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Pragmatic Considerations for Implementing the United Nations Sustainable Development Goals (SDGs)

Contradictions and Necessities within the
Earth System

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Globalization

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We cannot solve our problems with the same thinking we used
when we created them.

Albert Einstein

Summary

The Millennium Development Goals (MDGs) have influentially focused the international development community around common goals including poverty and hunger eradication, health, education and gender equality, since 2000. Come 2015 and their expiration, such focus has a chance to be maintained and redirected by a new sustainability framework, the Sustainable Development Goals (SDGs), to improve upon MDG limitations, and to incorporate the needs of the Earth System in the global agenda. Responding to increasing climate change and global inequality, the SDGs will play a key role in directing the global system down an equitable and sustainable path. Appropriately, the SDGs plan to implement sustainable development objectives alongside their human development goals. Such framework should incorporate the effects of climate change and need for sustainable development into its tenets, and must strive to help world actors place human development strategies, such as poverty, hunger, education and equality, within the natural Earth System.

According to the literature, poverty eradication should remain the ultimate focus of the SDGs. This study questions such assertion however, and instead prescribes a focus on the systemic nature of global poverty, its core components, and its place within the Earth System, rather than on rich-help-poor development. Additionally, because climate change in the Anthropocene can no longer be ignored, the needs of the natural Earth System must be considered on at least the same level as poverty reduction in the SDGs.

First-hand research experience at the United Nations Conference on Trade and Development (UNCTAD) into the SDG processes and transformational finance possibilities provides the basis for this study's look into pragmatic SDG implementation. Comprehensive text analysis of UN documents covering the MDG and SDG processes, environmental and social theory and sustainable development research, helps to identify the necessary strategies for successful and beneficial SDG implementation. Further incorporating the interacting dimensions of social, economic and environmental systems, improving a global governance partnership, reducing inequalities, and bettering the international financial system are main initiatives for SDG implementation. Combining these considerations, this study proposes an original model for pragmatic SDG implementation within the Earth System.

Recognizing the importance of such model, and supporting its realization for the SDGs, this study also questions whether it is enough. Springing from the legacy of the MDGs, the SDGs must seek to disassociate economic progress from development progress. They must comprehend that the global economic system is the root of poverty and inequality across nations, and that the same very economy is destroying the future of the planet's existence.

Asserting that all such considerations must be integrated fully in the nested conceptualization of the Earth System – economy within society, within Earth's natural systems – this study declares that the SDGs will not be enough to achieve transformational sustainable development. They do however, if implemented pragmatically across economic, social and environmental systems, present an opportunity to take a step in the right direction.

Preface

This thesis is the product of independent research and analysis conducted for the MSc in Globalization: Global Politics and Culture Program at the Norwegian University of Science and Technology (NTNU) in Spring 2014. It is written for and with the supervision of the Department of Industrial Economics and Technology Management (IØT).

Inspiration for the report stemmed from an internship during Fall 2013 at the United Nations Conference on Trade and Development (UNCTAD) in Geneva, Switzerland. Research for a final internship report on the Sustainable Development Goals (SDGs) was prepared in collaboration with work for the Investment Issues Section in the Investment Trends and Issues Branch of the Division on Investment and Enterprise (DIAE) of UNCTAD, and weighs heavily on this study.

The transition from Millennium Development Goals (MDGs) to SDGs provides an opportunity for transformation of the global sustainable development agenda in the face of climate change. Creating the goals is just the first step, however, and questions remain as to how they will be implemented and to what extent they will incorporate the problems of global inequality and climate change in their framework. Answering such questions leads the comprehensive analysis of this study.

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Table of Contents

1	Introduction.....	1
1.1	Background.....	1
1.1.1	Reducing global poverty.....	2
1.1.2	The Millennium Development Goals.....	2
1.1.3	Development in a changing context.....	3
1.1.4	Environmental considerations.....	3
1.1.5	Sustainable development.....	4
1.1.6	The Sustainable Development Goals.....	4
1.2	Purpose.....	5
1.3	Structure and research questions.....	6
2	Methods.....	9
2.1	UNCTAD experience.....	9
2.2	Literature search.....	10
2.3	Critical text analysis.....	10
3	Environmental background and concepts.....	13
3.1	Climate change.....	13
3.1.1	The Intergovernmental Panel on Climate Change.....	13
3.1.2	Climate change: The physical science.....	14
3.1.3	Defining climate change.....	17
3.1.4	Climate change: Adaptation and risks.....	17
3.1.5	Climate change: Mitigation.....	19
3.2	Planetary boundaries.....	20
4	Development background and concepts.....	23
4.1	A global development framework: The MDGs.....	23
4.1.1	Development progress: Reached and distant targets.....	24
4.1.2	Strengths and weaknesses of the MDG framework.....	26
4.1.3	MDG strengths.....	32
4.1.4	MDG weaknesses.....	33
4.1.5	Lessons learned for future frameworks.....	36
4.2	A shift to sustainability.....	36
4.2.1	The business-as-usual scenario.....	37
4.3	A global sustainable development framework: The SDGs.....	38
4.3.1	The Sustainable Development Goals (Rio+20) Process.....	38
4.3.2	The Post-2015 Development Agenda.....	39
4.3.3	Other UN workstreams.....	40
4.3.4	Bringing the processes together.....	40
4.4	The likely SDGs.....	42
4.4.1	Comparison of literature on priority areas for development after 2015.....	42
4.5	Considerations for the SDG framework.....	44
5	Theory.....	49
5.1	Development and environment: Contradictory aims?.....	50
5.2	The Earth System Perspective.....	53
5.2.1	A complex system.....	54
5.3	Defining sustainable development.....	55
5.3.1	Sustainable development from the Earth System Perspective.....	57

5.4	The categorical separation of nature and society.....	59
5.4.1	Theoretical separation.....	61
5.4.2	Historical separation.....	61
5.5	Economic influences.....	61
5.5.1	The meaning of progress.....	62
5.5.2	Economic growth as the ultimate determinant.....	63
5.6	The ethics of a sustainable Earth.....	65
5.6.1	Equity.....	66
5.6.2	Accountability.....	67
6	Analysis.....	73
6.1	Global governance.....	74
6.1.1	Defining global governance.....	74
6.1.2	Global governance as the ‘fourth pillar’.....	75
6.1.3	Transitioning to a flexible and multi-level governance strategy.....	76
6.1.4	Suggestion for implementing a new ‘global partnership’.....	77
6.1.5	Global governance from the Earth System Perspective.....	78
6.1.6	Pragmatic global governance for the SDGs.....	80
6.2	Transforming the globalized economy.....	80
6.2.1	International development finance.....	82
6.2.2	Needs and gaps in development finance.....	85
6.2.3	The role of the private sector.....	88
6.2.4	The green economy.....	91
6.3	Governance, the economy and multi-dimensions in the SDGs.....	94
7	Results and recommendations.....	97
7.1	A model for pragmatic implementation.....	98
7.2	Enough for the Earth?.....	100
7.3	Recommendations.....	100
8	Discussion.....	103
8.1	Critical discussion points.....	103
8.1.1	The Earth System and poverty eradication: Interconnected processes.....	103
8.1.2	A great transition.....	103
8.1.3	Prospective SDG progress.....	104
8.2	Limitations.....	104
9	Conclusion.....	107
10	References.....	109
10.1	Published references.....	109
10.2	Unpublished references.....	112

Appendices

Appendix I: Principles of the Rio Declaration on Environment and Development

Appendix II: SDSN Proposed SDGs and Targets

Appendix III: OWG SDG Focus Areas, as of 19 March 2014

Appendix IV: OWG Interlinkages

Appendix V: An explanation of development finance gap calculation

Useful terms

Adaptation: “The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.” (IPCC 2014a)

Civil Society: “The wide array of non-governmental and not-for-profit organizations that have a presence in public life, expressing the interests and values of their members or others, based on ethical, cultural, political, scientific, religious or philanthropic considerations. Civil Society Organizations (CSOs) therefore refer to a wide of array of organizations: community groups, non-governmental organizations (NGOs), labor unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations” (World Bank)

Climate change: “A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use.” (IPCC 2013)

Developed and developing nations: Although an overgeneralization, this study uses the divide between developed and developing nations. Developed, or industrial, nations are through with more developed economies and established technological infrastructure. Nations with higher GDPs are more developed.

The Earth System: “A complex social-environmental system, including the vast collection of interacting physical, chemical, biological and social components and processes that determine the state and evolution of the planet and life on it.” (UNEP 2012)

The Millennium Development Goals (MDGs): Eight international development goals initiated in 2000 to guide the international community in reducing global poverty and meeting basic human needs. The framework and its goals and target expire at the end of 2015.

Mitigation: “Human intervention to reduce the sources or enhance the sinks of greenhouse gases.” (IPCC 2014b)

Planetary Boundaries: A list of nine boundaries or thresholds for natural processes in the Earth System to keep the planet within “the safe operating space for humanity”. (Rockström *et al.* 2009a; 2009b)

Pragmatic: The use of the term ‘pragmatic’ in this study does not relate to any specific theory of pragmatism. Instead, its usage represents considerations for the SDGs that reflect the current state and processes of global politics, economy and society, with the necessary level of concern and consideration for the Earth System.

Resilience: “The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation.” (IPCC 2014a)

Sustainable Consumption and Production (SCP): “The use of services and related products which respond to basic needs and bring better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations.” (UNEP 2010, *ABC of SCP*)

Sustainable Development: “...development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (United Nations 1987:Article 1).

Sustainable Development in the Anthropocene: “Development that meets the needs of the present while safeguarding Earth’s life-support system, on which the welfare of current and future generations depends.” (Griggs *et al.* 2013:306)

The Sustainable Development Goals (SDGs): The likely framework to replace the MDGs after 2015. Specific goals are not yet defined, but the SDGs will generally seek to reduce global poverty and implement sustainable development processes globally.

Transformation: “A change in the fundamental attributes of natural and human systems.” (IPCC 2014a)

Acronyms

GHGs	Greenhouse Gases
HLP	High-Level Panel of Eminent Persons of the Post-2015 Development Agenda
IPCC	Intergovernmental Panel on Climate Change
MDGs	Millennium Development Goals
NGO	Non-governmental organization
OWG	Open Working Group on the Sustainable Development Goals
SDGs	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
UNTT	United Nations System Task Team for Post-2015 Development Agenda

1 Introduction

A new development framework will soon be instituted to take the place of the Millennium Development Goals (MDGs) after their expiration in 2015. Responding to increasing climate change and global inequality, the new framework will play a key role in directing the global system down an equitable and sustainable path. Such framework should incorporate the effects of climate change and need for sustainable development into its tenets, and must strive to help world actors place human development strategies, such as poverty, hunger, education and equality, within the natural Earth System. While successful in directing international development efforts, the MDG framework, and its implementation, can be improved in a number of areas. The Sustainable Development Goals (SDGs) must therefore reflect the recognition of such lessons, along with the further integration of climate change mitigation and adaptation and sustainability efforts. Clearly a daunting task, the creation and implementation of the SDGs requires a number of considerations – considerations that must place the prospects of human development within the Earth System.

According to a number of documents, poverty eradication should remain the ultimate focus of the next global development framework (UNTT 2012; ODI, DIE & ECDPM 2013; UNCTAD 2013). This study questions such assertion however, and instead prescribes a focus on the systemic nature of global poverty, its core components, and its place within the Earth System. Such analysis exemplifies the need for a focus on the natural environment and a shift to more equitable and sustainable economic processes.

This study asserts a comprehensive assessment of the needs of sustainable development in today's globalized world. Considering current economic, environmental and social systems, suggestions are prescribed for the SDG framework. Detailed text analysis leads to creation of a model for pragmatic SDG implementation.

1.1 Background

Understanding the necessity of sustainable processes for the next development framework depends on the conceptualization of a few main ideas. Although brief, the introduction to concepts below is meant to shed light on the complicated, yet connected, issues facing human society. Identifying the relationships between such issues will be crucial in the development and implementation of a guiding SDG framework.

1.1.1 Reducing global poverty

Along with an international economy and abundant information and communication technology, globalization has eased awareness of the many people, cultures and nations that make up the globe. With such also comes realization of the extensive scale of standards of living across nations. While poverty reduction has remained the developed world's goal for many years, levels of inequality continue to plague the world.

Inequalities are the result of natural resource exploitation, during colonialism and today, lack of unified governance and dependable leaders, uneven food distribution, discriminatory religious practices, and a lack of basic health care and infrastructure. The international relationships of the global economy further exacerbate these problems, and enforce a system of give and take. Unfortunately however, as wealth equates to power, the give and take relationship is not reciprocative. The developed world continues its uptake of resources and labor, and its resulting wealth and dominance, while the developing has no choice but to keep giving. Such relationship means that eradicating global poverty, while financially possible, cannot occur within the current global political and economic system. The general prescription still remains for the rich, developed nations, to give aid and financial support to the poor, developing nations, to help them 'develop'. In order to address inequalities in income, health, food and other basic needs access, in addition to the consequences of climate change, the socio-economic system must be removed from its top-down pedestal.

1.1.2 The Millennium Development Goals

In 2000, the UN Millennium Declaration and resulting MDGs were implemented as an ambitious and pioneering global commitment to reduce global poverty (Higgins 2013). Setting specific goals, targets and indicators for all nations to work towards, the MDGs have directed and committed international community focus to a single framework. The purpose of the MDGs beyond their goals includes, (1) a political statement of what is possible at the global level, (2) a set of practical priorities rather than an all-encompassing list of desired outcomes, and (3) a representation of desired aims, rather than the means necessary to get there (Vandemoortele 2011 as cited in Higgins 2013).

A more detailed description of the MDGs follows in chapter 4, along with a discussion of their progress on meeting goals and targets, and on achieving the above aims. The elaboration provides a critical point of analysis for the study.

1.1.3 Development in a changing context

Another important consideration is the multiplicity of change overwhelming the globe. In the context of international development frameworks, changes must be made to address the systematic environmental, social and economic shifts, and their unknown consequences, taking place today. The MDGs were created in a time of relative global stability, maintained growth and concentrated power. Current shifts in the spread of economic power, the relation to the natural environment and trust in the international financial system, however, have paved a difficult path for the next framework (Higgins 2013). There is no longer a clear-cut line between rich and poor, and those that should give and those who should receive. Additionally, the effects of the economy and increasing production and consumption on the environment call into question the functions of international systems for present and future generations.

1.1.4 Environmental considerations

While changing economic and political relationships weigh heavily on the discussion of the SDGs, and are considered in this study, main focus lies on the impacts on and of environmental change. Regularly pushed to the side, the state of the Earth System – the integrated and interacting network of biological, physical, chemical and social processes – ultimately controls the conditions of all other systems. Higher temperatures, melting ice caps and rising sea levels are only a few of the effects of an atmosphere filled with greater concentrations of Greenhouse Gases (GHGs) than ever (IPCC 2013; 2014a; 2014b). Additionally comes a physical shift in the environment that fostered the development of human civilization – including all of the technology, goods, stability and prosperity that come with it.

When thought of as a complete system, it is clear that changes in the natural environment will be the most detrimental to international society. Peer reviewed studies from around the world clearly link *anthropogenic* forces, or human activity, to climate change (IPCC 2013; 2014a; 2014b). With a future time frame and undervalued risks, however, the consequences of climate change and Earth System degradation are ignored in the political and economic spheres of the developed world. Scientifically accepted and undeniable, those who benefit most from the present global system still find ways to discredit climate change. Rather than making the necessary adjustments now, environmental sustainability has become a highly politicized debate. To be clear, adjustments for sustainable development will not be few in

number or simple in scope, but are immanent in protecting the desired livelihoods of present and future generations.

1.1.5 Sustainable development

Across international organizations, research institutions and academic research, sustainable development is broadly recognized as the joining of social, economic and environmental issues into a cohesive and successful development framework that benefits people and planet (UNTT 2012a; SDSN 2013; Sachs 2012; Griggs *et al.* 2013).

The most widely quoted and recognized definition of sustainable development comes from the report, *Our Common Future*, also known as the *Brundtland Report*, and is, arguably, the first attempt to combine both development and the environment into a single issue. It states that *sustainable development* is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs,” and introduced the importance of looking toward the future, and in recognizing the needs of people along with their ability to achieve them (United Nations 1987). .

A respected definition, the Brundtland definition helps spread focus and concern from the actions and livelihoods of the present, to their likely effects in the future. Following this reasoning, in addition to a focus on the planet’s natural limits, this study supports a new definition for sustainable development. The definition places social and economic systems within the environmental system, and recognizes the direct relationship between human activity and Earth System change. As defined by Griggs *et al.* (2013), *sustainable development in the Anthropocene* is “development that meets the needs of the present while safeguarding Earth’s life-support system, on which the welfare of current and future generations depends” (306). Further discussion of integrated and unified systems for international sustainable development continue in detail later, and must be kept in mind throughout the analysis.

1.1.6 The Sustainable Development Goals

Although brief, the discussion of concepts above is meant to shed light on the complicated, yet connected, issues facing human society today. Throughout the literature, two main points encapsulate the purpose of the SDGs. First, the desire to reduce global poverty in the globalized and technologically advanced world of today, and second, to implement “sustainable development” in the wake of a changing natural environment. The term sustainable development has been placed in quotes because of its frequent use as a buzzword

constantly included in international documents. The threats of climate change and human-induced degradation of the environment and atmosphere are too great, however, to be associated with buzzword politics. Instead, the SDGs, if they are to truly affect environmental change, must recognize the inherent risk of climate change. They should continue to focus on poverty eradication and greater global equity, but in a way improved from the MDGs.

The SDGs should alternatively identify the workings of global social, economic, and, most importantly, environmental systems if they are to make tangible global impact. Can a development framework be expected to do so much however? Is global governance and cohesive decision-making possible across the expansive ethical questions of inequality and Earth System devastation? Here lies the motivation of this study. While it recognizes the merit of the MDGs and the quest to reduce global poverty, the path to the SDGs is critically analyzed across ethical, theoretical, economic, social and environmental lines.

1.2 Purpose

When approaching the formulation of the SDGs, implementation strategies must be considered as heavily as the goals themselves (Vandemoortele 2012). The SDGs must include a recipe for realization that addresses the world's economic, environmental and social problems on multiple cross cutting levels and dimensions. These levels range from the global to the local, the transnational corporation to the local community, the industrial to the natural, and must incorporate a degree of ethics and shared responsibility for all of Earth's citizens.

Simply reworking the MDGs is not enough however – more attention must be paid to the interconnections of the Earth System. In the global economy, for example, excessive production and consumption parallels the developed nations' pursuit of wealth, and correlates directly to negative results for the planet. Natural resources become the means to the end of production, and are not valued themselves. Dependence on fossil fuels not only dictates global politics, and often conflict, but also causes the emission of overwhelming levels of GHGs into the atmosphere – the central contributor to climate change (IPCC 2013; 2014a; 2014b). Therefore, this study aims to illuminate disconnects in the understanding of the Earth System, and to provide more pragmatic and attainable solutions for equitable development in the time of climate change - even if such are only the beginning to a more equitable existence.

The complex systems of the globalized economy exemplify the need for the systematic consideration of global problems. Such systems cannot function individually, and, therefore, cannot be thought of individually. Only through understanding all parts, including the environment, its resources and resulting social structures, can comprehensive solutions be developed and implemented on a global scale. The SDGs must therefore respect and recognize the cyclical nature of social, economic and environmental problems. This includes the ethical considerations of a shared responsibility to protect the environment and planet as a whole, and the resources that allow the global economy to function. Additionally, a powerful need exists for global governance and a transformed economy that monitor and hold accountable each citizen of the earth, especially those that possess and manage the most wealth.

1.3 Structure and research questions

In order to develop a pragmatic approach to SDG implementation, this study seeks to answer the research questions:

1. How should the SDGs be most practically and beneficially implemented?
2. Can the SDGs eradicate global poverty without a core consideration of the natural Earth system and climate change?

The complex issue of sustainable development spans disciplines, from physical science to financial processes, and environmental, economic and social systems. This study therefore aims to present a complete assessment of the individual environmental, social and economic levels, while making consistent connections between them. Chapter 2 explains the methods more specifically, and is followed by an introduction to important environmental concepts including climate change and Planetary Boundaries in chapter 3. After a look into the MDGs, and their progress, strengths and weaknesses since 2000, chapter 4 continues with an investigation into MDG lessons for the SDGs, UN SDG workstreams, and the likely make-up of the sustainable development framework. Chapter 4 concludes with necessary considerations for SDG implementation gathered from the literature including global governance, a transformed economy and a multi-dimensional focus. Then, based on these recommendations, additional theoretical considerations of the Earth System Perspective, the definition of sustainable development, the categorical separation of nature and society, dominance of the global economy, and the ethics of a sustainable Earth are presented in chapter 5. Analysis proceeds in chapter 6 through the examination of proposed tactics for improved global governance and a transformed international economy for sustainable

development and the SDGs. Chapter 7 then combines the theories and concepts described throughout the study into an original model for pragmatic SDG implementation.

The SDGs must strive to promote goals that can be reached globally, that affect all nations, that recognize the links between problems of inequality and BAU economics and the many facets of human development, and that hold nations, developed and developing alike, to standards of environmental and financial sustainability. In order to grasp the complex, interconnected and interdisciplinary facets of sustainable development for the SDGs, it is essential that all social and economic processes are placed within Earth System processes, and that such conceptualization is applied while reading this study.

2 Methods

This study contributes to the growing literature and research on processes toward sustainable development. Through the detailed text analysis of recent studies and reports by international organizations, and noted scholars and scientists, a comprehensive understanding of sustainability and sustainable development in the Anthropocene is presented. In the time of climate change and the expiration of the MDGs, it is especially important to consider all interacting factors of social, economic and environmental systems. Additionally, a critical evaluation of the ignorance of the natural Earth System in the globalized economy contributes to the final suggestions of the study.

2.1 UNCTAD experience

The research for this study began during an internship at the United Nations Conference on Trade and Development (UNCTAD), in Autumn 2013, in Geneva, Switzerland. The internship position was held on the Investment Trends and Issues Team, within the Investment Issues Section of the Division on Investment and Enterprise. Insight into the SDG process began while working on the initial phases of research for an UNCTAD report on financing for the SDGs. To be released in June 2014, UNCTAD's annual World Investment Report (WIR) will present the culmination of research on how corporations and the private sector can contribute to the post-2015 SDGs.

Research at UNCTAD consisted mostly of an analysis of UN, international organization and financial institution reports and documents on the successes and failures of the MDGs, and on general suggestions for the SDG framework. Participating in the beginning stages of the WIR 2014 project, research spanned a number of aspects for implementation and global collaboration for sustainable development. Later, primary internship research focus shifted to the general processes toward the SDGs, and to the financial implications for the framework's successful implementation. Looking specifically into current private sector contributions and initiatives for international development, plans and suggestions for the future framework began to take shape.

Research, discussions and knowledge expansion gained during UNCTAD experience play a crucial role in this study. While such research mainly surrounded the financial dimensions of sustainable development, further interest was prompted toward the importance of the natural environment for global development after 2015, and the basis of this study began to materialize.

It should also be noted that the importance of ‘pragmatic’ suggestions for SDG implementation was gained through experience UNCTAD. For although a number of idealist solutions for utopian sustainable societies exist, one must recognize that the size and scope of the current global structure cannot support such idealism (Rippin 2013; Sachs 2012; UNTT 2012). Therefore, this study asserts pragmatic considerations for the SDGs – keeping realistic, sensible and practical solutions for international development at the core, while recognizing the importance of a grander focus on the environment and natural Earth System.

UNCTAD research and discussion from the internship is cited as UNCTAD (2013) in the study.

2.2 Literature search

Expanding the collection of literature from work at UNCTAD, additional studies and reports were gathered through searches of online scientific databases and UN organization webpages. Databases included Scopus, ScienceDirect and Google Scholar, and searches were based on keywords such as *SDGs*, *sustainable development*, *sustainability*, *implementation*, *strategy*, *green growth*, *MDGs*, *planetary boundaries*, and *climate change*, to name a few. Scopus was especially useful as it sorted results by citations, and highlighted journal articles and studies utilized and depended on in the academic and scientific communities.

Additionally, UN websites were extremely useful in providing access to the background reports created and used directly by the Open Working Group on the SDGs (OWG), the United Nations System Task Team of the Post-2015 Development Agenda (UNTT), the Sustainable Development Solutions Network (SDSN), the International Panel on Climate Change (IPCC), UNCTAD and other UN organizations. Because the SDG process is so current, it was important to consistently search for documents as up to date as possible. Also key is the UN’s desire to make the SDG development process as transparent as possible through the posting of report assessments. While most assessments generally supported UN actions and opinions, their convenient location allowed broader and more in depth understanding.

2.3 Critical text analysis

The basis of this study depends on the qualitative analysis and interpretation of text documents. Critically reading the range of documents and studies used during UNCTAD research and from the literature search informed the conceptualizations, discussions and theories of the report. Based on the literature, an initial list of considerations for SDG

implementation, introduced in section 4.5, was created. Following these findings, additional analysis of Earth System and economic literature helped to improve the list of recommendations for the SDG framework. The comprehensive and critical text analysis then culminated in the creation of an original model for pragmatic SDG implementation, based on the identified considerations and the multi-dimensional relationships between them.

3 Environmental background and concepts

Facing an unprecedented time of change in the natural Earth System, it is only fitting that the next international development framework reflects climate change and its human causes. Social and economic considerations for the SDGs must reflect the state of the environment, and seek to identify the connections between development issues, the global society and economy that creates them, and the climate changes they create and experience. Chapter 3 provides a brief introduction to the current state of the Earth System and what is needed to protect it from surpassing safe thresholds.

3.1 Climate change

The degree to which climate change and sustainable development will be integrated into the SDGs is, at this point, unknown. Current Earth System status, however, requires that the next development framework, and its theme and focus, include environmental needs as a main constituent. The sections below describe the current status of climate change through an introduction to the science produced and reviewed worldwide. Additionally, the concepts of the Anthropocene, adaptation and mitigation strategies and Planetary Boundaries help to define and contextualize climate change and the Earth System today.

3.1.1 The Intergovernmental Panel on Climate Change

The leading international organization for climate change, the IPCC consistently assesses the most up to date studies, reports and data on changes in Earth System processes. The scientific UN-based organization does not produce any of its own data or research, but instead reviews that which is produced in institutions across the globe (IPCC 2014c). Employing thousands of voluntary scientists, the IPCC depends on the objectivity and crosscutting nature of peer review, and resultantly, seeks to produce reports based upon scientific and unbiased information. Additionally, the IPCC is open to all 195 member-states of the UN and World Meteorological Organization (WMO), contributing to its intergovernmental nature (IPCC 2014c).

Fortunately, the IPCC's main objective is to produce unbiased Assessment Reports at regular intervals on the current state of international research and knowledge on climate change (IPCC 2014c). Multiphase assessment reports have been produced since 1990, and focus on (1) the physical science basis (Working Group I), (2) impacts, adaptation and vulnerabilities (Working Group II), and (3) mitigation efforts (Working Group III). The newly released *Fifth Assessment Report (AR5)*, provides the most up to date and advanced research on climate

change yet, and confirms the impact of human activity on the natural Earth System. The comprehensive, collaborative and peer-reviewed information presented in the AR5 directs the discussion in this section (IPCC 2013; 2014a; 2014b).

3.1.2 Climate change: The physical science

Detailed Earth science falls outside the scope of this study, but a basic understanding of climate change, and its effects, is essential to evaluate the needs of sustainable development. The definition of climate change follows below, but first, an explanation of some of the main observations, causes and effects.

As the most up to date and comprehensive report on the science behind climate change, the AR5 Working Group I Report presents observed changes in land and ocean temperature, melting ice, sea level rise and interruption of the carbon cycle as some of the causes and effects of climate change (IPCC 2013). Most basically, an increase in GHGs, such as carbon dioxide (CO₂) and methane, outside the naturally occurring and regulated amounts, traps excess heat and causes Earth's temperature to rise. Although a very basic explanation, the science of climate change has been confirmed and understood for decades, and models and predictions, no matter the political backlash or denial, are only becoming more accurate.

IPCC (2013) declares that climate changes in the Earth System are explicitly clear, and that observed changes since the 1950s are unprecedented over decades to millennia. Some of these changes include a rise in atmosphere and ocean temperatures, a measured increase in GHG concentration, increasing snow and ice melt and sea level rise (IPCC 2013).

The Anthropocene

A common argument of climate change skeptics is that current climate change is simply part of the natural Earth cycle. Such, however, ignores that fact that while glacial and inter-glacial cycles *are* a natural process, the development of human civilization has only occurred over the unusually steady environment of the past 10,000 years – the period known as the *Holocene* (Rockström *et al.* 2009a; 2009b). Should these conditions change, human civilization is likely to need to as well. Fig. 3.1 demonstrates the Holocene period and the rise of civilization that it nurtured. The unstable periods shown before are notably marked by large migrations, an effect likely to reappear in coming decades as a result of unchecked climate change.

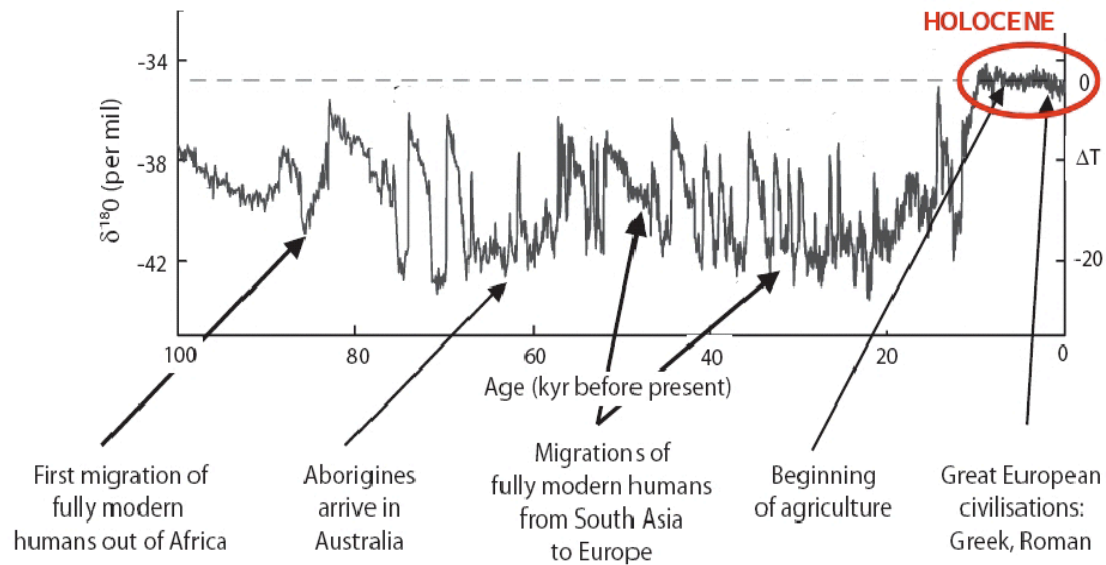


Figure 3.1: The last glacial cycle of 18O (Rockström *et al.*, 2009a)

Note: 18O is an indicator of temperature and selected events in human history

Since the Industrial Revolution, the global environment has begun the transition from the Holocene to the new era of the *Anthropocene* (Rockström *et al.* 2009a; 2009b). While environmental change in the Holocene occurred within the planet's natural balance and physical capacities, environmental change in the Anthropocene is affected by human activity, specifically the increased use of fossil fuels and industrialized agriculture and production processes (Rockström *et al.* 2009a; 2009b). According to Rockström and colleagues (2009a; 2009b), the level of human industrial activity has reached the point that it is likely to disrupt the stable Holocene state, and the conditions that have enabled human civilization to rise and progress.

Although debate continues around the degree to which human activity is affecting the climate versus the effects of natural processes, studies prove that humans are pushing natural processes off their natural path (IPCC 2013). Fig. 3.2 demonstrates observed changes in atmosphere, ice and ocean content, in accordance with models (in blue) of only natural forces, and (in red) of natural and human forces. Brief analysis indicates the clear and comparable trends between observations, and the effects of natural and anthropogenic causes. Even without full understanding of the models used for simulation, the similarities in human-impacted models and actual observations are undeniable, and show the confirmed affects of human on the natural Earth System.

