

Sustainable Development, Our Common Future 28 years later.

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The term sustainable development is a concept that gained traction starting with the World Commission on Environment and Development (WCED) report titled "Our Common Future" (Brundtland Report), issued in 1987 by the United Nations.¹ The report defined sustainable development (SD) as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."² Sustainable development has also been defined in terms of three key interrelated spheres of: economic (economy), environmental (ecological) and social (equity).³ Since this time there have been many efforts to reconcile and evolve sustainable development with Millennium Development Goals (MDG) through to the recent Sustainable Development Goals (SDG)

Figure1: Defining Sustainable Development⁴



adopted in September 2015. The post development SDGs are intended to be achieved by 2030. In the interim periods there have been many initiatives that have been discussed, dissected, and delivered as a way forward to push the global sustainability agenda -see Appendix B: Sustainable Development Activity Timeline.

Our Common Future served as the emergence of the environment as an important piece of international governance and the interrelatedness with economic and equity questions.⁵ Critics have argued that there are contradictions within Our Common Future when calling for economic growth in developing countries, environmental conservation, and tension between

¹ Chris Sneddon, Richard B. Howarth, Richard B. Norgaard. "Sustainable development in a post-Brundtland world." In *Ecological Economics*, Volume 57, Issue 2, (May 2006): 253-268. <http://dx.doi.org/10.1016/j.ecolecon.2005.04.013>.

² World Commission on Environment and Development. *Our common future*. Oxford; New York: Oxford University Press, 1989. 16.

³ *Ibid*, 16

⁴ Indiana University Bloomington, Office of Sustainability, <http://sustain.indiana.edu/overview/sustainability.php>.

⁵ Sneddon, 255.

industry, consumption, and the environment.⁶ There have been challenges to the focus on Gross Domestic Product (GDP) as a measure of growth based on production at the expense of other measures.⁷ There are many definitions and interpretations of what all this means. One definition of sustainable development that may clarify the conversation is distinguishing between what is to be sustained and what is to be developed, see Appendix A: Defining Sustainable Development.⁸ The ongoing challenges of defining and measuring sustainability have been the topic of much debate. This debate can impact operational execution on the ground; sustainable development means different things to different people. How can a common agenda be achieved when there is uncertainty, and whose agenda it may be?⁹ This might suggest that a change in the understanding of development and the global system is required to frame the platform that sustainable development goals must meet to sustain where we are, where we are going and where we need to go.

So, what has changed since the initial Bruntland Report in 1987 to the SDGs of 2015? This paper will discuss three key areas: the global environment, the global population and poverty, and economics and measurements, which are interconnected and will impact sustainable development goals. The paper proposes that a reconvened global development community needs to find a way to radically collaborate to reframe the discussion on sustainable development from one of a specific number of goals and economic measures to a more focused and streamlined approach based on human measures centred on population, poverty, and inequality. The discussion on these key elements of sustainable development has been lost or

⁶ Sneddon., 254.

⁷ Roefie Hueting. "The Bruntland report: A matter of conflicting goals." *Ecological Economics*, 1990, Vol.2(2), 109. doi: 10.1016/0921-8009(90)90002-C. 109.

⁸ Sustainable Development. <http://www.sustainabledevelopmentinfo.com/the-definition-of-sustainable-development/>

⁹ Mark A. White. "Sustainability: I know it when I see it". *Ecological Economics*, 2013, Vol.86, pp.213-217 doi:10.1016/j.ecolecon.2012.12.020 213.

overshadowed in the economic framework of production and consumption and measures such as Gross Domestic Product (GDP). Managing the population and poverty has a trickle-down benefit in sustainable development. The discussion on tackling sustainable development worldwide is broad and deep. This paper will not cover that debate in depth or do justice to the entire conversation; instead, it will focus on a high-level discussion of key elements of that ongoing discussion. Rist suggests that the discourse of development has the power to seduce, fascinate, deceive, and abuse the truth.¹⁰ This paper is written from a point of fascination.

What have we achieved from a Common Future to MDSs to SDGs?

The Brundtland Report describes three mutually dependent, interrelated areas of sustainability: economy, environment, and society. A change in any one area will disturb the other two. Thus, their effects overlap. Refer to Figure 1: Defining Sustainable Development. For example, economic growth requires non-renewable natural resources and produces harmful environmental and social well-being emissions.¹¹ A central contribution of the Brundtland Report was tying human development and actions to the environment, suggesting many critical survival issues related to uneven development, poverty and population growth.¹² The vision and belief was that "people can build a more prosperous, more just and more secure future."¹³ The call for achieving sustainable development has been gaining more traction with such work as the Rio+20 conference in June 2012, leading into the MDG Summit in September 2013.

From the Rio+20 conference, the Future We Want outcome document renewed the commitment of the world's nations to:

¹⁰ Rist, Gilbert. *The history of Development: from Western origins to global faith 3rd ed.* New York: Zed Books, 2008, 1.

¹¹ World Commission on Environment and Development., 2 - 22.

¹² World Commission on Environment and Development., xii.

¹³ World Commission on Environment and Development., 1.

- Sustainable development and ensuring the promotion of an economically, socially, and environmentally viable future for our planet and present and future generations.
- Eradicating poverty is the greatest global challenge and indispensable for sustainable development.
- Integrating economic, social, and environmental and recognizing their connections.
- There is a need to change unsustainable consumption and production patterns and protect and manage the natural resource base.
- A people-centred world that is just, equitable and inclusive.¹⁴

The MDGs were a global mobilization to achieve important social priorities worldwide around poverty, hunger, disease, schooling, gender inequality, and environmental degradation, establishing measurable and time-bound objectives.¹⁵ The MDGs were a set of eight goals (8), eighteen targets (18), and forty-eight (48) indicators that aimed to eradicate poverty, achieve universal primary education, reduce child mortality, improve maternal health, promote gender equality and empower women, combat diseases, ensure environmental sustainability, and develop a global partnership for development which had an achievement deadline of 2015.¹⁶ A new development agenda for the post-2015 period is being carried forward under the SDGs that continue the work and unfinished business from the Brundtland Report to the MDGs. The United Nations developed a comprehensive agenda, introducing seventeen (17) SDGs for achievement by 2030. At present, the SDGs are accompanied by one hundred sixty-nine (169) targets¹⁷, see Appendix C: MDG; SGD Goal Overview. The MDGs were targets for developing and less developed countries, which developed countries were to add their support and assistance, where SDGs challenge all countries, not just what the rich should do for the poor.¹⁸

¹⁴ United Nations Sustainable Development Knowledge Platform. <https://sustainabledevelopment.un.org/futurewewant.html>

¹⁵ Jeffery Sachs, From Millennium Development Goals to Sustainable Development Goals." *The Lancet*, Vol. 379 (June 9, 2012). <http://jeffsachs.org/wp-content/uploads/2012/06/From-MDGs-to-SDGs-Lancet-June-2012.pdf>

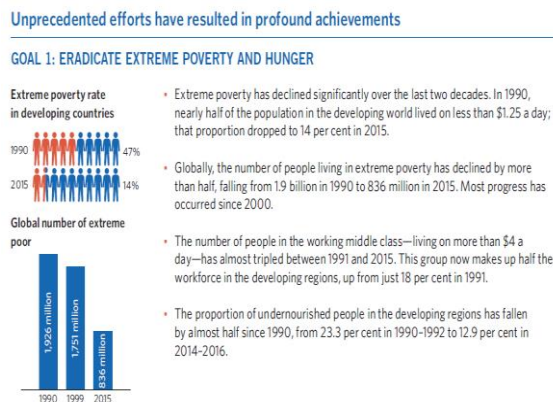
¹⁶ United Nations Department of Economic and Social Affairs, *Millennium Development Goals Report 2015*. [http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20\(July%202015\).pdf](http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20(July%202015).pdf).

