

°REPORT 2016:03

Norway's role in supporting green growth
in developing countries



CICERO Report 2016:03

Norway's role in supporting green growth in developing countries

Asbjørn Torvanger, Kamleshan Pillay

April 2016

CICERO Senter for klimaforskning
P.B. 1129 Blindern, 0318 Oslo
Telefon: 22 85 87 50
Faks: 22 85 87 51
E-post: admin@cicero.uio.no
Nett: www.cicero.uio.no

CICERO Center for International Climate
and Environmental Research
P.O. Box 1129 Blindern
N-0318 Oslo, Norway
Phone: +47 22 85 87 50
Fax: +47 22 85 87 51
E-mail: admin@cicero.uio.no
Web: www.cicero.uio.no

Title: Norway's role in supporting green growth in developing countries

Authors: Asbjørn Torvanger, Kamlesh Pillay.

CICERO Rapport 2016:03

Financed by: NORAD

Project: 30784 Supporting green growth in developing countries - The role of Norway

Project Manager: Asbjørn Torvanger

Quality Manager: Christa Clapp

Keywords: Green growth; Developing countries; Financial instruments; Green bonds; Green Growth Credits

Abstract: This report discusses green growth in developing countries, and Norway's role supporting such a green development strategy. After defining green growth in the context of developing countries, the report discusses indicators of green growth, barriers, and prominent instruments to facilitate green growth. Two case studies are presented, the first on green bonds in Ethiopia, and the second on introducing a green growth credit mechanism. The report concludes with some general findings, and findings linked to the two case studies.

Language of Report: English

Rapporten kan bestilles fra:
CICERO Senter for klimaforskning
P.B. 1129 Blindern
0318 Oslo

Eller lastes ned fra:
<http://www.cicero.uio.no>

The report may be ordered from:
CICERO (Center for International Climate and
Environmental Research – Oslo)
PO Box 1129 Blindern
0318 Oslo, NORWAY

Or be downloaded from:
<http://www.cicero.uio.no>

Contents

- Foreword 1
- 1 Introduction 1
- 2 Green growth Indicators..... 5
- 3 Barriers to green growth in developing countries..... 7
 - 3.1 DIFFERING DEVELOPMENT PATHWAYS 7
 - 3.2 TIME PERIOD HORIZONS..... 8
 - 3.3 LACK OF INSTITUTIONAL AND TECHNICAL CAPACITY 8
 - 3.4 A FAVOURABLE INVESTMENT ENVIRONMENT 8
- 4 Instruments to facilitate green growth..... 9
 - 4.1 PAYMENT FOR ECOSYSTEM SERVICES (PES) 9
 - 4.2 ENVIRONMENTAL TAXES/ ENVIRONMENTAL FISCAL REFORM 9
 - 4.3 GREEN ENERGY INVESTMENT AND INCENTIVES..... 10
 - 4.4 ENVIRONMENTAL FINANCE INNOVATION..... 10
 - 4.5 GREEN SOCIAL ENTERPRISES..... 10
- 5 Case study: Green Bonds for green growth in Ethiopia..... 12
 - 5.1 LESS DEVELOPED FINANCIAL INSTITUTIONS..... 12
 - 5.2 HIGH RISK FOR INVESTORS 13
 - 5.3 DOMINANCE OF SMALL-SCALE FIRMS AND FARMS 13
- 6 Case study: Towards a Green Growth Credit (GGC) mechanism 15
 - 6.1 PROBLEM STATEMENT 15
 - 6.2 GREEN GROWTH CREDITS 15
 - 6.3 DEMAND FOR GREEN GROWTH CREDITS 16
 - 6.4 A BILATERAL OR MULTILATERAL MECHANISM?..... 16
 - 6.5 ENHANCED MRV WITHIN A GGC MECHANISM..... 17
 - 6.6 METRICS AND INDICATORS FOR A GGC MECHANISM 17
 - 6.7 DISCOUNTING AND NATIONAL DEVELOPMENT OBJECTIVES (NDOs)..... 18
 - 6.8 BENEFITS AND WEAKNESSES OF A BILATERAL GGC MECHANISM..... 18
- 7 Summary and conclusions 19
- References..... 20

CICERO Report 2016:03

Norway's role in supporting green growth in developing countries

Foreword

This report is produced by CICERO in the period October 2015 to April 2016 on assignment for the Norwegian Agency for Development Cooperation (Norad). The aim of the study is to explore how Norway can support green growth in developing countries, with emphasis on a couple of selected cases in terms of instruments and countries. We thank our colleagues Christa Clapp and Knut H. Alfsen, and Astri Toril Bente Herstad and Mads Halfdan Lie, Norad, for valuable help and comments in preparing the report. The responsibility for any remaining shortcomings or errors remains with CICERO.