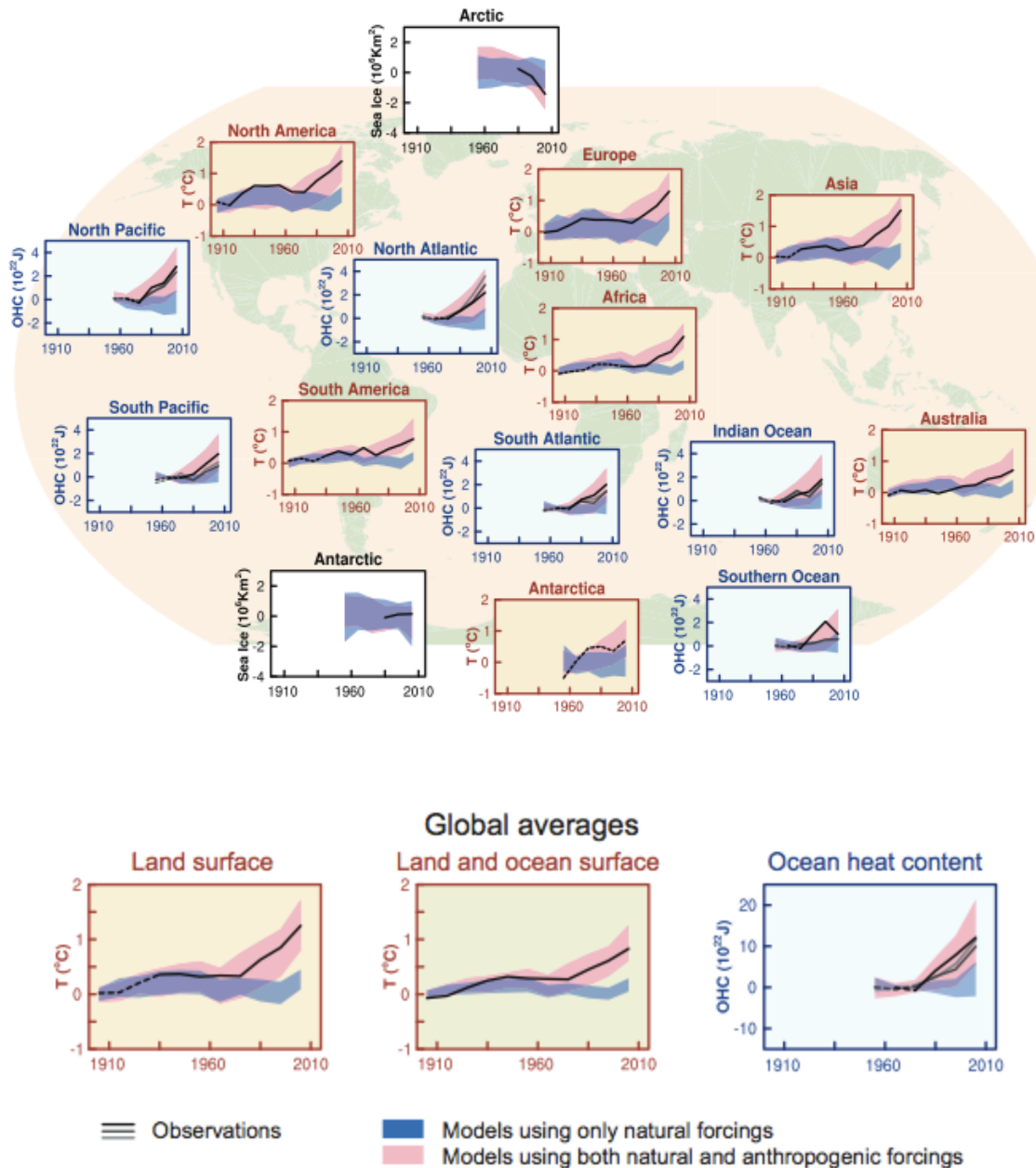


Figure 3.2: Comparison of observed and simulated climate change based on three large-scale indicators in the atmosphere, the cryosphere and the ocean (IPCC 2013)

Change in continental land surface air temperatures (yellow panels), Arctic and Antarctic September sea ice extent (white panels), and upper ocean heat content in the major ocean basins (blue panels). Global average changes are also given. Anomalies are given relative to 1880–1919 for surface temperatures, 1960–1980 for ocean heat content and 1979–1999 for sea ice. All time-series are decadal averages, plotted at the centre of the decade. For temperature panels, observations are dashed lines if the spatial coverage of areas being examined is below 50%. For ocean heat content and sea ice panels the solid line is where the coverage of data is good and higher in quality, and the dashed line is where the data coverage is only adequate, and thus, uncertainty is larger. Model results shown are Coupled Model Intercomparison Project Phase 5 (CMIP5) multi-model ensemble ranges, with shaded bands indicating the 5 to 95% confidence intervals. For further technical details, including region definitions see the Technical Summary Supplementary Material.

3.1.3 Defining climate change

There are several definitions for climate change. IPCC (2013) defines climate change as,

A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use.

IPCC (2013) makes sure to note the variances between its definition and that of the UN Framework Convention on Climate Change (UNFCCC). The UNFCCC, an international environmental treaty established in 1992 at the original Rio Conference, provides the following as the definition of climate change,

A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (UNFCCC 1992).

While the IPCC definition recognizes both the natural effects and those caused by human activity on the climate, the UNFCCC definition notes only those effected through human activity. To promote the most unbiased and scientifically based support for an environmentally focused SDG framework, this study refers to the IPCC definition of climate change. This way, natural variances in the climate will not be ignored. Instead, combined with the effects of human development, they help demonstrate the many moving parts of the natural Earth System.

3.1.4 Climate change: Adaptation and risks

As global climate changes increase, adaptation strategies are, and will be, vital in addressing and managing the effects on the human species. Managing the risk associated with climate change, and with surpassing planetary boundaries and their unknown consequences will be a key approach to protect both human and natural systems. Because there is no way to guarantee the exact level of risk of events to come, and the natural variances in those risks, adaptation strategies are heavily criticized (IPCC 2014a). To help solidify the inherent risk in unchecked climate change, IPCC (2014a) asserts that it is most beneficial to prepare for the worst, rather than simply hope for the best. Even if climate models and predictions assume higher levels of risk and destruction than are actually to occur, adaptation strategies can only help to protect and better the Earth System.

Adaptation strategies surround adjusting to climate change's current and future effects (IPCC 2014a). Specific strategies might include preparing for sea level rise and the effects on the

livelihoods of coastal communities, bettering infrastructure to withstand an increase in catastrophic natural events, developing agricultural tactics to handle drought and stabilize food production, and preparing for increased migration flows due to a disruption or destruction of local livelihoods, including food production, water and energy access, and other basic needs issues.

Addressing risks in the present helps to better decision-making for future impacts, and proactively act. IPCC (2014a) explains that transformations in current economic, technological, political and social systems help to enable climate-resilience, especially when based on the needs of local and regional contexts. According to the report, managing the risks of climate change depends greatly on the effectiveness of adaptation strategies (IPCC 2014a).

Principles for effective adaptation include:

- Recognizing that adaptation is *place and context specific*, and that there is no single approach appropriate across all settings
- Enhancing adaptation planning and implementation through *complementary actions across levels*, from individuals to governments
- Reducing vulnerability and exposure to present climate variability through *increased resilience strategies* that produce co-benefits for other sectors
- Recognizing that diverse interests, circumstances, socio-cultural contexts and expectations produce *a wide range of societal values, risk perceptions and objectives – all which must be considered in adaptation*
- Knowing that support for decisions is strongest when *local contexts, needs and objectives are considered and incorporated*
- *Incorporating existing and emerging economic instruments that provide incentives* for anticipating and reducing climate change impacts can foster stronger adaptation
- Underestimating adaptation as a social processes, and that *constraints (financial, governmental, uncertainty surrounding risks) are likely to impede adaptation*, can lead to unrealistic expectations
- Poor-planning and overemphasizing short-term outcomes will likely produce poor adaptation strategies, which could even make things worse
- Recognizing the *gap between adaptation funding needs and the funds available*
- Considering the *significant co-benefits* between climate change mitigation and adaptation strategies (IPCC 2014a).

Although the effects of climate change are daunting, creating and implementing appropriate adaptation strategies will greatly improve human resilience. Coordinating actions across governments, while taking into account the varying values placed on the Earth and its systems across the world, will make the strategies the most effective and efficient. Costs of adaptation strategies may be high, but little choice surrounds their necessity. Proactively addressing practical issues of funding, governance and varying contexts will greatly benefit the Earth, and its social and economic systems, in the long-term.

3.1.5 Climate change: Mitigation

As the main contributor to anthropogenic climate change, GHG emissions must be addressed in future sustainable development policies. While adaptation strategies surround the adjustment to climate change processes, mitigation strategies are human interventions to halt the processes of climate change (IPCC 2014b). Mitigation strategies combine critically with adaptation to increase the resilience of both human and natural systems.

Focusing on the reduction of GHG emissions and the increase in GHG sinks, mitigation strategies play an essential role in combating climate change (IPCC 2014b). IPCC (2014b) details varying mitigation strategies, which include multiple scenarios for the limiting, trading and capping of GHGs, while developing ways, both natural and artificial, to regulate and absorb emissions. While possible strategies are endless, a few main considerations are asserted and include:

- *International cooperation is required*: Effective mitigation will not be achieved if individual agents are allowed to advance their own interests independently – collective action is essential for mitigation as GHGs mix and accumulate globally
- *Issues of equity, justice and fairness must be considered*: past and future emission contributions and differing abilities to adapt and mitigate, mean equitable decision-making is likely to produce more cooperation
- *Value judgments and ethical considerations* may be used in strategy development and must take into account human well being and cultural values
- *Economic evaluation is limited*: ethical evaluations and social considerations must be made in mitigation and adaptation strategy development, and will be key in global collective action and responsibility
- *The intersections between societal goals and climate policy*, if well managed, can provide a stronger basis for mitigation policies
- *Risks and uncertainties inform climate policy*: Such must be accepted, as those risks with the lowest probability, should they occur, have the highest consequences
- Using simplified methods to address risk and uncertainty will not be enough: Tending to prefer the status quo, decision-making bodies must, with the help of formal methods, more accurately *take into account long-term risks*. Additionally, uncertainties in all processes (environmental, social, economic, technological and values-based) exist and should be recognized (IPCC 2014b).

Similar to the considerations proposed for successful adaptation strategies, a focus on international governance and cooperation, global equity and the economy are essential for climate change mitigation. Fig. 3.3 demonstrates the multi-dimensional relationships between identifying climate change risks and their impacts, incorporating natural and human processes and asserting effective governance, economic incentives, and adaptation and mitigation strategies to build resilience. A complex network of interlinked considerations,

proactive effort to increase resilience strategies is critical for livelihoods all over the globe, and should at least be mentioned in the formulation of the SDGs.

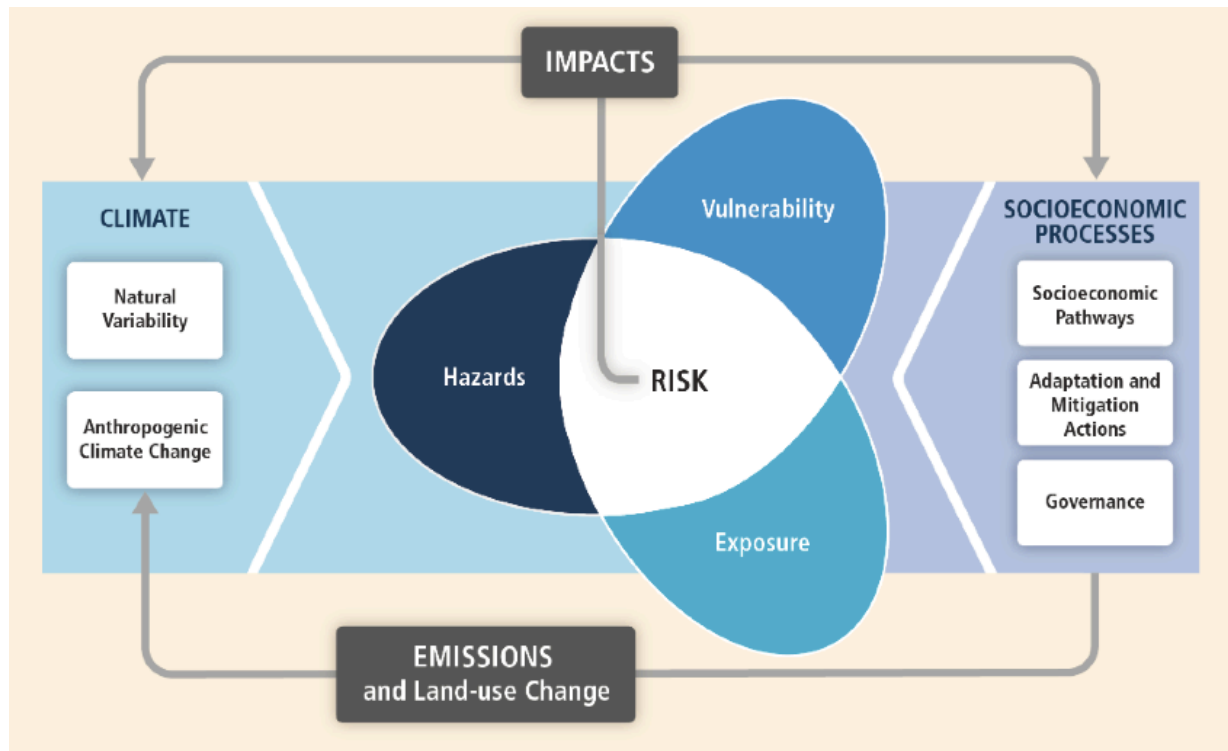


Figure 3.3: Illustration of adaptation and mitigation core concepts (IPCC 2014a)

3.2 Planetary Boundaries

An important part of the climate change and Earth System literature is the idea of *planetary boundaries*, an approach to help explain and contextualize the conditions necessary for human development (Rockström *et al.* 2009a; 2009b). Rockström and colleagues (2009a; 2009b) set forth a list of nine *planetary boundaries*, or thresholds, to keep the Earth within the “safe operating space of humanity” (Rockström *et al.* 2009b:472).

The Planetary Boundaries, described in Table 3.1 and demonstrated graphically in Fig. 3.4, identify those Earth-system processes, and their thresholds, which are likely to push the globe out of the Holocene. The boundaries of climate change, rate of biodiversity loss, interference with the nitrogen and phosphorus cycles, ozone depletion, ocean acidification, global freshwater use, change in land use, chemical pollution and atmospheric aerosol loading, set the values for the control variables (the ‘parameters’ column in Table 3.1) when they are at the safe distance from dangerous thresholds (or at dangerous levels, for the variables without threshold evidence) (Rockström *et al.* 2009a; 2009b).

Table 3.1: Planetary Boundaries (Rockström *et al.* 2009b)

Boundaries highlighted in red have already been surpassed

Earth-system process	Parameters	Proposed boundary	Current status	Pre-industrial value
Climate change	(i) Atmospheric carbon dioxide concentration (parts per million by volume)	350	387	280
	(ii) Change in radiative forcing (watts per meter squared)	1	1.5	0
Rate of biodiversity loss	Extinction rate (number of species per million species per year)	10	>100	0.1-1
Nitrogen cycle (part of a boundary with the phosphorous cycle)	Amount of N ₂ removed from the atmosphere for human use (millions of tons per year)	35	121	0
Phosphorus cycle (part of a boundary with the nitrogen cycle)	Quantity of P flowing into the oceans (millions of tons per year)	11	8.5-9.5	-1
Stratospheric ozone depletion	Concentration of ozone (Dobson unit)	276	283	290
Ocean acidification	Global mean saturation state of aragonite in surface sea water	2.75	2.90	3.44
Global freshwater use	Consumption of freshwater by humans (km ³ per year)	4,000	2,600	415
Change in land use	Percentage of global land cover converted to cropland	15	11.7	Low
Atmospheric aerosol loading	Overall particulate concentration in the atmosphere, on a regional basis	To be determined		
Chemical pollution	For example, amount emitted to, or concentration in, the global environment of persistent organic pollutants, plastics, endocrine disrupters, heavy metals and nuclear waste; or their effects on the functioning of ecosystems and the Earth System thereof	To be determined		

When viewing and analyzing planetary boundaries, it is important to keep in mind that many of the processes within the Earth System are linked and interact with each other. Interacting subsystems react in nonlinear ways, and are especially fragile as they near the threshold levels asserted by Rockström *et al.* (2009a; 2009b). Ultimately, Rockström and colleagues have proposed a new approach to understanding the Earth System and the biophysical boundaries that cannot be surpassed if global civilization hopes to continue in its Holocene conditions. This approach recognizes and sits upon three issues of scientific inquiry – (1) the scale of human action in relation to the capacity of Earth to sustain it, (2) understanding

essential Earth processes including human action, and (3) research into resilience and the complex dynamics and self-regulation of living systems – which should be consider further in terms of the multi-dimensional needs of the SDGs (Rockström *et al.* 2009b).

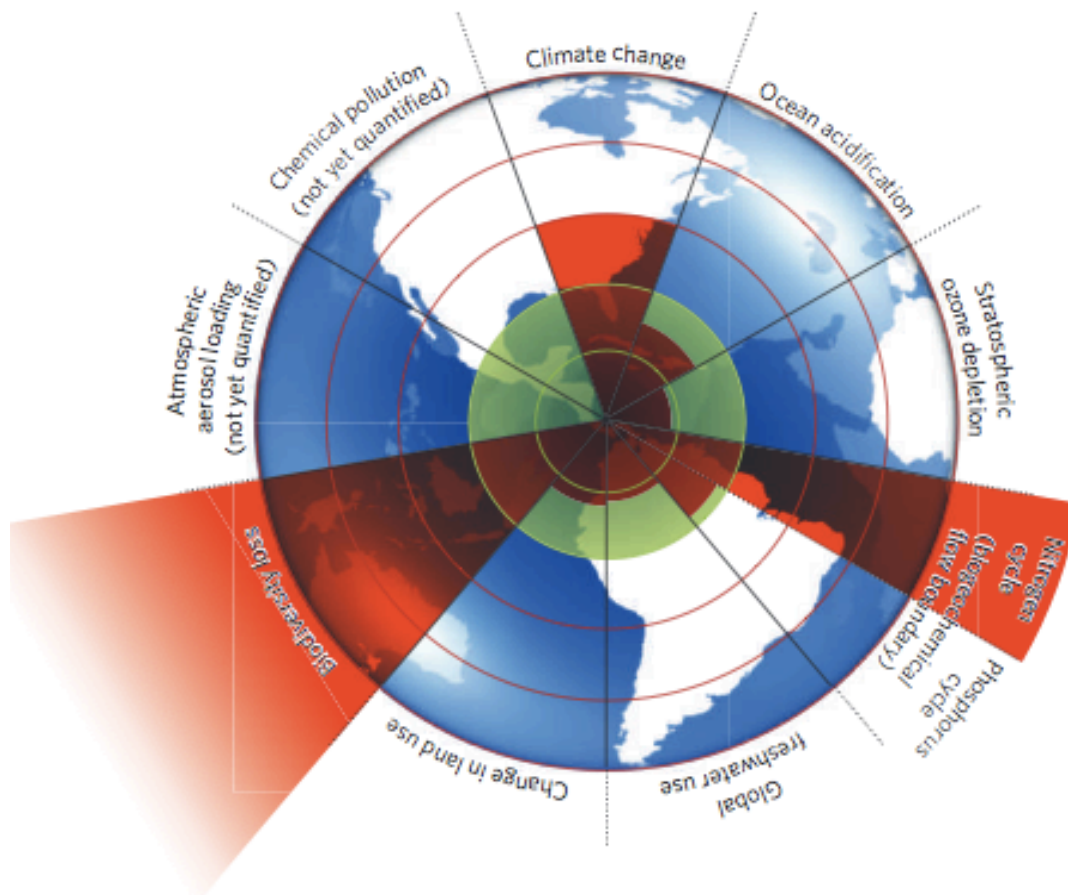


Figure 3.4: The safe operating space for the nine planetary boundaries (Rockström *et al.* 2009b)

Note: Inner green shading represents the proposed safe operating space for nine planetary systems. Red wedges represent an estimate of the current position for each variable. Boundaries in three systems (rate of biodiversity loss, climate change and human interference with the nitrogen cycle) have already been surpassed.

4 Development background and concepts

The following chapter details the processes and progress behind the MDGs and SDGs. First, a look into the planning and initial conception behind the MDGs, and their progress demonstrates the strengths of the groundbreaking framework likely to stand as a model for the SDGs. Next, identifying MDG formation and implementation weaknesses provides lessons that must be applied to the SDGs in today's globalized system. The processes of the business-as-usual scenario are then presented to further contextualize the SDGs in the Anthropocene and dominant market economy. Finally, investigation into the current UN SDG processes sheds light on the factors being considered for implementation of the next framework. A prediction of the likely goals, in addition to suggestions for implementation from UN and other international organizations, expose the strong, and to be improved, sections of the SDGs – important factors that must be considered before final implementation.

4.1 A global development framework: The MDGs

Considered “the world’s biggest promise”, the MDGs are the result of the collaboration of global leaders to reduce poverty and human deprivation through multilateral action (Hulme 2009:4; 2010:15). A product of the *United Nations Millennium Declaration*, adopted at the Millennium Summit in September 2000, the MDGs were created as a cooperative and comprehensive agenda for development following decades of previous work toward universal human equality.

Considering documents written at previous conferences and over years of collaboration and research, the UN Millennium Summit, the largest ever gathering of world leaders, produced and unanimously accepted the *Millennium Declaration* (Hulme 2009:4; 2010:15). A document that promotes the values necessary for development - freedom, equality, solidarity, tolerance, respect for nature, and shared responsibility - and the key objectives required to reach them - (1) peace, security and disarmament, (2) development and poverty eradication, (3) protecting our common environment, (4) human rights, democracy and good governance, (5) protecting the vulnerable, (6) meeting the special needs of Africa, and (7) strengthening the United Nations (United Nations 2000).

Then began the process of transforming the ideas of the declaration into a set of specific goals with corresponding and concrete targets. International development frameworks had been produced before, but few left a legacy that lasted more than a few months after

inception (Hulme 2009; 2010). Therefore, it was extremely important to convert the Declaration into a framework that would be instituted by governments, and aid and international organizations over the 15-year time period. The Millennium Declaration and the ideas of 189 countries and 147 heads of State and Government were therefore converted into eight goals with quantifiable targets and indicators, 21 and 60 respectively, to combat global poverty (Hulme 2009; 2010).

Guiding human development along the dimensions of income poverty, hunger, disease, exclusion, gender equality, education and environmental sustainability, the MDG framework was created (Hulme 2009; 2010). The eight goals are shown generally in Fig. 4.1, and in their entirety, including corresponding targets and indicators, in Table 4.1.



Figure 4.1: The Millennium Development Goals (UNDP)

4.1.1 Development progress: Reached and distant targets

As the MDG framework nears its expiration in 2015, it is helpful to track the progress made toward each target, and identify those that have already been met, are likely to be met, and those that still seem far away.

According to the *Millennium Development Goals Report 2013* (United Nations 2013) and the *Global Monitoring Report 2013* (World Bank 2013a), progress on the MDGs is apparent in most areas. Results vary by goal and by geographical region. Global progress toward the MDGs and corresponding targets is shown in Fig. 4.2, in a graphical display of MDG progress based on the development still needed to achieve each goal. It is important to keep in mind that statistics for MDG measures are a bit behind, an estimated three years at least, as

it is difficult to both collect and compile the information, and that most measured progress is based on projections (Rippin 2013).

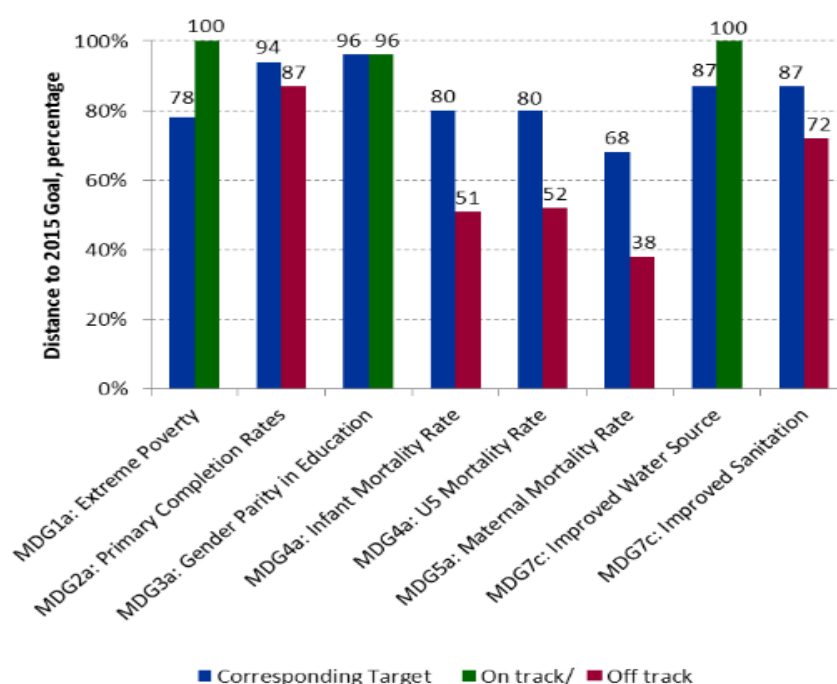


Figure 4.2: Global Progress toward the MDGs (Rippin 2013)

Note: "Corresponding target" indicates the progress that is needed in order to reach the respective MDG target by 2015; a value of 100% indicates that the target has already been reached.

When evaluated as in Fig. 4.2, MDG progress does not look very positive. Only three targets have been, or will be, met. Progress has been made however, in reducing extreme poverty and increasing access to basic needs worldwide. It is important to keep in mind that goals may not have been met entirely, but have been, in most cases, considerably improved. For these reasons, it is essential to recognize progress on different levels, just as development itself occurs in varying dimensions.

One such level is geographical spread and unevenness. Some countries will achieve most of the MDGs, while others will not reach many (Sachs 2012:2206). This is due to numerous factors - uneven starting points, different focuses of aid giving countries, contextual variances such as local religion, culture, colonial history, and natural resource availability. Fig. 4.3 displays regional distribution of MDG progress.

Additionally, progress varies *within* regions and nations. Rising incomes and expanding inequalities often lead to reflections of aggregate improvement within a region, when, really, only wealthy sections of the populous make progress. On the other hand, nations with very

low human development levels may have made extreme improvement, but remain far from reaching stipulated MDG targets (Rippin 2013; UNTT 2012; World Bank 2011; World Bank 2013a).

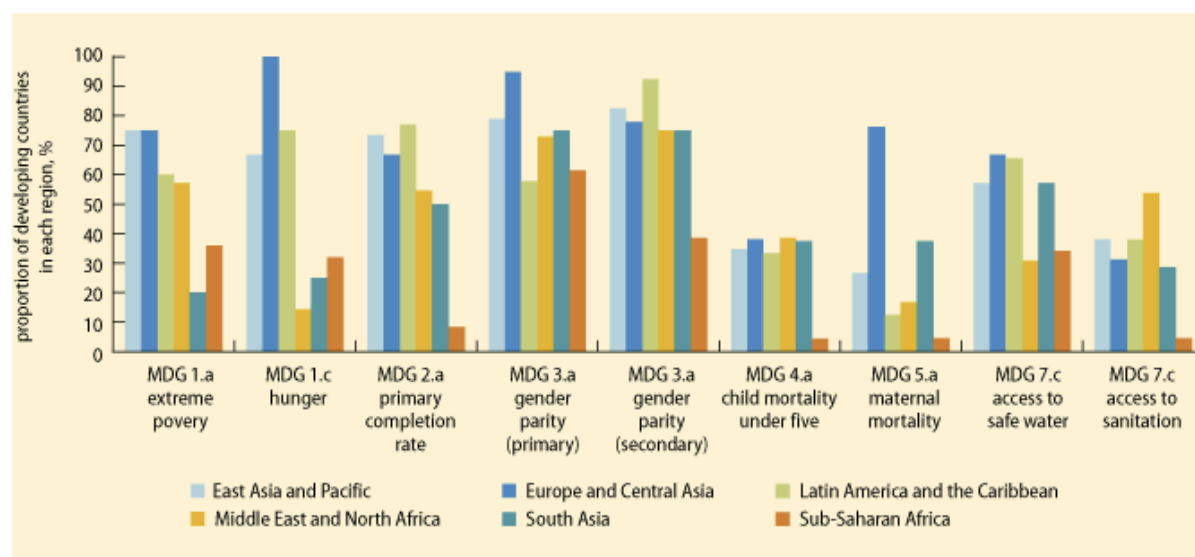






Figure 4.3: Countries on target to achieve the MDGs, by region (World Bank 2011)
World Bank staff calculation based on data from the World Development Indicators database.





Uneven progress and varying baselines make it difficult to create and reflect on a global evaluation. Although created as a set of global targets, MDG progress should be analyzed on national and regional levels – a prescription for the SDGs.

4.1.2 Strengths and weaknesses of the MDG framework




The discussion of MDG strengths and weaknesses pervades the literature. Table 4.1 shows a comprehensive evaluation of MDG targets, indicators, strengths and weaknesses, and progress by goal. A brief explanation of the arguments of MDG strengths and weaknesses is presented below. Greater analysis is placed on the lessons to be taken and applied to the SDG process, however, than on the specifics of the positives and negatives debate. It should also be noted that during internship research, a number of UNCTAD researchers were surprised to find so many reports on general MDG strengths and weaknesses with few detailed analytic studies on how they might be reapplied or corrected in the next framework (UNCTAD 2013).