¹⁷ United Nations Development Program, *Sustainable Development Goals 2030*. http://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs_Booklet_Web_En.pdf

¹⁸ Sachs.

What has been achieved since Brundtland through to the MDGs as we head into the post-development era? There are questions about what has been achieved through the key milestones and whether they have made a difference. In some views, there needs to be more progress in achieving sustainable results and operationalizing them in practice.¹⁹ Economist and sustainability author Herman Daly noted that the lack of a precise definition of sustainable development is not all bad, as it has allowed a consensus to evolve supporting the idea of sustainability. However, it has been a quarter-century since the Brundtland definition first appeared, and we have yet to reach a shared agreement on its meaning and applicability.²⁰

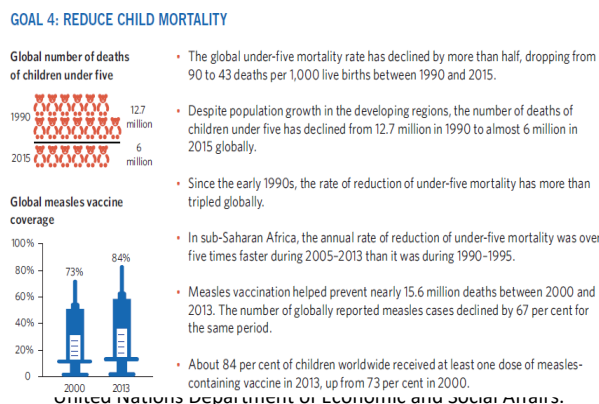
Figure 2: Goal 1 Poverty & Hunger Results²¹



Some headway has been made in relation to poverty reduction and child school enrollment, but there has been little alleviation of hunger and malnutrition, maternal mortality, and infant-child death rates (which have declined by around one

sixth in poorer countries) well short of the two-thirds reduction target, predictably, progress toward the goals has varied between regions and countries.²²

Figure 3: Goal 4 Child Mortality Reductions²³



While this shows some progress from the MDGs, it's evident we've some way to go before transformative issues are securely included in the post-2015 agenda - see Appendix D: MDG Goal Achievement Charts.

So, progress has been slow at best and non-existent in some areas, and there still needs to be a joint agreement on precisely what sustainable development means and its application in a changing global environment.

The Global Environment Today

A new global reality is forcing international development practice and theory to adapt, and changes in the global environment often hold back local initiatives.²⁴ The world is continually in transition, and Swilling suggests the key challenges impacting the global community that will confront sustainable development are:

1. degradation of eco-systems that support human life,
2. climate change,
3. peak oil,
4. inequality,
5. urbanization and informal settlements,
6. food insecurity,
7. material flows.²⁵

Global economic crisis and conflict have had lasting impacts on sustainable development and how to consider development in all areas of the world over and above the debate on how to define development. It has been suggested that one of the assumptions of Our Common Future was that of a stable global environment that did not anticipate the degree of changing populations and cultural and political global platforms.²⁶ A steady state economy is an economy with stable or mildly fluctuating size, typically referring to a national economy. Still, it can also be applied to a local, regional, or global economy; to be a steady state, an economy cannot exceed ecological limits.²⁷ A steady state economy, therefore, aims for stable or gently

²⁴ Betty Plewes, Gauri Sreenivasan and Tim Draimin. " Sustainable Human Development as a Global Framework." *International Journal*, Vol. 51, No. 2, The New Development Debate (Spring, 1996),211. <http://www.jstor.org/stable/40203781>

²⁵ Mark Swilling. "So what is so unsustainable about the global economy?." *Continuing Medical Education*,30.3. 2012: 68-71.

²⁶ Sneddon, 254.

²⁷ Centre for the Advancement of the Steady State Economy. <http://steadystate.org/discover/definition/>

fluctuating levels in population, consumption and energy and materials. Since Our Common Future was written, much has changed in the global environment that could not have been anticipated. As societies, cultures and economies become more interconnected against the background of issues like climate change, armed conflicts, freshwater deficits, and food supply that were only on the horizon in 1987 and now have moved to the forefront today, creating threats to economic, environmental, and social systems, moving us away from the definition of a stable economy to one in constant and sometimes dramatic flux.²⁸

The tension between environmentalists looking for global positions on protecting resources and industry looking for more access to those resources seems like irreconcilable differences.²⁹ The Brundtland Report would propose that sustainable development is essentially about distributional justice in both time and space and that interdependence is no longer a local phenomenon.³⁰ This means that the distributions of well-being between the present and future generations and differences in well-being between countries are vital parameters. Even as the Brundtland Report was being written, there were global events such as the African drought, pesticide leaks from factories in India, Chernobyl nuclear reactor explosions, and over 60 million deaths attributed to unsafe drinking water.³¹ Today, we are facing many similar types of crises, such as the Greek debt crisis, the migrant crisis in Europe, the Paris terrorist attack, earthquakes, and many more examples that impact the global environment. See Appendix E: Overview of Key World Events 2014 - 2105. The general notion of intergenerational equity as an appropriate policy goal has persisted to this day³²

²⁸ McMichael.

²⁹ Meister and Japp.

³⁰ World Commission on Environment and Development., 47.

³¹ World Commission on Environment and Development., 3.

³² White., 214

Economics and Measurements

The belief that economic growth can and must run hand in hand with ecological integrity was first articulated in *Our Common Future*, which provides a philosophical framework for policy concerning economic growth.³³ Post-Second World War development practitioners assumed that economic growth in developing countries was all that was required to eliminate poverty and that the benefits of a growing economy would trickle down, creating opportunities for people experiencing poverty to lead whole and productive lives; however, despite impressive growth rates in gross national product (GNP) and significant urban industrialization in developing countries in the 1960s, poverty persisted.³⁴ This belief includes the widespread belief that the increase in GNP is the only way, both as a goal in itself and as a means, to solve the problem of poverty and that an increase in GNP will also solve the environmental problem as it creates room for financing the conservation and restoration of the environment. Rist notes that this development is at the core of a Western approach where there is a belief that economic growth should be able to continue indefinitely, which sets up a global division greater than that in history.³⁵ The top priority given to the increase in national income in all countries reflects this belief. This GNP frame masks the conflict between the increased production measured in GNP and protecting our environment.³⁶ Global economic growth per person led by developing economies and a growing population reached 7 billion last year combined to put unparalleled stress on the earth's ecosystems.³⁷ Growth has bypassed whole geographies of the world economy, especially in sub-Saharan Africa. At the same time,

³³ George Lodge. *Our Common Future?* *Harvard Business Review*, May/June 1990, Vol.68(3), 221.

³⁴ Plewes, Sreenivasan and Draimin.

³⁵ Rist., 254.

³⁶ Huetting., 110.

