarily go into deep detail. Therefore, digests prepared by scientists on more technical issues can highlight both problems and possible scientific or technological solutions.

For instance, the digest on ocean acidification shows that since pre-industrial times, there has been a 30 per cent increase in ocean acidity. The speed and magnitude of the ocean acidification

process adversely affects marine ecosystems and species and will affect various economic sectors such as fisheries, aquaculture and tourism, and consequently food security. Researchers have been making efforts to find measures to adapt to and mitigate ocean acidification, but the political and social feasibility of reducing CO_2 emissions raises concerns and therefore - depending on the viewpoint - feasibility can be considered relatively high or low.

The digest on marine microbial ecology and bioreactors outlines, *inter alia*, that more efficient research into microbial communities and their interactions with the environment can be attained through biodiversity assessments, and that a better understanding of microbial ecology could help in many fields, from ecosystem resilience and restoration to a higher yield in seafood production.

Finally, on food security, a digest focusing on protein substitutes and the livestock sector highlights that livestock products are important elements of the human diet, but their production has the highest negative impact on the environment and human health among all agricultural sectors. It notes that the demand for livestock products is on the rise and that its production has expanded steadily in the last half century in both developed and developing countries, with a projection to double by 2050. Thus, the digest recommends, among other things, to increase the availability of protein substitutes in human food and animal feed in the market through research into their development, policy instruments and subsidies, as well as to improve legislation and regulation regarding the safety and use of new proteins.

9. Issues for consideration

Potential overall directions for the Global Sustainable Development Report

In the future, the Global Sustainable Development Report could provide scientific inputs for deliberations of the HLPF. The report could also contribute to agenda-setting of the Forum and report on global progress in the achievement of the SDGs, once adopted in 2015. In addition, it could provide scientific evidence for linking global goals with the means to achieve them. Ultimately, the report will help improve the science–policy interface for sustainable development, as called for at Rio+20.

Conduct a regular assessment of assessments to identify common ground and different views

Decision-makers may want to task assessment processes, in the context of this assessment of assessments on sustainable development, not only to identify scientific consensus but also to focus on describing differences in views - including from minority groups of scientists and extending beyond the dominant peer-reviewed academic journals. Identifying different views could be built formally into the assessment process and form the basis for pinpointing areas for joint action.

Take into account various types of knowledge and many perspectives, especially those of scientists in developing countries, including the poorest and most vulnerable countries…

This requires taking into account a wider range of social and natural sciences, as well as sources of knowledge. It also requires going beyond the peer-reviewed literature and including local and traditional knowledge, including that of practitioners. Eliciting the knowledge held by government officials and policymakers, and fostering closer interaction between the science and policymaking communities from the beginning of assessment processes, would also support the function of strengthening the science–policy interface.

…and allow for a wide range of participation through multiple channels

Tapping into the expertise of the whole United Nations system and a wide range of scientific communities will be important. In order to allow for participation by a wide range of scientists and stakeholders, multiple channels of input should be open, such as through crowdsourcing using both online and offline methods. Protocols for evaluating such non-conventional sources of scientific knowledge will be needed.

Use the full range of new technologies and approaches

The full range of new technologies and methodologies could be employed not only to facilitate participation in scientific assessments, but also possibly for monitoring progress. Examples include monitoring sustainable development progress from space (by combining remote sensing with other data) and employing multiple methodologies and approaches, for example, for aggregate measures of sustainable progress beyond GDP. Different methodologies can lead to rather different conclusions, as illustrated in the full report with the case of monitoring poverty trends.

Build a United Nations institutional platform for sustainable development models and scenarios to support the Global Sustainable Development Report

The prototype report argues for a major effort to draw on the wider range of global modelling capabilities, in order to assess various sets of sustainable development objectives and eventually the set of SDGs ultimately agreed by Member States, and to explore pathways towards their achievement, including technology and financing needs. A United Nations institutional home, or platform, for SDG scenarios and global models could prove beneficial, especially if it is connected to the Global Sustainable Development Report. The Report could look at other clusters of strongly-interlinked issues, in addition to the climate–land–energy–water–development nexus, which would benefit from an inter-agency capacity-building initiative to support national planners.

This would provide a direct link between global and national policy, fostering joint action and mutual learning.

Member States, the United Nations system and many scientists already agree on many of the elements that define the scope and methodology of a Global Sustainable Development Report…

There is a convergence on many elements that should characterize a Global Sustainable Development Report in the responses by Member States and United Nations system entities to a questionnaire on the scope and methodology of a Global Sustainable Development Report, and also on lessons learned from the exploratory, multi-stakeholder process to produce the prototype report. These elements are summarized in Table 4 and could be considered in the way forward.