Table 4.1: MDG targets, indicators, progress, and lessons learned, by goal
(Author's compilation of United Nations 2013; Rippin 2013; Manning 2013; UNCTAD 2013)





Targets	Indicators	Progress	Lessons learned through implementation and measurement
Goal 1: Eradicate extreme poverty and hunger			
<i>Target 1A:</i> Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1.1 Proportion of population below \$1 (PPP) per day ^a 1.2 Poverty gap ratio 1.3 Share of poorest quintile in national consumption	 Target has been met, but 1.2 billion people still live in extreme poverty	<ul style="list-style-type: none"> Indicator and target specifications do not truly capture extreme poverty that still exists --> misleading results of success (Global achievement of goal due largely to poverty reduction in large populations in China and India) Meeting the goal may halt the effort for further progress on and/or investment in the issue of extreme poverty Unequal wealth distribution within nations contributes to aggregate statistical success, while the poorest continue to get poorer. ('Share of poorest quintile' indicator recognized as good, but has been neglected through measurement process)
<i>Target 1B:</i> Achieve full and productive employment and decent work for all, including women and young people	1.4 Growth rate of GDP per person employed 1.5 Employment-to-population ratio 1.6 Proportion of employed people living below \$1 (PPP) per day 1.7 Proportion of own-account and contributing family workers in total employment	 Target has not been met as a result of the slowing of economic growth and job losses, especially for young people	<ul style="list-style-type: none"> The term 'full employment' is both overambitious and ill-defined, especially in the current global financial situation 'Decent work' is very vague as well, and extremely difficult to measure, for what is decent work? Indicators do not capture or measure target goals - 'decent work' may be informal work and difficult to track, 'decent work' may still not provide wages that allow breaking through the poverty line.
<i>Target 1C:</i> Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under-five years of age 1.9 Proportion of population below minimum level of dietary energy consumption	 Target has not been met, but is within reach (hunger rate has decreased from 23.2% in 1990-92 to 14.9% in 2010-12)	<ul style="list-style-type: none"> Using the term 'underweight' rather than 'undernourished' children in indicator recognized as a success, but many believe that measurement should focus on children 'stunted' in their growth due to lack of food Indicators produce misleading results --> progress has been made, yet no focus on development interlinkages such as the uneven distribution of food, gender discrimination, etc.
Goal 2: Achieve universal primary education			
<i>Target 2A:</i> Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	2.1 Net enrolment ratio in primary education 2.2 Proportion of pupils starting grade 1 who reach last grade of primary 2.3 Literacy rate of 15-24 year-olds, women and men	 Target will not be met. However, in 2011, 57 million school age children were out of school, down from 102 million 2000	<ul style="list-style-type: none"> First 2 indicators recognized as reliable, yet may be a bit misleading as they are input indicators and do not measure the quality of the education received with higher enrolment rates. In some cases, increased enrolment and completion may put a strain on teachers and resources, producing lower quality education 'Literacy rates' indicator is poorly defined and difficult to measure as level of 'literacy' is unspecified and may vary across nations

Goal 3: Promote gender equality and empower women			
<p><i>Target 3A:</i></p> <p>Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015</p>	<p>3.1 Ratios of girls to boys in primary, secondary and tertiary education</p> <p>3.2 Share of women in wage employment in the non-agricultural sector</p> <p>3.3 Proportion of seats held by women in national parliament</p>	<p> Target will not be met. Steady progress has been made, however, strong regional disparities are clear</p>	<ul style="list-style-type: none"> The indicators do not capture the overarching gender dimension of development, such as the gendered division of resources, inequalities and sexual vulnerabilities, or the interconnections between women's empowerment and financial development, health, education, etc. Additionally, many women are employed in the informal sector, which is very difficult to regulate, track and measure
Goal 4: Reduce child mortality			
<p><i>Target 4A:</i></p> <p>Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate</p>	<p>4.1 Under-five mortality rate</p> <p>4.2 Infant mortality rate</p> <p>4.3 Proportion of 1 year-old children immunized against measles</p>	<p> Target will not be met. Big gains have been made (child mortality has reduced 41% since 1990 - 14,000 fewer children dying per day), but efforts must be redoubled in order to reach the target</p>	<ul style="list-style-type: none"> Praised for its specificity, this target and corresponding indicators are recognized as the most reliable in the current MDG system. The set measurement ratios (per 1,000 live births) allow clear and comparable results across the board. Again, however, the target does not directly address causal issues of child mortality.
Goal 5: Improve maternal health			
<p><i>Target 5A:</i></p> <p>Reduce by three quarters, between 1990 and 2015, the maternal mortality rate</p>	<p>5.1 Maternal mortality ratio</p> <p>5.2 Proportion of births attended by skilled health personnel</p>	<p> Target will not be met. However, maternal mortality has been nearly cut in half since 1990</p>	<ul style="list-style-type: none"> Data for the first target is very often unreliable. Experts prefer the second target even though it may not accurately measure mortality Additionally, the first indicator is criticized for it focus on mortality because it is easy to measure, and its ignorance of the extreme numbers of injury and disability that result from pregnancy and childbirth
<p><i>Target 5B:</i></p> <p>Achieve, by 2015, universal access to reproductive health</p>	<p>5.3 Contraceptive prevalence rate</p> <p>5.4 Adolescent birth rate</p> <p>5.5 Antenatal care coverage (at least one visit and at least four visits)</p> <p>5.6 Unmet need for family planning</p>	<p> Target will not be met. Only half of women in developing nations receive the recommended amount of health care during pregnancy</p>	<ul style="list-style-type: none"> Regarding the entire goal, many criticize it for not being framed around recent trends, but instead on being set as an overambitious and unattainable goal Its narrow focus ignores the importance of setting up quality and reliable health systems and health care, removing discriminatory practices, etc. While access to reproductive health is important, the indicators do not necessarily reflect the needs for all for family planning. In cases where children are needed to help the family run their farm, for example, the issue is not the number of children because they are needed for work, but the societal conditions which force the family to rely on subsistence agriculture

Goal 6: Combat HIV/AIDS, malaria and other diseases

<p><i>Target 6A:</i></p> <p>Have halted by 2015 and begun to reverse the spread of HIV/AIDS</p>	<p>6.1 HIV prevalence among population aged 15-24 years</p> <p>6.2 Condom use at last high-risk sex</p> <p>6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS</p> <p>6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years</p>	<p> Target will not be met. The incidence of HIV is declining steadily in most regions, but 2.5 million people are still newly infected each year</p>	<ul style="list-style-type: none"> Recognized that targets and indicators are logical for the specific disease of HIV/AIDS, but many criticize them because they take away attention from investment in health systems and health care in general Goal ignores gender dimension of HIV/AIDS contraction among women
<p><i>Target 6B:</i></p> <p>Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it</p>	<p>6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs</p>	<p> Target is within reach, but requires sustained political support (target will not likely be reached by 2015, but is possible)</p>	<ul style="list-style-type: none"> See above. Focus on HIV/AIDS important, but takes away focus on health care in general
<p><i>Target 6C:</i></p> <p>Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases</p>	<p>6.6 Incidence and death rates associated with malaria</p> <p>6.7 Proportion of children under 5 sleeping under insecticide-treated bednets</p> <p>6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs</p> <p>6.9 Incidence, prevalence and death rates associated with tuberculosis</p> <p>6.10 Proportion of tuberculosis cases detected and cured under directly observed treatment short course</p>	<p> Target will not be reached, but progress has been made for both malaria (25% reduction in mortality rate from 2000-10) and tuberculosis (the rate of infection and death is falling)</p>	<ul style="list-style-type: none"> Information not available

Goal 7: Ensure environmental sustainability

<p><i>Target 7A:</i></p> <p>Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources</p>	<p>7.1 Proportion of land area covered by forest</p> <p>7.2 CO2 emissions, total, per capita and per \$1 GDP (PPP)</p> <p>7.3 Consumption of ozone-depleting substances</p> <p>7.4 Proportion of fish stocks within safe biological limits</p> <p>7.5 Proportion of total water resources used</p> <p>7.6 Proportion of terrestrial and marine areas protected</p> <p>7.7 Proportion of species threatened with extinction</p>	<p> Target will not be reached. Although some nations, have thoroughly integrated sustainable programs, most have not made much of a difference</p>	<ul style="list-style-type: none"> The goal is framed very broadly and generally, with little indication as to concrete action and measurable results Indicators of 7A do not reflect how to measure the incorporation of sustainable development into country policies and programs, or even explain what it entails, and only account for resource use Those that track environmental resource use are difficult to measure (3rd, 4th and 5th indicators), especially in developing nations. For example, a safe limit for fish stocks is often debated between safe ecosystem levels and food needs of the local population (food distribution policies and global consumption patterns should also be addressed), and energy use is hard to convert and track for comparison across nations and fuels
<p><i>Target 7B:</i></p> <p>Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss</p>		<p> Target will not be reached. More areas are protected today, but biodiversity is still decreasing at an alarming rate</p>	<ul style="list-style-type: none"> Ill-specified target as it is not clear what a 'significant reduction' entails Target does not place specific focus on areas in need or the industries (fishing, forestry, agribusiness, mining, etc.) that have made them vulnerable
<p><i>Target 7C:</i></p> <p>Halve, by 2015, the proportion of people with sustainable access to safe drinking water and basic sanitation</p>	<p>7.8 Proportion of population using an improved drinking water source</p> <p>7.9 Proportion of population using an improved sanitation facility</p>	<p> Target has been reached. More than 2.1 billion people have gained access to improved drinking water sources since 1990. For many of the rural poor, drinking water and sanitation are still out of reach</p>	<ul style="list-style-type: none"> Strong target, but criticized for being out of place under this goal. Access to water and sanitation should be considered under goals of health and livelihoods Overconsumption patterns in developed nations should also be applied to solving and directing resources toward the problem
<p><i>Target 7D:</i></p> <p>By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers</p>	<p>7.10 Proportion of urban population living in slums^b</p>	<p> The target has already been met. Increasing rates of urbanization continue to outpace this progress, however.</p>	<ul style="list-style-type: none"> Ill-specified and difficult to measure As urbanization increases, so too do the number of people living in slum conditions Population growth is another factor to be considered Bettering the conditions of some is important, but the inequalities, labor conditions and economical systems that put them there should also be incorporated

Goal 8: Develop a global partnership for development

<p><i>Target 8A:</i></p> <p>Develop further an open, rule-based, non-discriminatory trading and financial system</p>	<p><u>Official development assistance (ODA)</u></p> <p>8.1 Net ODA, total and to the least developed countries, as percentage of OECD/DAC donors' gross national income</p> <p>8.2 Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation)</p> <p>8.3 Proportion of bilateral official development assistance of OECD/DAC donors that is untied</p> <p>8.4 ODA received in landlocked developing countries as a proportion of their gross national incomes</p> <p>8.5 ODA received in small island developing States as a proportion of their gross national incomes</p> <p><u>Market access</u></p> <p>8.6 Proportion of total developed country imports (by value and excluding arms) from developing countries and least developed countries, admitted free of duty</p> <p>8.7 Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries</p> <p>8.8 Agricultural support estimate for OECD countries as a percentage of their gross domestic product</p> <p>8.9 Proportion of ODA provided to help build trade capacity</p>	<p>Duty free access to trade for developing countries is increasing and developed countries' tariffs are slowly decreasing ^c</p>	<ul style="list-style-type: none"> • Criticized for being the 'kitchen sink' approach and lumping everything together at the end • Indicators and targets do not necessarily address the necessities of a 'global partnership', but instead focus on the global economy • There are no numerical targets to work towards • Basic social services indicator criticized for ignoring trade capacity, infrastructure, agriculture, etc. • No explanation on how to increase ODA and other development financing. Multilateral cooperation should be targeted, rather than simply and generally promoting an increase in the current ODA and development assistance agendas • Focus should lie on principles of good governance, and developing and maintaining sound monitoring and financial institutions on local, regional and global levels • Transparency and collaboration in and between institutions should be included as an indicator of a global development partnership
<p><i>Target 8B:</i></p> <p>Address the special needs of the least developed countries</p>		<p>Aid money is declining overall and moving away from the poorest countries. Official development assistance continues to decline as a result of the global financial crisis and Euro zone turmoil</p>	
<p><i>Target 8C:</i></p> <p>Address the special needs of landlocked developing countries and small island developing States</p>		<p>Debt service ratios are one quarter of their 2000 levels, lessening the burden on developing countries</p>	
<p><i>Target 8D:</i></p> <p>Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term</p>	<p><u>Debt sustainability</u></p> <p>8.10 Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative)</p> <p>8.11 Debt relief committed under HIPC and MDRI Initiatives</p> <p>8.12 Debt service as a percentage of exports of goods and services</p>		

<p><i>Target 8E:</i></p> <p>In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries</p>	<p>8.13 Proportion of population with access to affordable essential drugs on a sustainable basis</p>	<p>Information not available</p>	
<p><i>Target 8F:</i></p> <p>In cooperation with the private sector, make available the benefits of new technologies, especially information and communications</p>	<p>8.14 Fixed-telephone subscriptions per 100 inhabitants</p> <p>8.15 Mobile-cellular subscriptions per 100 inhabitants</p> <p>8.16 Internet users per 100 inhabitants</p>	<p>Progress is being made. Nearly 40% of the world population is online, and cell phone subscriptions are on the rise, nearing levels of saturation</p>	

^a For monitoring country poverty trends, indicators based on national poverty lines should be used, where available.

^b The actual proportion of people living in slums is measured by a proxy, represented by the urban population living in households with at least one of the four characteristics: (a) lack of access to improved water supply; (b) lack of access to improved sanitation; (c) overcrowding (3 or more persons per room); and (d) dwellings made of non-durable material.

^c The targets of MDG8 do not have direct numerical goals, and therefore, are more difficult to measure and are reflected upon thematically

4.1.3 MDG strengths

“The MDGs mark a historic and effective method of global mobilization to achieve a set of important social priorities worldwide.”

- Jeffrey Sachs (2012), leading advisor on the MDGs and SDGs, and Director of the Earth Institute at Columbia University (2206)

According to many policy leaders, the strength of the MDGs comes from their comprehensive coverage of human development issues in a set of organized and concrete priorities, tracked over time. Combating social injustices and inequalities on a global scale is an undeniably difficult task, and many more general frameworks before the MDGs were unable to live up to the job. Therefore, a number of theoretical considerations, including Results-Based Management (RBM) and Sen’s Capability Approach (1993), were applied during their construction (as cited in Hulme 2009; 2010; Rippin 2013).

While opinions on MDG effective progress vary between individual nations and the globe, politicians, humanitarians and economists, and developed and developing citizens, it is generally agreed that the unified declaration for development successfully directed the

attention of the world toward a common objective (Hulme 2010; Sachs 2012). A ‘packaged’ set of goals and their time limit produce not only a global mindset of awareness, but political accountability, improved metrics, social feedback, and public pressures as well (Sachs 2012; UNTT 2012). Based upon an analysis of UNTT (2013), Sachs (2012), Hulme (2010), Rippin (2013), and Manning (2009), the strengths of the MDGs surround:

- A focused and integrated framework that guides focus and commitment, and directs development toward expanding capacities in the developing world
- Helping to converge motivation and promote concrete action
- Clear definitions of development goals, with specified targets and indicators
- Helping to direct aid and action to necessary goals and to promote goal attainment
- Improving monitoring, measurement and accountability around the globe
- Recognizing the special needs of developing areas (Africa, Least Developed Countries (LDCs), Land-locked Developing Countries (LLDCs), and Small Island Developing States (SIDS))
- Improving statistical communication and sharing at national and international levels

The focus on defined and tangible targets pioneered the recognition of the many interacting dimensions of human development (Hulme 2010). To reach any end goal, a number of facets of social life must be addressed in accordance with each other – for example, the relationship between education and decent livelihoods, or nutrition and food security and disease. The synergies recognized between varying development dimensions demonstrated that specific end goals encourage the means for which to develop (Hulme 2010). Reinforcing each other, interacting development strategies based on *means and ends* goals, produced the more complete, multidimensional and wide-ranging framework of the MDGs (Sachs 2012). The SDGs must, therefore, build upon and improve the recognition and incorporation of multi-dimensional interactions in human development across social, economic and environmental systems.

4.1.4 MDG weaknesses

While successful in many ways, a number of weaknesses have also been identified over MDG progression. A discussion of some of the weaknesses, listed below, continues in more detail and is accompanied by suggestions for the SDG framework. MDG weaknesses include:

- Exclusion of developing country governments in the specific formulation of goals – preventing feelings of ownership, and producing a perception of a donor-centric agenda
- Imprecise quantitative targets for some goals (e.g. MDG 8), and the failure to account for population changes in indicator formation (e.g. MDG 1A)
- Ignorance of the interlinkages and overlaps between goals

- Failure to recognize variances in initial conditions within and between nations – limited consideration of how to track global targets across nations and regions
- Perceived as a top-down prescription based on international organizations and financial institutions – ignorance of local conditions, specific needs, capacity building, and the global systems and dynamics that cause inequities
- Focus on meeting international benchmarks led to the setting of national policy agendas that reflected aggregate improvement rather than across the board improvement in local conditions
- Major and important issues were inadequately incorporated into the goals. These include environmental sustainability, climate change, global systems, inequality, ethics and common global responsibility (UNTT 2013; Sachs 2012; Hulme 2010; Rippin 2013; Manning 2009; Waage *et al.* 2010).

Regarding goal conceptualization, the exclusion of developing country governments in MDG conception caused many nations, especially developing, to perceive the goals as a donor-centric agenda, and hindered implementation (UNTT 2012). Involving all parties is a key factor in accurately identifying needs, and ensuring successful aid and progress within local contexts. National governments must be able to express their own needs for development. Fortunately, such consideration has already been incorporated into the SDG formulation process as UN member-states have a part in official SDG processes.

Local contexts and disaggregated progress

Another weakness stems from the fact that baselines were not consistently set to measure MDG progress from, and are therefore not considered in the global comparison of progress (UNTT 2012). For example, different starting points across nations mean that those far behind may have made extreme progress, but still seem to lag behind in global aggregate progress because of the large gaps in initial conditions. This works the opposite way as well. Nations that do not progress significantly, but meet a target because of a strong starting point, present positively to global aggregate progress and displace more substantial improvements in other nations that still remain below target levels because of low starting points (UNTT 2013). Demonstrated in Fig. 4.4, low-income countries have not made nearly as much progress as their high-income counterparts, as higher national income is likely attached to higher baseline conditions. The gap between nations with different starting points makes measuring ‘on-track’ and ‘off-track’ progress very difficult. A relationship with numerous interacting effects is present, and produces different levels of progress on national and international scales. The SDGs must therefore seek to recognize disaggregated progress before compiling it into global assessment, to develop precise and locally specific quantitative targets, and to make clear the distinction between national and international goals.

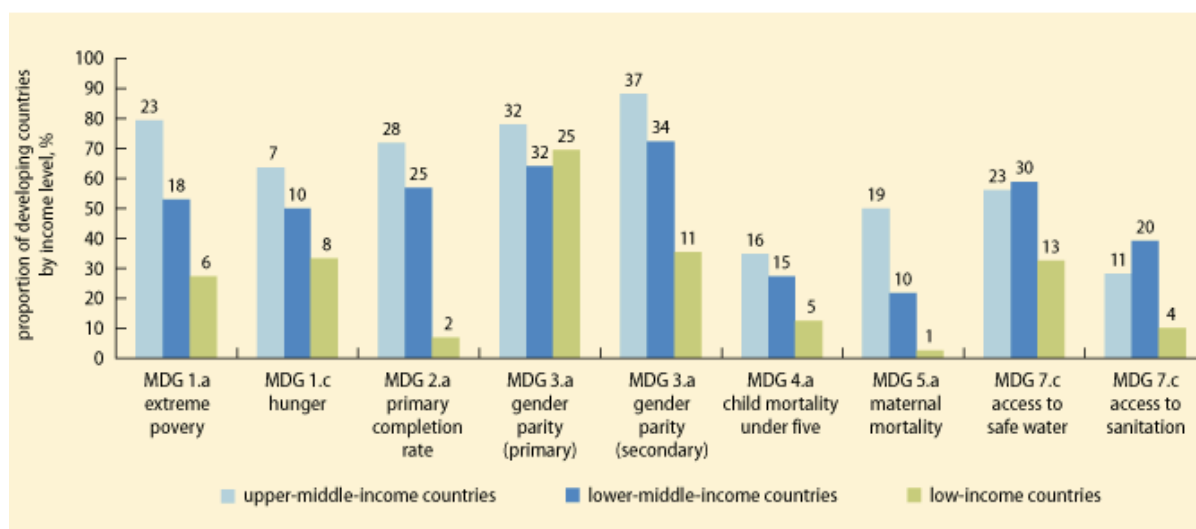


Figure 4.4: Fewer low-income countries are on track to achieve the MDGs (World Bank 2011)

World Bank staff calculation based on data from the World Development Indicators database.

Note: The number above each bar refers to the number of countries attaining that MDG.

Financial inequalities

Fig. 4.4 also provides insight into the need for regionalized focus and prioritization in aid and development support. A number of factors contribute to uneven spread of progress, including the problem of variances in initial conditions described above. Other strategic economic and political factors influence aid distribution as well. Higher-income nations, for example, naturally produce greater economic incentive for the developed nations, and consequently may receive more focus than the extremely impoverished. Such does not support the mission of the MDGs or the recognition and honoring of universal human rights. Finance and aid distribution is, therefore, a particularly important issue for the future SDGs, and will be discussed in greater detail below.

Multi-dimensions

Where one facet of the MDG framework may act as global encouragement for development progress, that same facet may produce the opposite effect on the national level, or vice versa. The complicated relationship between universal and national goals, and the interacting and multidimensional effects of the MDG framework is best demonstrated through a discussion of one of the goals.

For example, the analysis of MDG 1, Target 1A, halving the proportion of people who live on less than one dollar a day. This target has been globally achieved, and ahead of schedule to boot. Reaching the target should be celebrated, but one must also keep in mind the 1.2 billion people that still live below the poverty level. As the world population continues to

increase, so too do the number of people in conditions of poverty. The target took this into account with its clause of proportionality, and recognition of a growing population, but whether this is enough to negate the exponentially increasing rate of impoverished people still needs to be considered, especially in the globalized and extremely inequitable society of the 21st century. In this case, the numbers suggest a great improvement in poverty levels, and many people do now experience better employment and living conditions. As wage gaps continue to expand however, conditions continue to worsen for many, especially those at the bottom. Deciding the correct balance and focus for development frameworks becomes increasingly difficult as the population grows, conditions change, and global relations fluctuate. In order to create a strong, comprehensive and inclusive global partnership after the MDGs, multidimensional factors and effects must be recognized for their proactive benefits and complicated interactions.

The strengths and weaknesses of the MDGs form a list much more extensive than those presented. They do not all need to be listed, however, to make clear the difficulties of developing a global framework, to be implemented on the national level, and then measured on the aggregate.

4.1.5 Lessons learned for future frameworks

Difficulties in measurement, ignorance of local contexts and a lacking focus on global inequality and its causes have made it difficult to extrapolate global MDG progress. The MDGs have, however, found unprecedented success in directing and holding the attention of global leaders, business and policymakers toward global goals, yet little focus has been paid to the interconnections of social actions on the Earth System and on the divide between rich and poor. The SDGs must learn from these limits and strive to address the global complexities of the international system. This entails the recognition of national differences and global responsibilities, the pressures of climate change, and the synergies within and between natural, economic and social systems. With the fame of a successful global framework, also comes the responsibility of incorporating all of human society's problems – even the most difficult.

4.2 A shift to sustainability

With so much talk of sustainable development, it is helpful to examine the current processes of international development, its needs and the efforts undertaken to integrate sustainability today. In a world of 7 billion people, with likely growth to 8.1 to 10.6 billion by 2050, current

development and economic paths cannot be sustained within the Earth System (SDSN 2012). A proactive approach to address the needs of a growing population is necessary for development, especially when the developing nations are expected to grow, collectively, by 58% over the next 50 years, compared to a 2% increase in the developed nations (UNDESA 2004).

Although the fight against global poverty has made progress, great inequality still exists across the globe. Additionally, the environmental impacts of an economy with global GDP around US\$70 trillion, place extreme pressure on established social and economic processes of the world (SDSN 2012).

4.2.1 The business-as-usual scenario

Understanding the detriments of the business-as-usual (BAU) scenario on the future is fundamental knowledge for sustainable development realization. Continuing BAU processes, or the current normal processes of the global economy, is not possible, or beneficial, for the growing world population. UNDESA (2013) emphasizes that not only will current development paths not lead to sustainable development after 2015, but also that BAU scenarios present “clear risks” supported by growing evidence (2). Such risks include:

- The *impact of climate change* and its likely escalation without sufficient safeguards, which includes integrated management of sustainability, biodiversity and ecosystem services through adaptation and mitigation strategies along the principle of common but differentiated responsibilities
- *Food and nutrition insecurity* that leads to hunger and malnourishment
- *Rising income inequality* within and between nations that leads to heightened social conflict and vulnerability
- *Rapid urbanization and lacking infrastructure*
- *Unmet energy needs and access*
- *Financial crises and their effects*, which lead to an insecure arena for necessary investment in sustainable development (UNDESA 2013:2).

Furthermore, in a report to the UN Secretary-General, SDSN (2013) explains the BAU trajectory and its effects on the globe and sustainable development:

The BAU trajectory is marked by a failure of international coordination and cooperation, as well as inadequate policies in developed and developing countries that do not address the challenges of sustainable development. As a result, the BAU trajectory fails to achieve sustainable development in multiple ways. Many countries will prosper and converge rapidly, reaching the same per capita GDP as high-income countries, while others will stagnate and still other fall deeper into poverty. Growing regulatory competition among countries may lead to a “race to the bottom” in terms of taxation, labor and environmental standards. Even the

successful countries will struggle to raise public revenues they need to invest in human capital, infrastructure, public services and environmental protection (4).

Continuing that global attempts to help the poor will remain insufficient, that both developed and developing nations will be unable to provide their citizens with economic training and opportunities, and that growing populations will continue processes of unsustainable production and consumption, the BAU trajectory is recognized as the wrong way to go (SDSN 2013; UNDESA 2013).

Suggesting global cooperation as the way to curb the harmful effects of the BAU scenario, SDSN (2013) asserts that the current market economy is not capable of inducing the necessary collaboration for sustainable development. Instead, it claims, the global economy must be accompanied by global cooperation – a job for the SDG framework (SDSN 2013). SDSN suggests the BAU trajectory be halted with SDGs that promote and ensure (1) the right to development for all – along different, transformational and sustainable paths, (2) human rights and social inclusion, (3) convergence in the economic and social gaps within and between nations, and (4) shared responsibilities and opportunities (SDSN 2013).

It is clear that BAU will not encourage or contribute to sustainable development after 2015. While such is accepted across the literature, transitioning to more economically and socially sustainable processes continues to be a difficult issue, and is crucial for SDG development and implementation.

4.3 A global sustainable development framework: The SDGs

Expiration of the MDGs after 2015 means a new and transformative framework must be ready to take its place, continue its mission, and incorporate the important issues it excluded, including climate change and economic inequality. Currently, two United Nations (UN) processes are investigating the possibilities and necessities essential in establishing the best framework to meet development and sustainability needs (Saner Yiu, Saner & Boehmer 2013).

4.3.1 The Sustainable Development Goals (Rio+20) Process

The first process, the *Sustainable Development Goals* or the *Rio+20 Process*, is based in the principles of the UN Conference on Sustainable Development, also known as Rio+20, and is run by the UN General Assembly. Held in June 2012, the Rio+20 conference focused on the growing challenges presented by climate change and the global economy today (Saner Yiu,

Saner & Boehmer, 2013). Gathering world leaders, government officials and other participants from the private sector and NGOs, the conference convened to discuss ways to improve global development strategies, while keeping the environment a focus. Building upon and reaffirming the principles set forth in the original Rio Declaration from 1992, available in Appendix I, the Rio+20 outcome document, *The Future We Want*, prescribes global development strategies that consider the needs and capabilities of the natural world, and stipulates a process in which to create the new sustainable development framework (UNDESA 2014; UN General Assembly 2012).

Following the Rio+20 process, the *Sustainable Development Goals Agenda* promotes a framework for development based on the three interacting and reinforcing pillars of sustainable development: social equity, economic growth, and environmental protection (Saner Yiu, Saner & Boehmer 2013; UNDESA 2014; UN General Assembly 2012). Additionally, focusing on and encouraging a more specific set of targets than the MDGs, Rio+20 highlights priority areas that need particular attention, and in which action for further development should be centered. In identifying these areas, Rio+20 ties together the issues of development and the environment, and asserts focus on the Earth System.

To develop the specific SDGs, the UN General Assembly established the *Open Working Group on the Sustainable Development Goals (OWG)* in January 2013. A constituency-based 30-member organization, the OWG represents various geographic areas and member states, industries, and levels of economic development in its work toward goal formation (UNDESA 2014). Considering the suggestions and concerns of its various constituents, the OWG has begun to produce prospects and focus areas for the actual goals, and should introduce a more finalized report, including targets and indicators, to the General Assembly in September 2014 (UNDESA 2014).

4.3.2 The Post-2015 Development Agenda

The second process, known as the *Post-2015 Development Agenda*, is directed by the UN Secretary-General and was created to continue action on the ideas of the MDGs after their expiration. Two main initiatives lead the Post-2015 process. The first is the *UN System Task Team on the UN Development Agenda (UNTT)*, established in January 2012. UNTT consists of members from 60 UN agencies and international organizations, and is the body to coordinate development preparations after 2015 (Saner Yiu, Saner & Boehmer 2013; UNDESA 2014). Producing reports and recommended agendas based on the UN's vision for

development after 2015, UNTT represents an ambitious attempt to further the successes of the MDGs. The UNTT Report, *Realizing the Future we Want for All* (2012a), outlines the vision and mission of the Post-2015 Development Agenda. General recommendations include a framework based on the core values of human rights, equality and sustainability, made of up concrete goals and targets, with global coherence and recognition of differentiated responsibility (UNTT 2012a).

The second initiative in the Post-2015 Agenda, established July 2012, is the 27 person *High-Level Panel of Eminent Persons of the Post-2015 Development Agenda (HLP)* – a group of experts to further advise UNTT and the future development agenda. The panel incorporates members not only from international organizations, but also from the private sector, governments and civil society, in order to reflect on the MDGs and their strengths and weaknesses, in addition to the new challenges and concerns for global development (Saner Yiu, Saner & Boehmer 2013).

4.3.3 Other UN workstreams

A third work stream for sustainable development after 2015 was created in August 2012, also by UN Secretary-General Ban Ki Moon, to aid the other UN processes in investigation, informed research and discussion. The UN Sustainable Development Solutions Network (SDSN) has since sought to provide scientific and technical information on the intersections of environmental, social and economic processes, upon multiple dimensions, to promote the creation of comprehensive and dynamic SDGs (SDSN 2014). Working with different UN bodies, civil society, the private sector and multilateral finance organizations, SDSN seeks to improve global development by learning from the MDGs within the context of current global systems (SDSN 2014).

4.3.4 Bringing the processes together

How the UN agendas will come together still remains to be seen. Ideas and opinions as to the end result form an extensive list. Based upon the documents, reports and proposals produced thus far, however, it seems that the agendas will eventually merge to combine the more concrete and environmentally-based suggestions and goals of the OWG and Rio+20 stream, with the broader and more diplomatic and poverty-based views of the UNTT and HLP. The official flow map of the combination of processes is represented in Fig. 4.5.

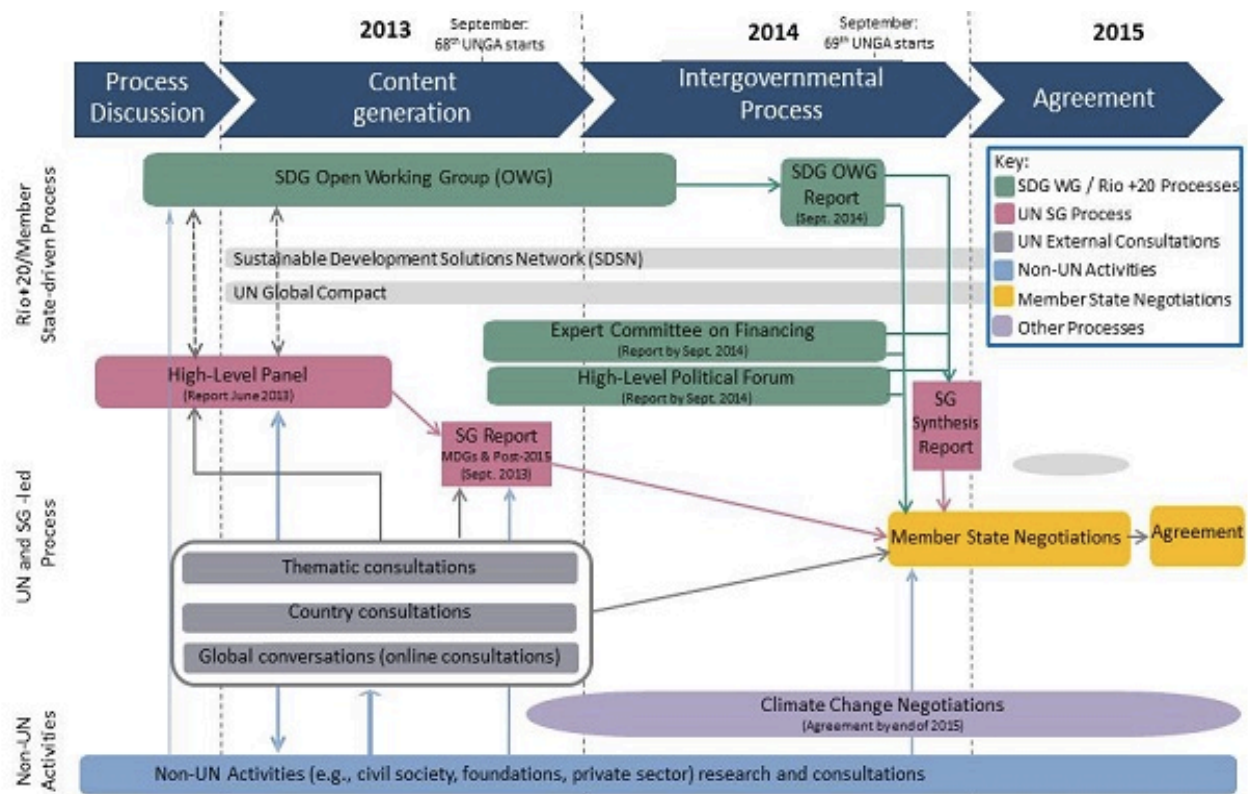


Figure 4.5: Processes feeding into the Post-2015 Development Agenda (SDSN 2014)

It is important that member-states, from both developed and developing nations, civil society organizations, and environmental and social think tanks continue to play a role in the proceedings of the SDG agenda. Incorporating stakeholder needs and opinions is key to produce an agenda that promotes commitment, and that corrects the donor-centric perception of the MDGs. The multitude of contributions, however, must be regulated to a certain degree to maintain focus and an open-minded and even-handed agenda. In a background report for UNTT, Vandemoortele (2012), a major contributor to the MDG process, explains that for the post-MDGs to have the necessary global legitimacy, the UN must be perceived as the central platform for their development. While the UN should remain the core organizational body in developing a neutral and globally inclusive framework, this study considers a number of other sources as well. Sources that dare to question current economic and political processes, and suggest alternative futures for the planet. Combining such opinions is difficult, but a necessary component in creating and implementing a dynamic sustainability agenda.

4.4 The likely SDGs

Although the SDG processes have not yet comprehensively come together, investigation of each of their progresses and proposals is helpful. Not yet defined specifically, SDG content is expected to surround a number of priority areas including poverty and hunger eradication, energy and healthcare access, education and sustainability. The discussion to follow briefly describes the likely foci, and the proposed goals to date.

4.4.1 Comparison of literature on priority areas for development after 2015

A large section of UNCTAD research surrounded investigation into probable SDG focus areas. Based on literature and reports available at the time, the following priority areas were extrapolated (UNCTAD 2013):

1. Poverty Eradication
2. Employment, decent livelihoods
3. Ending hunger, food security, sustainable agriculture and farming, nutrition
4. Health, healthcare, communicable disease control, well-being
5. Education
6. Water access, sanitation
7. Sustainable energy
8. Women's empowerment and gender equality
9. Climate mitigation and adaptation, sustainable consumption
10. Natural resources management, biodiversity preservation, ocean and sea protection, desertification
11. Global partnership, government, institutions and financial regulation

Table 4.2 lists the proposals from six sources – the first five based upon UN work streams, and the fifth on an influential article from noted sustainable development scholars. For now, primary attention should be paid to the UN lists. Investigation into the Griggs *et al.* (2013) proposals extends in detail in later sections and leads future analysis.

Spotlight on the SDSN suggested goals

In the report, *An action agenda for sustainable development* (2013), the SDSN Leadership Council provides suggestions for the SDG and Post-2015 development processes (SDSN 2013). At the time of UNCTAD research, the SDSN list, the first section of Table 4.2, was considered the most inclusive and likely predictor of future SDG focus areas. Proposing a detailed set of goals and targets, and the necessary considerations for implementation, the SDSN report provides an insightful look into UN progress for sustainable development. The full list of SDSN proposed goals and targets is located in Appendix II.