³⁷ Sachs.

those countries of the South have seen substantial growth and appear to be repeating many of the mistakes associated with industrialization in the North; China has become both the world's largest exporter of consumer goods and producer of greenhouse gases.³⁸ Growing economic interdependence and a widening equity gap create an unclear future for global cooperation. The gap between haves and have-nots is increasing, and instead of joint solutions, many nations are prioritizing national, short-term, profit-driven actions.³⁹ The challenge is moving away from materialistic measures, such as GNP, to more human measures in development work, which will challenge our human nature driven by consumption. Can we reframe the discussion to emphasize the immediate needs and benefits of survival? Perhaps a balance lies in our competitive natures and a search for systems that don't rely on non-renewable resources or invent the most efficient technology to eliminate harmful automobile emissions.⁴⁰ Development, in an economic framework, focuses on delivering an oversupply of goods for consumption that paradoxically creates inequality.⁴¹ Traditional measures of economic performance, gross domestic product and household income capture only a small part of what determines human well-being.⁴²

The Global Population, Poverty and Equality

Since 2000, when the MDGs and most of the international agreements were

³⁸ Ray Tomalty. "An enduring legacy: our Common Future is as salient today as it was 20 years ago." *Alternatives Journal* 34.1 (2008): 35. *Canadian Periodicals Index Quarterly*.
<http://go.galegroup.com/ps/i.do?id=GALE%7CA173407274&v=2.1&u=wate34930&it=r&p=&sw=w&asid=0904eebeca4124b0955574db8830d813>

³⁹ Worldbank.org. <http://www.worldbank.org/>

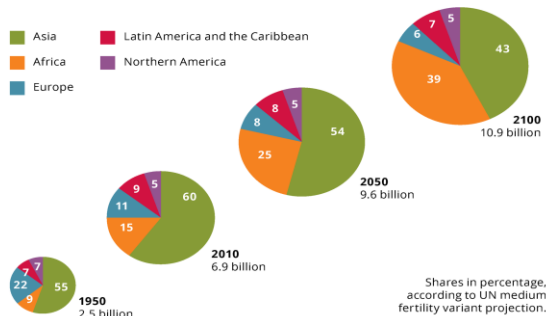
⁴⁰ Karen L. Higgins Economic growth and sustainability – are they mutually exclusive? Striking a balance between unbounded economic growth and sustainability requires a new mindset. May 2013. <https://www.elsevier.com/connect/economic-growth-and-sustainability-are-they-mutually-exclusive>

⁴¹ Rist., 255

⁴² Sachs.

established, there have been many emerging issues around population changes and the subsequent implications around such areas as poverty and inequality. Population trends today are defined by an increasing divergence across countries, where many poorer countries continue to see rapid population growth, while others that are more developed in their demographic transition are experiencing population declines and aging. Additionally, the world is experiencing increasing migration patterns between and within countries. Urbanization will rise as rural populations rapidly decline - see Appendix E: Population Trends.

Figure 4: Global Population Projections⁴³



The world population is estimated to be

7 billion people today and will be close to 10 billion people by the year 2050 with approximately 80% of that population living in Asia and Africa, considered developing or least developed areas. These population trends will

The Brundtland Report recognized that the population have an impact on future development.

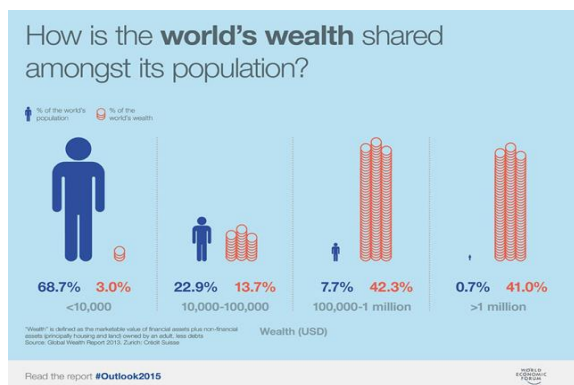
environmental resources cannot sustain beyond any reasonable expectation of improvements in health care, food and energy supplies; it is not just numbers but how they relate to resources and this was based on a stable population estimate of only 6 billion people.⁴⁴ With this statement from the Brundtland Report, we can conclude that the global environment has moved beyond mild fluxes as defined in a steady state to a full-blown crisis on the sustainable development front. The challenge remains how to solve the increasing needs and expectations of growing populations and the related issues of poverty and inequality while at the same time

⁴³ European Environment Agency. http://www.eea.europa.eu/data-and-maps/indicators#c5=&c0=10&b_start=0

⁴⁴ World Commission on Environment and Development., 11.

managing current production and consumption patterns to achieve a more sustainable development framework, recognizing the critical link between sustainable development and population change. While progress has been recognized on the poverty front, this is a temporary relief based on the estimated growth trends in developing and least-developed countries. Can the global community address all related issues if we can begin more focused conversations on population trends? An example of a related issue is the distribution of global wealth that creates inequality across the globe and the tension it creates between already developed countries who have used resources to achieve their current state and the pressure on developing and less developed countries to contribute to global sustainability initiatives as they strive for a level of wealth which requires the same resources already depleted by developed countries. Using UN data, the Ecological Footprint Sustainability Measure calculated that if everyone lived like an average person in high-income and developed countries, an additional 2.6 planets would be needed to support us all.⁴⁵ Again, the Brundtland Report had a call to action for all nations to play a role in reversing the trends and righting the economic systems to reduce inequality and poverty globally; the duty lies with no single group.⁴⁶

Figure 5: Global Distribution of Wealth⁴⁷



We are now able to measure rising inequality more effectively. The world's poorest 68% share in only 3% of the wealth while approximately 8.4% have over 83% of the world wealth.

⁴⁵ Tomalty.

⁴⁶ World Commission on Environment and Development., 22.

⁴⁷ Pew Research Center. <http://www.pewresearch.org/fact-tank/2014/11/08/with-41-of-global-wealth-in-the-hands-of-less-than-1-elites-and-citizens-agree-inequality-is-a-top-priority/>

Why is this discussion on population trends, poverty, and inequality essential for sustainable development? Population growth, in particular, places increasing pressure on the planet's resources, contributing to challenging environmental sustainability. However, population dynamics are themselves affected by social, economic, and environmental changes. The Brundtland Report calls out that poverty is a significant cause and effect of global environmental problems, suggesting that it is futile to deal with environmental problems without a perspective that includes consideration of world poverty and international inequality.⁴⁸ If this was so obvious in 1987, where and or when did the conversation stop on these critical issues driving sustainable development? Population, poverty, and inequality are connected to virtually all development objectives on top of development agendas. They affect consumption, production, employment, income distribution, poverty and social protections, health, education, housing, sanitation, water, food, and energy.⁴⁹ These dimensions pose challenges and provide opportunities for more sustainable development; for example, urbanization can enable lower-cost service delivery in a concentrated population area. A new term, Anthropocene, has been introduced into sustainability language to signify the human-driven age of the planet, the notion that human activity is approaching crucial global ecosystem functions past a dangerous threshold, beyond which the earth might well encounter potentially devastating outcomes for human wellbeing and life generally.⁵⁰

⁴⁸ World Commission on Environment and Development., 3.

⁴⁹ United Nations Population Information Network, UN Population Division, Department of Economic and Social Affairs
<http://www.un.org/popin/icpd/infokit/infokit.eng/6interre.html>

⁵⁰ Sachs.

