Prototype Edition

Global Sustainable Development Report
Building the Common Future We Want

Executive Summary

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Prototype Edition

Global Sustainable Development Report

Building the Common Future We Want

"Eliminating poverty and hunger; feeding, nurturing, housing, educating and employing 9 billion people; securing peace, security and freedom; and preserving the Earth's life support systems in the next two generations"

Executive Summary

September 2013

Executive Summary

Sustainable development brought together the great global issues

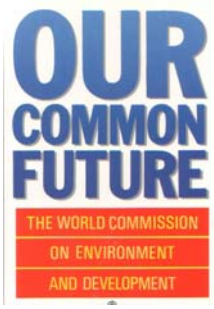
Since the creation of the United Nations, the world's peoples have aspired to make progress on the great global issues of peace, freedom, development, and environment.

Peace, freedom, development, and environment remain universal 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 UN Charter goals. Insufficient development progress can threaten peace 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 peace, development and 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 recommended integrated policy action and commensurate means of implementation, such as technology, finance, capacity building and trade.

…in the Brundtland report as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".



The Brundtland report of 1987, entitled *Our Common Future*, popularized 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 *Earth Summit of 1992 in Rio de Janeiro*, together with a set of *Rio Principles* and a global action plan, *Agenda 21*, which included many goals and targets, some of which informed the Millennium Development Goals a decade later.

The time has come to reconnect science and policy

The policy framework itself emerged with limited direct scientific input. There were no scientists on the World Commission on Environment and Development and little science 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 UN Conference on Sustainable Development, science was very prominent. One reason is the emergence of sustainability science as a new interdisciplinary, unified scientific endeavour in the 2000s. It commanded an estimated 37,000 authors based in 174 countries by 2010.

At Rio+20, many scientific and policy assessment reports were presented in a large number of side events. Yet, the absence of an authoritative global sustainable development report was striking – twenty years after the Earth Summit. *Our Common Journey* (NRC, 1999) and *Sustainable Development in the 21st Century (UN, 2012)* were important steps toward an authoritative global report that would bring together the range of existing assessments across sectors, assessing past progress and exploring the future outlook, taking into account the perspectives of different scientific communities across the world and also responding the needs of policy makers for the best available scientific evidence on sustainable development issues in an easily digestible form.

A "prototype" Global Sustainable Development Report

The Rio+20 outcome document calls for a Global Sustainable Development Report (para 85k), in order to bring together 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 had a similar proposal. Following Rio+20, the UN 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 engaging the scientific community with policy makers. The present prototype report will be useful in supporting member States' deliberations on the scope and approach of the Global Sustainable Development Report. The report should ideally inform the agenda and deliberations of the HLPF, the General Assembly and ECOSOC on sustainable development. This report is a UN system effort with participation of social and natural scientists.

A UN Task Team was formed to work on the report. An invitation was sent to the 53 UN entities comprising ECESA-Plus[2], of which 18 have actively partnered on this task: Convention on Biological Diversity, UN Department of Economic and Social Affairs, UN Economic Commission for Latin America and the Caribbean, UN Economic and Social Commission for Asia and the Pacific, UN Economic Commission for Europe, Food and Agriculture Organization (FAO), International Labour Organization, International Maritime Organization, International Atomic Energy Agency, United Nations Convention to Combat Desertification, United Nations Environment Programme, United Nations Educational, Scientific and Cultural Organization, United Nations Conference on Trade and Development, United Nations Framework Convention on Climate Change, United Nations Population Fund, UN Human Settlements Programme, World Food Programme, and World Bank. The International Monetary Fund participated as an observer. DESA has reached out to scientific communities across the world, including through a number of expert group meetings. A multi-lingual crowd-sourcing platform (currently in English, Spanish and Chinese) is being used to collect a much wider range of views from thousands of scientists across the world. In fact, key messages of the report have emerged from the crowd-sourced views and evidence rather than being decided by UN staff or selected scientists. Social and natural scientists are still encouraged to make their voices heard on the UN website until the end of November 2013.

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 findings from multiple studies and sources. They inevitably make judgments 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 present report consulted 205 international assessments: 57 international assessments suggested through the crowdsourcing Website; 125 flagship publications of the UN system; and 23 outlook reports prepared by intergovernmental organizations. According to our crowdsourcing results, prominent intergovernmental scientific assessments and UN publications came out on top of the list of assessments that scientists considered important to bring to the attention of decision-makers.

[1] Details were provided in the revised programme budget endorsed by the General Assembly at the end of 2012.
[2] EC-ESA (Executive Committee for Economic and Social Affairs) Plus membership can be found here: http://www.un.org/en/development/other/ecesa.shtml

Widening scope and multiple goals of 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 (2005), the International Assessments on Agricultural Science and Technology for Development (2008), and the Global Energy Assessment (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 of them 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* 182 assessments. 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. A few of them have been huge undertakings with hundreds or thousands of scientists participating and price tags of hundreds of millions of US dollars.

The number of assessments and the resources devoted [to different sectors and themes] seems to be proportional to the associated economic stakes. This has made climate change assessments the most proliferating area over the past 20 years.

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	IPCC, IPBES	Regular IGSA	Formal	Governments	Scientists	Governments, peers	Regular	Primarily descriptive	Academic, peer-reviewed
	IAASTD model	IAASTD	Ad hoc stakeholder IGSA	Formal	Multi-stakeholder Bureau	Scientists	Governments	Ad hoc	Primarily descriptive	Academic and traditional/local knowledge
	GEO model	GEO	Regular UN science publication with formal link	Formal	Governments, stakeholders	Scientists guided by UN	Peers	Regular	Descriptive and normative	Academic, peer-reviewed, UN
	AH model	Asian Highway expert group	Intergovernmental UN expert group	Formal	Governments	UN staff guided by experts	UN	Regular	Descriptive	Governments, UN, academic, private sector
Scientific, technocratic assessments (STA)	CDP model	UN Committee for Development Policy	Standing UN expert groups with formal reporting to governments	Formal	UN Secretary General	UN staff guided by Committee members	Committee	Regular	Normative	Academic, peer-reviewed, UN
	GSP model	High-level Panel on Global Sustainability	Ad hoc initiatives of the Secretary General	Weak	UN Secretary General	UN staff guided by Panel	Panel	Ad hoc	Normative	UN, governments, academic, NGOs, stakeholders
	UN flagship model	GBO, WESS, UN SD21 study	UN flagship publications, drawing on UN expert groups, linked to UN process	Weak	UN	UN staff jointly with experts	UN	Ad hoc or regular	Descriptive and normative	Academic, NGOs, UN , government, stakeholders
Scientific research collaborations (SRC)	GEA model	Global Energy Assessment	Collaborative scientific collation of scientific knowledge	Informal	Peers	Scientists	Authors, Peers	Ad hoc	Descriptive and normative	Academic, peer-reviewed
	MEA model	Millennium Ecosystem Assessment	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
	CML 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.