Table 4.2: Likely SDG priority areas

(Author's comparison based upon UN Global Compact 2013; UNTT 2012a; SDSN 2013; UN General Assembly 2012; OWG 2014a; Griggs *et al.* 2013)

Priority areas

Poverty eradication

Climate mitigation and adaptation,
sustainable consumption

Global partnership, institutions and
finance regulation

Women's empowerment/ gender equality

Sustainable energy

Hunger, food security, sustainable
agriculture, nutrition

Water access, sanitation

Education

Employment, decent livelihoods

Healthcare disease control, well-being

Natural resource management,
biodiversity, oceans, desertification

1. UN Global Compact report to the Secretary-General	2. UN System Task Team (UNTT)	3. Sustainable Development Solutions Network (SDSN)
1. End poverty and increase prosperity via inclusive economic growth 2. Quality education for all 3. Achieve women and girls' empowerment 4. Universal health coverage 5. Good nutrition for all through sustainable food and agricultural systems 6. Water and sanitation for all 7. Sustainable energy for all 8. Build peaceful and stable societies 9. Modernize infrastructure and technology 10. Good governance and realization of human rights	1. Eradicate income poverty and hunger 2. Reduce inequalities 3. Ensure decent work and productive employment 4. Adequate nutrition for all 5. Reduce mortality and morbidity 6. Gender equality 7. Universal access to clean water and sanitation 8. Freedom from violence, conflict, and abuse 9. Conflict-free access to natural resources 10. Protection of biodiversity 11. Stable climate 12. Resilience to natural hazards	1. End extreme poverty and hunger 2. Achieve development for all without ruining the environment 3. Ensure learning for all children and youth 4. Achieve gender equality and reduce inequalities 5. Achieve health and well-being at all ages 6. Increase agricultural production in an environmentally sustainable manner , thereby achieving food security and rural prosperity 7. Make cities productive and environmentally sustainable 8. Curb human-induced climate change with sustainable energy 9. Protect ecosystems and ensure sound management of natural resources 10. Improve governance and align business behavior with all goals
4. Rio+20 outcome document: <i>The future we want</i>	5. Open Working Group Focus Areas (OWG)	6. Sustainable development goals for people and planet
1. Poverty and hunger eradication 2. Food security, nutrition and sustainable agriculture 3. Water and sanitation 4. Energy 5. Sustainable tourism 6. Sustainable cities 7. Health and population 8. Productive employment and decent work 9. Oceans and seas 10. Small Island Developing States 11. Least Developed Countries 12. Landlocked Developing Countries 13. Africa 14. Regional efforts 15. Climate change 16. Forests 17. Biodiversity 18. Desertification and drought 19. Mountains 20. Chemicals and waste 21. Sustainable consumption and production 22. Mining 23. Education 24. Gender equality and women's empowerment	1. Poverty eradication 2. Sustainable agriculture, food security and nutrition 3. Health and population dynamics 4. Education 5. Gender equality and women's empowerment 6. Water and sanitation 7. Energy 8. Economic Growth 9. Industrialization 10. Infrastructure 11. Employment and decent work for all 12. Promote equality 13. Sustainable cities and human settlements 14. Promote sustainable consumption and production 15. Climate 16. Waste Conservation and sustainable use of marine resources, oceans and seas 17. Ecosystems and biodiversity 18. Means of implementation/ Global partnership for sustainable development 19. Peaceful and non-violent societies, rule of law and capable institutions	1. Thriving lives and livelihoods: end poverty , focus on education , employment and information, better health and housing, and reduced inequality 2. Sustainable food security and nutrition : end hunger and achieve long-term food security 3. Sustainable water security : universal access to clean water and sanitation and efficient allocation through integrated water -resource management 4. Universal clean energy : universal, affordable access to clean energy that minimizes pollution and health impacts and mitigates global warming 5. Healthy and productive ecosystems: sustain biodiversity and eco services through better management, measurement, conservation and restoration 6. Governance for sustainable societies : transform all levels to address the other five goals

OWG proposed focus areas

In March 2014, after the original comparison of likely SDG focus areas, and the UNCTAD (2013) prediction of likely priority areas, the OWG set forth a list of 19 focus areas (UNDESA 2014). Longer and more specific than the proposals in other documents, the OWG focus areas are most like the Rio+20 proposed goals, the fourth section of Table 4.2. Covering major human development and poverty issues, they also encompass the issues of inequality and environment left out in the MDGs. A breakdown of possible implementation strategies, to later be translated to targets and indicators for each area is also included in the document, and can be seen in detail in Appendix III. Currently, the OWG focus areas are undergoing intense examination and discussion by group members, member-states and their constituents. One of the two major leaders in the SDG process, the final SDGs are likely to implement goals that parallel the OWG proposed focus areas, the fifth section of Table 4.2.

UNTT proposed goals

Clearly, there is no shortage of reporting on likely SDG focus areas. While most research demonstrates similarities in length and general concepts, an additional comparison between the OWG focus areas and the goals proposed by UNTT, the second section of Table 4.2, further demonstrates the differences in the two UN work streams. UNTT's proposed goals have less of a focus on the environment than the OWG's, in wording and in number. Such observation further supports the designation between the diplomatic and human development based UNTT process, and the more environmentally aware Rio+20/OWG process.

4.5 Considerations for the SDG framework

The complexities of sustainable development and its linked systems of environment, economy and society make creating and implementing the SDGs a difficult task. Over half way through the SDG creation process, the content of the goals is generally recognized. While MDG weaknesses and limitations have been pointed out and incorporated into the creation of specific SDG focus areas and goals, larger considerations are still necessary for their implementation and success.

Considerations for the SDG framework and what it should help achieve span the literature, and are crucial for the SDGs to become a significant sustainable development framework. Generally, suggestions entail an improved global partnership, transformation of the economy, correction of MDG weaknesses and more direct recognition of the relationships between development issues and systems. The suggestions from two sources are presented below, and

represent the international community's views on how best to implement and construct the SDGs as a transformative framework.

In the report, *Realizing the future we want for all*, UNTT (2012a) describes key recommendations for the SDG agenda. Asserting that the Post-2015 framework must evolve from lessons of the MDGs and become a framework for transformative change, UNTT (2012a) outlines ways to shape the agenda. The list of recommendations is condensed in Table 4.3, and separated along the dimensions of lessons from the MDGs, the necessities of a transformative agenda and possible contours of the new agenda.

While broad suggestions, the UNTT proposals reflect the need for better global governance, involvement of the UN, structural changes based on MDG weaknesses and multi-level goals and analysis from the global, regional, national and local levels. They also briefly capture inequality, and the need to recognize connections within Earth's systems and to better tie economic policy to social and environmental issues. Recognizing intersections in globalized finance, development and environmental sectors is crucial in setting up a supportive and reinforcing system.

Produced by independent research organizations to inform the European Union, the European Report on Development (ERD) (2013) also makes proposals for the post-2015 framework. The report's main messages include:

- The need for “inclusive and sustainable” development,
- An updated understanding of poverty that addresses global inequalities,
- A “transformational” agenda that supports national policy choices,
- “Beyond aid” financial policies (in trade, investment and private finance),
- More “extensive international collective action”, and
- “Mutually reinforcing” processes to address global challenges (ODI, DIE & ECDPM 2013:199-218).

The ERD list focuses, even more thoroughly, on the relationships between global systems and actors, and the need for a transformative sustainable development framework. Although the needs of the Earth System are not explicitly recognized, the ERD focus on the importance of a transformative, inclusive and sustainable development framework, based on global collective action, makes an important step toward placing human civilization back within the natural system.

Table 4.3: UNTT key recommendations for the post-2015 agenda (Author's grouping from UNTT 2012a)

Lessons to take from the MDGs	Outline for transformative change	Possible contours
<ul style="list-style-type: none"> • Retain the concrete set of goals, targets and indicators of the MDGs, while maintaining a good balance of realism and ambition in the goals • Give general policy guidelines for implementation without being too prescriptive • Form globally applicable goals, but set targets and indicators and regional and local levels • Focus should remain on global poverty eradication, but should also include the consideration of emerging challenges • Emerging challenges: the persistence of major inequalities; the knowledge gap within and between countries; shifting demographics; a growing environmental footprint, peace and security issues; and governance and accountability deficits at all levels 	<ul style="list-style-type: none"> • Inclusive and people-centered sustainable development is needed • Build on the principles of the Millennium Declaration and the three principles: respect for human rights, equality and sustainability • These three principles should define the goals of the agenda along the four interdependent dimensions: inclusive economic development, inclusive social development, environmental sustainability and peace and security • Policy coherence as global, regional, national and sub-national levels is required 	<ul style="list-style-type: none"> • The development community should be cautious of overloading, being too prescriptive or too vague and being donor-centric • Reshape the global partnership to avoid the perception of rich-poor/ donor-recipient relationship – flexible forms of partnerships are required at all levels in today's world • Consider a longer timeframe of 15-25 years to perform more transformational changes, with shorter interim targets as well • Targets should be absolute and relative to take account of changing population dynamics and demographic structures across regions and nations

Based upon the lists of suggestions provided above, and a thorough overview of other UN and international organization documents, the focus for SDG formation and implementation, outside specific goal content, can be summarized by a few common considerations.

The considerations should come as no surprise and include:

- Better global governance
- The need for multi-level focus in goal formation, measurement, governance and aid, from the global and regional, to the national and local levels
- Focused international economics and policies that support and enable greater equality and development
- The recognition of multi-dimensional relationships between development issues, and the social, economic and environmental sectors of sustainability

Focusing on these issues is imperative for practical implementation of the SDG framework. Further description and investigation into the considerations continues in detail in chapters 6 and 7. Before moving forward, a look into what the current list of SDG necessities is missing is important.

First, the overlaps between goals and sustainable development processes are not inserted nearly enough. UNTT (2012a) suggestions neglect a focused proposition for the placement of economic and social systems within the natural system, and group ‘an increasing environmental footprint’ with a number of other demographic and governance issues. Keeping global poverty eradication as the main objective ignores its systemic causes and further promotes fragmented goals. Placing poverty reduction above the issue of the Earth System will only perpetuate the lack of basic needs in the developing world. As a lead developer, such demonstrates insufficient recognition and integration of the weight the planet holds on human development from UNTT.

Fortunately, the OWG process has made an effort to recognize the interlinkages and overlaps between goals and economic, environment and social systems. Discussed briefly in section 4.1.4, the fragmented goals and targets of the MDGs fail to represent the interlinkages and cause and effect relationships between the development issues they attempt to solve. All potential advantage or disadvantage of goal interaction and synergy is ignored (Waage *et al.* 2010). Incorporating the recognition of goal overlaps into their general recommendations, and producing a specific document highlighting each focus area’s connections to other areas, the OWG has initiated acknowledgement of the systematic linkages between the social, environmental and economic sectors of the SDGs.

The *Interlinkages* document, located in Appendix IV, helps to paint the picture of a more integrated sustainable development framework (OWG 2014b). For example, the document links SDG Focus Area 1, poverty eradication, to all other focus areas because of its multi-dimensional causes, and Focus Area 4, education, to poverty eradication, sustainable agriculture and food security, health and population dynamics, gender equality, economic growth, employment and sustainable consumption and production - an improvement from unconnected MDG goals and targets (OWG 2014b).

Analysis of the full document, however, demonstrates persistent ignorance of the links between climate change, economic growth, sustainable consumption and production and poverty eradication. It may be claimed that the document is meant simply to identify overlaps between specific focus areas, and not to make macro-level connections between the economic, social and environmental systems that create such focus areas, but little information surrounds its creation and mission. Therefore, this study credits the OWG for their recognition of interlinkages within the proposed SDG focus areas, but asserts that

further understanding of the overlaps on a global systemic scale is necessary for successful SDG implementation.

Additionally, climate change integration comes up short across international community suggestions. For example, ERD (2013) suggestions lack specific and concrete focus on climate change. The EU's leadership position in sustainable development policy makes this an especially disappointing observation. Frequent references to "climate change" and "sustainable development" pervade the report, but little discussion expands outside the mention of the terms. In order to be 'transformative', the Earth System must be more vigorously asserted into the sustainable development agenda, especially in the suggestions proposed by the organizations directing its formation and implementation. The scientific evidence of human induced climate change is abundant, but developed country social and economic processes depend, and thrive, upon the industry that produces the problem in the first place. Here lies the problem with an instituted disconnect between social development and the environment. Industrialization, fossil fuel energy and exhaustive agriculture run and dictate the actions of developed nations, and transforming such dependence is not only a matter of technological and infrastructure change, but a change in the way development and progress is conceptualized (Griggs *et al.* 2013; IPCC 2014; Rockström *et al.* 2009a; 2009b).

5 Theory

International policy documents and reports propose strong ideas for the SDG framework, yet few spend enough time discussing the importance of the environment and planetary boundaries in their plans for the next development framework. Therefore, before moving on to the concepts proposed in chapter 4 for SDG implementation (improved global governance; multi-level focus in goal formation, measurement and aid; focused international economics and policies; recognition of multi-dimensional relationships between environmental, economic and social systems), a few theoretical considerations are introduced to help point out ideas missing from the original list. Transformation can only occur through a fundamental reworking of current systems, and the following theories should be applied to one's overall thinking about the SDGs and what they are to accomplish in the current global context.

It is this study's imperative to demonstrate the need for an increased focus on the natural Earth System, and the interlinked economic and social processes within it. Figuring out how best to integrate established needs and values into the Earth System, however, presents a hurdle for SDG achievement in the Anthropocene. First, the conceptual divides between development and environment are presented below, in terms of time frame, geographical scale and the perceived morality of each. Then, in order to better situate economic and social processes within the thresholds of the planet, an introduction to the theory of the Earth System follows. Next, a look at the theoretical and historical separation of nature and society for development helps to explain the lacking focus assigned to climate change in general, and within the SDGs. A deeper look into the dominance of the economy and its influences then helps to express the urgent need for a change in the way developed societies associate material wealth with well-being. In order to address problems such as poverty, hunger and disease, the foundation of the developed world's society must be analyzed and reevaluated along the lines of the economy.

Incorporating thinking about the SDGs into larger theoretical and global-scale perspectives will help them to become more than just a prescribed list of statistical targets set by the wealthy nations. A transformational sustainable development agenda can only transpire from thorough analysis of global systems, including their causes and interworkings, and beneath the surface of their effects.

5.1 Development and environment: Contradictory aims?

In order to implement a global SD agenda, it is essential that policymakers and government leaders recognize the critical differences and overlaps in pursuing a development agenda versus an environmental agenda. Two of the main issues of the time have been combined in hopes of producing a complementary and mutually reinforcing approach to development. Complete and in depth knowledge of each, human development and the environment, is necessary before any harmonious framework can be successfully integrated. As explained by Melamed, Scott and Mitchell (2012), “While the same people tend to support action on both development and environment, and while the two sets of ideas are not mutually exclusive, their traditions involve quite different ways of seeing the world and different assumptions about the nature of both problem and solution” (2). The overlaps and systemic relations between the two issues are clear, and form the core argument for a sustainable development agenda. Their general differences, however, provide naysayers an excuse not to move forward.

To compare the issues of ‘development’ and ‘environment’ on their most basic conceptual levels, the following section considers ‘development’ as the discourse relating to reducing global poverty and providing basic needs, and ‘environment’ as the agenda based in protecting the natural systems of the Earth. Table 5.1 demonstrates the comparison, and the varying approaches applied and inherent in development and environment agendas.

Table 5.1: Summary of different approaches in development and environment
(Author’s adaptation during UNCTAD 2013 discussion and research from Melamed, Scott & Mitchell 2012)

Approaches	Environment	Development
<i>Nature of the problem</i>	Technical	Ethical
<i>Scale of analysis</i>	From the global to the local	From the group to the individual
<i>Time horizon</i>	Long-term	Short-term
<i>Focus of concern</i>	Future generations	Current generations
<i>Key objectives of policy change</i>	Do not exceed maximum limits - reverse current trends	Reach and exceed minimum standards - accelerate current trends
<i>Economic policy implications</i>	Create and regulate new markets	Insert poor people into existing markets

One main divide, for example, is in the nature of what is considered a development problem versus an environmental problem. In development, the eradication of extreme poverty has been deemed a moral problem – no one should live beneath the minimum standards set for income in a world where another way of life is possible and available to others. The problem

of the environment, on the other hand, has been defined on the scientific level, rather than on moral acceptability – how environmental changes are likely to affect the global climate (Melamed, Scott & Mitchell 2012). In the developed nations, and especially in the US, the population, at large, finds it easier to recognize, relate to and support moral duties, than to become involved in the scientific discussion of climate change. While this disconnect is frustrating, the morality of development is easier for many to accept than the science of the environment, and is, therefore, more widely present in and influenced by social norms (Melamed, Scott & Mitchell 2012). The SDGs must therefore work to place ideas of morality and human relations within the natural Earth System, and connect the dots between global social and environmental responsibility.

Continuing this line of thought, development and environment issues have historically been measured on different levels, reinforcing disconnect in their comparative progress and relatability (Melamed, Scott & Mitchell 2012). Measured, most often, on an individual level, development progress reflects what individual people have or do not have, or what services and resources they can or cannot access. Alternatively, environmental progress is most often tracked on the global level, within and along the single Earth system (Melamed, Scott & Mitchell 2012). Shared and collective responsibility for the Earth System should encourage a more committed approach to its protection. Experience, however, has demonstrated the collective action problem associated with such large and overarching accountability (Galaz *et al.* 2012). The individual level of development presents an easier focus for understanding. Progress can be more frequently measured in different service areas and geographical regions rather than within the entire Earth System. Sustainable development thinking must reflect an integration of individual and global levels of analysis, and support the recognition of the linkages between individual actions and global consequences.

According to Melamed, Scott and Mitchell (2012), the short-term time frame of development issues are more politically popular than the long-term outlook and risk prediction of environmental issues. In the political arena, working to reduce current environmental trends in order to stay below maximum limits and within planetary boundaries means that tough and unpopular decisions must be made. These decisions often interrupt current and comfortable policies – the status quo policies for development that do not require sacrifices be made now, and do not consider future generations or accountability for the past. Focus instead remains on aiding the poor, and continuing the capitalist system that creates and sustains poverty and inequality in the first place (Melamed, Scott & Mitchell 2012).

Global inequalities and resource disparities are easily recognized as problems raging at present. Pictures of malnutrition, human rights abuses, and rampant disease resonate in the hearts of developed nation citizens, and cause the demand for immediate focus. While this focus is absolutely warranted and necessary, the decline of a stable climate and likely future effects do not as easily pull at the heartstrings of constituents, who, in turn, do not appreciate the focus of their politicians turned toward future problems that they may not even experience or identify with. This shortsighted outlook does not actually reflect the current environmental situation or its needs today, but is regrettably common across developed country policy.

A final discussion of the separation of development and environmental aims surrounds the economic implications of addressing each. Currently, the economics of development reflect expanding the economic opportunities available to people, nations and companies so that they may produce most effectively and efficiently, invest most successfully in their own lives and futures, and obtain the most profit (Melamed, Scott & Mitchell 2012). Conveniently, the present global market exists on the very same premises. Alternatively, the economics of the Earth System require the expansion of the present market into new and unknown territories. In order to quantify the environment, the costs of production and consumption must be recognized and integrated into the capitalist system – meaning the creation of brand new markets for the pricing and trading of environmental goods and services (Melamed, Scott & Mitchell 2012). Unsurprisingly, breaching new and unknown territories is not preferred to the comfort of known systems. Many therefore oppose the creation of new environmental markets (Melamed, Scott & Mitchell 2012). Even with such opposition, creating new environmental markets will not be an easy task, and will require quantitative evaluation of the worth of common goods. It will, however, allot natural resources and environmental services their worthy price.

The differences and overlaps between the issues of development and the environment are important for understanding and creating a comprehensive strategy for the SDGs. While Table 5.1 presents a clean divide between the two aims, it must be noted that real world approaches are not as clean cut. Within the environment, for example, moral arguments often coincide with the scientific, as past pollution and emissions from developed nations are recognized as reasons for responsibility now. On the development side, concern for the current generation does not necessarily reflect shortsightedness, as the long-term effects of development projects can be a key consideration for action now. These are just a few

examples of the unclear lines between environment and development, and in reality, the Table 5.1 could include additional columns demonstrating areas of overlap as well.

The discussion of differences above is brief, but is meant to shed light on the divergence intrinsically present in combining development agendas and sustainability agendas. The complications of the divergence do not negate the reciprocative relationship between people and planet, however. Instead, they highlight the need to transform global processes into policy for human growth, equality and sustainability within the boundaries of the Earth System. The MDGs leave behind the legacy of capturing, directing and maintaining the global development focus. In order to do the same for sustainable development in the Anthropocene, the SDGs must intertwine the global economy and development agendas within the needs of the planet.

5.2 The Earth System Perspective

In order to rightfully prioritize natural systems and the environment in the international agenda, this study relies heavily on the ideas of the Earth System Perspective. Such perspective affords the recognition of the interconnected and integrated parts of the natural world as the ultimate determinant of social and economic progress. Rather than considering nature and society as separate entities, the Earth System Perspective places human activities within the natural world. Planetary boundaries and IPCC reports clearly link climate change to human activity. The SDGs must make the stride toward connecting them as well.

The United Nations Environment Program (UNEP) explains the Earth System Perspective in its *Global Environmental Outlook 5* (2012). A *system* is considered to be, “a collection of component parts that interact with one another within a defined boundary” (UNEP 2012:195). Therefore, the *Earth System* is defined as,

a complex social-environmental system, including the vast collection of interacting physical, chemical, biological and social components and processes that determine the state and evolution of the planet and life on it. The biophysical components of the Earth System are often referred to as spheres...[that] provide environmental processes that regulate the functioning of the Earth...Humans are an integral part of the Earth System. All spheres include countless subsystems and levels of organization. The interaction within and between these spheres are complex and the predictability of future states of the Earth System is limited (UNEP 2012:195).

Such conceptualization centers on the multiple dimensions, levels and actors that make up the global economic and political system located *within* the natural system. Scientists and

scholars place specific focus on the fact that, today, for the first time, humans and their activities are acting within and upon natural system processes (Rockström *et al.* 2009a; 2009b; Steffen *et al.* 2011; Griggs *et al.* 2013; Bina 2013). While the natural processes of the planet make up a self-regulating and complex balancing act, never before have the effects of human industry and activity been a factor (IPCC 2014; Bina 2013).

5.2.1 A complex system

Understanding the complexities of the Earth System is no easy task. Its unpredictable and nonlinear variances, even outside the scope of human influence, are enough to keep many from grasping the concept (UNEP 2012). The concept of Planetary Boundaries, discussed in section 3.2, feeds directly into the Earth System Perspective and its complexity. Planetary Boundaries stand on the critical examination of the multi-directional needs of the natural system for human well being, and their reciprocative effects (Rockström *et al.* 2009a; 2009b). These innumerable linkages make the Earth System extremely complex, and infinitely connected. Exemplifying Earth System relationships helps with further application and extrapolation. For example, the general warming of the climate due to increased GHG emissions leads to melting polar ice and permafrost, which then releases its stored carbon back into the atmosphere, causing higher temperatures, more melt, and the release of more carbon, see Fig. 5.1 (UNEP 2012). While a simple example, various reacting feedbacks within the Earth system follow the same cyclical pattern.

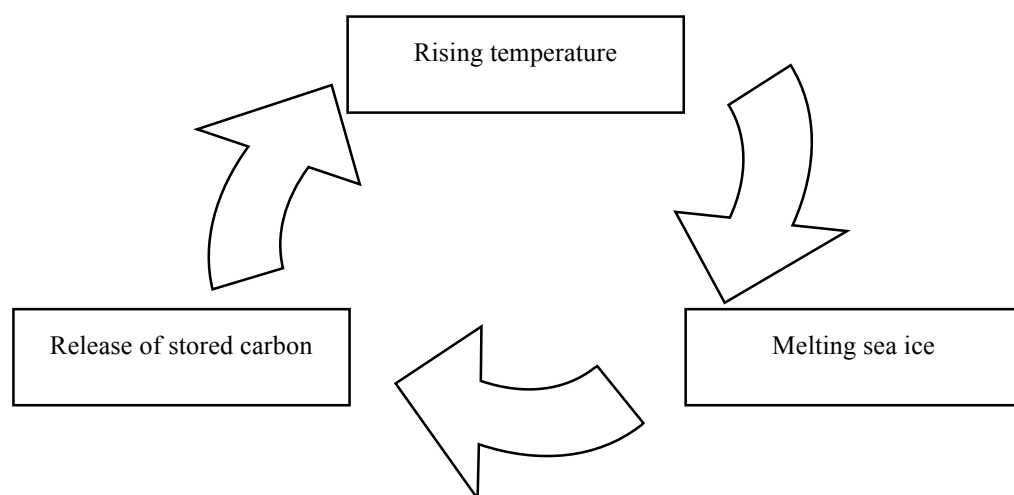


Figure 5.1: Example climate feedback cycle

Although a simplified example, it is the complex network of such cycles and feedbacks that makes up the Earth System. One can imagine the added complexities when human activity and well-being are brought into the Earth System network. Considering the example demonstrated in Fig. 5.1, add the effect of rising sea levels to melting ice. Now, along with an increase in released carbon from the melting ice, global sea levels rise causing flooding in coastal areas, the most inhabited geographical area (UNEP 2012). As a result of the flooding, livelihoods are questioned and infrastructure, homes, and farmland become vulnerable (UNEP 2012).

The number of such relationships is endless, and spans the globe, natural processes and human livelihoods. Although separated ideologically, nature and society clearly interact within the Earth System. While the effects cannot be predicted, changes within natural and social processes have led to the approaching, and passing, of natural thresholds. Past these boundaries unpredictable and irreversible change will occur, with definite implications for human civilization (Rockström *et al.* 2009a; 2009b; UNEP 2012).

Asserting the inevitability of transitions within the Earth System, the UNEP Report (2012) explains necessary adjustment in the ways these changes will be managed and governed. “New kinds of multi-level change processes are required,” it states, “that involve a dynamic interplay between gradually introduced, top-down changes and self-organizing bottom-up processes of social innovation, because traditional expert-driven, top-down approaches to problem solving are not flexible enough to address complex, non-linear and rapidly changing situations effectively” (UNEP 2012:210). Facing a new geological epoch, it is time for human society to consider making changes in its relations and actions within the Earth System.

5.3 Defining sustainable development

It may seem strange that the conceptualization of ‘sustainable development’, outside brief introduction, for a study on sustainable development implementation has not yet been provided. Such is not a misstep, but an attempt to demonstrate the multiplicity of complex considerations to be applied to its definition. Often, sustainable development is used as a term to combine the environmental, economic and social necessities (or ‘pillars’) of today into one easy to use term. Simply mentioning ‘sustainable development’ portrays an understanding of the need to recycle, to pick up litter, and to turn off the lights – notable steps of environmental awareness, but of small consequence in the scheme of global

economic processes. Here lies both a solution and a problem. Awareness and consideration for the environment is created, yet such concern is nowhere near the amount, in either size or scope, of the accountability and responsibility necessary for measurable Earth System change. As the unprecedented Anthropocene presents itself, 'sustainable development' must move to encapsulate the grand scale upon which humans are affecting the planet.

Outside of the colloquial use of 'sustainable development,' the academic and Earth science disciplines most often use the Brundtland (1987) definition,

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (United Nations 1987:Article 1).

The definition continues that, "[Sustainable development] contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs" (United Nations 1987:Article 1). The first concept, the needs of the poor, is a clear focus of the MDGs, and will continue to be an important issue for the SDGs. The second concept, however, has not yet been recognized in its entirety. To achieve real sustainable development, the promotion of economic growth cannot overtake the stability of the environment. Traditional processes of industrial development cannot continue to exploit the resources and services it provides.

Thus far, the environment has provided the resources necessary for technological and social growth. The limitations such growth imposes on the environment, though, have been ignored - an impractical hiccup, as the only real limit to growth is environmental disaster and instability. Such overhauls the idea of sustainable development, as the environmental resources deserved by future generations are sacrificed for economic growth today. In order to successfully implement sustainable development, an ethical responsibility to look toward the future and value natural resources and services is required. They must be valued, at least, on the same level as economic success in both practice and policy.

As the first generation with extensive understanding of the nature of Earth's atmosphere and climate system, new power and responsibility surrounds the Human-Earth System relationship (Steffen *et al.* 2011). Knowing that current GHG emissions and resource use will directly affect temperatures, sea level, weather patterns, oceans, biodiversity and energy

access of the future, ‘sustainable development’ must come to represent, and recognize, the intertwined relationship between humans and the planet (Rockström *et al.* 2009a; 2009b; IPCC 2014).

5.3.1 Sustainable Development from the Earth System Perspective

Griggs *et al.* (2013) further conceptualizes the linked relationships between human and natural processes. Suggesting a change to the three-pillar framework of sustainable development – social, economic, environmental – a more connected and “nested” model is asserted. In the model, the global economy, which services society, is placed within society, which lies ultimately within the bounds of the Earth System (Griggs *et al.* 2013). See Fig. 5.2 for a visual representation of the *new paradigm* nested model.

Expanding research supports the need for steadily functioning Earth systems as a prerequisite for prosperous global society (Griggs *et al.* 2013). This study therefore depends on the following definition of sustainable development,

Sustainable development in the Anthropocene is development that meets the needs of the present while safeguarding Earth’s life-support system, on which the welfare of current and future generations depends (Griggs et al. 2013).

Expanding the Brundtland definition to represent the nested paradigm of environment, society and economy, this definition recognizes the direct relationship between human activity and Earth System change – the most essential realization for the future of the planet.

Considering the SDGs within the nested paradigm

When considering the SDGs, Griggs *et al.* (2013) applies the new paradigm to their conceptualization. Recognizing that the SDGs will likely continue the poverty reduction focus of the MDGs, they claim that such is not enough, and argue that, “the protection of Earth’s life-support system and poverty reduction must be the twin priorities for the SDGs” (Griggs *et al.* 2013:305). Confidently arguing that the Earth System and Planetary Boundaries must be placed on, at least, the same level as poverty reduction, Griggs *et al.* (2013) acknowledges the expanding needs of the Anthropocene.

Listed briefly in Table 4.2, Griggs *et al.* (2013) produced six SDGs and provisional targets based on the equation of ‘people’ + ‘planet’ = SDGs presented in Fig. 5.2. Table 5.2 lists the goals and exemplifies the combination of the complexities and interconnections between and within human and Earth systems.

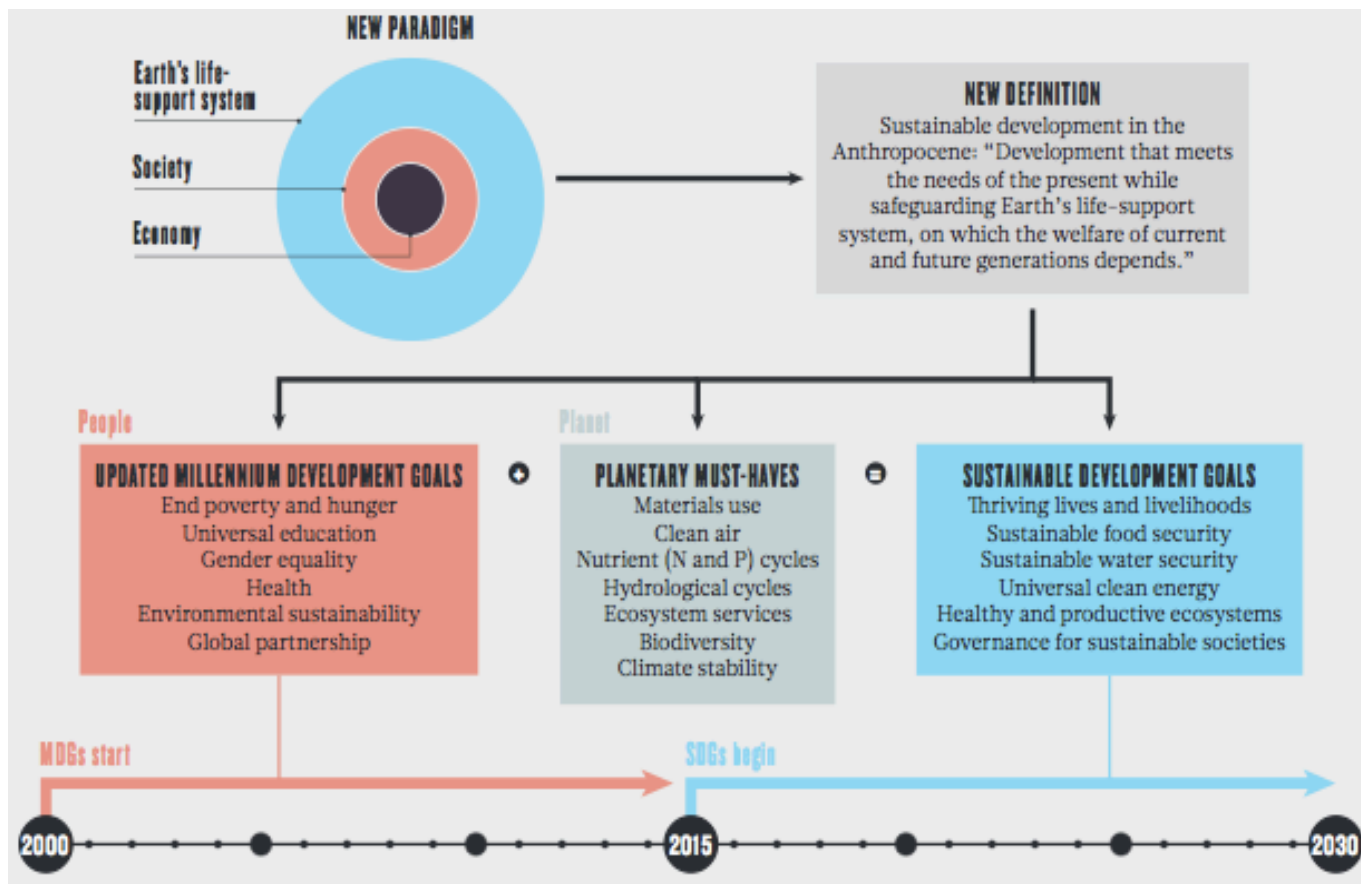


Figure 5.2: A Unified Framework (Griggs *et al.* 2013)

A set of proposed SDGs follow from combining the MDGs with conditions necessary to assure the stability of Earth's systems.