1 Introduction

Green growth is a pathway to realizing sustainable development. Both for sustainable development and for green growth many interpretations are possible. Most will agree that green growth in developing countries is about increasing economic output and improved welfare for the people, while securing strict control on Greenhouse Gas (GHG) emissions and pollution to air and water, building resiliency and adaptive capacity for climate change, as well as long-term management of ecosystems and biodiversity. The concept of green growth reframes the paradigm of the conventional growth model such that investment decisions include issues of energy, agriculture, water, and natural resource demands for the future. Both developed and developing countries have important roles to play in the global effort to keep global warming by 2100 well below 2 °C, adopted at the climate conference in Paris December 2015. Efforts should be based on 'Common But Differentiated Responsibilities' (CBDR) and respective capabilities, and reflect different national circumstances. In addition, improvements in resiliency to climate change impacts are essential to cope with the climate change challenge. Successful green growth depends on efficient collaboration between government, business and civil society, where institutional design and governance issues are relevant.

Sectors and technologies important for green growth are renewable energy production, clean transport, energy-efficient industries, efficient buildings, efficient energy use in households, electricity grid development, climate smart agriculture and smallholder farming, sustainable forestry (REDD+), and efficient water and waste management. Green growth strategies take social issues and equity into stronger consideration. Adaptation to climate change, e.g. in terms of food and water security, will be of foremost importance to many developing countries (DCs) due to geographical location, resource base, and economic structure. At the same time, adaptive capacity is constrained by low income, availability of skilled labour, as well as inefficient institutions. Several mitigation measures for greenhouse gas emissions are thus relevant for socioeconomic development in DCs, as development needs like energy access and security, water access and security, indoor and outdoor air quality, and adequate housing and sanitary needs often can be addressed with the same measures. In many ways, mitigation, adaptation and development need issues are interlinked.

OECD (2012) suggests that the overarching goal of a green growth pathway is to establish incentives or institutions that increase living standards by:

- Improving natural resource management such that productivity is enhanced;
- Promoting economic growth that takes a long term view on the welfare of society;
- Encouraging innovative approaches to meeting the above objectives; and
- Integrating natural capital as a factor in production.

Global Green Growth Institute (2014) assesses more than 60 green growth programs around the world, focusing on analysis, policies and measures, and implementation. The report identifies good practices and lessons, finding that green growth can unlock substantial economic, social, and environmental benefits, stressing that integrated and robust planning, analysis, implementation, and monitoring is essential, as well as broad support for transformative change.

Green growth may provide various benefits to developing countries. By aligning green growth policies with poverty reduction objectives, progress can be made towards sustainability goals. This could allow for more efficient infrastructure in the water, energy and transport sectors, the alleviation of health problems related to environmental degradation, and the introduction of efficient technologies that will reduce costs and result in emission reductions. In the long term, green economic growth could be a solution to alleviating natural resource depletion and environmental impacts while preserving local livelihoods. Nevertheless, green growth policies may be more challenging in a developing country context as there may be other matters that are considered to be more pressing. What are prerequisites for developing countries to prioritize green growth higher, and how could Norway contribute to such a strategy? A significant pull factor from a developing country with regard to green growth policies requires short and long-term opportunities and benefits. However, the effectiveness of implementing such policies needs to be weighted against the immediate costs of the policy, particularly from a social perspective. Consequently, complementary social policies may need to be implemented in conjunction with green growth policies to reduce adverse short-term effects. Green growth requires governance capacity within DCs, which depends on access to relevant information and

information sharing among actors, and on transparent decision making. This will allow the sectors/actors of society (government, enterprises and civil society) to better understand their respective responsibilities for green growth, and to safeguard and adapt rules and procedures to green growth. To overcome barriers to implementing green growth strategies and policies in developing countries, Norway should critically assess what developing countries have the most promising opportunities for green growth (national pull factors), and how Norway can best support political, social and economic investments in green growth. Norwegian support can in monetary terms be subsidies or guarantees, or in technical terms as investments in capacity building and institution building.

Figure 1 presents a conceptual overview of the “landscape” of green growth in developing countries. The graphic shows the main actors involved in green growth, most prominent instruments to facilitate green growth, barriers that exist when implementing strategies and instruments, and important issues related to Measurement of effects and impacts of support, Reporting, and Verification (MRV).



Figure 1: Conceptual representation of the green growth landscape in developing countries

In this report, we explore how Norway can design efficient support systems to facilitate green growth in developing countries, building on a couple of case studies. We expect that the case studies can provide some insights that have relevance for a broader set of countries, sectors, technologies, and channels for support (e.g. bilateral or multilateral).