The IPCC model of scientific assessments has served as an institutional model for an increasing number of assessments, including at the national level.

The 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 been instituted also at the national level, e.g., in Austria and Hungary. At the same time, the IPCC model of assessment has received criticism from scientists and beyond. Transparency, plurality of perspectives and effective participation of scientists from developing countries have been identified as must-haves to ensure global credibility. To make this happen, major efforts are required to support science-capacity in developing countries and to strengthen the institutional mechanisms to support evidence-based policy making everywhere. It was pointed out that developed country academics and analysts still make up to 80 per cent of the IPCC assessments teams and that "*97 per cent of the references in IPCC reports are from Western journals*".

The UN flagship publication model has advantages of low cost, wider stakeholder participation, and a plurality of views.

UN publications can tap a wider range of knowledge beyond the peer-reviewed, academic literature. They are directly linked to a UN process which facilitates consideration by decision makers. Diversity of views can provide a wider range of options to decision-makers. Hence overlaps among UN assessment publications do have their benefits, while a loose coordination among assessments and outlooks could benefit decision-makers.

National sustainable development assessments

Approaches, methodologies and outcomes vary greatly between countries which does not allow for direct cross-country comparisons. 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 and 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 Commission on Sustainable Development (CSD) progress reports and twice better than for Rio+20 reports, indicating much higher commitment and resources to the MDGs.

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

405 national assessment reports on specific thematic topics had been submitted to the CSD for implementation cycles 2004 through 2011. Most reports were submitted on chemicals and waste; desertification, land degradation, and drought; and sustainable consumption and production. Topics in the mid-range were mining, rural development, sustainable transport, water and sanitation, sustainable cities and human settlements; and atmosphere. Climate change and forests had the fewest national reports.

Emerging issues

The UN crowd-sourcing platform registered 1,115 contributions from scientists around the world who voted on each other's ideas and contributed a total 96 issues they would like decision-makers to consider for action that they feel are currently not well represented on the UN agenda. The top eight on the list are: regional natural resource conflicts; the climate-land-energy-water-development nexus; political instability from increased wealth inequalities; child labour; non-existent or decreasing environmental justice in developing and developed countries; youth unemployment; persistence of poverty in poor and even in rich countries; anthropogenic reductions in net primary productivity of biological resources. Other priorities are listed in the Technical Summary.[3]

[3] Technical summary will be available at the Sustainable Development Knowledge platform shortly. http://sustainabledevelopment.un.org

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 present Report looks 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 the past, 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 inter-linkages rather than specific sectors or specific topics.

Sustainable development trends and progress

Historical progress towards sustainable development has been mixed. Some progress has been at the expense of worsening trends in other respects.

The world has managed to feed, nurture, house, educate and employ on the order of 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 world GDP is more than ten times larger than in 1950 and average per capita GDP is four times larger. Yet, we have not managed to employ our much greater wealth and technological capacity to eliminate poverty and hunger. 850 million people go hungry today, a number which has hardly changed over several decades. There are two hundred million more slum dwellers today than twenty years ago.

Global number of people, in billions	1950	1970	1990	2000	2012
In absolute poverty on less US$(PPP)1.25 per day			1.95	1.78	1.17
Employed less US$1.25			0.83	0.69	0.38
Less US$2.15 per day			3.1	3.3	2.7
Below relative poverty line in developing world			2.5	2.7	2.8
Hungry		1.0	0.8	0.8	0.85
No safe drinking water			1.25		0.74
No access to sanitation			1.80		2.44
No access to electricity		1.8	2.0	1.65	1.27
Migrants			0.16		0.21
> 60 years of age	0.2	0.25	0.5	0.6	0.81
Slum dwellers			0.67	0.78	0.87
Urban residents	0.75	1.35	2.28	2.86	3.63
Least developed	0.20	0.31	0.51	0.66	0.88
World population	2.5	3.7	5.3	6.1	7.1
US dollars	1950	1970	1990	2000	2010
GDP (in trillion US$)		17	36	49	67
GDP per capita (1,000 int'l 1990 dollars)	2.1	3.7	5.1	6.1	7.8