Table 4: Common elements of majority agreement on the scope and methodology of the Global Sustainable Development Report

Element	Agreement
Value added	Easy access for decision-makers to findings of many scientific assessments; highlight synergies and trade-offs between policy actions in various settings
Focus	Focus on implementation, obstacles to progress, good practises of integrated policy
Capacity needs	Joint United Nations effort to support developing countries' participation
Audience	Policymakers, senior government officials and wide range of stakeholders
Scope in terms of issue focus	Priority issues identified in the Rio process, including *Agenda 21*, the Rio+20 outcome, as well as other internationally agreed goals and commitments; supports HLPF and implementation of future SDGs and post-2015 development agenda
Geographic scope	Global and five United Nations regions, with analysis for groups of countries in special situations
Time horizon	Medium- (10 years) to Long-term (20 to 50 years)
Global issues covered	HLPF agenda, Rio+20 outcome document, *Agenda 21*, future SDGs and post-2015 development agenda
New and emerging issues	Identification based on sound scientific evidence
Coordination of report process	United Nations task team coordinated by the HLPF Secretariat (UN DESA's Division for Sustainable Development) at the global level and Regional Commissions at the regional level
Type of content	Past and future trends; lessons learned; scientific findings indicating potential areas for policy action; opportunities and challenges for implementation
Periodicity	In-depth report every four years coinciding with HLPF sessions under the United Nations General Assembly, and focused report contributions for the HLPF sessions under the auspices of the Economic and Social Council
Normative or descriptive	Policy-relevant content and options, but not normative policy recommendations
Monitoring and accountability framework for SDGs/post-2015 development agenda	The Report possibly to become one of several contributions to the framework; details are to be decided after 2015
Scientific methods	Multidisciplinary, integrated approach in the spirit of sustainability science; precise methods to be decided by scientists, but prototype report illustrates a useful basis on the methodological side for future editions
How to inform the work of the HLPF	To be integrated in and provide scientific evidence for the deliberations of the HLPF; the Report to become one of several inputs

Based on these elements, three options regarding the scope and methodology of the Global Sustainable Development Report could be considered

Responses to the questionnaire and lessons learned from the multi-stakeholder process led to the identification of three options that could be considered for a future report.

Option 1: Conventional United Nations flagship publication model: This option follows the approach generally used for United Nations flagship publications. The report is drafted by United Nations staff, who also select experts for ad hoc contributions. Knowledge inputs comprise peer-reviewed literature and United Nations system expertise. The report is peer-reviewed internally and approved by senior United Nations management. Inputs from Member States and stakeholders are based on ad hoc requests and based entirely on existing United Nations structures, including those of the Regional Commissions.

Option 2: Multi-stakeholder model linked to voluntary national processes: This option goes further in terms of involving stakeholders and linking to voluntary national reviews. The report would be drafted by a team of United Nations staff comprising all ECESA Plus members, with contributions from scientists, government officials and stakeholders. The report would undergo an external multi-stakeholder peer-review process and be approved by United Nations senior management and/or a multi-stakeholder advisory group. Advice would be provided by representatives of academia, major groups, the United Nations system and other international organizations that could include, for example: the chairs of major international assessment initiatives, research programmes and academies of sciences; representatives of major groups and young scientists; chairs of key United Nations groups; representatives of key United Nations reports and outlooks; and representatives of relevant non-United Nations organizations. United Nations Regional Commissions would be encouraged to hold regional consultations and prepare contributions to the report. Existing national processes and/or voluntary national reviews under HLPF would become important partners.

Option 3: Intergovernmental Panel on Sustainable Development: This option follows an IPCC-style model in which Member States nominate scientific experts to a writing team which drafts the report to be adopted by Member States. Cooperation agreements may be sought with existing assessment initiatives, and lessons learned from IPCC reviews can be taken into account in the design of the Panel. In particular, there may be a need to compensate authors for their contributions, in order to avoid conflicts of interest.

These options are summarized in Table 5.

Table 5: Overview of differences between the three options

Element	Option 1: Conventional United Nations flagship publication model	Option 2: Multi-stakeholder model linked to voluntary national processes	Option 3: Intergovernmental Panel on Sustainable Development
Report drafted by	United Nations staff	Team of United Nations staff with contributions from scientists, government officials and stakeholders	Scientists nominated by Member States
Experts selected by	United Nations staff	United Nations staff, assessment initiatives, Member States, major groups	Member States
Peer-review	Internal to the United Nations system	External, multi-stakeholder peer review (open process) including the United Nations system	Peer review by participating scientists and external academic reviewers
Report approved by	United Nations senior management	United Nations senior management and/or multi-stakeholder advisory group	Member States
Scope of scientific knowledge	Peer-reviewed literature and United Nations system knowledge	All kinds of knowledge	Peer-reviewed literature
Regional priority issues identified by	Regional consultations coordinated by Regional Commissions	Multi-stakeholder regional consultations coordinated by Regional Commissions	Scientists
National priority issues identified by	Responses by Member States to United Nations questionnaires	Voluntary, national consultations coordinated by Member States and supported by United Nations capacity-building	Scientists
How to organize national and regional contributions	Desk study conducted by United Nations staff and inputs through ad hoc United Nations request for inputs; based on existing structures	Based on existing structures using existing focal points or channels for nominations; organized by interested Member States with capacity support from the United Nations system	New, formal group of scientists nominated by Member States
Choosing thematic focus of each edition	United Nations senior management	HLPF in consultation with scientists and stakeholders	HLPF
National sustainable development process	No direct link	Partly based on voluntary processes and reports	No direct link
Scientific advisory group or working group	United Nations internal with ad hoc external contributions	Multi-stakeholder group, including representatives of academies of sciences, Scientific Advisory Board, CDP, and of key international assessments	New group of scientists nominated by Governments