Some discussions of green growth in developing countries have taken place under an Official Development Assistance (ODA) umbrella. There are significant shortcomings to framing green

growth under ODA and related grants, foremost due to lacking environmental and climate integrity of ODA programs, but also lacking incentives for efficient collaboration by developing country partners and firms, as well as for private sector participation. In this study we have chosen two overarching instrument frameworks that can incorporate many of the major challenges and barriers for green growth, as well as providing much improved possibilities for environmental and climate integrity through performance management, either payment based on deliverance/impacts or generation of credits. Clear procedures and criteria for performance strongly improves the scope for MRV.

On this background, we focus on two innovative instrument frameworks to support green growth in developing countries, namely Green Bonds (GB) and Green Growth Credits (GGC). We believe that both these concepts have a significant potential to stimulate green growth in developing countries. The first case study is on green bonds for green growth in Ethiopia, where we explore how the barriers for using this financial instrument in support of green growth can be overcome. Ethiopia is chosen as a country case because of the country's ambitious plans for climate-friendly growth, and thus has a sizeable pull factor. The second case study is on development and implementation of a Green Growth Credit (GGC) mechanism in developing countries, where the idea is to mobilize e.g. Norwegian firms and investors through introducing a green growth permit obligation.

Next, we briefly discuss green growth indicators, barriers to green growth, and most prominent instruments to facilitate green growth. Lastly, after exploring the two case studies, we summarize our findings and assess applicability beyond the cases explored.

2 Green growth Indicators

The United Nations Environment Programme (UNEP) has identified three principal areas of green economy indicators. These include indicators of economic transformation, indicators of resource efficiency and indicators of progress and well-being. A green economy requires that investments shift towards projects securing low carbon and climate resilient development. Consequently, the key indicators of economic growth include shifting investments and the growth of environmentally friendly or environmentally enhancing goods and services. From a resource efficiency perspective, one of the major benefits of green growth is the improved resource efficiency in terms of the use of energy, water, land and changes to waste generated and emissions released. Green growth may also influence progress and well-being through redirecting investment into environmentally friendly goods or towards the strengthening of human and social capital. Indicators of progress and well-being in the developing world may include the fulfilling of basic human needs such as the level of education achieved, the health status of the population and the access to water. According to OECD (2015), green growth indicators can be divided into the categories: Environmental and resource productivity (e.g. CO₂ productivity and energy productivity), Natural asset base, Environmental dimension of quality of life, Economic opportunities and policy responses (e.g. environmentally related R&D and patents, official development aid, and environmental taxes and transfers), and Socio-economic context (e.g. real GDP per capita).

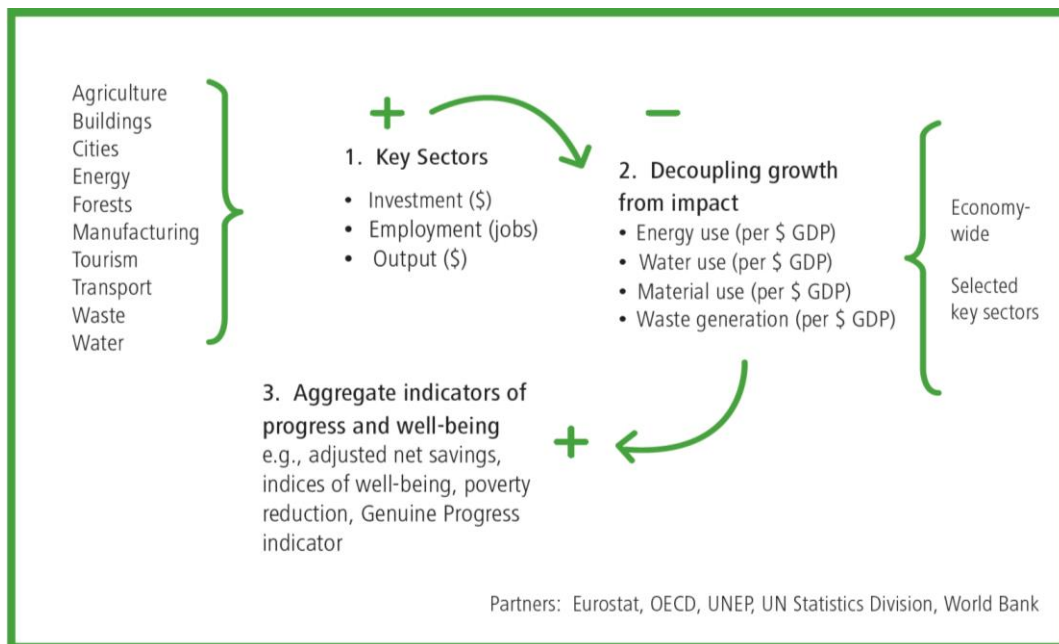


Figure 2: Diagrammatic representation of measuring transition. Source: UNEP (2012).

Figure 2 provides a schematic view of green transition and relations between different groups of progress indicators. Investments in key sectors can de-couple growth from energy, water and material use, as well as waste generation. Improvements can be reflected in aggregated indicators of progress and well-being, such as gross domestic product, Human Development Index, and reduced poverty rates.