Conclusion

Sustainability remains an elusive concept. It means different things to different people and is difficult to define. However, it provides a starting point for conversation between people from different disciplines, occupations, and interests. Focuses on ambiguity in language supports both stability and change and can reinforce opposite goals.⁵¹ If sustainability is anything, it is a vision of the future, and it is hoped that this discussion might help achieve a shared vision. However, this should be less about the specific number of goals; there is no 'right number' we should aim for, and these discussions are arbitrary. Some might argue that what gets measured gets done from a typical business frame. However, one needs to ask whether we are measuring the right things. The more we seek to 'streamline' the number of goals in the post-2015 framework, the more likely we will advocate for the challenging and meaningful issues. Rist points out that we could imagine a more modest path focusing on the most urgent things first: poverty reduction.⁵² It is often suggested in business practices that most people can't remember more than three priorities; how will a post-development agenda with 17 goals and 169 targets become meaningful? We should discuss content before discussing several goals supported by the right frames. The shift to an Anthropocene frame focused on humans, communities, and people indicates an association with meeting and improving the needs of future generations⁵³. In this view, The Brundtland Report's original concern for intergenerational equity is alive and well. Government, practitioners, and academics must embrace multiple approaches, perspectives, and interpretations within an ever-changing

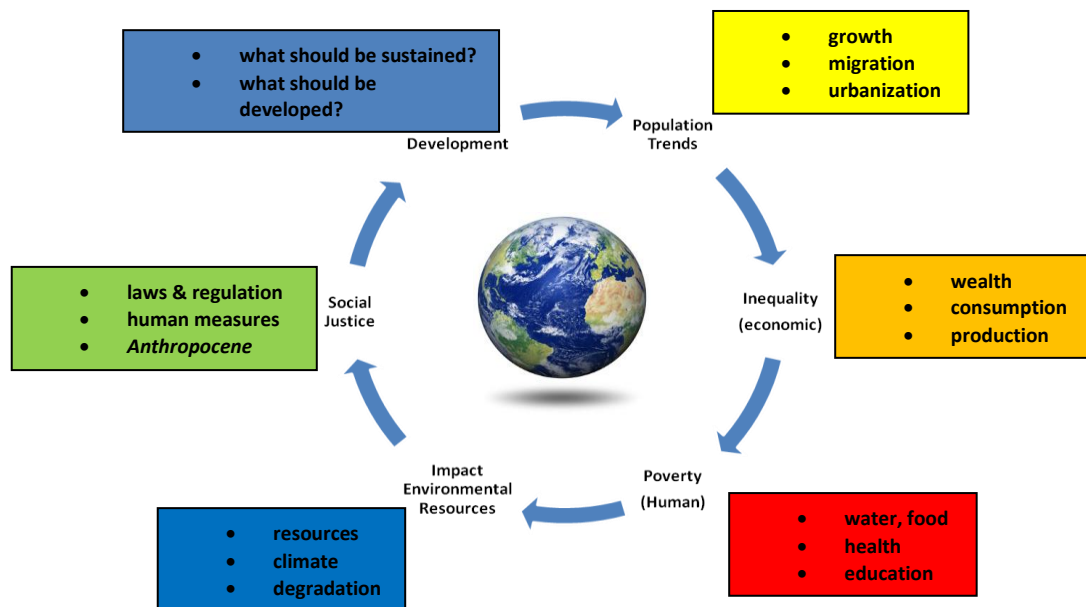
⁵¹ Meister and Japp., 404

⁵² Rist., 226.

⁵³ Sachs.

development concept.⁵⁴ To conceptualize this discussion, a view of sustainable development that becomes a circular reinforcing loop might help create a path to make meaningful gains in a post-development agenda, starting with a humanistic view of building development plans.

Figure 6: A conceptualization of a sustainable development loop



Finally, sustainability is life, and vice versa.⁵⁵ Lafferty has suggested we shift from communities with historical-geographical domains to a global community living within its ecological domains, taking a holistic approach to integrated decision-making and practical actions.⁵⁶ There is much left out of the discussion: the role of the state, the cost of the approaches, the role of civil society and institutions, and the role of technology and global governance that would need to be included to focus on promoting sustainable development

⁵⁴ Sneddon, 255.

⁵⁵ Mark White, 215

⁵⁶ William M. Lafferty. Democracy, "Good Governance" and (Sustainable) Development, The Challenge of Matching Governing Form to Developmental Function. Programme for Research and Documentation for a Sustainable Society, Centre for Development, and the Environment (SUM), University of Oslo. Lecture SUM 4000, Spring semester, 8 February 2007.

http://www.uio.no/studier/emner/annet/sum/SUM3000/v06/lafferty_sum3000_020306.ppt

through a balanced and focused integration of economic, social and environmental dimensions that is not beholden to only economic agendas.⁵⁷

⁵⁷ Plewes, Sreenivasan and Draimin.

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http://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs_Booklet_Web_En.pdf

United Nations Population Information Network, UN Population Division, Department of
Economic and Social Affairs

<http://www.un.org/popin/icpd/infokit/infokit.eng/6interre.html>

United Nations Sustainable Development Knowledge Platform.

<https://sustainabledevelopment.un.org/futurewewant.html>

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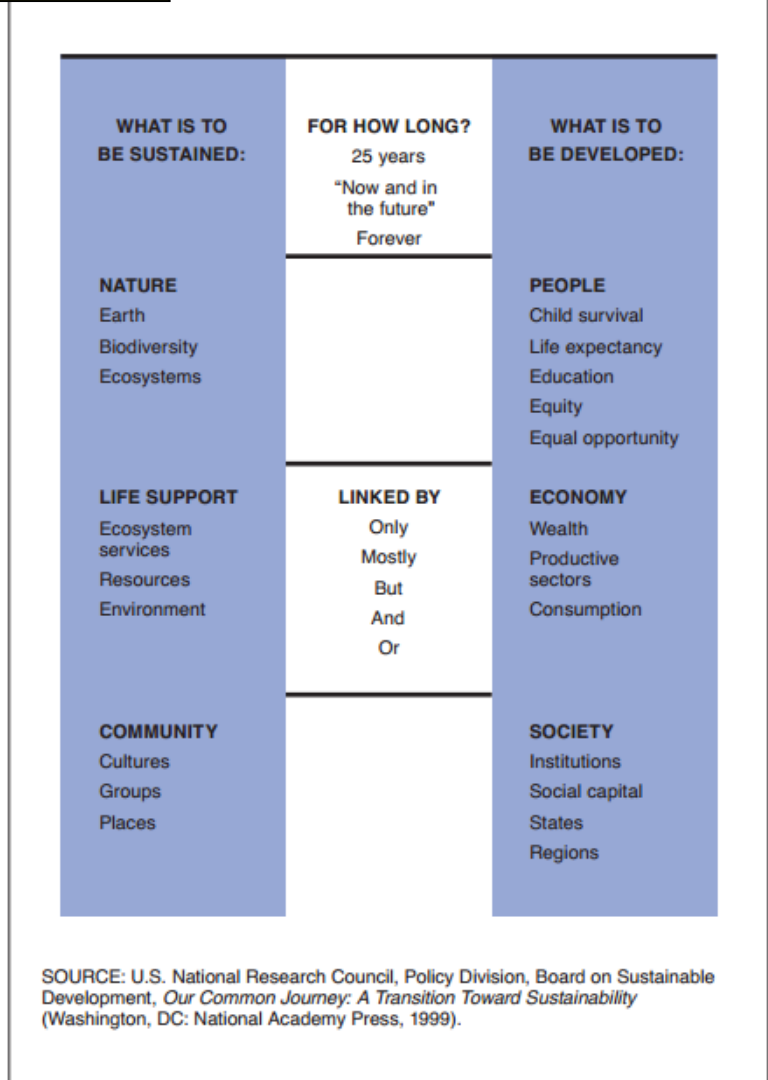
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World Commission on Environment and Development. Our common future. Oxford; New York: Oxford University Press, 1989

Appendix A: Defining Sustainable Development⁵⁸

A definition of sustainable development that distinguishes between *what it so be sustained* and *what is to be developed*.