The goals proposed in Table 5.2, rather than simply setting targets and indicators, make explicit connections between overlapping goals, and explain how achieving one goal will help reach another (Griggs *et al.* 2013). The MDGs prove that global action can be focused around and directed by a set of goals and targets, but fail to make the connections between them. Applied across varying contexts, cultures and levels of well-being, the connections between goals and economic, environmental and social processes cannot be expected to be consistently recognized. Explicit explanation within the goals may help to reduce the confusion that surrounds implementing global goals in local contexts.

Table 5.2: Six Sustainable Development Goals(Author's recreation from Griggs *et al.* 2013)

Goal	Provisional targets for 2030
1 Thriving lives and livelihoods End poverty and improve well-being through access to education, employment and information, better health and housing, and reduced in equality while moving towards sustainable consumption and production.	This extends many targets of the MDGs on poverty, health and urban environments and applies them to development nations. It should include targets on clean air that build on World Health Organization guidelines for pollutants; reductions in emissions of stratospheric ozone-depleting substances in line with predictions from the Montreal Protocol; critical loads for man-made chemical compounds and toxic materials; and sustainable practices for extraction, use and recycling of scarce minerals and metals and other natural resources.
2 Sustainable food security End hunger and achieve long-term food security – including better nutrition – through sustainable systems production, distribution and consumption.	The MDG hunger target should be extended and targets added to limit nitrogen and phosphorus use in agriculture. Nutrient-use efficiency should improve by 20% by 2020; no more than 35 million tons of nitrogen per year should be extracted from the atmosphere; phosphorous flow to the oceans should not exceed 10 millions tons a year; and phosphorous runoff to lakes and rivers should halve by 2030.
3 Sustainable water security Achieve universal access to clean water and basic sanitation, and ensure efficient allocation through integrated water-resource management.	This would contribute to MDG health targets, restrict global water runoff to less than 4000 cubic kilometers a year and limit volumes withdrawn from river basins to no more than 50-80% of mean annual flow.
4 Universal clean energy Improve universal, affordable access to clean energy that minimizes local pollution and health impacts and mitigates global warming.	This contributes to the UN commitment to sustainable energy for all, and addresses MDG targets on education, gender equity and health. To ensure at least 50% probability of staying within 2°C warming, sustainability targets should aim for global GHG emissions to peak 2015-20, drop be 3-5% a year until 2030, and fall be 50-80% by 2050.
5 Healthy and productive ecosystems Sustain biodiversity and ecosystem services through better management, valuation, measurement, conservation and restoration.	This combines the MDG environmental targets with 2030 projections of the Aichi Targets adopted by the Convention on Biological Diversity. Extinctions should not exceed ten times the natural background rate. At least 70% of species in any ecosystem and 70% of forests should be retained. Aquatic and marine ecosystems should be managed to safeguard areas crucial for biodiversity, ecosystem services and fisheries.
6 Governance for sustainable societies Transform governance and institutions at all levels to address the other five sustainable development goals.	This would build on MDG partnerships and incorporate environmental and social targets into global trade, investment and finance. Subsidies on fossil fuels and policies that support unsustainable agricultural and fisheries practices should be eliminated by 2020; product prices should incorporate social and environmental impacts. National monitoring, reporting and verification systems must be established for sustainable development targets; and open access to information and decision-making processes should be secured at all levels.

5.4 The categorical separation of nature and society

The following section outlines the historical and theoretical separation of nature and society, and the resulting replacement of the Earth as regulating system in the global economy. Keep in mind that although similar, the separation of nature and society differs from the conceptual divide between development and environment aims presented in section 5.1. Attempting to

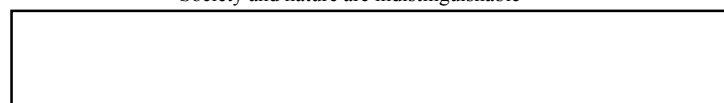
identify the root of the separation, in history and in theory, may explain why development and environment have come to represent such different concepts.

In the early stages of human existence, humans depended explicitly on the Earth, its natural systems and rhythms, and its resources (Redclift & Benton 1994; Steffen *et al.* 2011). Their life depended on it. Over time, however, a deep divide has separated humans and nature, and continues to halt the acceptance of climate change in development conceptualization and practical thinking (Bina 2013; Redclift & Benton 1994; Shiva 2006). Fig. 5.3 demonstrates such transition.

Type of system

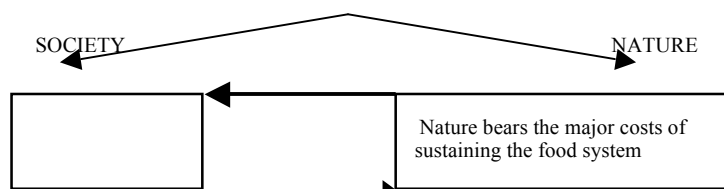
Gatherer/Hunter
Systems

Society and nature are indistinguishable

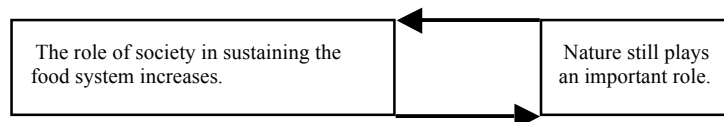


Society becomes distinguishable from nature with the development of agriculture. As agroecosystems coevolve, the burden of sustainability passes from nature to society.

Primitive Agricultural
Systems



Peasant Systems



Industrial Agricultural
Systems

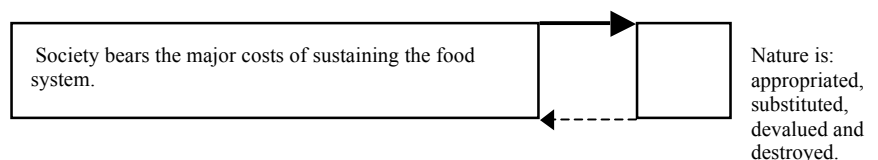


Figure 5.3: Coevolution and the development of agroecosystems (Recreated from Redclift & Woodgate 1994)

A simple diagram of human development, Fig. 5.3 shows the gradual separation of nature and society in food production. There remains an inherent connection between the two however. Although society begins to control nature during peasant systems, and then completely in the times of industrial agricultural systems, society and nature continue to cause and affect changes on the other (Redclift & Woodgate 1994). Redclift and Woodgate (1994), term this synthesis of nature and society *coevolution*. Although the direction of the relationship has shifted from nature on society, to society on nature, an intrinsic relationship between the two will always exist (Redclift & Woodgate 1994).

5.4.1 Theoretical separation

Theoretically, the separation of nature and society dates back to the Renaissance and the Enlightenment when the ideas of reason and the scientific method took strong hold in assessing humans relationship to the natural world (Bina 2013; Redclift & Benton 1994). Later, at the turn of the 20th Century, further theoretical transition focused on the distinctiveness of humans from the order of nature (Redclift & Benton 1994). Humans had agency, culture, meaning and consciousness – processes not afforded to animals, or in biological understanding at the time. Such led the way to the creation of the social sciences and their “categorical opposition” to the biological sciences, an opposition that remains strong (Redclift & Benton 1994:3).

5.4.2 Historical separation

Furthermore, the division of nature and society parallels the varying understandings of humans’ relationship to the environment, and ideas for future development. Faced with questions of what to do in the face of coming climate change, population expansion, and remaining poverty, two sides generally direct the sustainability argument. The first, the *ecocentric* perspective, recognizes the natural world as an entity that humankind has the power to disturb (Bina 2013). Such aligns with nature, and appreciates the need for respect and caution in human interactions with the natural world – *unity* with nature (Bina 2013). The second perspective, the *technocentric*, reduces the value of nature, and instead focuses on rational and scientific management techniques for human shaping of the environment (Bina 2013). Nature becomes the means for development and economic growth, but has little to no value itself. This *separation* from nature makes society the most dominant global force, exploiting resources and completely ignoring the value of the resources and services the environment provides (Bina 2013; Shiva 2006).

Finding the truth, assigning the right values of risk, and looking forward far enough in time are difficult challenges facing the UN during SDG development. There is no longer time to keep the needs of nature and society separate, and to place more value on economic growth than environmental stability.

5.5 Economic influences

Currently, finance and the economy play the lead role in directing international development and sustainability action. Although briefly discussed in the previous section, the economy pervades global decision-making on a level that must be discussed on its own. Expanding

research demonstrates with certainty that BAU processes cannot and will not support the growing population on a planet quickly approaching its natural boundaries. Denial of the uncontested necessity for transformation of the status quo continues to permeate the developed West however. The following sections investigate the origin and reasoning behind such denial, and seek to explain why the economy holds so much influence.

5.5.1 The meaning of progress

The quest for development is a noble and necessary goal. The West's current definition of progress, however, poses a few self-perpetuating problems. Since the Enlightenment, ideas of expansion and the betterment of the future Earth have taken hold. Over some 300 years, and through the development and extension of technologies, such progress has been equated with that very technology, and has defined a distinct way to look at progress (Midgley 2011). Technology, and its attainment and implementation, for economic growth has ingrained deeply into developed cultures' ideas of progress and development (Midgley 2011).

As technology became the symbol of an enlightened civilization, those without it were looked at as less, and the dominant industrial dependence of the 'developed' maintained its grasp. As Midgley (2011) explains,

Belief in progress seemed to mean that a fixed course of life was set before all peoples, a necessary journey away from a primitive state...towards increased use of machines...The word develop, like evolve, originally describes the unrolling of a scroll or the opening of a bud – the revealing of something latent that was already fixed and predestined. Talk of development involves a pre-set course of life...So our current use of it means that we're all going the same way, only some nations are ahead of others. (10)

Along this line of analysis, one can recognize the backdrop for the committed deniers and avoiders of climate change in the West. Engrained and reinforced over centuries as the prescribed path for successful living, the technocentric society of the developed world became the recognized example of success. Global policy and economics followed, and further embedded the dependence on industrial processes and fossil fuels. Detrimentally, however, this shift to technology, industry and economic growth as the recognized form of development could not predict its own harmful effects (Midgley 2011; Loorbach, Frantzeskaki & Thissen 2011). Now, due to the contribution of GHGs from these 'developed' societies, continuing along the same path of progress is impossible. Admitting this impossibility is hard for many, as their entire conception of success and progress is being questioned and must undergo large adaptive changes. Here is the first hurdle to achieving

sustainability and the global implementation of development goals, for the very understanding of development must be shifted from the path of ‘progress’ followed so diligently for hundreds of years.

5.5.2 Economic growth as the ultimate determinant

“We have lost sight of the plain fact that there are many essential human goals and common goods that cannot be adequately discussed using the language of economics”
(Kosoy *et al.* 2012:75).

A key point in the literature is the critical evaluation of economic progress as the ultimate qualifier of development. Equating economic growth with progress means that the economy has become the end all goal for global business and social policies. Midgley (2011) asks, “Is the organism which we now think of ‘developing’ perhaps not so much a particular country as the economy of the country, or indeed the global economy, a strange vast animal whose life-blood is the profits that flow in it” (12). Consequently, this profit filled animal sits at the top of the food chain, gobbling up the ability to recognize the value in global common goods (biodiversity, the oceans, the atmosphere, the soil) and well-being outside of the realm of profit and consumption. Market economics have taken away the ability to “discuss or even imagine” human aspirations, and common purposes and goods outside the economy – causing detrimental oversight of the natural systems required for survival (Kosoy *et al.* 2012:75).

The measurement of a nation’s level of development and well-being has, for over 50 years, for example, been dependent on the nation’s gross domestic product (GDP) (Kosoy *et al.* 2012). Purely an economic measure, GDP does not reflect the environmental or social aspects of a nation’s development.

GDP excludes the recognition of important human needs and capacities, including happiness, health and leisure, ecosystem functions and services, planetary boundaries, social relations and cultural freedoms, to name a short few (Kosoy *et al.* 2012). Additionally, because GDP is an aggregate measure, it does little to shed light on the variances between the living standards and distribution of wealth within a nation – an issue recognized as an MDG weakness as well.

Fundamentally, the measure of GDP ignores the simple fact that nations, and their economies, are rooted within the natural Earth System. Countries should be required to report

other indicators representative of social and environmental systems. SDSN (2013) argues that especially important for the SDGs is the reporting of a nation's contribution toward each planetary boundary, in addition to their plans for long-term sustainable development, support of regional and global initiatives, and identification of ways to improve their own environmental sustainability.

Such may not be so simple however. Instead of considering planetary boundaries and the well being of citizens, some scholars suggest that in order to make sustainable development policies effective, the hierarchical order of profit, planet and then people, as seen on the right side of Fig. 5.4, must be recognized and implemented (Bruggink 2011). While admitting that such ordering is not based on ethical considerations, but on a “strategic-action oriented perspective,” Bruggink (2011) asserts that his, “pragmatic observation has a lot to do with the present global governance structure that, apart from military might, has so far been characterized by almost total reliance on the market” (62). Although Bruggink's (2011) opinion may accurately depict the actions and priorities of global governance thus far, it does not weigh the needs of the Earth System or global society heavily enough, and should not be accepted.

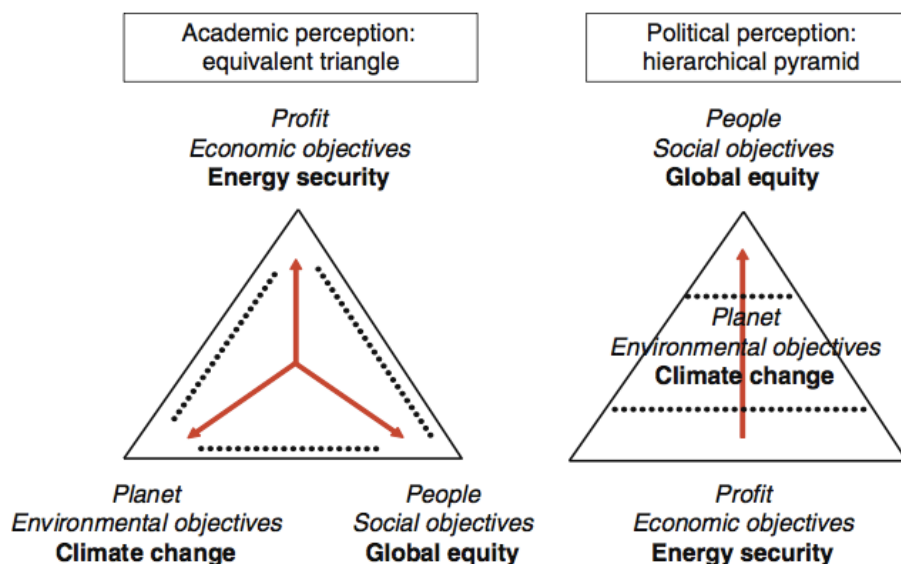


Figure 5.4: Perceptions of the concept of sustainability (Bruggink 2011)

In terms of the SDGs, such presents a major problem. The MDGs are criticized heavily for ignoring both the economic roots of inequity and the importance of a healthy Earth System, and for suggesting economic solutions for economic problems (UNTT 2013). They fail to

recognize the fundamental reasons for extreme inequalities in basic human rights – the global capitalist economy, excessive consumption, and the ignorance of human needs outside the economic realm (Kosoy *et al.* 2012). Instead, they keep the problem on it pedestal, stipulating economic aid and policies that consistently reestablish the patterns and dependencies that create the haves and have-nots and a disregarded planet. Surely, the SDGs must acknowledge the problems of economic inequality and seek to place value on common goods as processes of globalization increase in the Anthropocene. Difficult and unprecedented policy is what is necessary in the Anthropocene, and this study therefore suggests that the nested conceptualization presented by Griggs *et al.* (2013) in section 5.3.1 is actually more pragmatic than Bruggink's (2011) hierarchy presented in Fig. 5.4.

In order to reincorporate the value of the natural Earth System into global politics, decision-making, and development frameworks, it may be helpful to think of the environment as an economy of its own. Shiva (2006) assists in this conceptualization beautifully, and explains,

The market economy separates nature from people and ecology from economy...Development is viewed as the exclusive domain of production. Nature and people's self-provisioning economies have no productive role according to the market.

However nature's economy is the first economy, the primary economy on which all other economies rest. Nature's economy consists of the production of goods and services by nature – the water recycled and distributed through the hydrologic cycle, the soil fertility produced by microorganisms, the plants fertilized by pollinators. Human production, human creativity shrinks to insignificance in comparison with nature.

Natural resources are produced and reproduced through a complex network of ecological processes. Nature is the world's dominant producer, but its products are not, and cannot be, acknowledged as such in the market economy (15-16).

Associating nature with the processes of production may help some place economic systems within the Earth System and reconnect nature and environmental services with social needs. Caution is suggested in this approach, however, for rather than being recognized as the most valuable and dominant entity, nature could mistakenly continue its quantification as a means for material profit.

5.6 The ethics of a sustainable earth

Although a smaller section of the literature, a number of studies assert the importance of ethics in the global sustainable development agenda. This representation, however, does not mean less emphasis should be placed on the ethical principles of equity and responsibility.

On the contrary, for they must be connected to the foundational understanding of sustainable development in the globalized system. Unfortunately, this is more easily said than done, as the ideas of progress and development continue to be associated solely with economic growth (Kosoy *et al.* 2012; Steffen & Stafford Smith 2013; Shiva 2006; 2011). Although ingrained as the determinant of success, the act of acquiring more is rarely connected, on its most basic level, to taking from others so that he/she has less while the other has more. Additionally, the rise of technology and industry has pulled society away from its roots and responsibility for nature.

5.6.1 Equity

For humanistic ideas of global equity to be recognized and accepted as human necessity, a transition must occur in the major understanding of inequality and how to combat it (Shiva 2011). Current development frameworks, including the MDGs, depend on the dispersement of aid and the institution of Western technologies to help increase consumption and incomes in developing nations towards the levels of the developed world (Steffen & Stafford Smith 2013). Paradoxically, the very processes of blind production and consumption, natural resource exploitation and GHG emission utilized by the developed nations are already pushing the Earth System to the brink of its boundaries, and cannot be promoted further (IPCC 2014a; Steffen & Stafford Smith 2013; Rockström *et al.* 2009a; 2009b). How then might the dominant structure of development be shifted to one that recognizes the global Earth System, collective responsibility, and a more equal distribution of wealth?

A study by Wilkinson and Pickett (2009) presents powerful and groundbreaking *empirical* evidence of the benefits of greater societal equality at the national level. Conducted in the United States, and then extrapolated for comparison with other wealthy nations, the Wilkinson and Pickett study clearly shows that greater societal equality is beneficial to the society as a whole and to the individual, in the realms of education, health, life expectancy, murder rates, and obesity, to name a few. Additionally, the rich in more unequal nations experience inferior social conditions compared to the rich in more equal nations (Wilkinson & Pickett 2009). This revolutionary study demonstrates, empirically, the relationships between income inequality and social effects, a relationship that was previously observed qualitatively (Steffen & Stafford Smith 2013). Furthermore, Steffen and Stafford Smith (2013) argue “speculatively” that the relationships between levels of income inequality and social well-being observed in the study at the sub-national and national contexts, “may well be an emerging property at the global level too, as economic, financial, social and cultural

integration continues to increase, and as globalised media allow the same human responses to social stratification to play out more universally” (406). Although still in a provisional stage, such hypothesis is not unlikely as globalized communication, politics and economic processes continue to spread their reach. Might the recognition of the benefits of greater social equality, as scientifically and quantitatively observed in the Wilkinson and Pickett study, be just what economically focused global leaders need to consider transitioning international trade and development policies toward greater equality?

The reworking of global equity, or rather, inequity, is an obvious principle for SDG implementation. Although briefly mentioned in the UN suggestions provided above, arguments for global equity span disciplines, from economics and resource distribution and supply chains, to the more humanistic ideas of basic human rights. The MDGs set out to reduce global poverty in Goal 1, and even set indicators of poverty gap ratio and share of poorest quintile in national consumption. Although an attempt to combat inequitable access to resources and income distribution across and within nations, MDG 1 fails to recognize the paradox in reducing inequality within a global society that recognizes progress and status as having more than the rest. The SDGs must therefore strive to set-up a system that not only provides for the poor, but also promotes more equitable distribution of the world’s resources for the global good.

5.7.2 Accountability

The levels on which the SDGs will be applied – national and international, developing and developed, rich and poor, etc – must be also be contemplated during their construction. Recognizing levels of difference within societies and between nations and regions is essential for the implementation of a development framework that accounts for all moving parts and their residual effects. The difficulties in hybridizing the issues of the environment and development into a cohesive framework are not the only ones facing the global sustainability and development quest. There are also questions as to whom the goals should target and who should make the largest changes. Fig. 5.5 illustrates the uneven spread of climate change effects on the world’s people. One may notice that, ironically, those nations that have historically been the largest emissions contributors and resource users are likely to be the least vulnerable to the climate change they affect.

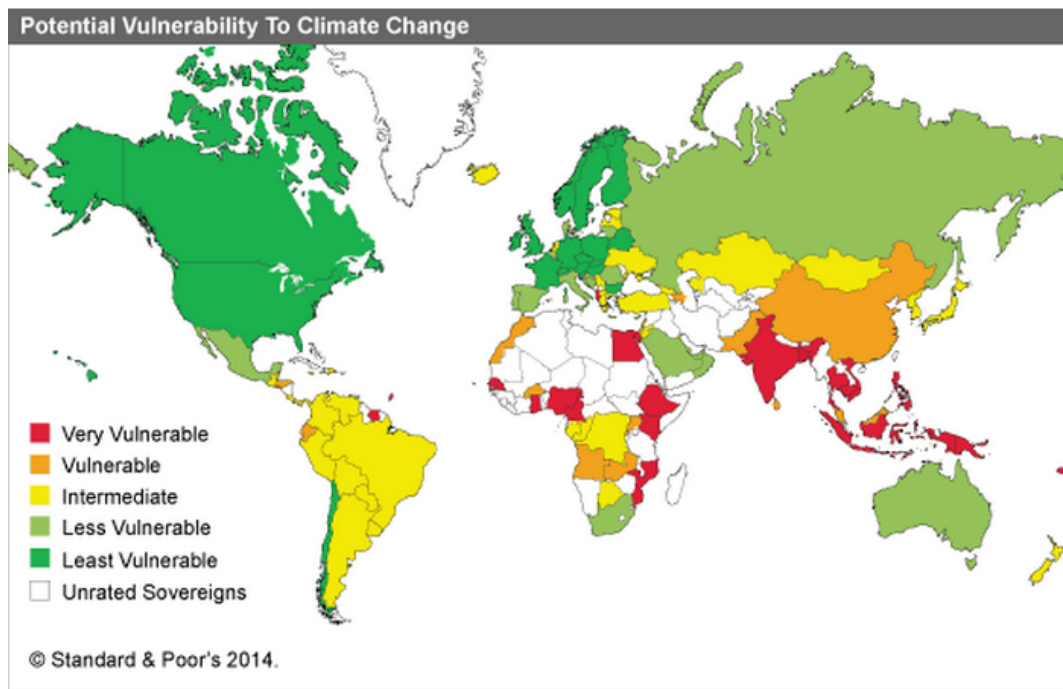


Figure 5.5: Potential vulnerability to climate change (Standard & Poor's Rating Services 2014 as cited in Beauchamp 2014)

MDG goals and targets direct a rich-help-poor view for development (Melamed, Scott & Mitchell 2012). While somewhat successful in helping to meet basic needs in developing nations, this view cannot be applied to a global framework for sustainability. Instead, such must involve all actors within the global system – as valued participants in one global community. How to redistribute wealth, economic progress and political power in a way that protects the whole of the planet proves to be difficult, however.

Different needs lead to different decisions and priorities, with those with the most wealth and resources at their disposal holding the power. Development strategies that benefit one region may harm another. International relationships within the globalized political economy therefore consist of a growing number of needs and priorities. The varying needs, responsibilities and priorities must be considered in their entirety for informed creation of the SDGs. This means looking beyond a nation's economic contribution, and incorporating a focus on basic needs and human rights, and relation to the environment. Two aspects of the needs and responsibilities discussion are expanded below - first, an overview of the differing economic and development choices made in developed and developing nations and second, the idea of common but differentiated responsibilities.

Accountability on a national/regional level

In a world where the rich only get richer and the poor make little progress, and are debatably getting poorer, the goals of developing nations differ powerfully from those of the developed. While most seek the same end success of economic growth, the scale upon which economies function differs immensely, and produce very different results for the lives of each nations' citizens. Consumption continues to increase in the industrialized world, while those in less developed countries work to obtain enough food and safety to survive. Some nations have a greater ability to make changes in their economic and development strategies than others. Along with a greater ability, comes greater responsibility and eased decision-making. Less developed country governments, however, must make difficult choices as to how to develop. Faced with large sections of the population in extreme poverty, and lacking or nonexistent infrastructure, such governments must carefully choose which technologies to invest in to better their peoples' energy access, employment options, food production and safety (Melamed, Scott & Mitchell 2012). In many cases, this means sacrificing environmentally friendly or sustainable technologies for reasons of cost, ease and speed of implementation. Even when developing nations seek sustainable infrastructure, a lack of capital may prevent their progress (Melamed, Scott & Mitchell 2012). A global effort and commitment, potentially the SDGs, should be instituted to help curb global inequalities, and to provide developing countries the basic investment and capital needed to exist in the globalized system.

Wealth and industry provide freedom for action. Generally, however, action remains to be seen for sustainable processes. Developed nations continue to benefit from the status quo, and make few changes to prevent the ecological damage and resource exploitation of BAU economics. According to Cleménçon (2012), creating real environmental change and developmental progress “would require the United States to much more directly address its own ravenous appetite for the world's resources and its high per capita consumption and greenhouse gas emissions levels” (331). He continues that the simple and general discussions of global equity in international development and sustainability talks, “only allude to the ethical questions about the distributional impacts of free market forces” (331). Without specifically identifying and pointing the finger at the economic processes that lead to inequality and the surpassing of planetary boundaries, few concrete and lasting changes will be made by developed nations.

Additionally, large corporations continuously gain from the status quo. Taking advantage of globalization's increased global openness, companies benefit from expanding their businesses into whichever areas produce the most profit. While recognizing global inequality is one thing, changing business practices to help close the gap is another. Cleménçon (2012) asserts that, "Industry lobbyists have been successful in convincing governments that corporate well-being is synonymous with the wider economic welfare of countries", and that large corporate interests continue to make a fortune as their "operations are facilitated by an international financial industry seeking highest possible short-term profits on speculative investments" (331). With so many benefits, it is no surprise that the winners of BAU do little to push for the environment. This is not to say that developed nations and corporations do nothing to support sustainable development, but that making real impacting changes, such as in energy, workflow, and resource base, could interrupt their flow of profit, and they know it.

Common but differentiated responsibility

The principle of the common responsibility, of all humankind, for the stability of the planet has been implied above, but has not been explicitly defined. Such, however, is important to continue the wider investigation into what the SDGs should represent and accomplish. Sachs (2012) advocates for SDGs that focus on, "what all countries together should do for the global well-being of this generation and those to come", rather than, "what the rich should do for the poor" (2208). This view, and others like it, represents a change in the way the developed nations think about the world - moving from a solitary view of them and us, to one of a collective global entity.

"We are the first generation with the knowledge of how our activities influence the Earth System, and thus the first generation with the power and responsibility to change our relationship with the planet"
(Steffen *et al.* 2011:749).

Globalization has helped to bring nations and cultures together, but in some areas and sectors more than others. Rather than seeing the world as pockets of possible wealth and business development, corporations and government leaders must recognize the interacting forces between past and present, and local and international actions. Known as the principle of *common but differentiated responsibility*, the Rio Declaration on Environment and Development (1992), explained that in order to move forward with sustainable development, developed countries would have to acknowledge their responsibilities for past environmental degradation and the extreme pressure their societies placed, and continue to place, on the

environment. In addition, they must recognize the power of the technologies and financial resources they command (Principle 7).

Although part of the original Rio Declaration, accountability and commitment to the approach of common but differentiated responsibilities has lacked since. As the effects of climate change become increasingly present, and planetary boundaries surpassed, acceptance of a common responsibility is essential in the creation and implementation of the SDGs. Nature and society cannot remain opposite forces. Working to eradicate poverty, to change unsustainable patterns of production and consumption, and to protect and manage the resources needed for economic and social development – all while promoting economic growth and sustainable development – present a difficult and very large context in which to move forward (UNDESA 2013).

6 Analysis

In order for the SDGs to be more than an extension of the MDGs, sustainability issues, multi-dimensional considerations and reevaluation of the BAU economy must at least be recognized in their strategy. Undoubtedly big asks, and a fundamental reordering of the current socio-economic system, placing both economic and social processes within the limits of the Earth System is necessary for sustainable development, and should be initiated in the SDGs. The ideas of the Earth System, the developed world's conceptualization of 'progress', and ethical responsibility, along with the other issues presented in chapter 5, must be integrated into the strategies for implementation.

The following chapter therefore seeks to integrate such considerations into its analysis of the initial list of pragmatic SDG implementation strategies. As a reminder, the strategy list, so far, includes (1) improved global governance, (2) multi-level focus in goal formation, governance and aid, (3) an international economy focused on greater equality and development, and (4) the recognition of the many multi-dimensional and overlapping issues between the sustainable development issues of society, economy and the environment.

Comprehensive examination of UN documents on the SDG processes, relevant environmental and development concepts, and the theoretical considerations presented in the previous chapter provide the basis for the following chapter of analysis. Applying first-hand experience from UNCTAD, in addition to thorough research into the lessons learned from the MDGs, and the breakdown of UN sustainable development workstreams and applicable sustainable development considerations, it is clear that governance and the economy will play commanding roles through sustainable development implementation. Extremely complex concepts, the sections below seek to present some of the largest considerations and issues for global governance and a transformational economy within the international community and environmental discourses.

Complex considerations

Critical to the achievement of sustainable development and to the implementation of the SDGs as more than a development framework is awareness of the complexities and interlinkages infused in social, environmental and economic processes. At this point in the study, the overlaps and intersections of such systems should be clear. Most important to this conceptualization is the simultaneous consideration of economic, environmental and social needs, and how to incorporate them all concurrently. It is easy to become focused on one

sector, and to place its needs above the others. Such only perpetuates a fragmented agenda however, and one is challenged to keep the multi-level and multi-dimensional relationships in the front of his/her mind when studying and planning for sustainable development in the eras of globalization and the Anthropocene. This study suggests that these relationships also be placed within the nested paradigm for sustainable development, asserted by Griggs *et al.* (2013), in order to accurately assess their interactions.

6.1 Global governance

Highlighted in MDG 8 and the UN SDG processes, international development depends on a global partnership to achieve set-forth goals. The global, collective and indiscriminating scope of climate change means that sustainable development that recognizes the needs of the Earth System as its main concern, will also depend heavily on a system of international governance. Criticized for being the ‘kitchen sink’ approach, the MDG goal for global governance is considered weak across the literature, and is recognized as an important factor to be improved and corrected in the SDGs (Kenny & Dykstra 2013).

6.1.1 Defining global governance

In the context of a globalized economy and globalized international relations, is it important to define what, exactly, a ‘global partnership’ or ‘global governance’ means. Using Finkelstein (1995), Park (2013) presents an easy to follow conceptualization of ‘governance’, and in turn, ‘global governance’ in today’s international system. “The term ‘governance’”, explains Park (2013), “is often used to describe ‘how states relate to each other in the international system’. As ‘the international system notoriously lacks hierarchy and government’, governance is a more appropriate term to define today’s de-centralized international politics” (225). Finkelstein’s (2005) final definition explains, “Global governance is governing, without sovereign authority, relationships that transcend national frontiers. It accommodates both ad hoc and institutionalized, as well as both informal and formal, processes” (as cited in Park 2013:226).