The development of green growth baselines and the measurement of impacts is still a key shortcoming amongst the international community and national governments. Concerning measurements of green growth effects the three major gaps are scarcity of data, the secondary role of sustainable development indicators in comparison to purely economic indicators, and the lack of capacity in developing countries.

3 Barriers to green growth in developing countries

Despite the fact that most governments are receptive to the idea of green growth, several developing countries have voiced concerns over the implications of a green growth pathway, most notably the impacts of policies on international trade. The potential implementation of trade rules for sustainable procurement practices and global certification schemes could lead to the discrimination of products from developing countries if they are not considered to be 'green' enough. Additionally, some developing countries are skeptical about green growth policies as they believe it may result in ODA being provided with conditions. This report will elaborate on four barriers to green growth in developing countries namely, relating to the five barriers in Figure 1:

- Differing development pathways;
- Time horizons;
- Lack of technical capacity and institutions (barriers 3 and 4 in Figure 1);
- A favorable investment environment.

3.1 Differing development pathways

Green growth policies may produce benefits to developing countries. However, they may not be able to address the critical issues that plague the developing world, for example poverty alleviation. Developing country green growth strategies need to be harmonized to be able to simultaneously address priority development goals while facilitating green economic growth.

3.2 Time period horizons

Owing to different technical, institutional and financial capacities, developing countries may require longer periods to implement green growth policies as opposed to developed countries. Consequently, policies may need to be adopted using an incremental or phased approach. Most developing countries have stated they require more time to develop their economies and increase welfare, therefore an international climate change agreement needs to take differing economic conditions into consideration.

3.3 Lack of institutional and technical capacity

Most developing countries have expressed concerns about the difficulties they face in embracing green growth owing to the lack of technical capacity. Consequently, measures need to be undertaken such that the developing partner country is able to advance their technical capacity. Increased capacity will ensure that green growth policies will be effectively implemented, managed and ultimately be able to attain their desired objectives. Lacking institutions and capacity refer to the ability to perform functions, solve problems and achieve objectives, and this can be difficult to address in developing countries.

3.4 A favourable investment environment

Green growth tools and policies in developing countries may require large amounts of investment, particularly in the context of green energy infrastructure. Consequently, a favourable investment environment is necessary. This may be lacking in many developing countries. Liquidity, currency and inflationary risks may deter investors from entering into developing country markets. Credit-enhancement schemes respond to the demand to mitigate the risks of a project and attract further financing and investment to the project. Relevant tools within credit enhancement schemes include partial credit guarantees, political risk guarantees, first-loss provisions, contingent loans, and viability gap funding.

4 Instruments to facilitate green growth

In this section, we discuss some prominent policy instruments that have a potential to promote green growth in developing countries.

4.1 Payment for Ecosystem Services (PES)

PES schemes offer financial payments to participants as part of the incentives to protect or enhance ecosystem services. These financial payments can be made by an entity wanting to benefit from healthy ecosystem services or by government, donor agencies and non-governmental organizations (NGOs). PES aim to account for the ecosystem goods and services that are usually unaccounted for and can increase the production of goods and services. The effectiveness of PES schemes is usually dependent on several factors, which include the size of the payments, the consistency of the financial flows and the cost of the delivery of PES scheme. The majority of these schemes focus on the forestry ecosystems, but agriculture schemes are becoming more common. Small local schemes tend to achieve greater levels of participation and have been able to take local context into account. The major problem is under-estimation of payments when compared to the opportunity costs or household income. From an environmental point of view, the impact of PES schemes is difficult to assess. At a global level, studies suggest that PES schemes could have a potential impact of approximately 0.5 trillion dollars contributed to GDP, and up to 5 million jobs contributed to the forest sector between 2011 and 2050.

4.2 Environmental taxes/ Environmental fiscal reform

Fiscal instruments such as environmental taxes, subsidies, and tradable permits can provide national governments with revenue for green growth investments, as well as incentivizing production and consumption of green commodities and services. Taxes may be included in natural resource extraction and user charges for services (waste management, for example). There have been various uptakes of environmental fiscal instruments in developing countries. A common problem is low environmental taxes, which discourage proper natural resource management and generate small revenues. Pollution and product charges are less common.

Green energy investment and incentives

Green energy investment uses fiscal, financial and legislative instruments to develop renewable energy markets. The application of green investment frameworks is usually to establish a particular new sector or area of interest by attracting investment. In countries such as Uganda and Kenya competition has been introduced into the energy or electricity sector, and this has benefitted the market share of green energy and supply of renewable energy. The independent power producers in these countries have also benefitted rural communities connecting isolated areas to the grid. Subsidy reform can also be an objective of a green energy investment framework, whereby fossil fuel subsidies are phased out. The availability of natural resources for renewable energy generation coupled with the need of isolated rural communities to be connected to the grid in a cost effective manner means that there is huge potential for green energy investment frameworks in developing countries. Green energy investment could also contribute to poverty reduction while reducing (or preventing) GHG emissions and stimulating the economy. Most developing countries have renewable energy expansion targets. Some of the policy initiatives in developing countries include renewable energy funds, capital investment subsidies, tax credits and other tax incentives, feed-in-tariffs, and premium feed-in-tariffs.