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

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

To sustain	*To develop*
Nature Anthropogenic interference with one-half of the terrestrial ecosystems and one-quarter of the freshwater supply. Biodiversity continues to decrease at rates 100 to 1,000 times their pre-human levels. 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. 41 per cent of the oceans showed high human-induced impacts on marine ecosystems in 2012.	**People** World population has reached 7 billion people, 80 million added each year. Life expectancy extended by 22 years since 1950, with persistent gaps between regions and a widening gap between men and women. Better global health, but more years in injury and illness. The 2000s were the first decade since 1980 when both the absolute numbers and the proportion of people in absolute poverty declined. 850 million people suffer from hunger which is slightly more than in 1990 but 150 million less than in 1970. Universal primary education achieved in most parts of the world. The literacy rate of 15- to 24-year-olds in developing countries reached 88 per cent in 2011. In stark contrast to twenty years earlier, today women dominate tertiary education in most parts of the world. 740 million people lack access to safe drinking water (i.e., 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. 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. Increased aging including in many developing countries. 810 million people are now older than 60 years. In 2010: 215 million international migrants (59 million more than in 1990) and 740 million internal migrants. 383 million employed people getting by on less than US$1.25 per day – half the number of 1990, but no reduction in LDCs, LLDCs and SIDS. Intergenerational social mobility: earnings and educational mobility varied widely across countries Overall well-being of people – as measured by HDI - has substantially improved since 1950
Life support Human settlements now cover 7% of the world's ice-free land cover and their croplands another 21%. The protected terrestrial and marine areas have been greatly expanded in developed and developing countries. Loss of half of the world's forests historically to domestication. Tropical forests declined at around 12-14 million hectares per year in both the 1990s and 2000s, and a similar amount was degraded. In contrast, temperate and boreal forests were reforesting since the 1980s. Global arable land and permanent crops expanded by 160 million ha since 1961, due to expansion in developing economies. Humanity claims about 40 per cent of the total terrestrial net primary production, more than ever before. Local and regional freshwater shortages common and water stress in one-third of the world. The proportion of overexploited fish stocks tripled from 10% in 1970 to 30% in 2012. Concentrations of local air pollutants have decreased in some cities, but the health burden of local air pollution remains large, especially in megacities of developing countries. Ozone layer on a long-term path to stabilization by 2020/2030. Half the world population lives in degraded coastal zones.	**Economy** Affluence has increased amidst persistent poverty. The world economy doubled since 1990 to US$69 trillion in 2012. Consumption remains grossly inadequate for the poorest. Greater material consumption overall and less per unit of value added. Growing income inequality 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 from 2000 to US$126 billion in 2012. The proportion of net ODA to donors' gross national income regained the 1990 level of 0.32% in 2010, up from 0.22% in 2002. Estimates for 2012 are 0.29%. Energy production almost tripled between 1970 and 2010 – reaching 493EJ. Renewable energy's share increased from 5.4% in 1970 to 7.0% in 2000 and 8.2% in 2010. Growing but slowing water withdrawals
Community More State-based armed conflicts than in the cold war. Greatly reduced number of deaths from non-State armed conflicts, including terrorism. Diversity of cultural heritage, traditions, and traditional knowledge and 90% of indigenous languages threatened, but also indications of some revivals.	**Society** Extraordinary changes in developed and developing countries alike, in terms of values, attitudes, and actual behaviour, in particular the attitudinal and behavioral shifts in sex and reproduction, the role of women, the environment, and human rights. Fewer stable families in most developed and developing countries than in past decades. In developed countries, crude marriage rate halved since 1970 and divorce rate increased. The average duration of marriages has stayed constant at 10-15 years. 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. Crisis of multilateralism. In most countries where a high level of societal consensus existed on intergenerational equity, it has been lost or come under pressure.

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

Progress of implementation of Agenda 21 and the Rio Principles

The most up-to-date and comprehensive Review of the implementation of Agenda 21 and the Rio Principles was undertaken by UN-DESA in 2012 in the context of the SD21 project for Rio+20.[4]

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

Based on expert assessment, most of the 39 chapters were rated as having made only limited progress. Three chapters (SCP, sustainable human settlements, atmosphere) were rated as having made no progress or witnessed a regression. Only 5 chapters were rated as having achieved good progress or better (on involvement of NGOs and local authorities, on science for sustainable development, on International institutional arrangements, and on International legal instruments and mechanisms). Agenda 21's biggest success has come through driving ambition on what 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 or of the role of indigenous peoples in society, has been advanced in no small part through Agenda 21. Furthermore, Agenda 21 has facilitated a much stronger notion of participation in decision-making. However, the sectoral format for Agenda 21 based 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 of the principles have been transposed into further international laws or national instruments, but have not necessarily filtered down into meaningful action in practice. Without effective compliance and enforcement mechanisms there is little to ensure that States adhere to the principles. One exception is Principle 10 on access to environmental information.

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

These 19 focus areas are currently being discussed by the UN Open Working Group (OWG) on Sustainable Development Goals (SDGs) and are therefore potential areas for the future SDGs. Progress towards 11 of the 19 existing goals and commitments is off-track, 4 show limited or mixed progress, 4 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 either mean stellar progress or an unambitious goal. 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 slum dwellers has expanded 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 visible. What is needed is to quickly scale up these 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.
- *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 necessary transition towards sustainable development.

[4] See the report here http://sustainabledevelopment.un.org/index.php?menu=1355

- *Biotic regulation:* Humanity has transgressed 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 collapse of ecosystems, including 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 time scales, and arguments are made at very different levels, referring to: (a) ultimate goal, including the scientific basis; (b) overall approach; (c) sustainable development strategies; (d) blueprints or action plans; (e) 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 impressively strong 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 remain unknown. The majority – but not all – scientists are concerned about the trend outlook for the next two generations.

Excessive materials consumption by 6 billion people at the expense of another 3 billion people living in poverty.

The dynamics-as-usual world is one of excessive materials consumption by 6 billion people in both "North" and "South" which will be at the expense of 3 billion people living in poverty (i.e., less than $2.15 a day), suffering much of the negative consequences of the others' overconsumption which by its sheer scale will have transgressed the majority of "planetary boundaries", heightening the risk of eventual global ecosystem collapse. Even without "global collapse", the resulting world in 2050 appears deeply unpalatable insofar as it would deprive billions of people of the better lives that are in principle within their reach.

Such 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 wracked by price shocks and supply disruptions; fewer deaths from indoor air pollution but further deterioration of urban air quality; fewer forests; global collapse of ocean fisheries; accelerated increase in 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 a greatly enhanced women's empowerment.

Future pathways toward 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.

In response to the question "What kind of world would you like to see for yourself, your children and grandchildren in 2050?", scientists submitted ideas of immediate development and social concern.

The fifteen most popular ideas identified through crowdsourcing capture areas of immediate development and social concerns, such as poverty, hunger, vitamin deficiencies, social protection, universal access to basic services, 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 Report sketches future sustainable development pathways derived from scenarios of leading modelling teams.

