A guidebook to the Green Economy

Issue 3: exploring green economy policies and international experience with national strategies

Division for Sustainable Development, UNDESA

This document was prepared by Cameron Allen, UN Division for Sustainable Development, November 2012

Note

The views and opinions expressed do not necessarily represent those of the Secretariat of the United Nations; the designations employed or terminology used concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of frontiers do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations. The designation of country groups in the text, figures or tables are intended solely for analytical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process. Mention of names of firms and commercial products does not imply endorsement of the United Nations. This document has been issued without formal editing.

A Guidebook to the Green Economy

Issue 3: Exploring green economy policies and international experience with national strategies

1. INTRODUCTION 3

2. NATIONAL GREEN ECONOMY POLICIES – LESSONS FROM THE LITERATURE 4

2.1. A refresher on green economy definitions and principles 4
2.2. Recent publications on green economy 5
2.3. A typology of green economy policies 7
2.4. Recent green economy policy toolkits 10

3. INTERNATIONAL EXPERIENCE IN IMPLEMENTING NATIONAL STRATEGIES FOR SUSTAINABLE DEVELOPMENT, LOW-EMISSION DEVELOPMENT, AND GREEN ECONOMY 14

3.1. National Sustainable Development Strategies 14
3.2. Low-Emission Development Strategies (LEDS) 18
3.3. Green Economy & Green Growth Strategies 22

4. SOME INITIAL INSIGHTS FROM TEN RECENT NATIONAL STRATEGIES FOR GREEN ECONOMY AND LOW-EMISSION DEVELOPMENT 27

4.1. Leadership, engagement, institutions and integration with national budgetary processes 28
4.2. Costs and Financing 30
4.3. Feedback and review mechanisms – use of targets, indicators and other tools 33
4.4. Use of a mix of green economy policy instruments 35
4.5. Summary 39

5. CONCLUSION 40

6. REFERENCES 43

7. APPENDICES 48

Appendix 1 - Categories used for summarising green economy and green growth policies in recent publications 48
Appendix 2 – Ten recent green economy, green growth, and low-carbon development strategies 53
Appendix 3 – Overview of coordination and institutional arrangements for ten national green economy or related strategies 56
Appendix 4 – Overview of policy instruments and priority sectors for ten national green economy or related strategies 58
Appendix 5 – Summary table from analysis of ten recent national strategies 64

1. Introduction

The green economy in the context of sustainable development and poverty eradication was one of the two themes for the UN Conference on Sustainable Development held in Rio de Janeiro in June 2012 (or Rio+20). Negotiations on green economy in the lead up to Rio+20 were challenging and the concept became a source of controversy and disagreement. Despite these challenges, governments agreed at Rio+20 to frame the green economy as an important tool for sustainable development; one that is inclusive and can drive economic growth, employment, and poverty eradication, whilst maintaining the healthy functioning of the Earth's ecosystems. Importantly, the outcome document also recognises that capacity building, information exchange and experience sharing will be critical for implementing green economy policies. In this context, it invites the UN to work with partners to provide support to developing countries and to develop toolboxes, best practices, methodologies and models to aid green economy policy design and implementation.

Following Rio+20, the UN Division for Sustainable Development began publishing a new series of guidebooks on the green economy. These guidebooks provide practitioners and other stakeholders with concise resource guides to the green economy and related concepts such as green growth and low-carbon development. They aim to enhance our understanding of the green economy and further clarify the concept. To do so, they endeavour to summarise the rapidly expanding literature from experts and practitioners and emerging international experience to shed new light on what we mean when we talk about the green economy.

Issue 1 of *A Guidebook to the Green Economy* was published in September 2012 and provided a guide to the history and emerging definitions of green economy and related concepts such as green growth and low-carbon development[1]. It also included a concise guide to approximately 90 recent green economy publications including reports, policy papers, toolkits and national strategies. It identified at least eight different definitions of green economy and thirteen definitions of green growth published in recent literature, most of which embraced economic, environmental and social issues. More recent definitions and interpretations of green economy often broadened the concept to more explicitly encompass all three dimensions of sustainable development, re-labelling it as the 'inclusive green economy'. The guidebook concluded that despite the controversy around the concept and competing definitions, a key benefit of the emergence of the green economy concept has been that it has stimulated international attention and renewed global efforts to transform our current economic model into one which better aligns with sustainable development.

Issue 2 of *A Guidebook to the Green Economy* will be published in late 2012 and will further explore the green economy concept by moving beyond the simple definitions of green economy and providing a brief overview of recent attempts at defining sets of green economy principles[2]. In doing so, it aims to outline some principles that can be used to guide interpretation and application of the concept, as well as to identify some key areas where the green economy might be expected to deliver added value within the broader context of sustainable development and poverty eradication.

Such definitions and principles for green economy and green growth can provide insight into the key elements and characteristics of these concepts and a framework for policy design and implementation. Ultimately, however, green economy will need to be defined by national governments as a suite of policy measures selected and designed in accordance with national priorities and circumstances.