4.3 Environmental finance innovation

The frequency and scale of extreme weather events together with long-term economic forecasts of climate change effects mean that investments need to be better directed towards climate-friendliness, and this could furthermore increase investment needs. Better utilization of existing or new financial mechanisms that are able to stimulate public funds while leveraging private capital, are necessary if the green economy is to become a reality in developing countries. According to Zou and Sha (2010), “the conventional financial flows based on the market are neither adequate nor correctly guided to address climate change and other environmental concerns.” Green public financial mechanisms such as the Global Environmental Facility (GEF) or ODA do not play a substantial enough role in leveraging private finance at a large scale. Public-private partnerships could be an alternative with public finance acting as seed capital and thereafter leveraging the private sector by offering incentives. The Global Innovation Lab for Climate Finance is one example of an initiative that supports and develops new climate finance instruments with the aim of driving private sector investment for mitigation and adaptation in the developing world.

4.4 Green Social Enterprises

Green Social Enterprises (GSE) refer to operations that are able to generate economic, social and environmental proceeds. Some of these enterprises may be from private sector and thus profit-oriented, or they can be NGO initiatives. Due to opportunities to support small-scale producers, microenterprises and areas that fall outside the formal economy, these initiatives are of particular importance in developing countries. Large NGOs such as Practical Action and the International Development Enterprise (IDE) have been able to guide several social enterprises

to fruition. GSE have a strengthened environmental focus or dimension. The demand for green goods and services could stimulate the formation of more green social enterprises. In India, several green social enterprises have come into operation owing to the demand for green products. The Asden Awards for Sustainable Energy and the SEED initiative have focussed on GSE. Steep start-up costs due to financing needs for skills development, technology resources, and marketing are a challenge. Grants may be available to a NGO for innovation or incubation projects, but if a social enterprise is aligned as a for-profit organisation, such funding streams may be limited.

5 Case study: Green Bonds for green growth in Ethiopia

Due to Ethiopia's ambitious strategy for a Climate Resilient Green Economy (CRGE) there is a significant pull factor for sustaining fast growth in the country combined with keeping emissions of greenhouse gases low and increasing resilience to climate change. Norway is a major development aid donor country to Ethiopia. In 2013 Ethiopia and Norway adopted a partnership agreement on REDD+ (Reducing Emissions from Deforestation and Forest Degradation, including the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks). The focus in terms of sectors has been on forest conservation and agriculture, and energy as deforestation drivers, and in terms of policy design and capacity building. This has led to the establishment of a national REDD+ strategy and REDD secretariat. The first results-based disbursement at 60 MNOK took place in 2014. In a green growth context (climate-smart) agriculture, forestry, and clean (renewable) energy are significant and strategic sectors.

In this case study we examine one innovative instrument framework to support green growth in Ethiopia, namely Green Bonds (GB), and ask whether such bonds could be a promising tool to facilitate green growth in the Ethiopian agriculture-forestry-energy nexus. The discussion is organized according to three main barriers: less developed financial institutions; high risk for investors; and dominance of small-scale firms and farms. We discuss how to overcome each of these barriers.

5.1 Less developed financial institutions

GB depend on well-functioning financial markets. Therefore, the less developed financial institutions in Ethiopia constitute a barrier to issuance of GB to fund projects in the country. A solution is to improve the workings of financial markets through capacity building supported by donor countries, and facilitated by further strong economic growth, but this will take time.

GB issuers aiming at projects in Ethiopia can be domestic, foreign, or e.g. be a multilateral development bank. An Ethiopian GB issuer could collaborate with external financial institutions, either international/multilateral institutions, or at a bilateral level in the case of e.g. Norway. One of these institutions could play the role of an intermediary and issue GB, asking investors to contribute, before the intermediary institution invests in green growth projects in Ethiopia, to reduce risk for issuers and investors, as well as developing the capacity of Ethiopian

institutions. Candidates for an intermediary or being issuers of GB are well-established international institutions, such as the World Bank (IBRD, IFC), the African Development Bank (AfDB), possibly the Green Climate Fund. In terms of Norwegian institutions and agencies, there could potentially be a role for the Norwegian Export Credit Guarantee Agency (GIEK), Export Credit Norway, Norfund, or Norges Bank Investment Management (that manages the Norwegian pension fund), to facilitate issuance or purchase of green bonds.