Definitions of sustainable development



⁵⁸ Sustainable Development. <http://www.sustainabledevelopmentinfo.com/the-definition-of-sustainable-development/>

Appendix B: Sustainable Development Activities 1984 - 2012⁵⁹

1984 Bhopal toxic chemical leak leaves 10,000 dead and 300,000 injured in Bhopal, India. www.bhopal.net

1984 Drought in Ethiopia. Between 250,000 and 1 million people die from starvation.

1984 Third World Network is founded as the activist voice of the South on issues of economics, development, and environment. www.twinside.org.sg

1985 Antarctic ozone hole discovered by British and American scientists.

1985 Responsible Care, an initiative of the Canadian Chemical Producers, provides a code of conduct for chemical producers that has now been adopted in many countries. www.ccpa.ca/ResponsibleCareHome.aspx

1985 Climate Change. Meeting in Austria of the World Meteorological Society, UNEP and the International Council of Scientific Unions reports on the buildup of carbon dioxide and other “greenhouse gases” in the atmosphere. They predict global warming. www.wmo.ch

1986 Chernobyl nuclear station accident generates a massive toxic radioactive explosion.

1987 OECD Development Advisory Committee creates guidelines for environment and development in bilateral aid policies. www.oecd.org/dac

1987 Montreal Protocol on Substances that Deplete the Ozone Layer is adopted. <http://ozone.unep.org>

1987 *Our Common Future* (Brundtland Report), a report of the World Commission on Environment and Development, weaves together social, economic, cultural, and environmental issues and global solutions. It popularizes the term “sustainable development.”

1988, Chico Mendes, a Brazilian rubber tapper fighting the destruction of the Amazon rainforest, is assassinated. Scientists use satellite photos to document what the Amazon fires are doing to the rainforest www.chicomendes.com

1988 Intergovernmental Panel on Climate Change (IPCC) is established to assess the most up-to-date scientific, technical, and socioeconomic research in the field. www.ipcc.ch

1989 Exxon Valdez tanker runs aground, dumping 11 million gallons of oil into Alaska’s Prince William Sound.

www.evostc.state.ak.us

1989 Stockholm Environment Institute is established as an independent institute for carrying out global and regional environmental research. www.sei.se

1990 International Institute for Sustainable Development (IISD) is established in Canada and begins publishing the *Earth Negotiations Bulletin* in 1992. www.iisd.org

⁵⁹ The International Institute for Sustainable Development. www.iisd.org

1990 Regional Environmental Centre for Central and Eastern Europe is established to address environmental challenges across the region, with an emphasis on the engagement of business as well as governments and civil society. www.rec.org

1990 UN Summit for Children is held, an important recognition of the impact of the environment on future generations. www.unicef.org/wsc

1991 The Canadian East Coast cod fishery collapses when only 2,700 tonnes of spawning biomass are left after a harvest of 190,000 tonnes.

1991 Hundreds of oil fires burn in Kuwait for months following the Persian Gulf War.

1991 Global Environment Facility is established, and in 1994, restructured to give more decision-making power to developing countries over billions of aid dollars for work on biodiversity, climate change, water, land degradation and pollutants. www.gefweb.org

1992 The Business Council for Sustainable Development publishes *Changing Course*, establishing the business interest in promoting sustainable development. www.wbcsd.org

1992 Earth Summit. UN Conference on Environment and Development (UNCED) is held in Rio de Janeiro. Agreements are reached on the action plan Agenda 21, the Rio Declaration, and the non-binding Forest Principles. Two “Rio Conventions” are opened for signature: the Convention on Biological Diversity and the Framework Convention on Climate Change. Negotiations on a third, the Convention to Combat Desertification, are called for.

1993 First meeting of the UN Commission on Sustainable Development, established to ensure follow-up to UNCED, enhance international cooperation and rationalize intergovernmental decision-making capacity. www.un.org/esa/sustdev7

1994 China’s Agenda 21, a white paper on the country’s population, environment, and development, is published. China sets an international example for national strategies for sustainable development.

1995 Execution of Ken Saro-Wiwa in Nigeria brings international attention to the links among human rights, environmental justice, security, and economic growth.

1995 World Trade Organization (WTO) is established, with formal recognition of trade, environment, and development linkages. www.wto.org

1995 World Summit for Social Development is held in Copenhagen. It is the first time the international community has expressed a clear commitment to eradicating absolute poverty. <http://www.un.org/esa/socdev/wssd/text-version/index.html>

1995 Fourth World Conference on Women is held in Beijing. Negotiations recognize that the status of women has advanced, but obstacles remain to the realization of women’s rights as human rights. www.un.org/womenwatch/daw/beijing

1996 ISO 14001 is formally adopted as a voluntary international standard for corporate environmental management. www.iso.org

1997 Asian ecological and financial chaos. Land-clearing fires intensified by El Niño–induced drought result in a haze blanketing the region and cause US\$3 billion in health costs and fire-related damage.

Concurrently, the market crashes, raising questions about currency speculation and the need for government economic reforms.

1998 Controversy over genetically modified (GM) organisms. Global environmental and food security concerns are raised, the European Union blocks imports of GM crops from North America, and farmers in developing countries rebel against “terminator technology,” GM plants whose seeds will not germinate.

1998 Multilateral Agreement on Investment (MAI). Environmental groups and social activists effectively lobby against the MAI. This, along with disagreement by governments over the scope of the exceptions being sought, leads to the demise of the negotiations.

1999 Launch of the Dow Jones Sustainability Indexes. The first of its kind, the tool provides guidance to investors looking for profitable companies that follow sustainable development principles. www.sustainability-index.com

1999 Third WTO Ministerial Conference held in Seattle. Thousands of demonstrators protest the negative effects of globalization and the growth of global corporations. Along with deep conflicts among WTO delegates, they scuttle the negotiations. The first of many anti-globalization protests, they signal a new era of confrontation between disaffected stakeholders and those in power. www.iisd.org/trade/wto/seattleandsd.htm

2000 Miss Waldron’s red colobus monkey is declared extinct, the first extinction in several centuries of a member of the primate order, to which humans belong. According to the *IUCN Red Book*, 11,046 species are now threatened with extinction.

2000 UN Millennium Development Goals. The largest-ever gathering of world leaders agrees to a set of time-bound and measurable goals for combating poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women, to be achieved by 2015. www.un.org/millenniumgoals/

2001 9/11. Terrorists representing anti-Western, non-state interests and ideologies attack the World Trade Center and Pentagon, marking the end of an era of unhindered economic expansion. Stock markets and economies stumble, and the United States gears up for a war on terrorism.