Understanding the definition of global governance is a task in itself, and reflects the difficulty in implementation experienced by the MDGs, and likely for the SDGs as well. Now, as sustainable development and the Earth System become focused concerns of the SDGs, sustainable processes and guidelines must enter the definition as well. Although a challenge, global governance, of some form, is required to manage the overlapping and intertwined

processes of the economy, social migration and communication, and their effects on the Earth System.

6.1.2 Global governance as the ‘fourth pillar’

The transformational abilities of the SDGs, will depend on a strong global framework to integrate the economic, social and environmental pillars of sustainable development. Because the global economy has moved to the very center of international policy, work to value natural resources and processes must be secured as a central focus, in order to bridge the divide between nature and society.

Again, however, one must question how global governance can be implemented across and within the uneven global playing field. Traditionally contradictory issues of economic growth and environmental protection must be woven together to benefit all peoples in all nations. In addition, the needs of all actors involved must be considered within the current system of the global economy.

The MDGs recognize the need for accountability and global collaboration. In order to be successful, however, the SDGs will have to integrate global governance more powerfully than did MDG 8. Many advocate for the addition of a fourth pillar of good governance to be added to the three-pillar conceptualization of sustainable development. SDSN (2013) explains, "Good governance is an important means to achieving the three other dimensions of sustainable development - economic, social, and environmental - but it is also an end in itself" (23). Also endorsed by Sachs (2012) who states, "the three bottom lines will depend on a fourth condition: good governance at all levels, local, national, regional, and global" (2208), the assertion of the importance of good governance makes its stand strongly in the literature.

Accepting global governance as the fourth pillar of sustainable development is one thing. Attempting to implement an international system to oversee sustainable development implementation is another. Numerous scholars and international organization agencies assert the need for stronger global governance in both the public and private sectors. Concrete plans to implement a collaborative international governance structure are extremely complex, however, in their need to reflect the entire span of actors within the Earth System.

Before analyzing suggestions from the UN and Earth System perspectives for implementing global governance, a discussion of the needs, and difficulties, associated with a transformative sustainable development governance strategy follows below.

6.1.3 Transitioning to a flexible and multi-level governance strategy

Defining sustainable development as, “A multi-dimensional, dynamic and plural concept that neither can be translated into the narrow terms of static optimization nor is conducive to strategies based on direct control”, Loorbach, Frantzeskaki and Thissen (2011) identify the complexities of global sustainable development governance (76). Not only must the needs of the Earth System be discussed, negotiated and investigated on global, regional, national and local levels, and be flexible and adaptive as environmental and social needs change, but must also be accomplished in a system unlike from current governance structures and networks.

An influential collaborative system will contain the regulations and strictness needed to mobilize change, in addition to the independence and flexibility necessary for adaptation to contextual needs. So far, no international governance structure has found the right balance of accommodation and authority. Although current policy and research focuses on building on current structures and enacting incremental change, Loorbach, Frantzeskaki and Thissen (2011) declare that a transitional shift in the fundamentals of social thinking and structures is what is actually necessary. They propose recognition of sustainable development as a long-term process of fundamental change and integration, and assert that it must become an enabling process to educate and realign society with sustainability goals (Loorbach, Frantzeskaki & Thissen 2011). The differing perspectives, needs, and values of developed and developing citizens, along with the power of the fossil fuel industry, present two clear hindrances to a fundamental societal shift to sustainability. Nevertheless, Loorbach, Frantzeskaki and Thissen (2011) suggest interdisciplinary research, the spread of scientific knowledge, the integration of ‘sustainability’ as more than just a term, and a shift in the Western concept of development, as ways to aid the transition.

Although the SDGs are expected to maintain the focus of global leaders originally captured by the MDGs, their ability to transform this focus into a flexible and accountable governance system to enable fundamental change is unlikely. This does not mean their contribution to sustainable development will be unnoticed, but that the incorporation of a global partnership into the goals will remain a mere suggestion until fundamental transitions are made in society’s conceptualization of nature and society.

The sections below outline proposals made specifically for the ‘global partnership’ SDG – first, a discussion of UNTT suggestions, and second, an overview of global governance suggestions within the Earth System. Although they do not follow the Loorbach,

Frantzeskaki and Thissen (2011) prescription for transformative sustainability governance, they reflect the philosophy for international governance applied throughout the SDG processes.

6.1.4 Suggestions for implementing a new ‘global partnership’

Attempting to outline its needs, Sachs (2012), declares his expectations for good global governance after 2015,

Governments at all levels will cooperate to promote sustainable development worldwide. This target includes a commitment to the rule of law, human rights, transparency, participation, inclusion, and sound economic institutions that support the private, public, and civil-society sectors in productive and balanced manner. Power is held in trust to the people, not as a privilege of the state. (2209)

Idealistic and general, Sachs’ (2012) explanation helps to paint an overview, but neglects, as mentioned previously, much focus on the strategies necessary to support and enable international. A UNTT (2012b) background discussion note describes, in more detail, possible parameters for defining new global partnerships after 2015. The principles include:

- Partnerships that reflect the full *range of actors* who could contribute to sustainable development (international organizations, the private sector, civil-society organizations, foundations, etc.)
- Partnerships encouraged at *all levels* (global, regional, national and local) with “an eye on subsidiarity and applicability to context”
- Partnerships encouraged between certain groups of countries (LDCs, LLDCs, SIDS, etc.)
- *Multi-dimensional partnerships* with no assumption of North-South or West-East flows of resources
- *Monitoring and accountability* for contribution to the partnerships, built into the framework from the start
- *Transparent formation of partnerships*, with due consultation with the assumed beneficiaries of the partnership
- Mainstreaming partnerships under each of the goals creating a stronger link between desired outcomes and means of achieving them (UNTT 2012b:14-15).

Although suggestions for implementation are endless, those from UN and other international organizations seem to follow the general prescription of partnerships of multiple actors and multiple dimensions, and neglect to focus at all on integrating environmental needs. While key factors for implementation in the changing context of a globalized world, they will not be enough to enact measurable change, and should become more prescriptive. Improving the global partnership of MDG 8 is claimed a great focus for SDG workstreams, yet implementation suggestions, up to this point, reflect few concrete ideas.

6.1.5 Global governance from the Earth System Perspective

Earth System and Planetary Boundaries researchers have provided further, and more prescriptive, research into the structures, functions and systems of global governance frameworks. For example, Steffen *et al.* (2011) portray global governance instead as “planetary stewardship”, and consider heavily the interlinkages and overlaps between development and environmental issues. Asserting that collective action based on one international treaty for sustainable development would likely be “misconceived”, they instead suggest that global governance and planetary stewardship,

Could be built in a multi-level, cumulative way by identifying where, when and for whom there are – or could be as a result of policy – incentives to act independently of the international level. The resulting governance system would likely be ‘polycentric’, also allowing for more experimentation and learning. (755)

While still general, such explanation helps to describe the results and inter-workings of a global governance system, rather than just the players and initial considerations, and incorporates the flexibility and adaptability of a long-term strategy. As planetary boundaries are approached and climate change becomes more debilitating, a system that allows flexibility and learning will be essential in developing and leading a proactive and accountable global society.

Claiming to be the first comprehensive Earth System and global governance study, Galaz *et al.* (2012) provide an overview of Earth System governance, and focus, even more specifically than Steffen *et al.* (2011), on the interlinkages between planetary boundaries. These overlaps, they suggest, make it even more difficult for international organizations, national governments and current frameworks to manage and measure each nations’ effect on the environment and commitment to global governance structures (Galaz *et al.* 2012). Due to the level of interconnectedness between planetary boundaries themselves, and with development and social issues, Galaz *et al.* (2012) explains, “Governance failure is imminent when the information needed to monitor ‘planetary boundary’ processes and their interactions is dispersed amongst a wide set of agencies and scientific communities” (81). Cross-agency discrepancies can easily confuse the overarching missions of the very organizations meant to address them. In terms of the SDGs and post-2015 development, for example, the two workstreams created specifically to research and create the next goals framework, are still unsure how their work will come together. While this is not to say they will be unsuccessful, better planning from the start could help prevent overlaps, repetitive research and varying end

goals. Additionally, more integrated collaboration, from the start of the SDG process, could help fuse the development concentration of UNTT with the environmental focus of the OWG, further incorporating a view of the economy and society within the Earth System.

In order to mediate such challenges, a number of possible interventions are suggested to better manage international governance as a whole. These include platforms to help monitor the gaps between involved agencies and organizations, international and inter-organizational learning to spread consistent planetary boundary knowledge, and the institution of ‘overarching principles’ to guide and focus difficult decision making on the decided sustainable development path (Galaz *et al.* 2012). Details of possible intervention strategies to better global governance structures, and their limitations, are presented in Table 6.1.

Table 6.1: Planetary boundaries and possible intervention points (recreation of Galaz *et al.* 2012)

Possible intervention	Potential	Limitations
Integrated platform(s) for iterated global and regional environmental assessments	Could help overcome institutional fragmentation and monitoring gaps. Could provide important space for deliberation between science and societal interests.	Impact on international and national policies cannot be taken for granted, especially in cases where causality in complex and interventions are perceived to conflict with national interests.
Overarching principles	Have the ability to govern the interaction between different international institutions, regulate norm-conflicts, and increase efficiency and effectiveness by providing for general standards of behavior.	Unclear applicability for planetary boundaries likely to be contested with unclear practical implications.
Interaction management	International inter-organizational learning, knowledge and joint management could lead to international policy integration able to deal with the interactions between planetary boundary processes.	Unclear how to integrate issues related to ‘non-regimes’, as well as rapidly unfolding surprises when international institutions are missing, or where institutional settings are complex and contested.
Expanding the mandates of international organizations	Negative institutional interactions can be identified, and countermeasures negotiated and implemented. Regular assessments can support international attempts to stay with planetary boundaries.	Difficult to assign one single international organization to oversee suite of activities, and possibilities of negative institutional fragmentation at the global level.
Global multi-actor networks	Can function as self-organized complements to formal international mechanisms, and provide bridging function between planetary boundary processes.	Collective action problems remain, and could lead to the diffusion of responsibility. Possible externalities difficult to deal with at the international level.
Global policies to support innovation	Could help support, frame and upscale innovations that address planetary boundaries, by supporting the generation and stewardship of ecosystem services.	Possible externalities and conflicts emerging as the result on unintended effects of innovation need to be dealt with at the international level.

Shifting away from the general pitch of a ‘global partnership’, Galaz *et al.* (2012) propose specific mechanisms to implement a more collaborative international system. The *overarching principles* intervention, for example, could help remove distracting and time-consuming debate between parties with different priorities. Placing the environment as the top priority, difficult decisions between policies for industry and policies for the environment could easily and efficiently be resolved (Galaz *et al.* 2012). Unfortunately, however, overarching principles would likely meet the same value-based opposition they are meant to settle. Although complicated to think on the global scale, and likely to meet hardy opposition, reasoning for concrete action must encompass the entire range of global actors and dimensions of sustainable development to enable international cooperation.

6.1.6 Pragmatic global governance for the SDGs

Governance for the SDGs should not, and cannot, consist of a single governance framework. Instead, for the SDGs to represent and enable the transformational agenda they desire, global governance must reflect a responsible and dynamic effort between actors, on varying levels, allowing those with the most efficient and experienced skills and capacities to take the lead. However grand it may sound, global processes cannot exist along one framework, but must instead take into consideration the organizations and sectors that are best equipped to handle different geographic areas and sectors of development. While the extensive number of organizations and sectors does cause consistent overlap and confusion, adjustments, such as those described in Table 6.1, may help to better integrate their processes. Business interests must shift from maximum profit to instituted responsibility. Nature and society must form a stronger bridge. Idealists must accept that the size, structure and scope of global arena cannot and will not support utopian societies. Environmentalists should continue to push for green global energy and resource usage, but must recognize that some poor nations will still depend on ‘dirty’ technologies in order to survive. Governments and international organizations must create and commit to concrete and specific agenda changes, and cannot simply propose grand claims for improvement.

6.2 Transforming the globalized economy

The dominance of the global economy and its profit-driven direction means that international finance for sustainable development is a practical and necessary consideration for the SDGs. Global society is founded upon the principles of the market economy, principles that will remain dominant influences in the sustainable development agenda.

Based on UNCTAD (2013) experience, some of the main finance suggestions to be applied to the SDGs include:

- Keeping *poverty eradication as the main end objective*, but incorporating further the economic, social and environmental dimensions of sustainable development;
- *Improving the inadequacy of international financing* that has been a constraint to the MDGs; and
- *Strengthening and enhancing the global partnership* initiated by the MDGs through more focused international policies and a financial system that promotes development.

Additionally, in a finance-based report, UNTT (2013a) proposes requirements for improved international development finance, and calls upon the global partnership to guide their implementation. UNTT (2013a) suggestions include:

- *Predictable and consistent engagement between the UN and its member states* to ensure complementarities between the objectives and activities in support of sustainable development finance
- *Increased voice, involvement and representation of developing nations* in international institutions and other norm- and standard setting bodies
- Tackle the challenges created by the global financial crisis and *forge a consensus on the issues critical for less crisis-prone international financial architecture*
- Address the need to *align national and international economic, development, environmental and financial policies and regulations with broader sustainability and human rights goals*, and
- *Promote finance and investment policy practices that take environmental, social and governance issues into account* and contribute to the stability of the global financial system (5-7).

Although broad, the UNCTAD (2013) and UNTT (2013a) suggestions capture the bigger picture of the UN perspective, and its view of development in the global economy. Fragmentation, instability and inadequacy in economic policies and finance flows are highlighted as main impediments. Especially important are the UNTT (2013a) suggestions to tie economic goals to larger social and environmental issues, and to create a financial system that supports all dimensions. Recognizing the intersections in the globalized business, development and environmental worlds is a crucial step in setting up a system that supports and reinforces each of them. It will take more than recognition, however, to connect and hold accountable the economic parts of the system with the natural Earth System.

To better integrate the principles of the global economy within the Earth System, a number of alternatives are proposed to shift economic processes toward human development and planetary boundaries. One such proposal, solidly asserted across the literature, surrounds increasing the role of the private sector in global development (UNTT 2013a; 2013b; 2013c; UNCTAD 2013; McKinsey 2013). UNCTAD (2013) research surrounded this theory, and

focused on the analysis of current levels of private sector finance and investment flows, and on ways to encourage increased investment. Generally, this strategy leads the UNTT process, and plans to improve existing BAU economy mechanisms.

Attempting an even greater transformation of existing economic systems, the idea of the green economy further integrates the needs of both natural and human systems. An economy that promotes and incentivizes sustainability, the green economy supports economic growth along more virtuous lines (Bina 2013). As one of the two themes at Rio+20, ‘the green economy in the context of sustainable development and poverty eradication’, is now also a pervasive consideration of the SDG (Rio+20) process. Before moving forward, it may be helpful to refer back to the lists of UNTT and OWG proposed focus areas, in section 4.4, to refamiliarize oneself with the way each group contextualizes poverty eradication and environmental needs and processes within their goals.

No matter the idea however, whether instituting a green economy or increasing private sector contributions in the current system, one daunting fact remains – there is a clear difference between the funding needed to achieve sustainable development and the size of current development finance flows (UNCTAD 2013). Increasing the role of the private sector is discussed first below, followed by an introduction to the green economy. It should be noted that neither option is exclusive of the other and that most likely, and most practically, a combination of the two, along with other strategies will be utilized in future sustainable development finance. Whether or not they will be enough also pervades the analysis in the following sections.

6.2.1 International development finance

Before moving on to the mobilization of private sector finance for sustainable development, a basic introduction to current international development finance flows is helpful. Based on research conducted at UNCTAD and for a report on financing for the SDGs, the following analysis stems from the publications and information used by UN organizations to inform their perspective and future decision-making. Resultantly, current development finance, and its study in the international community, often reflects the developed world’s conceptualization of economic progress as development.

In addition to global economic inequality and historical processes, the global financial crisis of 2008 contributed greatly to a gap between necessary and actual funding for the MDGs and global development programs. Increased volatility in the economic system has caused nations

and companies alike to be hesitant to involve themselves in areas of further uncertainty (UNTT 2013c). Flows of development aid have resultantly suffered, as seen in Fig. 6.1, and marked by the decline across all aid sectors around 2008.

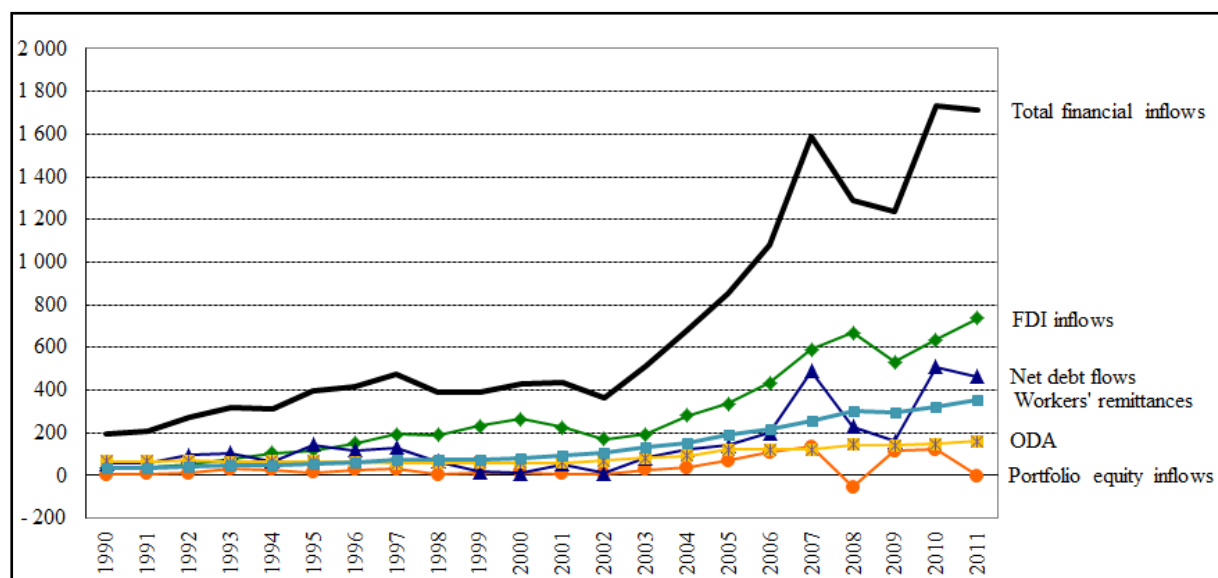


Figure 6.1: International financial flows to developing countries (1990-2011) (UNCTAD 2013)

Today, *official development assistance* (ODA), the yellow line in Fig. 6.1, remains one of the largest funding strategies for human development. With the hope of catalyzing economic growth and poverty reduction, ODA provides aid on a rich-help-poor and top-down basis. Reaffirmed most recently in 2008, developed countries have committed, since 1970, to spend 0.7 percent GNI as ODA – a commitment that should amount to about \$200 billion per year, but has never been fully reached (Sachs & McArthur 2005). The context of the global financial crisis and the unchecked commitments contributes to a stagnant, and in some areas, declining, level of ODA that falls short of the level necessary for long-term MDG and development achievement (World Bank 2013b).

The green line in Fig. 6.1 represents another key player in development funding, *foreign direct investment* (FDI). FDI flows to developing nations have significantly increased in the age of globalization, but became unstable after the financial crisis, and although recovering, continue to reflect the uncertainty that surrounds instability in the global economy (ODI, DIE & ECDPM 2013). Although FDI has been an important factor in funding the MDGs, a more stable and committed flow focused on long-term projects in home country infrastructure or

sustainable income generation for the poor would more powerfully benefit development, in addition to profit generation for the company (UNCTAD 2013).

It is important that the developed world's conceptualization of economic progress as development, and the rich-help-poor view that surrounds ODA and FDI be noted in the quest for improved sustainable development financing. Although beneficial in some regions or contexts, these funding sources fundamentally ignore the systemic relationships between the capitalist quest for profit and the resulting disregard for social and environmental processes.

Steadily increasing, *remittances*, the light blue line in Fig. 6.1, are now the second largest contributor to development finance, second to FDI (UNCTAD 2013). Globalization advances in transport and communication, along with other contextual factors, have allowed migration for work opportunities, and an increase in money sent back home from abroad. Reacting slightly to the effects of an unstable global economy, remittances decreased slightly in 2009, but since 2010 have continued to increase (ODI, DIE & ECDPM 2013). In many cases, remittances have paved the way for development programs and projects initiated and funded by local people with local contexts and needs in mind. Rather than top-down directive, remittances represent the possibilities of integrated and locally applied funding for development.

Domestic resources also contribute to the development finance picture. According to World Bank (2013b), most developing nations depend on international aid and funding, on some level, for national development, but could work toward mobilizing more domestic resources to close national gaps in development aid. Many have been successful in doing so, as domestic revenue mobilization in emerging and developing economies has increased 14 percent annually since 2000 (World Bank 2013b). Still however, much of the developing world faces a challenge in mobilizing domestic resources because of weak or corrupt governments, and a low efficiency and capacity for gathering resource revenues and taxes (World Bank 2013b).

It is also important to consider the rise of *emerging economies* in the global aid system. Nations like Brazil, China and India, for example have developed their own economies and begun to shape external development finance in the developing nations. Such has become known as South-South Cooperation (SSC), and emerging economy 'new donors' are contributing greatly to international development with local and regional contexts in mind (ODI, DIE & ECDPM 2013:115). With fewer restrictions than ODA and a focus on long-

term investment in infrastructure and productive sector development, emerging economies have contributed to changing the current aid environment (ODI, DIE & ECDPM 2013). As more economies ‘emerge’ as recognized players in the global economy, a certain hope for sustainable development and environmental prioritization can be recognized.

6.2.2 Needs and gaps in development finance

It is no surprise that aid and finance for development in the BAU economy are lacking. Transformational development funding could result from finance and governance institutions that cooperate, reach globally, and work together. In order to encourage investors and governments to participate in a system that supports both developed and developing nations, the importance of sustainable production and consumption must be recognized (UNCTAD 2013). For the SDGs to be successful, finance and investment into the developing nations, outside the current scope of the BAU scenario must become a highlighted priority.

While working at UNCTAD (2013), focus was placed on how best to calculate the gaps between current levels of development financing and the levels necessary to achieve the likely SDGs. Assessing these disconnects is important for the formulation and implementation of the SDGs, and for the achievement of sustainable development in the long run. Great focus, therefore, has been placed on identifying and calculating these gaps, and is discussed fully in Appendix V. The following section stems from such research, but focuses on the larger implications of finance gaps rather than on their specific calculation. It is helpful however, to understand that *finance gap* is a term used to describe the difference between BAU finance flows and the financing needed to achieve a specified objective (UNTT 2013a).

Quantitatively confirming the size of financial gaps in development aid is a difficult task however, and estimates range extensively. Regardless of difficulties in gap measurement, the existence of a gap between development financing needs and current levels, and its enormity, is undeniable. UNCTAD (2013) estimates the investment gap (calculated through the process described in Appendix V) across five development sectors – hunger, infrastructure, education, water and sanitation, and health – to be \$49.5 trillion from 2010 to 2030. In order to achieve the MDGs by 2015, and to incorporate the additional sectors of sustainable development and climate change into the SDG agenda, an enormous cost needs to be recognized.

An analysis of finance gaps in few important development sectors continues below, along with a discussion of their implications for post-2015 sustainable development. While strides

have been made in MDG human development areas, such as health and poverty reduction, other key areas have been avoided. These areas, including infrastructure and sustainable energy, require longer-term investment and cost exponentially more up front. Necessary for sustainable development however, they can no longer be ignored. Analysis of the finance gaps of the infrastructure and energy sectors comes first, followed by investigation into the more easily funded health sector.

Infrastructure

A necessary component of sustainable development and meeting basic needs, infrastructure is an important focus for the analysis of development funding. Covering a range of issues, from water and sanitation, to transportation, to communication, and energy, infrastructure projects are the key to providing developing countries the basic needs demanded in the MDGs and SDGs (McKinsey 2013). How to calculate funding needs and gaps in infrastructure has proven to be a difficult task, as discussion and debate surrounds how to infrastructure across varying contexts. Nations have different aspirations for infrastructure - some wanting the very basic to meet the MDGs, others desiring modernization of existing systems or improvements to meet future global competition (McKinsey 2013). Retracing the divide between developing and developed nations' needs, infrastructure is a very large sector for investment.

While projections vary widely, UNCTAD (2013) estimates the gap between infrastructure investment needs and BAU investment to be \$42 trillion globally between 2010 and 2030. Incorporating necessary climate change adaptation and mitigation strategies, discussed in sections 3.1.4 and 3.1.5, the UNCTAD estimate could easily increase by US\$200-300 billion per year for low emitting and climate resilient infrastructure projects (World Bank 2013 as cited in UNTT 2013a).

Energy

Sustainable development, and development in general, depend heavily on energy access. Because of its relationship to climate change mitigation, the energy sector is one of the most closely studied by finance needs estimators. Estimates of investment need to change energy access, efficiency, and carbon emissions levels to meet GHG emissions targets are growing (UNTT 2013a). There are many factors to consider within the energy sector, including, but not limited to, energy access, energy security, renewable energy implementation, reduction in air pollution and human health problems based on energy creation and use, and avoiding

climate change. Estimates usually focus on each factor individually, rather than on energy as a whole.

Regarding energy access, the International Energy Agency (IEA) (2011) asserts that \$49 billion is needed per year through 2030 to provide universal access to modern energy, a five-fold increase from the 2009 investment level (as cited in UNTT 2013a). The World Bank (2006) proposes an estimated cost of \$34 billion per year to provide universal access to electricity (as cited in UNTT 2013a). Additionally, IPCC (2010) approximates that investment in renewable energies will need to increase three- to five-fold by 2030 from baseline levels of \$136 billion per year (as cited in UNTT 2013a). Although the estimates cannot be compared or added up directly, there is clearly a large gap between current and necessary flows for (sustainable and renewable) energy. The need for more investment in energy is not surprising as the shift to sustainable energy is relatively recent. This, however, does not excuse the lack of action in the implementation of sustainable energy practices, but recognizes that high initial costs are inevitable.

Health

Health will remain a prominent sector of development focus in the transition to the SDGs. Because health needs and systems vary so widely across nations and regions, estimates are often performed at the national or regional levels and then combined into larger cost estimations (UNTT 2013a). Country-specific estimates range from \$0.53 to \$8.75 per capita per year, reflecting locational variances in global health care needs (Kumaranayake *et al.* 2001 as cited in UNTT 2013a). Although aggregate results are hard to calculate, they can be extremely helpful in focusing the health for development discussion. The World Health Organization (WHO) (2010) suggests that the "global price tag" for health care is an annual \$25 per capita from 2009 to 2015 (as cited in UNTT 2013a). In addition, UNCTAD (2013) suggests that a gap of \$721 billion exists in the health sector for developing countries between 2010 and 2030. Although estimated figures vary in terms of their calculation and presentation, the projections, whether local, regional or global, suggest an achievable price tag for meeting health development goals.

Looking at the differing scales of gaps in funding needs across sectors - such as in infrastructure and energy, for example - demonstrates the relatively small spending bump necessary to provide basic health care in developing countries compared to the large investments needed for sustainable infrastructure and energy. However broad and simple a

generalization, the achievability of meeting basic health needs, while outstanding, cannot overshadow the needs of the Earth System or the recognition of the systemic economic and social processes that cause such unequal treatment in the first place.

Painting a picture of the current international development aid landscape is a difficult task. The examples of aid types listed above, and the simplified discussion of development finance gaps attempts to do just that however, and to give an idea of the many working parts of development economics. They also provide a foundation for thinking about the transformation of the global economy into one that promotes sustainable processes and development, and asserts mechanisms and incentives to enable an increase in aid. Large gaps in development funding are a clear basis for encouraging the intensification of overall finance and investment, and a stronger financial impact for the SDGs. It is clear that the current aid framework is not enough, and that new sources of funds must be mobilized. Within which sectors and how to do so is a bit less clear, but it seems that greater mobilization within the private sector will be required, as thus far, public resources are stretched thin and not enough.

6.2.3 The role of the private sector

Considered the necessary catalyst for increasing aid flows for sustainable development after 2015, *private finance for development* may help to bring the private sector, and their interests, into the realm of human and environmental development. Sachs (2012) explains, "The private sector is the main productive sector of the world economy, and the holder of much of the advanced technologies and management systems that will be crucial for success of the SDGs" (2210). The sections below analyze the role of the private sector and the constraints that may hold it back from engaging fully in the sustainable development agenda, suggest possibilities for increased participation, and describe the economic framework that will likely surround the sustainable development agenda.

Although large, estimated global development financing needs represent a small portion of global savings (UNTT 2013c). The \$49.5 trillion in necessary SDG investment from 2010 to 2030, estimated by UNCTAD (2013), is a lot of money, and does not cover all sustainable development sectors. However, when compared to estimated annual global savings of \$17 trillion (as of 2012), and global financial assets of \$218 trillion (as of 2011), seems a bit more achievable (UNTT 2013c). "Although reallocating the pool of global financial assets would be challenging," explains UNTT (2013c), "redirecting a small percentage, say 3 to 5 percent, of this investment toward sustainable development could have enormous impact" (3).

Increased involvement of the private sector could provide the major development strides lacking from the MDGs. Along with better governance and institutions, and increased aid efficiency and effectiveness, the private sector could help to transform the global economy into one that promotes and takes advantage of the benefits of greater social and economic development worldwide. If directed and prioritized correctly, the Earth System might even receive the funding and focus necessary to keep the planet from crossing its systemic boundaries.

While clear that the private sector has the means to affect measurable change for global development, full commitment and engagement will be difficult. Defined, in this paper, as economic actors not directly under state control, the *private sector*, most generally, functions with profit as its main goal (UNCTAD 2013). Encouraging investment in long-term and risky development projects, such as in infrastructure and energy, in unstable nations is a hard sell, and requires a fundamental transformation in global business objectives.

FDI, for example, a sector of private finance, performs largely in developing markets. Transnational corporations (TNCs) depend on resources, human and natural, within developing nations, and invest in ways to expand their production and increase profit abroad. Development is not their main goal, however, and any local improvements stemming from the company's presence are often shortsighted and unsustainable. Improving the local relationship is just one possible factor to increase private sector investment that also promotes and sustains international development. It requires an outlook transformed from financial gain, to mutual responsibility and global benefit. Making the business case for development and discovering new ways to encourage private finance are important issues to better connect all dimensions of sustainable development and the SDGs.

The business case for development

The business case for development, simply, surrounds the idea that business creates economic growth, jobs, infrastructure, investment, and innovation, and is most successful when the global economy is successful. Although an admitted oversimplification, for numerous factors play into business activities, it provides excellent basis for understanding the logic behind increased private sector engagement in development. Based on such assertion, the UN Global Compact (2013) urges that the post-2015 sustainable development agenda "presents an historic opportunity for the international business community to contribute to the attainment of worldwide sustainability and development objectives," and

that it "be designed with business engagement in mind - allowing for maximum alignment with corporate strategies and multi-stakeholder partnerships that can contribute to achieving sustainability priorities at unprecedented levels" (3-4).

Transitioning from profit to social responsibility

The spread of globalization has allowed businesses to expand their production chains into areas of new resources and new markets. Accepting that businesses are social, as well as economic institutions that affect the natural Earth System is important in such situations. The effects of business operations on local people and on the local and global environment are necessary considerations for future business action. Although debate surrounds whether or not corporations have a responsibility only to their shareholders, or to the people and planet their business affects as well, globalizing processes have led to the broad acceptance of corporate social responsibility (CSR) (Lucci 2012). CSR represents a responsibility to the people and places of business, and not only their shareholders (Lucci 2012). As a result, and regardless of their motives, a majority of international corporations today follow some code of corporate responsibility. Whether recognizing fair labor rights and practices or environmental standards, the spread of CSR has helped to tie together business goals and sustainable development (Lucci 2012). Although there is still a long way to go, the slow transition from profit as the end all, to acknowledgment of social responsibility is an important step toward incorporating the private sector into global development, and the global economy into the natural Earth System.

Private sector finance and the SDGS

In terms of the SDGs, an increase in private sector finance suggests recognition of an agenda similar to that of the MDGs. Although the environment is considered an important issue, concentration remains on poverty and basic needs issues, and an incomplete understanding of the Earth System. The unquestioned dominance of the current market economy makes an increase in private sector finance an extremely pragmatic strategy to increase development funding and goal achievement. Ignorance of natural systems, excessive consumption, irresponsible production and the systematically created, and growing, gap between rich and poor, should question the value of this practicality, however.

6.2.4 The green economy

Taking sustainable development into higher account, the concept of the *green economy*, or *green growth*, further integrates the needs of the planet into the BAU economy. Stemming from recognition of the dangerous state of the environment and the volatile state of the economy after the global financial crisis, the green economy offers the hope of transformation of current systems (Bina 2013). Often endorsed as the ‘new economic paradigm,’ the case for the green economy solidly bridges economic growth with sustainable development and a lower carbon economy (UNEP 2011).