The following scenarios were used: (a) Global Energy Assessment Scenarios by IIASA, Austria; (b) Rio+20 scenarios by PBL, Netherlands; (c) Alternative pathways toward sustainable development and climate stabilization (ALPS) by RITE, Japan; (d) Shared Development Scenarios for Rio+20 by SEI, Sweden; (e) Green growth scenarios for Rio+20 by OECD; (f) Great transition scenarios (2010 update) by Tellus, USA; (g) Exploratory WITCH scenarios by FEEM, Italy; (h) Global resource scenarios of the climate-land-energy-water nexus by KTH, Sweden, and United Nations-DESA; (i) Sustainable Development Global Simulation by National Academy of Sciences of Ukraine; Geophysical Center of Russian Academy of Science; 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 scientists and scenario analysts 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.

The pathways lead toward a world where by the latter half of the 21st century all regions will be developed, poverty 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 ecosystems 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 regions in the long term. This scenario implies new economic structures, different allocation of capital and investment between public and private sectors, 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 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 will 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 4 or 5 by 2050. This would allow global wealth to be multiplied by 2 or more, while halving resource and energy use. The pathway described here shows the way toward a factor of 3.2 improvement, somewhat less than what is technically feasible, but still highly ambitious.

Goals and targets in sustainable development scenarios for Rio+20											
Vision		**Theme**	**Types of goals, targets, and outcomes**	**IIASA-GEA**	**PBL**	**SEI**	**OECD**	**RITE-ALPS**	**FEEM**	**GSG**
To develop	**People**	Poverty	Eradicate hunger by 2050		X					X
			Eliminate poverty by 2050			X				
		Access	Universal access to improved water source and basic sanitation by 2050		X		X			
			Universal access to electricity and modern cooking fuels by 2030 {or 2050}	X	X	{X}				
		Health & education	Decreased impact of environmental factors on DALY		X					
			Universal primary education by 2015						X	
	Economy	Income	GDP per capita > US$10,000 PPP in all regions by 2050			X				
			Income convergence; catch-up of Africa by 2050						X	
		Resources	Primary energy use less than 70GJ per capita by 2050						X	
			Primary energy use per capita is only 13% higher in 2050 than in 2010, and 48% higher in 2100.					X		
			Use of renewables increase by 3.1 times from 2010 to 2050					X		
			Water demand increases from 3,560 km^3 in 2000 to only 4,140 km^3 in 2050				X			
		Security	Limit energy trade, increase diversity and resilience of energy supply by 2050	X						
			Population weighted average of energy security index increases only by 2.3					X		
To sustain	**Life support**	Resources	Limit the increase in the number of people under severe water stress to an additional +2 bln {or +1.4 bln) from 2000, reaching 3.7 bln {or 3.1bln} in 2050				X	{X}		
			People under severe water stress <2 bln until 2050 {or 2.9 billion in 2100}					{X}		X
			Reduce number of people living in water scarce areas vs. trend scenario		X					
			Reduce the area for energy crop production to almost zero by 2020. From 2010 to 2050, limit increase in cropland area for food production to +15%, and reduce the irrigated area for food production by 5%					X		
			Cumulative fossil fuel use limited to <520 Gtoe from 2010 to 2050					X		
			Slow and later reverse deforestation and land degradation							X
			Slow overfishing and later restore fish stocks							X
		Air pollution	Keep PM2.5 concentration below 35 $\mu g/m^3$ by 2030		X					
			Reduce NO_x, SO_2 and black carbon emission by 25% vs. baseline by 2050				X			
			Reduce SO_2 by 42% and black carbon by 21% by 2050 vs. 2010					X		
			Reduce premature deaths due to air pollution by 50% by 2030	X						
	Nature	Climate change	Limit global average temperature change to 2°C [or 2.8°C] above pre-industrial levels with a likelihood of >50% {or 60%} by 2100.	X	X	{X}	X	[X]		X
			Atmospheric GHG concentration stabilization below 450 ppm [or 350ppmv] {or 550ppmv} CO_2-eq. by 2100		X				{X}	[X]
			Limit ocean acidification to keep aragonite stable, with pH=8.0 in 2150					X		
		Biodiversity	By 2020: Prevent extinction of known threatened species and improve situation of those in most decline; halve the rate of biodiversity loss; halve the rate of loss of natural habitats and reduce degradation and fragmentation by 2020; conserve at least 17% of terrestrial and inland water. By 2050: stabilize biodiversity at the 2020/2030 level		X					
			By 2020: CBD Aichi protected area targets of 17% of terrestrial and inland water areas and 10% of coastal and marine areas achieved		X		X			
		Phosphorus and nitrogen cycles	Phosphorus removal in wastewater treatment increases from 0.7 Mt in 2000, to 1.7 Mt in 2030, to 3.3 Mt in 2050				X			
			Reduce N/P use where possible, but without harming the ability of the agricultural system to meet the hunger target		X					

Sources: IIASA-GEA (Riahi et al., 2012); PBL (van Vuuren et al., 2012); SEI (Nilsson et al., 2012) ; OECD (2012); RITE-ALPS (Akimoto et al., 2012) ; FEEM (2011); GSG (Raskin et al., 2010).

To achieve such a goal, global cooperation is needed to accelerate technology transfer and diffusion,…

Technology 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.

… to direct wisely the one trillion US dollars 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 which – according to a larger range of studies – are on the order of tens and hundreds of billions of dollars per year in key areas (e.g., US$50 to 200 billion per year to achieve the MDGs; US$40 to 60 billion per year for forests; US$30 to 50 billion per year for oceans; USS$ 50 to 130 billion per year to increase agricultural yields and feed everyone without expansion of agricultural land; US$30 to 80 billion per year for universal access to modern energy services; US$250 to 400 billion per year for energy efficiency; and US$50 to 400 billion per year for climate change adaptation). Infrastructure investment in developing countries needs to more than double from a current level of US$0.8-0.9 trillion per year. (NB: figures are not additive.)

The global scenarios show what could be achieved if we were able to overcome - at a global level - all the socio-economic 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 terms of assuming that we can overcome major socio-economic 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 conclusions: There are numerous, feasible pathways toward 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 materials 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 the recent trends have made their attainment increasingly challenging. Education, RD&D and population goals potentially have very large synergies for both development and environment. A broad pursuit of sustainable development is far superior in performance over pursuing single-issue objectives in isolation (e.g., promote economic growth first and deal with its environmental costs only later).