2001 Fourth Ministerial Conference of the WTO, held in Doha, Qatar, recognizes environmental and development concerns in its final declaration. http://www.wto.org/english/thewto_e/minist_e/min01_e/min01_e.htm

2001 China joins the WTO, accelerating national structural economic changes. The accession signals China’s emergence, together with India and Brazil, as major new forces in the global economy.

2002 World Summit on Sustainable Development is held in Johannesburg, marking 10 years since UNCED. In a climate of frustration at the lack of government progress, the summit promotes “partnerships” as a non-negotiated approach to sustainability. www.worldsummit2002.org

2002 Global Reporting Initiative releases guidelines for reporting on the economic, environmental, and social dimensions of business activities. www.globalreporting.org

2004 HIV/AIDS pandemic in sub-Saharan Africa. In 2004 alone, 2.5 million people in the region die of AIDS, and over three million become newly infected. With only 10 per cent of the world’s population, the region is home to more than 60 per cent of all people living with HIV. www.unaids.org

2004 Wangari Muta Maathai is awarded the Nobel Peace Prize. Founder of the Green Belt Movement in Kenya, she is the first environmentalist to be awarded a Nobel Prize. <http://nobelprize.org/peace/laureates/2004>

2004 Delhi mandates the use of compressed natural gas in city buses and auto rickshaws, responding to rising civil society pressure over air pollution.

2005 Kyoto Protocol enters into force, legally binding developed country parties to goals for greenhouse gas emission reductions and establishing the Clean Development Mechanism for developing countries. Emissions reductions obligations expire at the end of 2012.

2005 Millennium Ecosystem Assessment is released. 1,300 experts from 95 countries provide scientific information concerning the consequences of ecosystem change for human well-being. www.millenniumassessment.org

2005 Walmart institutes global sustainability strategy. One of the world's leading retail companies commits to: be supplied 100 per cent by renewable energy; create zero waste; and sell products that sustain people and the environment. The strategy transforms Walmart's global supply chain and sets an example for other multinationals to follow.

2006 Svalbard Global Seed Vault is constructed in Norway to preserve the genetic diversity of the world's food crops for future generations. <http://www.regjeringen.no/en/dep/lmd/campaign/svalbard-global-seed-vault.html?id=462220>

2006 *Stern Review* makes the convincing economic case that the costs of inaction on climate change will be up to 20 times greater than measures required to address the issue today. http://www.hm-treasury.gov.uk/sternreview_index.htm

2007 One of the first Chinese victories for civil society environmental protests. The municipal government of Xiamen suspends construction of a multi-billion-dollar chemical plant after concerted action by local residents, much of which is orchestrated by mobile phones.

2007 Montreal Protocol on Substances that Deplete the Ozone Layer. Parties agree to an accelerated phase-out schedule for hydro chlorofluorocarbons (HCFCs). <http://www.unep.org/ozone/>

2007 Public attention to climate change increases. Former U.S. Vice President Al Gore's documentary, *An Inconvenient Truth*, wins an Academy Award, and the IPCC's alarming forecasts about the planet's health make headlines. The IPCC and Gore share the Nobel Peace Prize. www.ipcc.ch10

2008 World food, fuel and financial crises converge. Global food prices increase 43 per cent in one year; growing energy demand in China, India and elsewhere sends energy prices soaring; financial institutions falter over the collapse of mortgage lending in the United States and markets tumble, sending the world into a recession.

2008 Increasing urbanization. For the first time in history, more than 50 per cent of the world's population lives in towns and cities. www.unfpa.org/pds/urbanization.htm

2008 Green economy ideas enter the mainstream. National governments invest a portion of their economic stimulus in environmental actions, and a low-carbon economy and green growth become new objectives for the future economy. www.oecd.org/dataoecd/58/34/44077822.pdf

2008 Internet economy ideas enter the mainstream. The OECD Ministerial acknowledges the increasingly critical role of the Internet in economies and society; national governments invest a portion of their economic stimulus in broadband and wireless sensor network infrastructure, with South Korea leading the way. www.oecd.org/futureinternet/

2008 Oceans' acidification correlated with increasing levels of atmospheric carbon dioxide. Scientists document that the oceans are growing more acidic at a faster rate than previously thought. Research over eight years leads to an understanding of the serious consequences for global ecosystems. www.pnas.org/content/105/48.toc

2009 Fire and ice headlines. Multiyear sea ice all but disappears from the Arctic Ocean, and the Australian drought that commenced in 2003 leads to the worst wildfires in history.

2009 G20 Pittsburgh Summit: G20 nations provide guidance for a 21st century global, sustainable, and balanced economy. Leaders call for phasing out fossil fuel subsidies, and seek measures that will lead to sustainable consumption, while providing targeted support for the poorest people. <http://www.cfr.org/world/g20-leaders-final-statement-pittsburgh-summit-framework-strong-sustainable-balanced-growth/p20299>

2009 Copenhagen climate negotiations. A crescendo of expectations is dashed as the Conference of the Parties fails to reach an agreement on new GHG emissions reductions commitments beyond 2012 (the end of the Kyoto Protocol time frame). The international environmental community sees this as a watershed moment, with many arguing that the multilateral process is broken. Momentum begins to shift toward national and regional efforts to reduce emissions. www.iisd.ca/climate/cop15

2009 Scientists introduce the concept of “planetary boundaries” in a highly influential article in *Nature*. The concept quantifies our proximity to limits in nine areas, including biodiversity, chemicals, climate change, ocean acidification, and fresh water. www.stockholmresilience.org/research/researchnews/tippingtowardstheunknown/thenineplanetaryboundaries.4.1fe8f33123572b59ab80007039.html 11

2009 Nobel Prize in Economics awarded to Elinor Ostrom for her work on the economic governance of the commons. Ostrom is the first woman to receive the award. www.nobelprize.org/nobel_prizes/economics/laureates/2009/

2009 China overtakes the United States as the world's largest emitter of GHGs but ranks only 78th in per capita emissions. Record increases in GHG emissions globally put emissions on track with the worst-case projections from the Intergovernmental Panel on Climate Change. www.iwrpressedienst.de/iwr/Global-CO2-emissions-2008-renewable-energy-investment-plan.pdf

2010 More severe and erratic weather, as forecast by climate change models. Massive, deadly heat waves in Europe, first observed in 2003, reoccur, killing 55,000 people in western Russia and costing US\$15 billion in damages. The changing patterns of drought and floods are now widespread, including Pakistan, southern China, and other parts of the world.

2010 The rise of wind power. China becomes the world's largest domestic market for wind power, exceeding its target for installed capacity by 320 per cent. While wind power continues to expand at the fastest rate of renewable energy sources, it is still well below targeted levels for installed capacity by 2020 in OECD and emerging economies.

2010 Nations agree to the fair and equitable sharing of benefits arising from the utilization of genetic resources, under the Nagoya Protocol to the Convention on Biological Diversity (CBD); nations also agree to the Cartagena Protocol on Biosafety. www.cbd.int/abs/

2010 The *Economics of Ecosystems and Biodiversity* final report calls for wider recognition of nature's contribution to human livelihoods, health, security, and culture by decision-makers. www.teebweb.org

2010 BP Deepwater Horizon oil rig explosion leaks 5 million barrels of crude oil into the Gulf of Mexico for 87 days before the well is sealed, damaging wildlife habitats, fisheries, tourism, and the economy throughout the region. www.bp.com/sectiongenericarticle800.do?categoryId=9036575&contentId=7067541

2011 The Arab Spring: Starting with Tunisia, people across the Arab region rise up to demand sweeping democratic reforms in a number of countries.