But what is a green economy? The United Nations Environment Program (UNEP), a lead advocate and developer of the concept explains, “In its simplest form a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive,” and is “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP 2011:16). Linking economic policy with environmental sustainability, the case for green growth promotes the promise of ‘win-win’ solutions. Solutions in which the environment is protected, GHG emissions are reduced, and economic and industry competition can continue along lines of resource efficiency, sustainable technologies and innovation, and a booming ecoindustry sector (Bina 2013).

Citing the lack of progress on sustainable development thus far, UNEP (2011), in consensus with the international community, asserts the green economy as the means to achieving sustainability – a practical strategy, not to replace, but to assist in accomplishing the sustainable development agenda (Bina 2013; UNEP 2013; Park 2013). Park (2013) explains further, “the significance of recent developments in green growth lies in efforts to institutionalize the idea of a synergy between the economy and ecology at the global level, as well as in efforts to implement this synergy while reinforcing sustainable development, which might otherwise have taken even lower priority on the list of global agenda items” (210).

Elements of the green economy

The practical strategy behind green growth rests on shifting existing finance mechanisms to benefit the environment and enable sustainable development. Correcting the ‘great misallocation of capital’ that led to the financial crisis and persistent ignorance of global inequalities, the green economy depends on private and public investment supported by policy reforms and regulation changes, and based on a reduction in fossil fuels and an appreciation for biodiversity and natural resources (UNEP 2011). According to UNEP

(2011), encouraging public and private investment in the green economy depends on incentivizing and enabling sustainable and green technologies and markets. Enabling conditions include the reform of current fiscal policy at national and international levels, including a legal framework for environmentally irresponsible actions, the reduction of fossil fuel and environmentally harmful subsidies, the development of green innovation and technology, and the reallocation of resources for sustainable infrastructure necessary for human development (UNEP 2011).

Emphasizing technological progress and innovation is a key element of green growth (Bina 2013; UNEP 2013; Park 2013). Accepting that improved technology will assist in the more efficient use of natural resources, governments will be specifically pushed to develop green technology that reduces emissions (Park 2013). Offering the hope of economic growth and development while preserving Earth's natural resources and curbing climate change, the green economy may be a pivotal steppingstone along the path of sustainable development.

A complement to sustainable development?

While the case for the green economy stands on its mutually beneficial premises, criticism surrounds the degree to which the Earth System will actually be incorporated, and its basis in the Western conceptualization of progress. Specifically addressing the concern that economic progress and environmental sustainability cannot coexist, UNEP (2011) declares the green economy “a new engine of growth,” rather than a limitation to growth in its 630-page report (16). Still however, the green economy remains a highly criticized topic for aspects of the Earth System and planetary boundaries, poverty eradication and human development and its evasion of thorough system transformation (Bina 2013).

Ethical questions

As a method to achieve sustainable development, the green economy should not be considered as sustainable development itself. Park (2013) reveals a clear distinction between the two, “Sustainable development envisions relatively longer-term and multi-dimensional changes, such as progress in quality through equity, whereas green growth views more immediate progress in quantity that is more feasible and less abstract” (219). The consequences of applying politically correct band-aids to environmental needs reduce the likelihood of quality transformation in the future (Park 2013).

Capitalizing on environmental needs, the green economy recognizes the interdependence between the economy and the environment, but often from a one-sided and shortsighted

perspective. Without comprehensive recognition of the linkages between economic growth and environmental degradation, the green economy points out the problems within the current economic paradigm, but asserts no long-term solution (Bina 2013). Avoiding consideration of the ‘end’ it is meant to achieve, green growth, and nature itself, become mere tools for economic aims. The inherent separation of nature and society again rears its ugly head. Rather than focusing on the value of nature, its services and its ability to sustain life, a ‘green’ perspective to technology and growth serves as the developed world’s contribution to sustainable development. Accountability and responsibility for the Earth System remain outside the sphere of concern, and the ethical shift needed for a sustainable Earth is replaced by a technological quick-fix within the same economic paradigm (Bina 2013).

Diverging world-views

Created and pushed predominantly by the governments of developed and emerging economies and international organizations, including the UN, the green economy is perceived by the developing world as a continuation of Western ideology – a clear parallel to one of the main MDG weaknesses (Bina 2013). Still however, the green economy has been legitimized as the most promising and pragmatic means to achieving sustainable development (Bina 2013).

As a theme of the environment- and human development-focused Rio+20 conference, controversy over green growth persisted throughout the meeting (Park 2013; Bina 2013). For example, when asked in an interview if the green economy would minimize sustainable development, Banuri, a director of Rio+20, answered, “I don’t see that danger...the green economy [is placed] squarely within the context of sustainable development as a means of reconciling economic policies and economic behavior with social and environmental needs. The focus on the economy is not bad, as this is the place where action is needed” (Zarro 2012 as cited in Bina 2013:1027). Such response reflects the acceptance of the economy as the driver for social and environmental change, a strategy that has been entirely unsuccessful thus far, and that ignores the cause and effect relationship between economic dominance, and global poverty and environmental degradation.

Additionally, Banuri’s perspective further initiates top-down development, the commodification of natural resources, and the ignorance of local contexts and of the needs of developing and emerging nations. During the Rio+20 closing plenary, Bolivia’s representative opposed the green economy and expressed, “reservations regarding all

references to the green economy and any interpretation that may be construed as commodification of the functions and cycles of nature” (IISD 2012 as cited in Bina 2013:1028). Although UNEP and other UN organizations continue to defend the green economy, clearly, the developing world feels differently about its implementation.

The green economy and the SDGs

As a ‘pragmatic’ strategy for shifting the global economy to sustainable development, the green economy offers a chance to achieve more sustainable infrastructure, energy and food production for meeting basic needs worldwide (Bina 2013). All SDG focus areas can be addressed by an economy with a green focus, and the SDGs will become ‘greener’ through the institution of the green economy.

One may worry however, that the acceptance of the green economy in the SDGs may perpetuate the top-down prescription for development prevalent in the MDGs and current sustainable development discourses. Although attempting to be transformational, the SDGs will likely reflect the green economy as a transitional step toward sustainable development and a changing economy. Supported by mounting Earth science and the identified need for socio-economic transformation with concern for the Earth System, the green economy prescribes no real change for socio-economic systems, and simply repackages economic growth in green packaging (Bina 2013). Although the green economy may succeed in shifting the BAU economy toward greener motives, the needs of the Earth System will continue to be ignored on a comprehensive and international scale.

6.3 Governance, the economy and multi-dimensions in the SDGs

Integrating the theoretical considerations of the separation of nature and society and the dominance of the global economy within the Earth System reveals the systemic cause and effect relationships between global inequality and Anthropogenic climate change. Yet, when looking at the likely SDGs and implementation strategies suggested by experts, concern for the environment is lacking.

The literature clearly stipulates an improved focus on international governance, bettering the economy for development and recognizing the overlaps between the pillars of sustainable development. The SDG processes thus far however, fail to contribute any concrete, specific or achievable changes to better the global governance partnership or the economy. Their recommendations, at this point, have little more than face value and are nothing more than general and all-purpose suggestions. Moving forward, dynamic global governance and an

economy that supports and incorporates sustainable development will continue to be two very important considerations for SDG implementation – considerations that should be better defined and explained so that all nations can appropriately adjust their implementation strategies to support the global.

7 Results and recommendations

Four common necessities blanket UN and international organization documents of considerations for the SDG framework – (1) improved global governance, (2) multi-level focus in goal formation, governance and aid, (3) an international economy focused on greater equality and development, and (4) the recognition of the many multi-dimensional and overlapping issues between the sustainable development issues of society, economy and the environment. Although the UN, and other international organizations make mention of the needs of the Earth System and the multi-dimensions of sustainable development in their commitments and suggestions for SDG implementation, few take their analysis any further into specific implementation tactics. An undoubtedly complicated task, the international community is not blamed for this, but must still be held to the highest degree of accountability if they hope to make lasting change.

Comprehensive analysis outside the documents of official SDG channels suggests extension of the four blanket considerations described previously. From the documentation and literature, this study identifies the following six concepts to be considered in the formation and practical implementation of the SDGs:

1. The Earth System Perspective and Planetary Boundaries
2. Learning from the MDGs, and the importance of recognizing:
 - a. Synergies and interlinkages
 - b. Regional and local contexts
 - c. Disaggregated progress
3. Global governance
4. Ethical considerations – Accountability and responsibility
5. The multi-dimensions of sustainable development - Environmental, social and economic
6. Transforming the BAU economy through:
 - a. Financing for sustainable development
 - b. A green economy
 - c. Sustainable consumption and production

Additionally, because concern for the planet is not integrated heavily enough into official SDG processes, each concept must be considered and prioritized within the context of the Earth System. For effective sustainable development, all social and economic issues must ultimately be placed *within* the Earth System – a conceptualization the SDGs must adopt in order to be a ‘sustainable development’ framework.

7.1 A model for pragmatic implementation

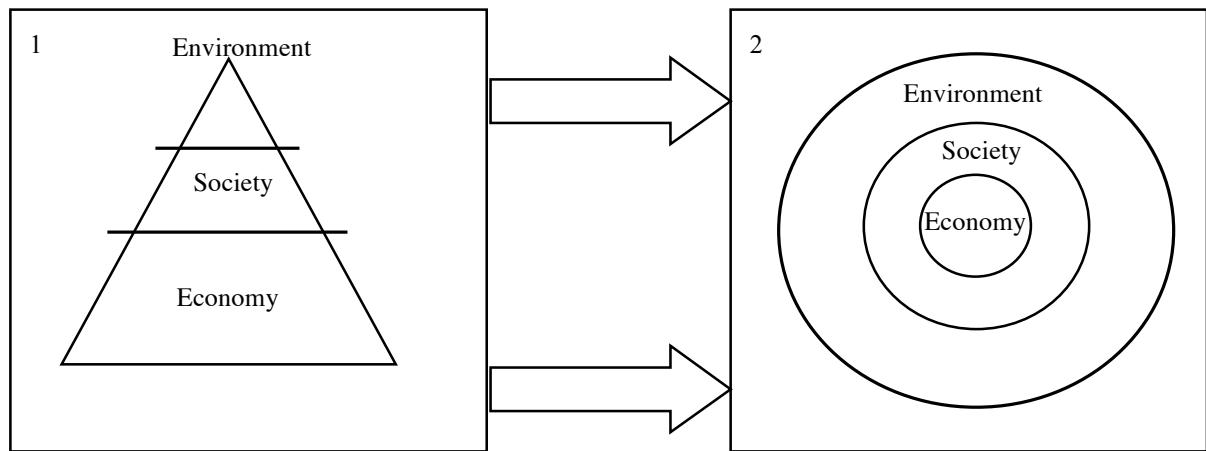
The complex relationships between the SDGs and needs for implementation are demonstrated within the system model in Fig. 7.1. Representing the processes of interaction between the Earth System Perspective, learning from the MDGs, global governance, ethical considerations, the multi-dimensions of sustainable development and a transformational global economy, Fig. 7.1 integrates the main concepts of this study into a workable system to apply to the SDGs. Specific attention must be paid to the interactions between components of the system, for this is an overarching necessity for any sustainable development agenda in the Anthropocene.

The model flows from top to bottom. The top box, containing boxes 1 and 2, demonstrates the essential paradigm shift from hierarchical ranking of economy, society and environment (box 1), to nested placement of the economy within society, within the Earth System (box 2). Only after this change in thinking can planetary needs and human development needs be considered on the same level, and as interacting processes, as the model demonstrates in its next section. Following the vertical arrows from the transformation box, the planetary needs and human development needs boxes represent the issues to be incorporated into formulation of SDG goals and targets. Before this can occur however, both planetary and human needs must be assessed for their connections to the other. For instance, regulating oceanic cycles and levels of pollution relates directly to future water access, and eradicating hunger and food security depends on reducing GHG emissions and the temperature rise and droughts they create.

After such assessment, the process follows the down arrow into the realization of a multi-dimensional and comprehensive set of goals. This comprehensive set takes the complexities of the system into account. Consistent assessment of the complex overlaps and interlinkages is required throughout the system in order to sustain the specific goals, and the governance, economy and responsibility their implementation depends on. Finally, the four bottom boxes provide support for the implementation of the goals. Flexible and communicative global governance, an economy that places value on the Earth System, instilled ethics, and adjustment to the faults of the MDGs will all weigh heavily on the success of the SDGs.

SDGs within the Earth System

SDG framework that explicitly recognizes the transformation from (1) a fragmented & hierarchical pyramid to (2) a nested paradigm that places social and economic processes within the Earth System:



Planetary needs:

The nine planetary boundaries and their corresponding thresholds - reduced emissions and resource use, stabilizing climate change, biodiversity protection, regulation of atmospheric and oceanic cycles

Assessment of environmental, economic and social system overlaps and interlinkages

Human development needs:

Poverty eradication, hunger eradication and food security, education, gender equality, water and sanitation, energy access, environmental sustainability, global governance

Multi-dimensional solutions and comprehensive SDGs that enable:
Equitable and sustainable livelihoods, sustainable energy and resource use, low-carbon economic processes, sustainable oceans and water security, biodiversity protection and stable Earth Systems

Global Governance

Lessons from the MDGs

Transformed & greener economy

Accountability & responsibility

Figure 7.1: A model for pragmatic SDG implementation

7.2 Enough for the Earth?

Countless theoretical and thematic issues need to be considered when implementing the SDGs. It is difficult to know what they will be able to accomplish, for their success depends on the many interacting factors described throughout the report. Even so, the discussion above only touches upon a few of the main issues to be considered for the SDGs, and should make clear the ambiguity and complexity that surrounds the next international sustainable development framework.

The MDGs prove that a single global framework for development is a key driver in focusing the world's attention on global issues of poverty and inequality. Such is recognized across the international community and drives support for the daunting creation of a new framework. Whether or not the importance of the Earth System will play a large enough part in the new framework is still uncertain.

7.3 Recommendations

Thorough text analysis has led to a comprehensive list of considerations for pragmatic implementation of the SDGs. While these considerations reflect the main concerns of the sustainability of life in the global industrialized economy and resulting Anthropocene, this study recommends a deeper focus on how to transition current processes to halt climate change. Current economic, social and environmental processes must be corrected to value the environment and its services on at least the same level as poverty eradication if civilization is expected to continue along a safe path. Three main recommendations for future research and to be applied to the remaining discussions and decisions of UN SDG processes therefore follow.

First, the SDGs, in formation and implementation, should focus more on the Earth System and the fact that the existence of all other social and economic processes depends on its stability. Referring back to the original recommendations proposed in section 4.5 by UNTT (2012a), in combination with the work of the OWG, it seems that official UN workstreams do place a focus on recognizing environmental processes. Outside the mention of the term, however, the science behind the issue takes a back seat and continues to be affected by political agendas. Resulting concern for the planet is not on the level necessary to deal with coming climate changes and shifts. Connections are made between flooding and droughts and the livelihoods they effect, but the root of the cause remains unassessed. Although the SDGs cannot be expected to be a world-altering directive, they should use the momentum and

following of the MDGs to better society's relationship with the planet if they are to truly support 'sustainable development'.

Next, the SDGs must explicitly recognize the impossibility of following the BAU economy much further. Two sub-considerations support this assertion, and were described initially in section 4.2.1. First, current production and consumption patterns directly drive the approach and passing of planetary boundaries. No matter the end goal of economic systems, without a shift from carbon-based industry to sustainable energy, long-term profit and physical operation space will no longer exist. Second, the unchecked dominance of the market economy only perpetuates the entrenched divide between rich and poor, and developed and developing. To systematically address human development and global poverty, the BAU economy can no longer serve as the only system of value. Further research must continue to probe for ways to change the way societies value the economy and the environment. Although questions remain about the true intentions of the green economy, it may be the most pragmatic tool available currently for transition to sustainable development. Additionally, without policy and regulation to protect from future financial crises, financial flows to developing nations will continue hesitantly in fear of potential, and likely, vulnerability.

Finally, the SDGs and their processes must be more prescriptive and transformative in their planning, formation and implementation. Recognized, again, as an extremely complex issue that spans the disciplines of physics, geography, social science and economics, the difficulty in producing a specific and multifaceted approach to global sustainable development is understandable. Encroaching dangers of climate change, however, mean that this difficulty must be more precisely addressed, outside the general recommendations promoted by UN organizations. No fault or blame surrounds this assertion, but greater awareness is required to maintain effectiveness in the complicated times of the Anthropocene and for generations to come. The MDGs created a following, and the UN and their SDGs hope to inherit it. To be a set of goals that enables lasting and transformational change, for both human development and the environment, the SDGs must still do more than their predecessor framework.

Summarizing, the SDGs should (1) place greater focus on the Earth System and the integration of social and economic processes within it, (2) explicitly recognize the impossibility of following the BAU economy, and (3) be more prescriptive in promoting transformational change.

8 Discussion

Initially questioning poverty reduction as the ultimate focus for the next international development framework, this study asserts and confirms that the Earth System must be recognized at least as importantly as poverty in the SDGs. Additionally, a number of considerations for implementation have been highlighted to guide a pragmatic and successful path for the SDGs. Its success as a sustainable development framework depends on the ability to incorporate the needs of the environment into the agendas and minds of all member-states. Explanations behind the importance of the environment have been discussed thoroughly throughout previous chapters. Rather than reiterate these discussions, important issues for SDG implementation within the Earth System are referenced in the next section. Section 8.2 then describes limitations of the study.

8.1 Critical discussion points

Although the specifics of the SDGs are not yet defined, a look into current processes and workstreams projects a clear picture of what the framework is likely to include. Promoting human development goals and processes most heavily, the SDGs will more likely reflect a continuation of the MDGs than a transformative framework of environmental value.

8.1.1 The Earth System and poverty eradication: Interconnected processes

Focusing on poverty eradication, from the rich-help-poor view, as the most important objective ignores its systemic causes and perpetuates the developed and developing divide felt throughout the MDGs. The interconnected systems of the economy, environment and society must not be separated in specific goals and in the measurement of achievement (Griggs *et al.* 2013). Referring to lists of proposed SDGs in section 4.4 exposes an attempt to integrate the systems of sustainable development. Ultimately, however, it seems the goals will continue a divide between ‘human development’ and ‘sustainable development’ objectives.

8.1.2 A great transition

Climate change is not a contested issue. Although coming to terms with this fact and its causes is highly politicized and disputed, especially in developed nations, a paradigm shift is necessary in the conceptualization of economic, social and environmental systems (Griggs *et al.* 2013). Rather than ranking the economy as the prevailing system of value, the Earth System must be recognized for its amazing ability to provide a place for life to develop. The roots of economic system dominance are clearly ingrained in the developed world’s conception of progress. Discussion of the separation of nature and society in section 5.4, and

influences of the economy as progress in section 5.5.1, highlight the difficulty in transforming established value systems. The rise of human civilization, however, owes its existence to natural processes and the stable Holocene period that enabled its development. Technological and economic progress depend fundamentally on natural resources. The globalized economy cannot function without access to these resources. Ignoring the needs of the planet now will push it past the ‘safe operating space for humanity’ and the conditions that have made human progress possible (Rockström 2009a; 2009b).

8.1.3 Prospective SDG progress

Analysis of official SDG processes, proposed focus areas and outcome documents, discussed in sections 4.3 and 4.4, points to a final SDG framework that continues the work done by the MDGs. Additional concentration is directed toward sustainable development and environment issues, especially in the Rio+20 and OWG process, but the needs of the Earth System have yet to be fully incorporated. Complete incorporation is necessary to affect sustainable processes across the long-term.

The SDG processes also make an effort to identify the interlinkages between environmental, economic and social systems. Unfortunately, the cause and effect, cyclical and systemic relationships between monetary flows and profit-driven industry, growing inequality and resource exploitation, and increased GHG emissions and a warming climate remain isolated across goals and organizations. Thus confirming the likelihood of greater human development focus in the SDGs, and the unmet need for comprehensive understanding of the causes of global inequality and an unstable climate.

8.2 Limitations

Although this study seeks to be as thorough as possible, a few limitations are present. First, because the SDG process is ongoing, it is difficult to conclude definitely as to what the final framework will include and promote. Meetings and discussions of content and member-state needs will continue throughout the year, and will likely bring up issues not included in this study. In order to combat this weakness, thorough and consistent research into the most up to date documents and meeting results was considered throughout the process.

Regarding reliability, an ongoing process creates issues for the consistency and repeatability of the study. Because the SDGs are a work in progress, a later study will have access to more final and definitive information. Speculation of specific goals, targets and agenda foci will no longer be assumption. Because this study attempts to contribute to the implementation,

however, it is helpful to make projections of potential issues so they can be assessed before final SDG conception.

Additionally, because this study is an outside analysis, it is sure to be missing some factors of the UN processes. Such is reflected as a give and take limitation however. For although specific UN mandates and policies may not be considered heavily enough in this study's generalization that they are not doing enough to enable transformational change, breaking out of accepted policies may be what is needed in today's sustainable development context. The weight and respectability of the UN comes from its established processes and unpoliticized agenda – a quality that enforces its pull in the international community. Changing accepted processes, however, may be the only way to transition away from the divide between rich and poor and the undervaluing of the Earth. Attempting to fill holes with outside theory and science supports a more comprehensive study of the multiple dimensions of sustainable development.

The incredible scope of the sustainable development agenda also places limitations on the study. While many of the most important issues and concepts are discussed across the report, there are some that must be left out for sake of space and time. Energy, for example, is a major concern for sustainable development in the Earth System. Section 6.2.2 introduced finance gaps of the energy sector, but, unfortunately, detailed discussion into the sectors, technology and schemes of sustainable energy is excluded in the report.

Finally, in order to fully exemplify the importance of local, regional and national contexts in the formation and implementation of the SDGs, a more in depth division of the world's people than 'developed and developing' could make the study stronger. Specific country case studies and sustainable development policies and agendas would better reflect the different values and risks associated with climate change, natural resources and environmental services. A focus on the larger theoretical and conceptual issues was chosen instead in order to represent the overall need for a shift to a highly valued Earth System.

9 Conclusion

The year 2015 is quickly approaching, and with it, the expiration of the MDGs, the development framework that has guided and focused the international community for the last 15 years. As the pressures of climate change and growing global inequality increase, the next development framework, the SDGs, is faced with the challenge of affecting international sustainable development. In order to address the dangers of the unstable Anthropocene and the growing gap between rich and poor, the causes of the problems – the global market economy and undervaluing of the environment – must be considered.

This study initially set out to question the assertion that global poverty reduction should remain the main focus of the SDGs. Seeking to answer the research questions, (1) how should the SDGs be most practically and beneficially implemented?, and (2) can the SDGs eradicate (or reduce) global poverty without a core consideration of the natural Earth system and climate change?, this study illuminates the fault in making poverty eradication, without a consideration of current and interconnected economic, social and environmental processes, the main objective of the SDGs.

Detailed text analysis of UN and international organization documents, scholarly articles and scientific studies, and first-hand experience in the Investment Issues Section of UNCTAD contribute to the confident assertion that the SDG framework must become more comprehensive in regards to the dangers of climate change and the undervaluing of the Earth System. After thorough and extensive analysis of UN SDG processes, the path paved by the MDGs and the strategies suggested for SDG implementation, a few questions remained regarding the scale to which economic, social and environmental process interactions were considered. Integrating larger, and more complicated theoretical and macro considerations for sustainable development, it became clear that the SDGs and their facilitators must expand the framework's main charge from poverty reduction, to Earth System protection, on at least the same focus level. For global inequalities and poverty to be reduced in the Anthropocene, planetary boundaries and reduced emissions must be considered fundamentally in the global economy. Therefore, six main concepts are promoted for the most pragmatic and effective implementation of the SDGs – (1) Incorporation of the Earth System Perspective and Planetary Boundaries, (2) learning and applying lessons from the MDGs, (3) productive global governance, (4) ethical consideration of accountability and responsibility, (5) recognizing the multi-dimensional and cause and effect relationships of sustainable development, and (6) transforming the global economy.

Based on the separation and unrecognized overlaps of the global system and undervaluing of the Earth System across SDG processes, it is likely that the final SDG framework and its implementation will not live up to their grand expectations. The complexities of a thorough shift from current processes to sustainable development cannot be supported by the broad goals and propositions of the likely SDGs. Without prescriptive, flexible and regulative governance systems, a restructuring of the market economy, and the interjection of an ethical responsibility for the planet's status, no framework can establish, and maintain sustainable development across local, national, regional and global contexts.

Unfortunately, the global transformation to sustainable development has a long way to go. The SDGs may help to initiate such journey, but the global community must still seek to address the questions that remain, to accept possible radical changes, to sacrifice some now for the future, and to be open to global partnerships, transparent governments, and an economy that respects the environment. Finding the balance between economic development and environmental sustainability is an extremely difficult and complex test for this generation, but there is no time left for hesitation.

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Appendix I: Principles of the Rio Declaration on Environment and Development (UNCED 1992)



Principle 1

Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

Principle 2

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 3

The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

Principle 4

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

Principle 5

All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

Principle 6

The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.

Principle 7

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

Principle 8

To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

Principle 9

States should cooperate to strengthen endogenous capacity building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

Principle 10

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

Principle 11

States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

Principle 12

States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

Principle 13

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

Principle 14

States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

Principle 15

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Principle 16

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

Principle 17

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

Principle 18

States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help States so afflicted.

Principle 19

States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith.

Principle 20

Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

Principle 21

The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

Principle 22

Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

Principle 23

The environment and natural resources of people under oppression, domination and occupation shall be protected.

Principle 24

Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

Principle 25

Peace, development and environmental protection are interdependent and indivisible.

Principle 26

States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.

Principle 27

States and people shall cooperate in good faith and in a spirit of partnership in the fulfillment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

Appendix II: SDSN Proposed SDGs and Targets (SDSN 2013)

1) End extreme poverty including hunger

Target 1a. End absolute income poverty (\$1.25 or less per day) and hunger, including achieving food security and appropriate nutrition and ending child stunting (MDG 1).

Target 1b. [Other suitably revised targets of MDGs 2-7 included here or below.]

Target 1c. Provide enhanced support for highly vulnerable states and Least Developed Countries, to address the structural challenges facing those countries, including violence and conflict.

2) Achieve development within planetary boundaries

Target 2a. Each country reaches at least the next income level as defined by the World Bank.

Target 2b. Countries report on their contribution to planetary boundaries and incorporate them, together with other environmental and social indicators, into expanded GDP measures and national accounts.

Target 2c. Rapid voluntary reduction of fertility through the realization of sexual and reproductive health rights in countries with total fertility rates above [3] children per woman and a continuation of voluntary fertility reductions in countries where total fertility rates are above replacement level

3) Ensure effective learning for all children and youth for life and livelihood

Target 3a. All children under the age of 5 reach their developmental potential through access to quality early childhood development programs and policies.

Target 3b. All girls and boys receive quality primary and secondary education that focuses on the learning outcomes and on reducing the dropout rate to zero.

Target 3c. Youth unemployment rate is below [10] percent.

4) Achieve gender equality, social inclusion, and human rights for all

Target 4a. Monitor and end discrimination and inequalities in public service delivery, the rule of law, access to justice, and participation in political and economic life on the basis of gender, ethnicity, religion, disability, national origin, and social or other status.

Target 4b. Reduce by half the proportion of households with incomes less than half of the national median income (relative poverty).

Target 4c. Prevent and eliminate violence against individuals, especially women and children.

5) Achieve health and wellbeing at all ages

Target 5a. Ensure universal coverage of quality healthcare, including the prevention and treatment of communicable and non-communicable diseases, sexual and reproductive health, family planning, routine immunization, and mental health, according to the highest priority to primary health care.

Target 5b. End preventable deaths by reducing child mortality to [20] or fewer death per 1000 births, maternal mortality to [40] or fewer deaths per 100,000 live births, and mortality under 70 years of age from non-communicable diseases by at least 30 percent compared with the level in 2015.

Target 5c. Implement policies to promote and monitor healthy diets, physical activity and subjective wellbeing; reduce unhealthy behaviors such as tobacco use by [30%] and harmful use of alcohol by [20%].

6) Improve agriculture systems and raise rural prosperity

Target 6a. Ensure sustainable food production systems with high yields and high efficiency of water, soil nutrients, and energy, supporting nutritious diets with low food losses and waste.

Target 6b. Halt forest and wetland conversion to agriculture, protect soil resources, and ensure that farming systems are resilient to climate change and disasters.

Target 6c. Ensure universal access in rural areas to basic resources and infrastructure services (land, water, sanitation, modern energy, transport, mobile and broadband communication, agricultural inputs, and advisory services).

7) Empower inclusive, productive, and resilient cities

Target 7a. End extreme urban poverty, expand employment and productivity, and raise living standards, especially in slums.

Target 7b. Ensure universal access to a secure and affordable built environment and basic urban services including housing; water, sanitation and waste management; low-carbon energy and transport; and mobile and broadband communication.

Target 7c. Ensure safe air and water quality for all, and integrate reductions in greenhouse gas emissions, efficient land and resource use, and climate disaster resilience into investments and standards.

8) Curb human-induced climate change and ensure sustainable energy

Target 8a. Decarbonize the energy system, ensure clean energy for all, and improves energy efficiency, with targets for 2020, 2030, and 2050.

Target 8b. Reduce non-energy-related emissions of greenhouse gases through improves practices in agriculture, forestry, waste management, and industry.

Target 8c. Adopt incentives, including pricing greenhouse gas emissions, to curb climate change and promote technology transfer to developing countries.

9) Secure ecosystem services and biodiversity, and ensure good management of water and other natural resources

Target 9a. Ensure resilient and productive ecosystems by adopting policies and legislations that address drivers of ecosystem degradations, and requiring individuals, businesses and governments to pay the social cost of pollution and use of environmental services.

Target 9b. Participate in and support regional and global arrangements to inventory, monitor, and protect biomes and environmental commons of regional and global significance and curb trans-boundary environmental harms, with robust systems in place no later than 2020.

Target 9c. All governments and businesses commit to sustainable, integrates, and transparent management of water, agricultural lands, forests, fisheries, mining and hydrocarbon resources to support inclusive economic development and the achievement of all SDGs.

10) Transform governance for sustainable development

Target 10a. Governments (national and local) and business commit to the SDGs, transparent monitoring, and annual reports – including independent evaluation of integrates reporting for all major companies starting no later than 2020.

Target 10b. Adequate domestic and international public finance for ending extreme poverty, providing global public goods, capacity building, and transferring technologies, including 0.7% of GNI in ODA for all high-income countries, and an additional \$100 billion per year in official climate financing by 2020.

Target 10c. Rules for international trade, finance, taxation, business accounting, and intellectual property are reformed to be consistent with and support achieving the SDGs.

Appendix III:

OWG SDG Focus Areas, as of 19 March 2014

(OWG 2014a)

Focus area 1. Poverty eradication

Eradication of poverty in all its multi-dimensional forms remains the overriding priority and a necessary condition for sustainable development. The pursuit of this is critical to realizing the unfinished business of the MDGs. Some areas that could be considered include:

- a) eradicating absolute poverty;
- b) reducing relative poverty;
- c) providing social protection and social protection floors as relevant to reduce vulnerabilities of the poor, including children, youth, the unemployed, migrants, persons with disabilities, indigenous peoples, and older persons;
- d) access to property and productive assets, including associated rights, finance and markets for all women and men;
- e) addressing inequalities at both national and international levels;
- f) pursuing sustained and inclusive economic growth;
- g) developing and using evidence-based, high quality, timely, disaggregated data and impartial, internationally established methods for evaluating progress; and
- h) appropriate means of implementation.*

Focus area 2. Sustainable agriculture, food security and nutrition

Increasing the productivity of agriculture sustainably and improving food systems are important for economic well being as well as for ensuring food security and nutrition, realization of the right to adequate food and eradication of hunger. Some areas that could be considered include:

- a) ensuring year-round access by all to affordable, adequate, safe and nutritious food;
- b) ending child malnutrition and stunting;
- c) increasing agricultural productivity, including through adequate irrigation, seeds and fertilisers, while in parallel halting and reversing land degradation, drought and desertification;
- d) improving efficiency of water use in agriculture;
- e) eliminating use of toxic chemicals;
- f) enhancing all forms of agricultural biodiversity;
- g) promoting indigenous and sustainable farming and fishing practices;
- h) strengthening resilience of farming systems and food supplies to climate change;
- i) enhancing adherence to internationally recognized guidelines on the responsible governance of tenure of land, fisheries and forests, including full consultation with local communities;
- j) improved access to credit and other financial services, land tenure, and agricultural extension services, for all, including smallholders, women, indigenous peoples and local communities;
- k) increased investment and support to research and development on sustainable agricultural technologies;
- l) reducing post-harvest crop losses and food waste along food supply chains;
- m) addressing harmful agricultural subsidies;
- n) addressing price volatility, including through market information and oversight on commodity markets; and
- o) appropriate means of implementation.*

* To be determined in the context of focus area 18.