The 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 policy making. Scenario models reflect specific worldviews that have greatly shaped those of decision-makers since the 1970s. The underlying assumptions should be made clearer to decision-makers. Decision-makers have tended to "cherry-pick" model results. It is easier to agree on goals/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 capable to minimize if not resolve trade-offs across the different dimensions of sustainable development or different policy objectives.

For the past forty years, global models have been looking for applications, rather than vice versa. The result has been fragmented modeller communities focusing on applications by seizing "windows of opportunity" such as periodic global assessments or the preparations for Rio+20. The input of sustainable development scenarios work into policy making could benefit, arguably, from providing a UN institutional platform that would link that scenarios analysis more systematically to the needs of policy makers inter alia in the high-level political forum on sustainable development.

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 sustainable development goals 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 using existing thematic assessments in key areas currently on the agenda of the OWG-SDG we show how SDG progress could be monitored in the future.

There are thematic assessments for all the key areas currently on the agenda of the Open Working Group on Sustainable Development Goals (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 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 report, we review them, including: the United Nations' Millennium Development Goals; the Human Development Index; suggestions in the context of the SDGs/post-2015 process; indicator sets agreed by the Commission for Sustainable Development; the UN Statistical Commission's System of Environmental Economic Accounting; the World Bank's wealth accounting and adjusted net savings; EU's GDP and beyond initiative; the OECD's better life initiative; and the Genuine Progress Indicator. 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.

There is 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 need to be coordinated. 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, in order to help decision makers.

Special theme: The climate-land-energy-water-development nexus (CLEWD)

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

To ignore inter-linkages among sectors and across national borders, however, has meant that success in one area or location has 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.

Yet, water, energy and land are 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. 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 hydro-power plants. In some SIDS, as well as in drought-sensitive areas, these impacts of a changing climate are already a reality.

A pioneering pilot assessment of the climate-land-energy-water-development nexus in Mauritius has shown the practical benefits of integrated analysis for policy making. The assessment of the climate-land-energy-water-development nexus has helped in identifying innovative policy that avoids costly mistakes of isolated sectoral policy making. 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 climate-land-energy-water-development nexus applications. Our report presents case studies in Australia, Brazil, Burkina Faso, Canada, Cuba, Chile, China, Germany, India, Jamaica, Lithuania, Mauritius, Qatar, South Africa, Syria, Thailand, USA, UK, 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 these emerging national and regional applications. Interestingly, when CLEWD inter-linkages are taken into account, greenhouse gas mitigation costs turn out to be much less (up to a factor 5-10) than currently suggested by purely 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 identifying innovative and better solutions.

CLEWD results also provide important lessons for the ongoing discussions on the definition of 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 replaced by fewer higher-level, strategic assessments.

The "right" cluster of themes for integrated policy is case specific. In the future, the Global Sustainable Development Report could look at other clusters deemed important by government policy makers.

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. It should be noted, however, that the "right" cluster of themes is case specific. In some cases, these clusters can be narrower (e.g., energy-water), 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.

Building the Common Future We Want – Issues for Consideration

Potential overall directions for the Global Sustainable Development Report

In the future, the Global Sustainable Development Report could provide concise scientific inputs for deliberations of the high-level political forum on sustainable development. The report could report on global progress in the achievement of the SDGs, once established in 2015. It could also provide scientific evidence for linking global goals with means. Ultimately, the Report will help in improving 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 assessments of assessments on sustainable development, to not only to identify scientific consensus, but equally to focus on describing differences in view, including from minority groups of scientists, beyond the dominant peer-reviewed academic journals. Identifying and describing different views could be built formally into the assessment process and form the basis for identifying 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 to inclusion of local and traditional knowledge, including knowledge of practitioners. Eliciting the knowledge held by government officials and policy makers, and fostering closer interaction between the science and policy making 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 UN 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, it multiple channels of input should be open, such as through crowd-sourcing using 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 might 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 UN institutional platform for sustainable development models and scenarios to support the Global Sustainable Development Report.

The present report argues for a major effort to draw on the wider range of global modelling capabilities, in order to assess various sets of SDGs and eventually the set of SDGs ultimately agreed by Member States, and also pathways toward their achievement, including in terms of technology and financing needs. A UN 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 learning from each other.