The Ethiopian Development Research institute (EDRI), with the Environment and Climate Research center, can provide knowledge-based assistance to GB issuers and investors, for instance in terms of securing environmental and climate integrity of GB-funded projects.

5.2 High risk for investors

A higher risk for investors than the case of more developed countries is a barrier to GB implementation. This risk can be specified as political, policy, or social, as well as market and commercial risks, and project outcome risks. Taken together these risk elements mean that investors will be more reluctant to provide loans through GB. Given this risk-related barrier to GB in Ethiopia, it makes sense to explore financial instruments that could complement GB such that the bonds become attractive for investors.

The same well-established, international institutions as discussed in relation to less developed financial institutions could contribute to reducing risk for investors.

An alternative solution is to support GB by additional tools and actions that compensate for the weakness of financial markets. The idea of credit enhancement is to improve debt or credit worthiness, whereby the lender (investor) is provided with reassurance that the borrower (e.g. GB issuer) will honour the obligation through additional collateral, insurance, or a third party guarantee. Examples of financial instruments in this category are loan guarantees, partial credit guarantees, and securitization. In the context of GB issuances for projects in Ethiopia, such instruments could be used to reduce the risk undertaken by investors in GB in Ethiopia or abroad. The guarantees could be provided by suitable agencies in e.g. Norway, or by the earlier mentioned multilateral institutions. In terms of securitization an Ethiopian bank or another GB issuer could pool together a sufficiently broad portfolio of projects, thereafter categorize these into tranches at differing risk levels, before letting investors buy in. In the case of first-loss insurance, a sponsor is required that is willing to take on insurance in case a project should fail. Loss insurance could be provided by e.g. the AfDB, but also by a suitable Norwegian agency. This type of loss insurance could potentially be combined with GB issuances.

5.3 Dominance of small-scale firms and farms

The dominance of small farmers and actors in the case of Ethiopia, and to some extent small companies in renewable energy, means that issuing GB will imply high transaction costs due to the small scale. Even though GB issuances have been as small as 2 MUSD in other countries, loans through e.g. micro finance or the African Development Bank (AfDB) might be a more realistic option. Paying fixed returns on green bonds annually from variable yields in agriculture is likely a challenge for farmers. A farmers' syndicate that compiles the financing needs of small farmers, sharing out the loan on farmers and their projects, or aggregation of loans through a

bank (or another suitable institution), means that GB can be issued at sufficient scale, but the challenge of variable income of farmers remains. Renewable energy firms are also facing variable income due to intermittent production, but likely at a smaller scale than farmers.

6 Case study: Towards a Green Growth Credit (GGC) mechanism

6.1 Problem Statement

According to a study undertaken by the IEA (2009), over the next 30 years, 1 trillion USD is required annually to enable the world's infrastructure to maintain and extend the supply of power and to finance the transition to a low carbon and climate resilient development pathway. The contribution of Norway in terms of development aid has been substantial with a total of 31.7 billion NOK in aid disseminated in 2014 (with a 17 % of this total contributed specifically to the environmental and energy sectors) (NORAD, 2014). According to Doucouliagos and Paldam (2009), after 40 years of ODA, the evidence illustrates that it has not been effective in promoting development. Furthermore, the attachment of conditions has been an ineffective strategy in reducing the drivers that lead to the failure of aid (Svensson, 2003). According to the UNEP Green Economy Report released in 2011, even though public sources of finance play an integral role in creating a favorable investment environment for green economic growth, the greatest opportunity for lucrative financial flows lies in the private sector. Considering these elements of green growth, this case study aims to provide an alternative framework for Norway to address the green growth undertakings in developing countries.

6.2 Green growth credits

Currently, the green growth initiatives revolve around bilateral and multilateral ODA, and the finance leveraged through private sector. In some cases, aid has been implemented in a carbon market paradigm. For example, REDD+ projects implemented in strategic donor countries may earn carbon credits. However, in this context, project-based credits are earned in a climate change setting where projects are able to demonstrate 'additionality'. Additionality refers to emission reductions earned that could be attributed to the implementation of the project. This case study aims to explore how a new framework would operate, one in which *green growth projects are able to earn green growth credits*. This framework aims to extend the concept of project-based credits to projects that have environmental integrity (even if these projects do not demonstrate additionality). Consequently, a mechanism of this nature is able to include more projects and sectors than an Offset Credit Mechanism (OCM).

6.3 Demand for Green Growth Credits

The attractiveness of green growth projects within this framework will be determined by the demand created for credits. With reference to the Clean Development Mechanism (CDM; contained in the Kyoto Protocol), the demand for carbon credits would have been created by mandatory Quantitative Emission Reduction Targets (QERT), and the allowed use of Certified Emission Reductions (CERs) to meet the QERT. Similarly, a Green Growth Credit (GGC) mechanism would require participants to engage in a GGC market. For example, if Norwegian companies were required to attain a certain quota of GGCs, then a demand would be created. GGCs could be earned in two ways, either by purchasing green growth credits earned by another participant, or by hosting a green growth project that earns credits. In summation, a regulatory environment would be needed to promote the demand. This can be initiated by the setting of green growth credit targets that participants would need to meet.