2011 The world population reaches 7 billion and is increasingly interconnected. One third of those have Internet access; 80 per cent have mobile phones. Increasing the population by 1 billion took only 12 years.

2011 Climate change negotiations in Durban. The negotiations' outcome is a step forward in establishing an international agreement beyond Kyoto—one with mitigation commitments from all major emitters, including developed countries and several major developing countries. www.iisd.ca/download/pdf/enb12534e.pdf

2011 Japan earthquake and tsunami. Damage to nuclear power plants leads to global concerns about nuclear power safety and phase out of the plants in Japan.

2011 China begins shift to a “green economy.” China's 12th Five Year Plan for economic development is based on sustainable development goals, including substantial reductions in pollution and carbon and energy intensities. The plan is backed by nearly half a trillion USD in proposed expenditures for environmental protection. www.china-briefing.com/news/2011/04/05/12th-five-year-plan-hailed-as-greenest-fyp-in-chinas-history.html

2012 Trade disputes on solar and wind energy products. China's expanded manufacturing capacity and low prices make it a leader in global trade on wind turbines. The U.S. contests both solar and wind subsidies in China as unfair trade practices. The outcomes of these disputes may influence the future of cleantech energy sourcing and adoption.

2012 One of the first of the Millennium Development Goal targets is achieved, in advance of the 2015 deadline: the percentage of the world's people without access to safe drinking water is cut in half. www.un.org/millenniumgoals/

2012 Rio +20: Fifty years after Silent Spring, 40 years after Stockholm and 20 years after the Earth Summit, the global community reconvenes in an effort to secure agreement on “greening” world economies through a range of smart measures for clean energy, decent jobs, and more sustainable and fair use of resources. <http://www.uncsd2012.org/rio20/>

About IISD

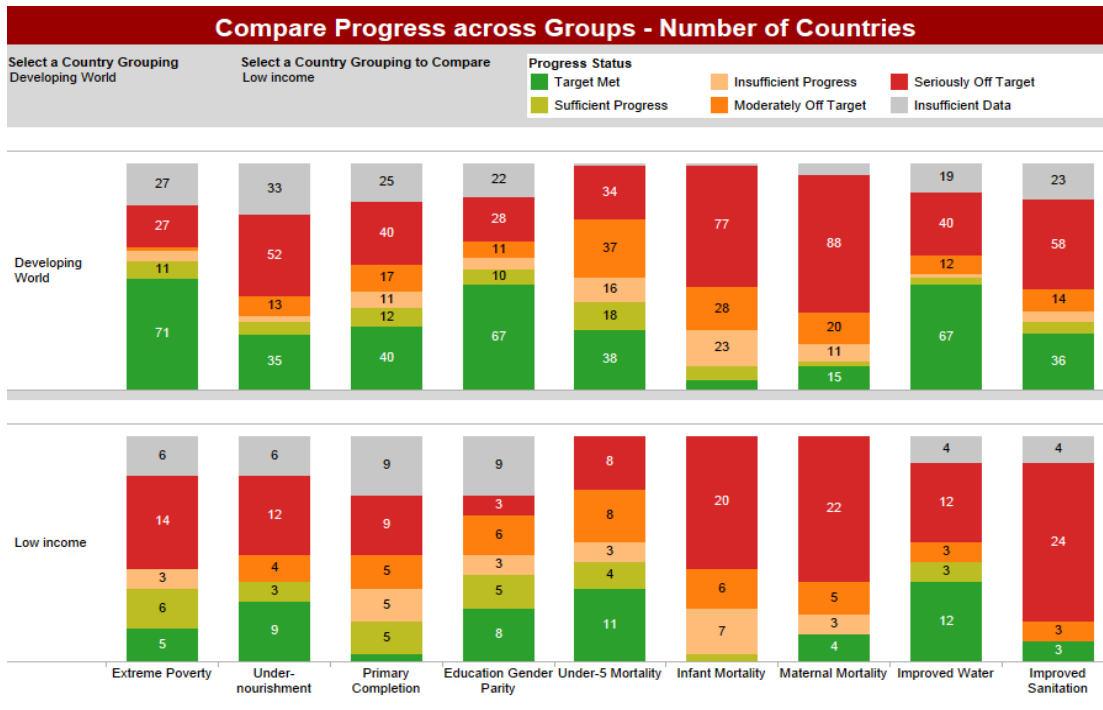
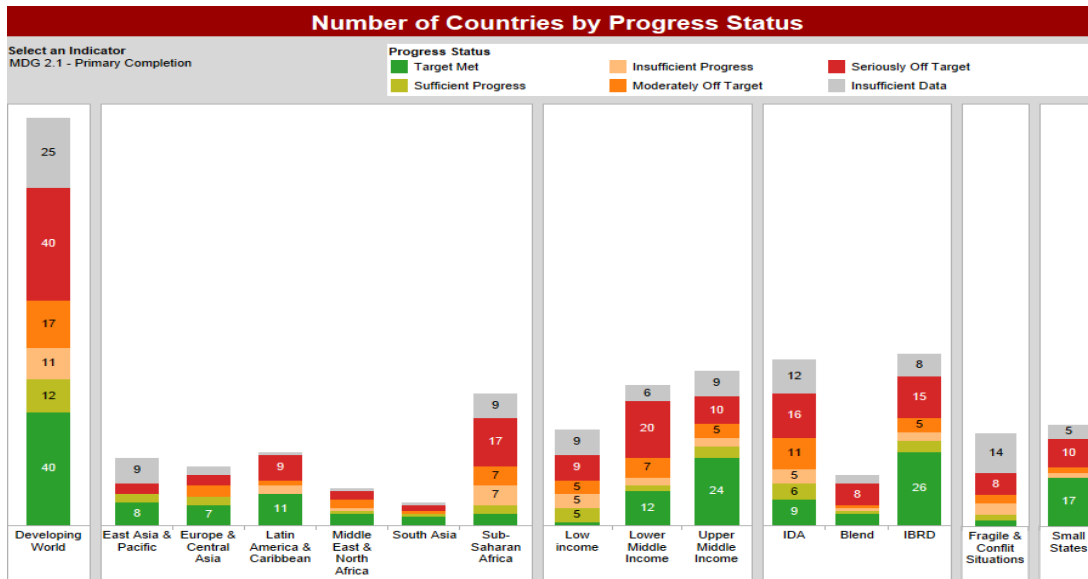
The International Institute for Sustainable Development (IISD) contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change and energy, and management of natural and social capital, as well as the enabling role of communication technologies in these areas. We report on international negotiations and disseminate knowledge gained through collaborative projects, resulting in more rigorous research, capacity building in developing countries, better networks spanning the North and the South, and better global connections among researchers, practitioners, citizens, and policymakers.