Selected Areas for Action identified in the SD21 study					
Who? Where?	**Sustainable development (SD)as the overall objective**	**Visions for sustainable development**	**Goals and strategies**	**Action plans**	**Implementation**
Ideal overall aspiration	Agree that sustainable development is the over-arching paradigm, at national and int'l levels.	Many visions for sustainability coexist. Agree on what to develop and what to sustain. Agree on fair sharing rules for use of the global commons (e.g. open oceans, atmosphere).	Develop integrated strategies and strong institutions that can guide all actors towards global sustainability.	Sectoral action plans should be based on agreed integrated strategies.	Ensure coordina-tion of implement-tation of sectoral strategies.
Global level / UN	Reconfirm sustainable development as the overarching goal. Agree on a desired level of intergenerational equity and on thresholds for global planetary limits that should not be trespassed.	Agree on, or reconfirm, a minimal set of things to be developed and sustained. Re-examine the roles of various groups of countries in an updated allocation of rights and responsibilities.	Agree on division of labour between the international system and the national level. The UN, int'l community could focus on: (1) managing global commons; (2) interface with Member States on int'l rules that affect global human impacts on the environment (trade, corporations, financial and capital flows, pollution); (3) mechanisms for ensuring that national commitments on issues of global interest "add up". Adopt a small, consistent set of Sustainable Development Goals (SDGs).	Coherent action plans for the implementation of agreed strategies and goals.	Agree on credible mechanisms for enforcement of commitments.
Political commit-ment	Actively engage to eliminate the duality in "sustainable" and "mainstream" institutions, at national and int'l level. Inscribe the maintenance and development of natural capital into the core mandates of ministries of finance, economy and development.	Empower lower levels of governments to act on their own and try new approaches to sustainability.	Governments at all levels should lead by example by putting public procurement rules and practices in line with their publicly advertised sustainability goals. Re-orient public investment (e.g. infrastructure, transports) in a direction that facilitates sustainable choices and behaviours.	Ensure maximal impact of public procurement on sustainability objectives.	Mobilize the political will to manage natural resources sustainably.
Institutions and Society	Integrate global environmental limits and related risks in rules, institutions, and decision-making at all levels. Increase the voice given to future generations in institutions at all levels.	Incorporate resilience of social systems and ecological systems in decision-making Manage the global commons equitably and sustainably. Define ways in which conflicts between rules and institutions can be resolved in a way that is compatible with overarching sustainable development objectives. Design mechanisms that ensure that commitments from different groups and different levels on issues of global interest "add up".	Look for robust strategies instead of "efficient" strategies. Consider all relevant instruments at our disposal – from acting on values and tastes, to demand management, to production efficiency. Integrate sustainability thinking in educational curricula. Develop strong institutions. Use integrated approaches to evolve sectoral goals and strategies that are consistent with broader goals ("Nexus approaches"). Design systemic mechanisms to bring UN conventions into the debate.	Build flexibility into institu-tions so that their scopes and mandates can be readjusted periodically. Ensure consistency of sectoral development strategies with broader sustainability objectives.	Conducive rules and support for projects and initiatives.
Participation and civil society		Provide forums for discussion and decision-making among all parts of society to elicit long-term strategies that achieve strong buy-in. Re-introduce equity as a dimension of decision-making, as opposed to an add-on to economic choices.	Put participation at the heart of decision-making at all relevant levels.	Participation	Participation
Science	Improve the science-policy interface, including on global limits and tipping points.	Design an institutional framework that allows for monitoring of major sustainability areas and providing adequate feedback to decision-making on areas of global importance.	Design transparent, independent and participatory monitoring and evaluation systems that provide the needed information to re-adjust course as needed.	Increase priority and resources for measurement and evaluation of action plans, institutions and standards.	Reinforce monitoring and evaluation capacity.
Private sector			Improve the compatibility of the system of rules governing the private sector with SD objectives. Reassess roles for the public and private sectors in the economy. Commit to providing a level playing field for local, low-technology, and non-market solutions, in order to enable local knowledge, skills, and technologies	Improve regulatory systems for financial and capital markets and corporations. Ensure they do not discrimi-nate against local, low-tech, or non-market solutions.	Investments and projects.

Source: adapted from UN (2012). Back to Our Common Future. Sustainable Development in the 21st century (SD21) project. Summary for policy makers, 2012.

Progress towards achievement of current goals or commitments in 19 focus areas. The list is purely indicative. It is drawn from the schedule of work for the General Assembly Open Working Group on SDGs, 2013-2014.

Key thematic areas identified by Member States	Selected international reports and assessments	General comments about the past trends and current status	Goals or Commitments	Time-frame of targets	Dynamics-as-usual (Trend) Pathway from 2010 to 2050	Potential future goals/ targets (from various sources)
1. Poverty eradication (MDGs)	UN *Millennium Development Goals Reports* (global, regional and country); World Bank-IMF *Global Monitoring Reports*	The world reached the poverty reduction target five years ahead of schedule. In developing regions, the proportion of people living on less than $1.25 a day fell from 47 per cent in 1990 to 22 per cent in 2010. About 700 million fewer people lived in conditions of extreme poverty in 2020 than in 1990. Despite this achievement, the progress is uneven among regions and within countries. And there more than 1 billion people are still living in extreme poverty.	Eradicate poverty	Reduce extreme poverty by half by **2015**	Progress in poverty reduction is fast enough to compensate for the growing world population, but leave the same absolute number of people poor as in 2010 (almost 3 billion people living on <US$2 per day).	Eliminate poverty worldwide by 2030
2. Food security and sustainable agriculture (MDGs and beyond)	UN *Millennium Development Goals Reports* (global, regional and country); World Bank-IMF *Global Monitoring Reports* FAO *The State of World Reports; the State of Food Insecurity Reports* UNCCD Reports	The hunger reduction target of halving the percentage of people suffering from hunger by 2015 is within reach. The proportion of undernourished people in developing regions decreased from 23.2 per cent in 1990-92 to 14.9 per cent in 2020-2012. Still, one in eight people in the world today remain chronically undernourished.	World free of hunger	Reduce hunger by half by **2015**	The number of people going hungry is reduced by 500 million people, still leaving 250 million with insufficient food intake (down from 800 million in 2010).	Halve the proportion of people who suffer from hunger by 2015, further halve it by 2030, and eradicate hunger by 2050
3. Water and sanitation (MDGs)	UN *Millennium Development Goals Reports* (global, regional and country); World Bank-IMF *Global Monitoring Reports* UN *World Water Development Report*	The MDG drinking water target was met five years ahead of the target date, despite significant population growth. The proportion of the global population using such sources reached 89 per cent in 2010, up from 76 per cent in 1990. Gains in sanitation are impressive – but not good enough. More rapid progress is needed to meet the MDG target.	Ensure access to safe drinking water and stop unsustainable exploitation of water resources	Reduce proportion of people without sustainable access to safe drinking water and basic sanitation by half by **2015**.	> 240 million people (most of them in rural areas) will be without access to improved water source, and 1.4 billion people without access to basic sanitation. Child mortality from diarrhoea (caused by unsafe water supply and poor anitation) will decrease, but Sub-Saharan Africa will lag behind.	Universal access to improved water source and basic sanitation by 2050
4. Health (MDGs)	UN *Millennium Development Goals Reports* (global, regional and country); World Bank-IMF *Global Monitoring Reports* WHO *World Health Report*	At the global level, good progress has been made on child mortality, much less on maternal mortality. Notably, access to reproductive health services show slow progress. Despite the progress made in MDG-related health, the coverage of health services and financial risk protection currently falls far short of universal coverage.	Reduce child mortality; improve maternal health; combat HIV/AIDs etc.	Reduce by two thirds, between 1990 and **2015**, the under-five mortality rate.	Global premature mortality from malaria halved to 0.4 million from 2010 to 2050.	Universal health coverage
5. Education (MDGs)	UN *Millennium Development Goals Reports* (global, regional and country); World Bank-IMF *Global Monitoring Reports*	Between 2000 and 2011, the number of children out of school declined by almost half. However, progress in reducing the number of children out of school has slowed considerably over time. Stall progress means that the world is unlikely to meet the target of universal primary education by 2015.	Universal primary schooling	By **2015**, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	Universal primary education by 2020, universal secondary education by 2050. Women will account for the majority of higher-level degrees worldwide.	Universal primary education by 2020. Universal secondary education by 2030.
6. Employment (MDGs, JPOI)	ILO *Global Employment Trends* World Bank *World Development Reports*	Unemployment increased by a further 4 million over the course of 2012. A quarter of the increase of 4 million in global unemployment in 2012 has been in the advanced economies, rest in other regions.	Full and productive employment and decent work for all.	**By 2015**, achieve full and productive employment and decent work for all. **By 2020**, increase decent employment for the urban poor.	1 billion new "livelihoods" to be created from 2010 to 2030 (BAU estimate).	Create 63 million decent *new* jobs per year until 2050, achieving full, productive and decent employment for all.
7. Oceans (Ch. 17 of Agenda 21; JPOI; Aichi Targets 6, 10 and 11; Target 7.B of	UNGA *Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic*	Oceans are becoming more acidic, with negative implications for corals and other marine life. Oceans are also warming, while sea-level rise continues unabated. 80% of global fisheries are either fully exploited or overexploited. Other remaining challenges are for example, marine pollution,	Protection of the oceans and all kinds of seas	By **2015**, the multiple anthropogenic pressures on coral reefs … are	Global collapse of ocean fisheries before 2050.	Eliminate overfishing by 2025 and restore fish stocks..