6.4 A bilateral or multilateral mechanism?

Considering that there is an absence of a global GGC mechanism, such a mechanism could operate multilaterally or bilaterally. A multilateral GGC mechanism could operate through an existing green growth actor such as the Global Green Growth Institute (GGGI). The GGGI was founded in 2010, and is supported by funds from Australia, UAE, Japan, Denmark, Norway and the U.K. Considering that funds provided to the GGGI originate from different countries, it may be difficult to attain a unanimous decision in favour of a GGC market mechanism. A bilateral mechanism implemented between Norway and their strategic donor countries would provide greater control to Norway in terms of the operation and design of the GGC mechanism. Bilateral mechanisms have been implemented in the climate change sphere with the most notable example being the Bilateral Offset Credit Mechanism (OCM) of Japan (Box 1). Other operation and design concerns include, but are not limited to:

- The overall objective of the GGC: Is the aim of the mechanism to stimulate green growth initiatives in developing countries while providing capacity building, or is it to provide more opportunities to the Norwegian private sector (or both)?;
- Projects to be credited under a GGC mechanism;
- Metrics and indicators to be used to award GGCs;
- Discounting schemes to be implemented (in conjunction with national development objectives), such that investment is directed towards priority areas;
- The development of a robust measurement, reporting and verification framework for GGCs.

Box 1: The Bilateral Offset Credit Mechanism (BOCM)

In order to achieve Japan's long term target of emission reductions, it was thought that Japan could rely on offset opportunities. The Bilateral Offset Credit Mechanism (BOCM) is similar to the CDM program in that the funding country invests in emission reduction projects in developing countries to earn carbon credits. The BOCM differs from the CDM program as it operates on a bilateral level as compared to the CDM, which is administered by the UNFCCC. The BOCM includes projects from various activities and sectors including waste management, energy efficiency, and renewable energy. However, it also accepts credits attained from REDD+.

Source: Le and Delbosc (2012).

6.5 Enhanced MRV within a GGC Mechanism

Despite the attempts to refine the MRV process, the consensus remains that traditional development aid has not been effective in attaining their desired objectives. In a green growth context, most funding is provided in an aid framework with the exception of Payment for Ecosystem Services (PES) schemes such as REDD+ (which have conditionality requirements). A GGC mechanism would ensure that all projects have stringent MRV requirements, as this would be imperative to earning of GGCs. Even though increased MRV may result in higher transactional costs, a strong regulatory environment will ensure the demand for GGCs, and then MRV would be a necessity by all participants, adding to the transparency of the mechanism.

6.6 Metrics and Indicators for a GGC mechanism

The United Nations Environment Programme (UNEP) has identified three principal areas of green economy indicators. These include indicators of economic transformation, indicators of resource efficiency, and indicators of progress and well-being (UNEP, 2012). Within a GGC mechanism, *appropriate* metrics and indicators of green growth should be based on data that is measurable and available. It is not only a representation of the effectiveness of the project but also relates to whether GGCs are earned or not. As compared to climate change projects, where the primary criterion for earning carbon credits is additionality, GGCs criteria are significantly more complicated. For example, in the context of a solar panel installation project in Zambia, green growth indicators could include:

- The number of green jobs created as a result of the solar panel project;
- The MW capacity generated from the solar panel project; and
- The number of homes that have improved energy access as a result of the solar panel project.

The decision of which green growth indicators should contribute to a GGC being earned needs to be made by the country/countries implementing the GGC mechanism.

6.7 Discounting and National Development Objectives (NDOs)

Considering the large number of donor countries that Norway possesses, a GGC mechanism could be tailored to each donor country. By using the national development objectives of each country, discounting criteria could be applied to GGCs such that they are able to count for more GGCs and thereby stimulate investment in that particular sector. For example, if Tanzania states that the priority sector is energy rather than forestry, GGCs from forestry can count for less as opposed to GGCs from energy projects.

6.8 Benefits and Weaknesses of a Bilateral GGC mechanism

In summary, there are various benefits and weaknesses of implementing a GGC credit mechanism. Table 1 illustrates these benefits and weaknesses.