Appendix C: MDG; SDG Goal Overview⁶⁰

SDGs (2015-2030) – as suggested by Open Working Group	MDGs (2000-2015)
Goal 1. End poverty in all its forms everywhere	1. To eradicate extreme poverty and hunger <ul style="list-style-type: none"> Target 1A: Halve, between 1990 and 2015, the proportion of people living on less than \$1.25 a day⁶¹ Target 1B: Achieve Decent Employment for Women, Men, and Young People Target 1C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger
Goal 2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	
Goal 3. Ensure healthy lives and promote well-being for all at all ages	4. To reduce child mortality <ul style="list-style-type: none"> Target 4A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate
	5. To improve maternal health <ul style="list-style-type: none"> Target 5A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio Target 5B: Achieve, by 2015, universal access to reproductive health
	6. To combat HIV/AIDS, malaria, and other diseases <ul style="list-style-type: none"> Target 6A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS Target 6B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases
Goal 4. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	2. To achieve universal primary education <ul style="list-style-type: none"> Target 2A: By 2015, all children can complete a full course of primary schooling, girls and boys
Goal 5. Achieve gender equality and empower all women and girls	3. To promote gender equality and empower women <ul style="list-style-type: none"> Target 3A: Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015
Goal 6. Ensure availability and sustainable management of water and sanitation for all	7. To ensure environmental sustainability <ul style="list-style-type: none"> Target 7A: Integrate the principles of sustainable development into country policies and programs; reverse loss of environmental resources
Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all	
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	<ul style="list-style-type: none"> Target 7B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss Target 7C: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation (for more information see the entry on water supply) Target 7D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum-dwellers
Goal 12. Ensure sustainable consumption and production patterns	
Goal 13. Take urgent action to combat climate change and its impacts ³	
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
Goal 10. Reduce inequality within and among countries	
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development	8. To develop a global partnership for development <ul style="list-style-type: none"> Target 8A: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system Target 8B: Address the Special Needs of the Least Developed Countries (LDCs) Target 8C: Address the special needs of landlocked developing countries and small island developing States Target 8D: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term Target 8E: In co-operation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries Target 8F: In co-operation with the private sector, make available the benefits of new technologies, especially information and communications

⁶⁰ Jonathan Glennie, Director of Policy and Research at Save the Children UK. <https://twitter.com/jonathanglennie>

Appendix D: MDG Goal Achievement Charts⁶¹



⁶¹ Worldbank. <http://data.worldbank.org/mdgs?print>

Appendix E: Overview of Key World Events 2014 - 2105⁶²

Major World Events in 2015

- US first rate hike since 2008. (12-17-2015,)
- Climate Change Deal Reached by about 200 Countries. (12-13-2015)
- Paris terrorist attack, hundreds dead. (11-13-2015)
- Russian passenger plane crashed in Sinai. (10-30-2015)
- TPP trade deal reached by 12 pacific rim countries. (10-05-2015)
- Russia intervenes Syria civil war. (10-01-2015)
- Flowing liquid water found on Mars. (09-25-2015)
- Mecca Hajj stampede, hundreds dead. (09-23-2015)
- Volkswagen emission scandal. (09-18-2015)
- Migrant crisis of Europe. (08-30-2015)
- Microsoft introduces Windows 10. (08-20-2015)
- Iran Nuclear Deal Reached. (07-12-2015)
- Greece Vote NO to Bailout Deal. (07-04-2015)
- Earthquake 7.9 Magnitude hits Nepal. (04-24-2015)
- Saudi Arabia leads attack on Houthi rebels in Yemen. (03-21-2015)
- Leftist leader win Greece prime minister election. (01-24-2015)
- Charlie Hebdo Attack at Paris. (01-07-2015)

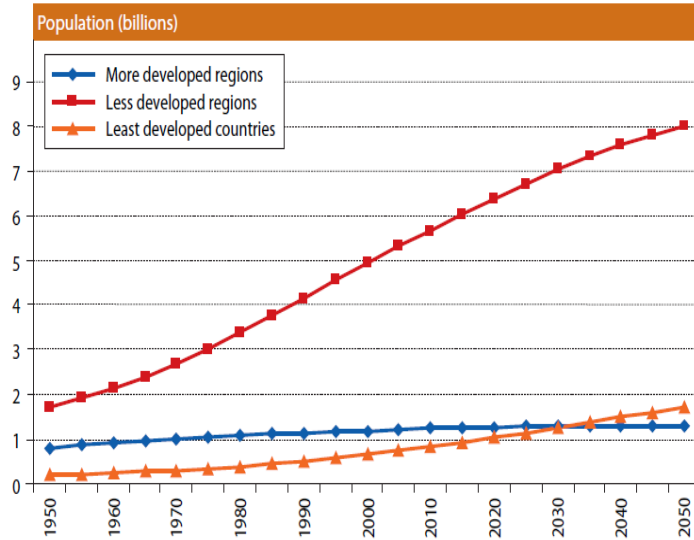
Major World Events in 2014

- US Cuba Relations Breakthrough. (12-18-2014)
- Russia Ruble Tumbles. (12-17-2014)
- World Oil Price Plunges to Historical Low. (11-17-2014)
- European Spacecraft Rosetta Landed on Comet. (11-12-2014)
- Ebola Virus Outbreak. (07-30-2014)
- Airplane with 298 Onboard was Shot Down over Ukraine. (07-17-2014)
- Israel Conflicts with Hamas in Gaza. (07-03-2014)
- ISIS Seized Large Regions. (06-10-2014)
- Turkey Mine Accident, Hundreds Dead. (05-13-2014)
- Nigerian School Girls Abduction. (04-29-2014)
- South Korea Ferry Sinks, Hundreds Missing. (04-16-2014)
- Malaysia Airplane Missing with Over 200 Passengers Onboard. (03-05-2014)
- Facebook Buys WhatsApp for 19 Billion US Dollars. (02-19-2014)
- Ukraine Crisis. (02-18-2014)
- Sochi Winter Olympics. (01-06-2014)
- Record Cold Weather Roars Across US. (01-05-2014)

⁶² Endmemo.com. <http://www.endmemo.com/events/>

Appendix F: Global Population Trends⁶³

Projected population by development region, medium variant, 1950-2050

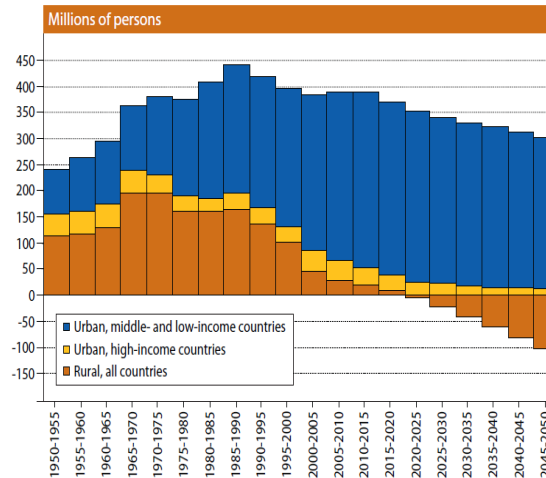


- By 2050 the population of the world is estimated to be over 10 billion people
- The less and least developed countries are expected to have the greatest growth.
- Developed countries are expected to see a decline in growth.

- By 2050 the population of the world is estimated to be heavily urban in low - middle income countries
- The Rural populations will experience a major decline.

Division, UN/DESA

Urban and rural population growth, high-, low- and middle-income countries, 1950-1955 to 2045-2050



⁶³ United Nations Population Information Network, UN Population Division, Department of Economic and Social Affairs