Key thematic areas identified by Member States	Selected international reports and assessments	General comments about the past trends and current status	Goals or Commitments	Time-frame of targets	Dynamics-as-usual (Trend) Pathway from 2010 to 2050	Potential future goals/ targets (from various sources)
MDG)	*Aspects* UNEP *Keeping Track Reports*	invasive aquatic species, unsustainable costal area development, safety of navigation and maritime security, indecent work conditions as well as unwanted impacts from resource extraction. Substantial progress is still needed.		minimized, so as to maintain their integrity and functioning		
8. Biodiversity (Aichi Targets; Target 7.B of MDGs)	CBD *Global Biodiversity Outlooks*	The target agreed by the world's Governments in 2002, "to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national lever …", has not been met. Continuing decline in biodiversity in all three of its main components – genes, species and ecosystems.	20 Aichi Goals of halting global biodiversity loss	Achieve, by **2010**, a significant reduction in the rate of biodiversity loss	Biodiversity (measured as terrestrial mean species abundance) declines by 10% (with highest losses in Asia, Europe, and Southern Africa). Pressure from invasive alien species increases. Area of natural land converted to agriculture decreases after 2030 ("peak farmland"), but biodiversity impacts continue for decades thereafter.	Stabilize biodiversity at the 2020/2030 level (depending on region) by 2050
9. Forest (Aichi Targets on forest; Four shared Global Objectives on Forests, agreed at UNFF Session 6 in 2006.)	UN Forest Forum Reports CBD *Global Biodiversity Outlooks* FAO *Global Forest Resources Assessments*	Forest s cover 31 percent of total land area. Forests are a safety net for the poor, but they continue to disappear at an alarming rate. The rate of deforestation shows signs of decreasing, but is still alarmingly high. Large-scale planting of trees is significantly reducing the net loss of forest area globally. However, South America and Africa countries continue to have the largest net loss of forest.	Forest component of Aichi targets: reducing deforestation	A 25 per cent reduction in annual global deforestation and degradation rates by **2015** compared with the 2000-05 average	Primary forests steadily decrease. Rate of global deforestation decreases leading to no net forest loss after 2020. Continued lack of understanding of the complex non-linear dynamics of ecosystems.	No net forest loss and no more destruction of primary forests by 2020
10. Sustainable consumption and production (SCP) (Ch.4 Agenda 21; and Ch. 3 of JPOI)	UN *Trends Reports: Towards Sustainable Consumption Production* World Business Council for SD: *Vision 2050 Report*; UNEP: *The Marrakech Process Progress Report*	The 10YFP on sustainable consumption and production patterns has been adopted at the Rio+20 Conference (paragraph 226). However, further work on periodical reviews of the progress on SCP was not yet done. Some progress has been made in greening production chains, as well as making green procurement policy in place. There has been an unabated increase in the scale of material consumption and an increasing ecological footprint for decades.	Change unsustainable patterns of consumption and production	International Plan of Action is in place, but no time-bound targets yet	Doubling or tripling of total material consumption. Primary energy use increases by 80%. Water demand increases 55% (mainly from manufacturing (+400%), electricity (+140%) and domestic use (+130%)).In the face of competing demands, there is little scope for increasing irrigation.	Stabilize global material consumption at 2015 levels. Increase global eco-efficiency by a factor of 3.2.
11. Means of implementation (MDGs, Rio+20; Copenhagen Accord)	UNCTAD *Trade and Investment Reports* *MDG Gap Task Force Reports*; World Bank *World Development Reports*; IPCC Reports WIPO *Annual Reports*	While there has been progress on several counts, important gaps remain in delivering on the global commitments in the areas of aid, trade, debt relief, and access to new technologies and affordable essential medicines. The weakening of the world economy and the steep rises in food and energy prices threaten to reverse some the previous progress made. Proportion of net ODA in donor's GNI increased from 2000 to 2010, but was reduced until 2012 to 0.29%. The poorest countries have been most adversely affected by the decrease.	Develop a global partnership for development.	Meet the 0.7% ODA/GNI target now; $100 bn per year for climate change by **2020**	Net ODA remains at around 0.3% GNI of donors. Global eco-efficiency increases by a factor 1.5 to 2.	Achieve 0.7% ODA/GNI, focusing on the poorest and most vulnerable countries. Mobilize resources for a global SDG fund commensurate with estimated needs by 2018.
12. Sustained and inclusive economic growth (Rio+20)	UN DESA *World Economic and Social Survey* UNIDO *Industrial Development Report*	Partly due to recent financial crisis, financing has fallen short in areas that are critical for sustainable growth: long-term investment, research and development, and investment in riskier sectors, such as SMEs.	Achieve sustainable development, promoting sustainable, inclusive and equitable economic growth	Sustained real economic growth in all countries, with faster income growth at lower end of the distribution.	Gross world product quadruples to US$300 trillion, with rising world middle-income class. GDP per capita increases from US$33,000 to 69,000 in OECD, from US$7500 to 37,000 in BRICS, US$11,100 to 33,000 globally. BRICS accounting for 40%.	GDP per capita > US$10,000 PPP in all countries by 2050
13. Needs of countries in special situations, and middle-income	SG's Report on Implementation of the Programme of Action for the LDCs; UN-OHRLLS *Reports on LDCs,*	The LDC group as a whole saw its growth performance improve considerably over the last decade. Primary enrollment in LDCs improve significantly. Although the landlocked developing countries and SIDS are making some progress towards the attainment of the Millennium Development Goals, there is	Address the special needs of Africa, LDCs, LLDCs and SIDSs. Goals/	Range of targets	Continued challenges faced by the poorest and most vulnerable countries.	?