Benefits	Weaknesses
A GGC mechanism allows for the inclusion of more green projects rather than those that demonstrate additionality only. Consequently, a GGC mechanism can promote environmental integrity and not simply climate change benefits.	It may be difficult to gain support for a GGC mechanism operating through a multilateral framework, as all funding countries will need to agree to the design and operation of the mechanism.
A bilateral GGC mechanism allows for greater control by the implementing country.	Transaction costs could be higher for a GGC mechanism as MRV would be needed for all green growth projects earning credits.
A GGC mechanism could see greater participation by the Norwegian private sector. Green growth projects provide a business case for the private sector, but also capacity building opportunities for the developing country hosting a project.	MRV processes will be more complicated for green growth projects as there are several criteria which could be assessed to earn credits.
	There is a lack of comparability across bilateral credit mechanisms that can lead to an oversight of green objectives.
	"A proliferation of bilateral crediting standards could result in increased market fragmentation, higher transaction costs and lower investor activity." (Prag et al., 2011).

Table 1: Benefits and weaknesses of a GGC mechanism.

7 Summary and conclusions

The main findings from the case studies are listed below, with emphasis on instruments and institutional frameworks that can facilitate green growth in developing countries. Environmental and climate integrity is essential, with incentives for efficient planning and operation of green growth projects, and incentives for private investors to participate. Since this study is based on a brief general discussion of green growth in a developing countries context, and two case studies only, one must be careful drawing broad conclusions. There is clearly need for more research and a wider study of case studies, to better control for context, in order to provide more precise advice on efficient frameworks and instruments to support green growth in developing countries.

General findings:

- Support further development of weak financial institutions in developing countries.
- Developing country institutions can collaborate with external well-established agencies; e.g. multilateral institutions or bilaterally.

GB financing in Ethiopia:

- Capacity building among financial institutions in Ethiopia.
- Collaboration with external agencies; such as multilateral institutions, or bilaterally, e.g. with Norway.
- Some tools can supplement green bonds to reduce risk for investors and issuers.
- Aggregation of small-scale firms and farms through syndication is helpful, but does not solve the challenge of paying fixed return on variable yields in agriculture.

Green growth credits:

- A green growth credit mechanism has sizeable potential, but requires a permit obligation among firms/investors in one or more industrialized countries.
- A green growth credit mechanism provides clear incentives for participation by the private sector.
- A green growth credit mechanism under a multilateral framework requires agreement on design and operation.
- A green growth credit mechanism can imply higher transaction costs, which is a trade-off for securing environmental and climate integrity.

References

- Doucouliaqos, H., M. Paldam (2009), The aid effectiveness literature: The sad results of 40 years of research. *Journal of Economic Surveys*, 23, 433 – 461.
- Global Green Growth Institute (2014), Green growth in practice – Lessons from country experiences, Green Growth Best Practice Initiative, Jung-gu, Seoul.
<http://www.ggbp.org/sites/all/themes/ggbp/uploads/Green-Growth-in-Practice-062014-Full.pdf>
- IEA (2009), World Energy Outlook (2009), International Energy Agency. Available at:
<http://www.worldenergyoutlook.org/2009.asp>
- Le, H., A. Delbosch (2012), Japan's bilateral offset credit mechanism: a bilateral solution to a global issue. *Climate Brief: CDC Climat Research*.
- NORAD (2014), Norwegian Aid Statistics.
<http://www.norad.no/en/front/toolspublications/norwegian-aid-statistics/>.
- OECD (2015), OECD.Stat.
http://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH
- OECD (2012), Green Growth and Developing Countries. Consultation Draft, June.
- Prag, A., C. Hood, A. Aasrud., G. Briner (2011), Tracking and trading: Expanding on options for International Greenhouse Gas Unit Accounting After 2012. OECD Publishing.
- Svensson, J. (2003), Why conditional aid does not work and what can be done about it? *Journal of Development Economics*, 70, 381 – 402.
- UNEP (2012), Green Economy - Indicators, Briefing paper.
- UNEP (2011), Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. Report, Pp. 63.

CICERO (Center for International Climate and Environmental Research - Oslo)

CICERO (Center for International Climate and Environmental Research - Oslo) was established by the Norwegian government in 1990 as a policy research foundation associated with the University of Oslo. CICERO's research and information helps to keep the Norwegian public informed about developments in climate change and climate policy.

The complexity of climate and environment problems requires global solutions and international cooperation. CICERO's multi-disciplinary research in the areas of the natural sciences, economics and politics is needed to give policy-makers the best possible information on which to base decisions affecting the Earth's climate.

The research at CICERO concentrates on:

- Chemical processes in the atmosphere
- Impacts of climate change on human society and the natural environment caused by emissions of greenhouse gases
- Domestic and international climate policy instruments
- International negotiations on environmental agreements

CICERO (Center for International Climate and Environmental Research - Oslo)

P.O.Box 1129 Blindern, N-0318 Oslo, Norway

Visiting address: CIENS, Gaustadalléen 21, 0349 Oslo

Telephone: +47 22 85 87 50 Fax: +47 22 85 87 51

E-mail: admin@cicero.uio.no www.cicero.uio.no