Focus area 3. Health and population dynamics

Realizing the right to the highest attainable standard of mental and physical health and improving healthy life expectancy is a widely shared endeavour. Some areas that could be considered include:

- a) universal health coverage;
- b) strengthening health systems, including through increased health financing, development and training of the health workforce, and access to safe, affordable, effective and quality medicines, vaccines and medical technologies;
- c) ensuring affordable essential medicines and vaccines for all;
- d) dissemination of medical and public health knowledge, including traditional knowledge;
- e) elimination of preventable child and maternal deaths;
- f) significant reduction of child morbidity;
- g) End the HIV/AIDS epidemic;
- h) preventing and treating communicable diseases, including malaria, tuberculosis, and neglected tropical diseases;
- i) addressing non-communicable diseases (NCDs) inter alia through promoting healthy diets and lifestyles, including for youth;
- j) tackling environmental causes of disease;
- k) access to sexual and reproductive health, including modern methods of family planning;
- l) providing for the health needs of persons with disabilities, youth, migrants, and ageing populations;
- m) eliminating harmful practices;
- n) reducing road accidents; and
- o) appropriate means of implementation.*

Focus area 4. Education

Everyone has a right to education. Achieving universal access to quality education is critical to poverty eradication across generations, opens up lifelong opportunities, promotes gender equality and women's empowerment, shapes cultures, values and creates a skilled labour force. Some areas that could be considered include:

- a) universal, free primary and secondary education for girls and boys;
- b) ensuring equitable access to education at all levels with focus on the most marginalized, including indigenous peoples, ethnic minorities, persons with disabilities, persons living in rural areas, and migrants;
- c) achieving high completion rates at all levels of education for both girls and boys;
- d) providing universal early childhood education;
- e) ensuring effective learning outcomes at all levels and imparting knowledge and skills that match the demands of the labour market, including through vocational training and skills development for youth;
- f) universal adult literacy and lifelong learning opportunities for all;
- g) integrating sustainable development in education curricula, including awareness raising on how culture advances sustainable development; and
- h) appropriate means of implementation.*

Focus area 5. Gender equality and women's empowerment

Provision of equal opportunities for men and women, boys and girls, is necessary for the full realization of their rights, their potential, and their contribution to sustainable development. Some areas that could be considered include:

- a) ending all forms of discrimination against women of all ages;
- b) ending violence against girls and women in all its forms;
- c) ensuring equal access to education at all levels;
- d) ensuring equal employment opportunities for women and equal pay for equal work;

* To be determined in the context of focus area 18.

- e) equal access to assets and resources, including natural resources management;
- f) ensuring equal participation of women in decision-making in public and private institutions;
- g) ending child, early and forced marriage;
- h) reducing the burden of unpaid care work;
- i) sexual and reproductive health and reproductive rights;
- j) promoting the availability of gender disaggregated data to improve gender equality policies, including gender sensitive budgeting; and
- k) appropriate means of implementation.*

Focus area 6. Water and sanitation

For a water-secure world and for the realization of the right to safe drinking water and sanitation, the whole water cycle has to be taken into consideration to tackle water-related challenges. Some areas that could be considered include:

- a) ensuring access to safe and affordable drinking water and adequate sanitation for all, especially for women and girls, including in households, schools, health facilities, workplaces and refugee camps;
- b) providing adequate facilities and infrastructure, both built and natural, for safe drinking water and sanitation systems in all areas;
- c) extending wastewater treatment, recycling and reuse;
- d) improving water-use efficiency;
- e) bringing fresh water extraction in line with sustainable supply;
- a) To be determined in the context of Focus area 18.
- f) enhancing effective water governance including catchment area based integrated water resources management and appropriate trans-boundary cooperation;
- g) expanding water-related vocational training at all levels;
- h) protecting and restoring water-linked ecosystems like mountains, watersheds and wetlands;
- i) eliminating the pollution and dumping of toxic materials in water bodies, and protecting aquifers;
- j) eliminating of invasive alien species in water bodies;
- k) investing in water harvesting technologies;
- l) reducing risks and impacts of water-related disasters; and
- m) appropriate means of implementation.*

Focus area 7. Energy

Energy plays a critical role in economic growth and social development. Ensuring access to affordable, modern and reliable energy resources for all is also important for poverty eradication, women's empowerment, and provision of basic services. Some areas that could be considered include:

- a) ensuring universal access, for both women and men, to modern energy services;
- b) deployment of cleaner, including low- or zero- emissions energy technologies;
- c) increasing the share of renewable energy in the global energy mix, including by providing policy space and necessary incentives for renewable energy;
- d) improving energy efficiency in buildings, industry, agriculture and transport;
- e) phasing out inefficient fossil fuel subsidies that encourage wasteful consumption;
- f) building capacity and transferring modern energy technologies;
- g) mobilizing finance to invest in modern energy infrastructure;
- h) sharing knowledge and experience on appropriate regulatory frameworks and enabling environments;
- i) promoting partnerships on sustainable energy; and
- j) appropriate means of implementation.*

* To be determined in the context of focus area 18.

* To be determined in the context of focus area 18.

Focus area 8. Economic growth

Achieving sustained and inclusive economic growth for sustainable development remains the surest means of eradicating poverty and attaining shared prosperity. At the same time, growth should be pursued in ways that brings beneficial environmental and social impacts. Some areas that could be considered include:

- a) enhancing macroeconomic policy coordination;
- b) fostering conducive regulatory and fiscal systems to promote sustainable development;
- c) encouraging structural transformation towards higher productivity sectors and activities;
- d) substantially improving energy and resource productivity of economic activities;
- e) promoting entrepreneurship, small and medium scale enterprises, and innovation;
- f) creating productive, well-paid jobs;
- g) promoting investments in infrastructure such as roads, railways, ports, electricity, and communications;
- h) strengthening productive capacities in all countries with a particular focus on LDCs, including through technological upgrading and value addition;
- i) promoting an open, rules-based, non-discriminatory and equitable multilateral trading system;
- j) promoting trade facilitation and preferential market access for LDCs;
- k) ensuring debt sustainability;
- l) facilitating international technology cooperation and technology transfer, particularly for environmentally sound technologies;
- m) developing and using evidence-based, high quality, timely, disaggregated data sources; and
- n) appropriate means of implementation.*

Focus area 9. Industrialization

Structural transformation through sustainable industrial development is a key driver of growth in productivity, employment creation and improvement of living standards, fostering economic diversification and technological upgrading. Some areas that could be considered include:

- a) ensuring adequate policy space for industrial development;
- b) advancing sustainable industrial development based on energy- and resource- efficient and environmentally sound industrial processes, including phase out of harmful chemicals, waste and pollution, minimizing material use and maximizing material recovery, with technology cooperation and transfer to support such development;
- c) strengthening institutions that support industrial production, technological upgrading and value addition;
- d) investment in sound infrastructure;
- e) strengthening productive capacities, with particular reference to industrial sectors;
- f) creation of decent industrial sector jobs;
- g) encouraging industrial entrepreneurship and enterprise formation;
- h) enhancing science and math, engineering and technical skills;
- i) ensuring favourable market access for industrial products and processed commodities of developing countries;
- j) reindustrialization and retro-fitting of industry as relevant;
- k) promoting new industries that supply goods and services for low-income consumers as well as
- a) environmentally sustainable products and services; and
- l) appropriate means of implementation.*

* To be determined in the context of focus area 18.

Focus area 10. Infrastructure

Efficient, productive and globally competitive economies require well-functioning infrastructure. Infrastructure design and development should aim to promote human well-being, productive capacity, efficiency, and environmental protection. In this regard, some areas that could be considered include:

- a) provision of infrastructure for access to modern energy services, as well as provision of reliable and sustainable transport and communications, including road and rail links, ports and ICT connectivity;
- b) due account for environmental and social impacts of existing and planned infrastructure from a lifecycle perspective;
- c) improving water supply systems, developing irrigation and water harvesting and storage infrastructure for agriculture, and developing sewage and wastewater treatment;
- d) proper use of urban space and related infrastructure planning;
- e) improvement of infrastructure necessary for sustainable tourism;
- f) addressing trans-border infrastructure needs for trade and related challenges facing developing countries;
- g) accessibility to persons with disabilities;
- h) planning and building resilient infrastructure including for disaster risk reduction; and
- i) appropriate means of implementation.*

Focus area 11. Employment and decent work for all

Sustainable development should provide employment and decent jobs for all those seeking work. Some areas that could be considered include:

- a) promoting full employment through macroeconomic policy;
- b) addressing youth unemployment through policies and strategies aimed at providing young people with access to decent and productive work;
- c) facilitating the participation of women in the labour force;
- d) social security and protection including for those retired from the labour force, persons with disabilities, the unemployed, children and youth, and older persons; and
- e) eliminating gender-based and other forms of labour market discrimination including against persons with disabilities and older persons;
- f) encouraging transition from informal sector to formal sector employment;
- g) promoting non-farm employment opportunities in rural areas;
- h) ensuring decent wages aligned with productivity;
- i) supporting small- and medium-sized enterprises;
- j) increasing access to credit to the youth, women and other vulnerable groups;
- k) promoting appropriate job-rich technology applications;
- l) promoting job-rich sustainable tourism;
- m) training and re-skilling for displaced workers;
- n) protecting the rights of migrant workers and displaced persons in compliance with the ILO norms and standards; and
- o) appropriate means of implementation.*

Focus area 12. Promote equality

Inequalities within countries can be socially destabilizing and also have negative consequences for economic growth. Inequalities among countries can have negative effects on global solidarity and international cooperation to address shared challenges. Some areas that could be considered in addressing inequality among social groups within countries include:

- a) eliminating discrimination in laws, policies and practices, including those between women and men;
- b) reducing inequalities among social groups, including economic, social, political and environmental inequalities;

* To be determined in the context of focus area 18.

- c) empowering and inclusion of marginalized groups, including indigenous peoples, minorities, migrants, refugees, persons with disabilities, older persons, children and youth;
- d) ensuring equality of economic opportunities for all, including marginalized groups;
- e) strengthening social protection systems, and social protection floors as relevant;
- f) promoting differentially high per capita income growth at the bottom of the income distribution;
- g) working towards inclusive societies that respect and promote cultural diversity;
- h) developing and using evidence based, high quality, timely, disaggregated data and impartial, internationally established methods for evaluating progress; and
- i) appropriate means of implementation.*

Some areas that could be considered in furtherance of greater equality between and among countries through high and sustained growth in developing countries include:

- a) promoting an open, rules-based, non-discriminatory and equitable multilateral trading system;
- b) curbing illicit financial flows;
- c) phasing out harmful subsidies;
- d) pursuing policies for planned, well managed and legal migration;
- e) reducing the transaction costs of remittances;
- f) developing policies to mitigate brain drain; and
- g) progress in internal conditions of development, education, inclusive economic growth, sustainable industrialization, infrastructure, energy and relevant means of implementation.

Focus area 13. Sustainable cities and human settlements

Building sustainable cities as well as decent and affordable human settlements for all, including for indigenous peoples, and the realization of the right to adequate housing remain important undertakings. Sustainable cities and settlements will be central in addressing socio-economic and environmental challenges and in building resilient societies. Some areas that could be considered include:

- a) eradicating and preventing slum conditions, including by provision of adequate and affordable housing, infrastructure and basic services;
- b) providing access to safe, affordable, accessible and sustainable transport, improving road safety and urban air quality;
- c) improving waste and wastewater management;
- d) strengthening resilience to climate change and natural disasters;
- e) access to safe public spaces and services;
- f) enhancing capacities for urban planning;
- g) strengthening positive economic and social links between cities and peri-urban and rural areas;
- h) enhancing social cohesion and personal security;
- i) promoting accessible cities for people with disabilities;
- j) protecting and safeguarding the world's cultural and natural heritage, including ancient archeological sites, intangible and underwater heritage, museum collections, oral traditions and other forms of heritage;
- k) appropriate means of implementation.*

Focus area 14. Promote sustainable consumption and production

Promoting sustainable consumption and production patterns will be vital to have decent standard of living as well as addressing resources depletion and environmental sustainability. Industrialized societies and economies would lead a shift to sustainable consumption and production patterns, with other countries benefitting from their experience and know how. The 10-Year Framework of Programmes on SCP is the principal framework for international cooperation and will need to be adequately resourced. Some areas to be considered include:

* To be determined in the context of focus area 18.

- a) significantly improving energy efficiency and materials productivity;
- b) sustainable supply chains;
- c) preventing, reducing, recycling and reusing waste;
- d) reducing waste in food production and consumption, including through traditional knowledge;
- e) sound management of chemicals and hazardous materials in accordance with agreed frameworks;
- f) sustainable building and construction;
- g) awareness raising, education for creating culture of sustainable lifestyles;
- h) providing sustainability information on products and services to consumers to enable informed decisions;
- i) fostering collaboration among academic, scientific and technological community to advance technologies for sustainable consumption and production;
- j) sustainable public procurement;
- k) sustainable tourism promotion;
- l) enhanced reporting on corporate social and environmental responsibility, including integrate reporting, and sustainable finance;
- m) appropriate means of implementation.*

Focus area 15. Climate

Climate change poses a grave threat to sustainable development and poverty eradication. Regard must be paid to the principles of the UNFCCC, including that of common but differentiated responsibilities and respective capabilities, and to supporting and urging greater ambition in the ongoing negotiations towards a strong and effective agreement in 2015. Some areas to be considered include:

- a) reaffirming and reinforcing existing international commitments, such as limiting the increase in global average temperature through equitable reductions in greenhouse gas emissions;
- b) building resilience and adaptive capacity in all vulnerable countries;
- c) introducing, inter alia, economic incentives for investments in low-carbon solutions in infrastructure and industry;
- d) developing low-carbon, climate-resilient development strategies and plans;
- e) reducing the damage caused by climate-induced and other natural hazards through disaster risk reduction;
- f) improving education and awareness raising on climate change; and
- g) appropriate means of implementation.*

Focus area 16. Conservation and sustainable use of marine resources, oceans and seas

The conservation and sustainable use of marine resources, oceans and seas ensures the provision of economic and social benefits and ecosystem services to humankind. Some areas that could be considered include:

- a) reducing marine pollution and debris including from land-based activities;
- b) halting destruction of marine habitat including ocean acidification;
- c) promoting sustainable exploitation of marine resources;
- d) regulating harvesting of straddling fish stocks;
- e) addressing illegal, unreported and unregulated (IUU) fishing, and destructive fishing practices;
- f) encouraging sustainable small-scale fisheries;
- g) eliminating harmful subsidies that promote fishing overcapacity;
- h) ensuring full implementation of regional and international regimes governing oceans and seas;
- i) establishing Marine Protected Areas;
- j) protecting marine resources in areas beyond national jurisdiction;
- k) sustainable management of tourism; and
- l) appropriate means of implementation.*

* To be determined in the context of focus area 18.

Focus area 17. Ecosystems and biodiversity

Humans are fundamentally dependent on the capacity of ecosystems for life and to provide services for their well being and societal development. Relevant areas that could be considered include:

- a) protecting threatened species and halting loss of biodiversity;
- b) stopping poaching and trafficking of endangered species;
- c) maintaining the genetic diversity of both farmed species and their wild relatives;
- d) ensuring fair and equitable sharing of the benefits from the utilization of genetic resources;
- e) promoting sustainable forest management;
- f) slowing, halting and reversing deforestation and conversion of forests to crop lands;
- g) restoring degraded forest ecosystems and increasing area of protected forests;
- h) supporting measures to protect mountain ecosystems;
- i) achieving a land-degradation-neutral world;
- j) ensuring inclusion of indigenous and local communities in decision making and in sharing of benefits derived from conservation and sustainable use of forests and other cultural and natural assets;
- k) promoting and protecting traditional knowledge of indigenous peoples;
- l) developing and using evidence based, high quality, timely, disaggregated data and methodology for evaluating progress; and
- m) appropriate means of implementation.*

Focus area 18. Means of implementation/ Global partnership for sustainable development

The means of implementation are an integral component in achieving sustainable development, including trade, financing for sustainable development, capacity building, and development and transfer of environmentally sound technologies. In this regard global partnership for development has been emphasized as key to unlocking the full potential of sustainable development initiatives. While developing countries still require external support for their domestic sustainable development programmes, their own domestic actions are equally crucial. Special consideration should be given to the needs of countries in special situation, African countries, LDCs, LLDCs, and SIDS as well as specific challenges facing the middle-income countries. International development cooperation through a strengthened global partnership for sustainable development is critical. Some areas that could be considered include:

- a) further progress on development-supportive trade reforms within an open, rules-based multilateral trading system;
- b) recommitment by development countries to meet ODA targets on an agreed timetable;
- c) enhancing accountability in development cooperation based on agreed principles;
- d) mobilizing additional financial resources from multiple sources such as remittances, foreign direct investment, institutional and other long-term investors and innovative financing;
- e) reducing the transaction costs of remittances;
- f) enhancing scientific and technological cooperation involving developing countries and technology transfer to developing countries;
- g) strengthening capacity building efforts for developing countries and knowledge sharing and technical cooperation among all countries through South-South, North-South and triangular cooperation;
- h) strengthening capacities for tax-collection, reducing tax evasion;
- i) strengthening systems of domestic savings;
- j) reducing illicit financial flows;
- k) improving efficiency of public spending, reducing corruption;
- l) strengthening capacities for disaggregated and expanded data collection for measuring progress; and
- m) regular monitoring and reporting of progress with means of implementation and aid efficiency, in conjunction with SDG progress reporting.

* To be determined in the context of focus area 18.

To provide impetus to Global Partnership for Sustainable Development and broader stakeholder engagement in sustainable development, some areas that could be considered include:

- a) greater involvement of public and private sector business and industry. Including financial institutions;
- b) strengthening commitment and involvement of multilateral financial development institutions;
- c) enhanced involvement of philanthropic organizations;
- d) creating inclusive initiatives and partnership ins support of all areas;
- e) such initiatives and partnerships to develop resource mobilization strategies;
- f) system of regular monitoring, reporting on achievement of initiatives and partnerships; and
- g) close coordination and cooperation of multi-stakeholder initiatives and partnerships with government and inter-governmental efforts in support of sustainable development.

Focus area 19. Peaceful and non-violent societies, rules of law and capable institutions

Creating peaceful, non-violent and inclusive societies, based on respect for all human rights including the right to development, is a cornerstone for sustainable development. Equality within and between countries is a key determinant of peaceful, non-violent and inclusive societies. Some areas that could be considered for strengthening peaceful and non-violent societies include:

- a) combating organized crime;
- b) strengthening the rule of law at all levels;
- c) reducing illicit arms transfer and trafficking;
- d) reduction of crime, violence, abuse, exploitation, including against children and women;
- e) promoting information and education on a culture of non-violence;
- f) reducing the number of internally displaced persons and refugees; strengthening the fight against human trafficking;
- g) improving planned and managed migration policies; and
- h) appropriate means of implementation.*

Governance, rule of law, capable institution are both outcome and enable, advancing all three pillars of sustainable development and the post-2015 development agenda. Some areas could include:

- a) effective accountable and transparent institutions;
- b) strengthening the rule of law at all levels;
- c) provision of public services for all;
- d) improvement of transparency in public finances management;
- e) fighting corruption in all its forms;
- f) improved public access to publicly owned information;
- g) inclusive, participatory decision-making;
- h) strengthening local governments;
- i) strengthening of civil society;
- j) freedom of media, association and speech;
- k) curbing illicit financial flows;
- l) provision of legal identity;
- m) provision of property, use and access rights, to all persons;
- n) providing access to independent and responsive justice systems;
- o) developing and using evidence based, high quality, timely, disaggregated data and methodology for evaluating progress; and
- p) appropriate means of implementation.*

* To be determined in the context of focus area 18.

Appendix IV: OWG Interlinkages (OWG 2014b)

Focus area 1. Poverty eradication

Since poverty is multidimensional, progress is linked to action in all other focus areas.

Focus area 2. Sustainable agriculture, food security and nutrition

Interlinkages with other focus areas include poverty eradication, health and population dynamics, gender equality and women's empowerment, water and sanitation, energy, climate, conservation and sustainable use of marine resources, oceans and seas, and ecosystems and biodiversity.

Focus area 3. Health and population dynamics

Interlinkages with other focus areas include: sustainable agriculture, food security and nutrition, gender equality and women's empowerment, water and sanitation, economic growth, promote equality, promote sustainable consumption and production, and climate.

Focus area 4. Education

Interlinkages with other focus areas include: poverty eradication, Sustainable agriculture, food security and nutrition, health and population dynamics, gender equality and women's empowerment, economic growth, employment and decent work for all, and promote sustainable consumption and production.

Focus area 5. Gender equality and women's empowerment

Interlinkages with other focus areas include: poverty eradication, sustainable agriculture, food security and nutrition, health and population dynamics, education, water and sanitation, energy, economic growth, employment and decent work for all, and peaceful and non-violent societies, rule of law and capable institutions.

Focus area 6. Water and sanitation

Interlinkages to other focus areas include: poverty eradication, sustainable agriculture, food security and nutrition, health and population dynamics, education, energy, economic growth, industrialization, sustainable cities and human settlements, and ecosystems and biodiversity.

Focus area 7. Energy

Interlinkages to other focus areas include: poverty eradication, sustainable agriculture, food security and nutrition, health and population dynamics, education, gender equality and women's empowerment, water and sanitation, economic growth, promote sustainable consumption and production, and climate.

Focus area 8. Economic growth

Interlinkages with other focus areas include: poverty eradication, health and population dynamics, education, industrialization, infrastructure, employment and decent work for all, promote sustainable consumption and production, and peaceful and non-violent societies, rule of law and capable institutions.

Focus area 9. Industrialization

Interlinkages to other focus areas include: poverty eradication, education, energy, economic growth, infrastructure, employment and decent work for all, and promote sustainable consumption and production.

Focus area 10. Infrastructure

Interlinkages to other focus areas include: poverty eradication, sustainable agriculture, food security and nutrition, health and population dynamics, water and sanitation, energy, economic growth, industrialization, sustainable cities and human settlements, promote sustainable consumption and production, and climate.

Focus area 11. Employment and decent work for all

Interlinkages with other focus areas include: poverty eradication, sustainable agriculture, food security and nutrition, health and population dynamics, education, economic growth, industrialization, promote sustainable consumption and production, and conservation and sustainable use of marine resources, oceans and seas.

Focus area 12. Promote equality

Some areas that could be considered in furtherance of greater equality within and among countries through high and sustained growth in developing countries include progress in education, energy, industrialization, infrastructure, and peaceful and non-violent societies, rule of law and capable institutions.

Focus area 13. Sustainable cities and human settlements

Interlinkages to other focus areas include: poverty eradication, sustainable agriculture, food security and nutrition, gender equality and women's empowerment, economic growth, infrastructure, promote sustainable consumption and production, climate, and peaceful and non-violent societies, rule of law and capable institutions.

Focus area 14. Promote Sustainable Consumption and Production

Interlinkages to other focus areas include: sustainable agriculture, food security and nutrition, health and population dynamics, education, energy, economic growth, industrialization, infrastructure, sustainable cities and human settlements, climate, conservation and sustainable use of marine resources, oceans and seas, ecosystems and biodiversity.

Focus area 15. Climate

Interlinkages to other focus areas include: sustainable agriculture, food security and nutrition, health and population dynamics, education, gender equality and women's empowerment, water and sanitation, energy, promote sustainable consumption and production, sustainable cities and human settlements, conservation and sustainable use of marine resources, oceans and seas, ecosystems and biodiversity.

Focus area 16. Conservation and sustainable use of marine resources, oceans and seas

Interlinkages to other focus areas include: sustainable agriculture, food security and nutrition, water and sanitation, economic growth, employment and decent work for all, climate, ecosystems and biodiversity, and peaceful and non-violent societies, rule of law and capable institutions.

Focus area 17. Ecosystems and biodiversity

Interlinkages to other focus areas include: poverty eradication, sustainable agriculture, food security and nutrition, health and population dynamics, water and sanitation, employment and decent work for all, promote sustainable consumption and production, climate, and peaceful and non-violent societies, rule of law and capable institutions.

Focus area 18. Means of implementation/Global partnership for sustainable development

Regarding interlinkages, the means of implementation/Global partnership for sustainable development cut across and contribute to the attainment of all goals.

Focus area 19. Peaceful and non-violent societies, rule of law and capable institutions

Interlinkages to other focus areas include: poverty eradication, gender equality and women's empowerment, economic growth, promote equality, sustainable cities and human settlements, conservation and sustainable use of marine resources, oceans and seas, ecosystems and biodiversity.

Appendix V: An explanation of development finance gap calculation (based on research conducted for UNCTAD 2013)

The concept of a *gap* is defined by UNTT (2013a) as the difference between the current situation and a desired situation measured through physical quantities, monetary terms or more qualitative terms. UNTT (2013a) continues that the term *financing gap* describes the difference between available financing and the financing that is needed to achieve a specified objective. Understanding these basic concepts is important in the evaluation of BAU financial flows, in recognizing areas that need specific focus, and in encouraging increases in funding to close the gap.

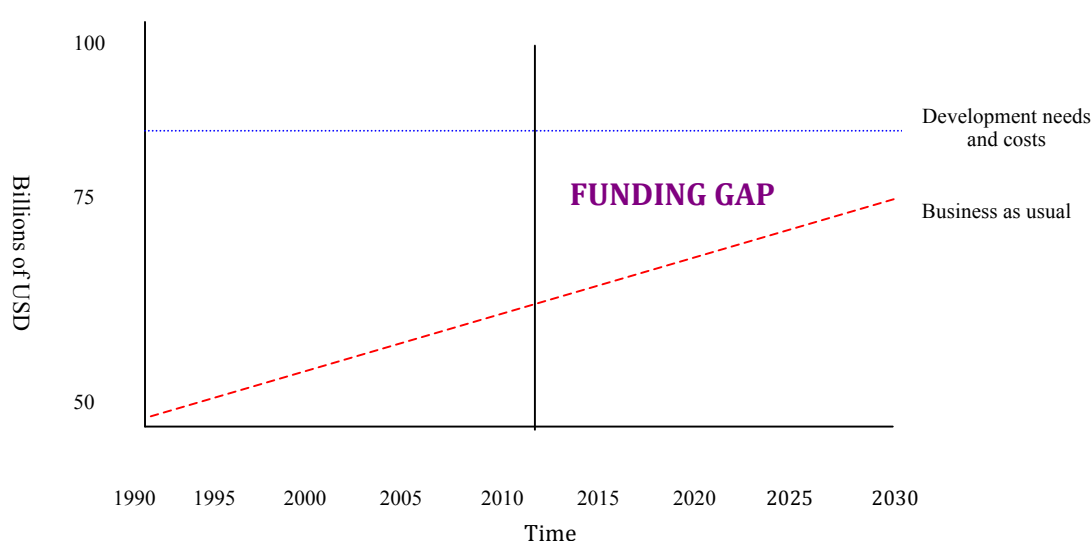


Figure A1: Illustration of gap calculation (drawing based on UNCTAD 2013)

In general, the calculation of the gap between BAU funding and needed funding for development is calculated through a process similar to the Fig. A1. Although very broad, and meant only for graphical understanding of the process, Fig. A1 shows development needs as the estimated cost to meet the specified development objective, and business as usual as the current and expected level of development funding. Therefore, the space between the two trends becomes the gap, and can be used as an estimate for recognizing and encouraging increased development spending.

Quantitatively confirming the size of financial gaps in development aid is a difficult task however. Numerous studies attempt to identify the differences in needs and current flows, but varying methodologies make them hard to compare and confirm. UNTT (2013b), for example, sheds light on the impact of varying methodologies in identifying finance gaps.

Comparing the results of six studies, the graph in Fig. A2 was produced, and shows the different gaps identified by each study in necessary financing to reach the MDGs.

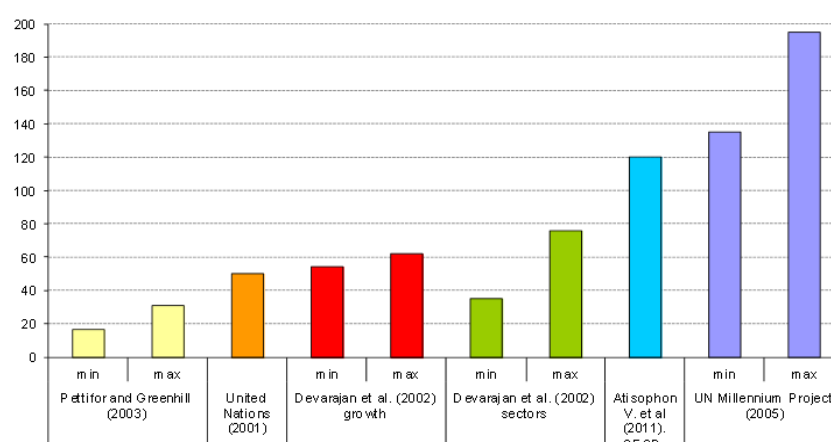


Figure A2: Additional financing needs to meet the MDGs according to six studies (UNTT 2013b)
In US\$ billion per year.

While the UN Millennium Project (2005), in purple, proposed up to almost \$200 US billion per year in needs, Pettifor and Greenhill (2003), in yellow, suggest only \$20-30 billion (UNTT 2013b). Regardless of difficulties in gap measurement, the existence of a gap between development financing needs and current levels, and its huge size, is undeniable. In order to achieve the MDGs by 2015, and to incorporate the additional sectors of sustainable development and climate change into the SDG agenda, an enormous cost needs to be recognized.

Because of the difficulties in gap calculation, UNCTAD's (2013) strategy surrounded drawing larger implications from a broad analysis of previous studies and calculations, rather than developing their own model. Based on the expected targets of the SDGs, a number of development sectors have been identified. Gaps are then calculated for each sector, as demonstrated in Fig. A3. There is a clear overlap in some for the sectors, hunger and agriculture, for example, but specifying needs in each category helps to develop programs and initiatives that meet those needs, and to recognize those sectors that clearly demand greater finance.

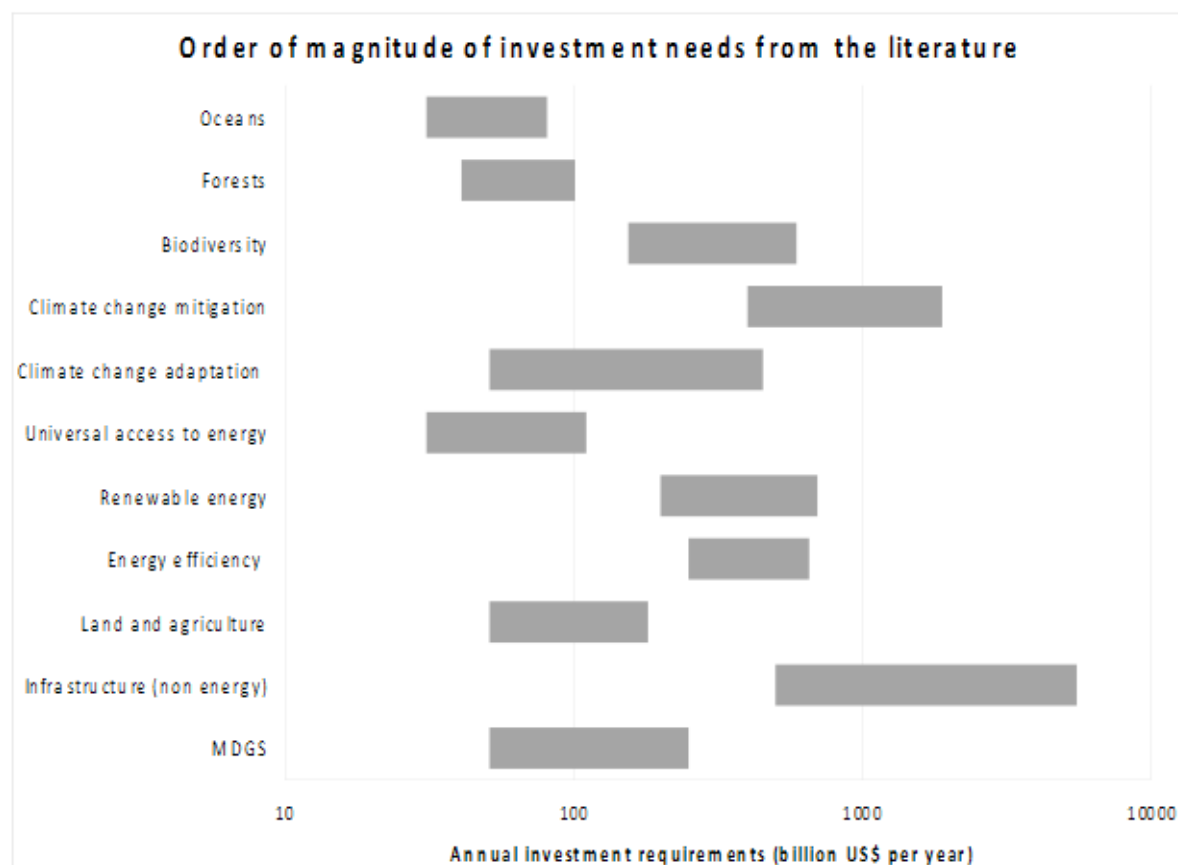


Figure A3: Investment requirements for various development sectors (UNTT, 2013b)

The x-axis is in logarithmic scale. Due to the multiplicity of estimates, for some sectors or clusters, defining the range involves a dose of arbitrariness. Figures from different sectors and clusters should not be added up, as there are significant overlaps across them. Health and gender are not shown on this graph, as figures provided are often on a per capita basis, instead of global annual investment amounts.