Key thematic areas identified by Member States	Selected international reports and assessments	General comments about the past trends and current status	Goals or Commitments	Time-frame of targets	Dynamics-as-usual (Trend) Pathway from 2010 to 2050	Potential future goals/ targets (from various sources)
countries (Istanbul Programme of Action; Rio+20)	*LLDCs and SIDS*. ADB: *African Development Reports*	growing evidence that the group will not achieve many of the Goals by 2015. And the middle-income countries continue to face significant development challenges. The nature of these challenges varies substantially within this heterogeneous group, but all of these countries face an agenda that calls for continued partnership with the international development community.	commitments on mid-income countries are still unclear			
14. Human rights, the right to development and global governance (Rio+20)	UNDP *Human Development Reports;* World Bank: *World Development Reports*	Differences in life chances and basic opportunities across nationality, race, gender, and social groups have been increased over time.	Respect, protect and promote human rights and fundamen-tal freedom for all	Range of targets	Human rights regime may face additional pressure due to conflicts arising from global competition for natural resources	Implement existing human rights commitments
15. Equality (MDGs)	*Human Development Reports* UNWomen *Progress of the World's Women* UN *Millennium Development Goals Reports*	There has been important progress on some of the MDGs with impressive gains in education, and poverty reductions and child mortality. However, world inequality, by many measures, is high and rising within and among countries. And there is lack of equity in the gains from growth.	Promote gender equality and empower women	Gender parity in primary school enrolment; women's share of paid employment etc. by **2015**	Significantly increased within country inequality. Increasing gap between the poorest and richest countries.	Sustained increase in intergenerational earnings and educational mobility.
16. Energy (Rio+20 Outcome Document)	*Global Tracking Framework Report* IIASA *Global Energy Assessment* IEA *World Energy Outlooks;* IPCC Working Group III Reports	Some 2.4 billion people have no access to modern energy services. The challenge lies in finding ways to reconcile this necessity and demand for energy with its impact on the natural resource base in order to ensure that sustainable development goals are realized. Financial commitments are needed to support the scaling-up.	Make sustainable energy for all a reality	(Informal) sustainable energy for all targets	Primary energy use increases by 80%. Mix remains fairly stable: fossil fuels (85%), modern renewable sources (10%), nuclear (5%). Energy intensity improvements outstripped by energy demand.	By 2030, ensure universal access to modern energy servi-ces; double the global rate of improvement in energy efficiency; and double the share of renewable energy in the global energy mix.
17. Sustainable cities, transport. (MDGs and beyond)	UN-HABITAT: *Global Reports on Human Settlemen*t IEA: *World Energy Outlook* – BLUE Shift	There is a general trend in increases in congestions and pollution, as well as lack of essential services in public transport, health, and education in both urban and rural areas. More often, the global assessments have a focus on economic analysis. The following aspects of information related to transport are inadequate: social, poverty, gender, equal access, land use, and rural-urban linkages.	Improve the lives of slum-dwellers	Achieve, by **2020**, a significant improvement in the lives of at least 100 million slum dwellers	Urbanization reaches 70% (+2.8 billion people in urban areas, -0.6 billion in rural areas).	Reduce the number of slum dwellers to close to 0 by 2050.
18. Climate Change and Disaster Risk Reduction (Copenhagen Accord)	*IPCC Assessment Reports* UNFCCC Independent Reports UNEP: *Emission Gap Reports* World Bank: *Turn Down the Heat Reports* UNISDR *Global Assessment Reports*	Since approximately 1850, global use of fossil fuels has increased to domestic energy supply, leading to a rapid growth in greenhouse gas emissions. Emissions continue to grow and carbon dioxide concentration had increased to over 400 ppm, or 39% above pre-industrial levels, by the end of 2010. Intensive disaster risk is disproportionally concentrated in lower-income countries with weak governance.	Hold global mean temperature increase below 2^{o}C .	By **2050** or longer term based on scientific evidence	Atmospheric GHG concentrations reach 685 ppmv (CO2-equ.), (eventually leading to 3-6 degree Celsius warming).	Keep atmospheric GHG concentration below 450 ppm CO2-eq. from 2010 to 2100.
19. Conflict prevention, post-conflict peace-building	*Human Security Report*	The global level of fragility declined worldwide by some 20 percent between 1995 and 2010 according to the State Fragility Index. The deadliness of warfare has declined over the last 50 to 60 years, and there are now significantly fewer armed conflicts around the world than during the peak of the early 1990s. The average number of high-intensity conflicts per year dropped by half from the 1980s to the new millennium.	Maintain international peace and security – UN Charter	Maintain international peace and security	Continued, significant number of State-based armed conflicts. Conti-nued reduction in the number of deaths from non-State armed con-flicts. Possibly more frequent and ever more intense conflicts in the long-run.	Ensure international peace and security