---

[1] See *A Guidebook to the Green Economy – Issue 1: history, definitions and a guide to recent publications* http://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=634&menu=35

[2] See *A Guidebook to the Green Economy – Issue 2: emerging green economy principles*, 2012 forthcoming.

In this paper, **Issue 3** of *A Guidebook to the Green Economy*, the aim is to explore the range of policy measures that have been proposed under the 'green economy' label by experts and practitioners in recent publications as well as by several governments in recent national planning documents. Through this review, a 'typology' of green economy policies is developed and used to identify the most common policy measures that are being proposed by experts and adopted by governments. It also provides a guide to some recent elaborations of a green economy policy 'toolkit' (see **Section 2**).

The focus of the paper then turns to analysing ten recent green economy, green growth and low-emission development strategies (**Section 3** and **4**). This analysis provides some initial insights into recent efforts by governments in implementing green economy, and how they are using this concept potentially to overcome the challenges experienced over many years of implementation of national sustainable development strategies – in particular, how they are addressing challenges related to political leadership, institutional arrangements and engagement of central finance ministries, leveraging a broader mix of policy instruments including economic instruments, integrated multi-sectoral approaches, articulating costs and sources of finance, and establishing mechanisms for feedback, analysis of synergies and monitoring of progress. In so doing, it provides some initial insights into how governments implementing green economy based on their own national circumstances and levels of development, and how the green economy may indeed prove to be an important tool for sustainable development, as was affirmed by governments at Rio+20.

2. National green economy policies – lessons from the literature

Deliberate policy and investment decisions will need to be taken by governments to green their economies, including the identification of priority sectors and the selection of the most appropriate policy instruments to deliver desired outcomes. In this regard, there is no one-size-fits-all and governments will need to identify and select measures that best suit their level of development, governance frameworks, institutions, resource endowments and capacities. However, this need for flexibility can also lead to ambiguity, and there remains a lack of clarity around how governments should apply the concept, and how green economy policies align with (or differ from) what governments are already doing in fields such as sustainable development, environmental management and climate change mitigation and adaptation.

A substantial and growing volume of green economy literature is helping to address this knowledge gap, and is starting to clarify the types of policy measures being proposed and their target sectors or desired outcomes. Some governments have also taken the lead in putting the concept into practice and there is emerging international experience in applying green economy according to national circumstances.

This section aims to review the range of green economy policy measures that have been proposed by experts, international organisations and practitioners through the development of a 'typology' of green economy policy measures. It then provides a brief guide to a number of green economy toolkits that have been developed by leading international organisations.

2.1. A refresher on green economy definitions and principles

Issues 1 and 2 of the guidebook series summarised the emerging definitions and principles for green economy and related concepts from the published literature as well as the Rio+20 outcome document. In doing so, it drew some initial conclusions regarding the application of the green economy concept. With regard to emerging definitions, it noted that, while the green economy

concept might imply a strong focus on the intersection between the environment and the economy, many recent publications by leading experts and international organisations have made the social dimension explicit by broadening the concept to 'inclusive green economy' or 'inclusive green growth'[3]. Whilst the Rio+20 outcome document did not arrive at an agreed definition on green economy, it did provide some guidance regarding the implementation of the concept and highlighted the importance of integrating social considerations and poverty eradication into green economy policies.

Overall, the definitions of green economy and green growth are generally consistent, with the main difference being the more explicit recognition of finite environmental limits within the green economy concept (UNDESA, 2012). However, these concepts are being used interchangeably in the literature to an increasing degree and it is likely that the concepts will further converge in coming years. For the purposes of this paper, they are used interchangeably, with low-emission development generally seen as a critical subset of green economy and green growth.

The emerging sets of green economy principles published in the lead up to Rio+20 as well as the language agreed to in the Rio+20 outcome document highlight that governments will need to take into account the various costs, risks, benefits and opportunities of different policy options in accordance with their institutional and governance arrangements, level of development, and social, economic and environmental priorities. They should consider policies that support poverty reduction, human well-being and job creation, whilst also driving resource and energy efficiency, carbon and emissions reduction, technological innovation and environmental protection. New options for measuring progress that go beyond GDP should be investigated, as well as approaches for sustaining development within ecological limits. Policies should be developed through an integrated decision-making process that considers the three dimensions of sustainable development, is inclusive and transparent and is supported by effective institutions and regulations. International cooperation should also be promoted, including the provision of means of implementation for developing countries through capacity building, finance and technology transfer.

Whilst this information is useful, it is also very general and provides governments with limited guidance in designing and implementing green economy policy measures. Further clarity can be provided by exploring the literature in greater detail and drawing out the key types of policy measures being proposed by practitioners, experts and international organisations.

2.2. Recent publications on green economy

The design and implementation of policies that promote environmental and sustainable development outcomes is nothing new. There is significant and growing experience in implementing measures that could fall under the banner of green economy. These include environmental regulation, standards, and certification schemes, integrated natural resource management, environmental fiscal reform, the use of economic instruments to promote sustainable practices and investment, and payments for ecosystem services. Whilst many of these measures were detailed and promoted through the original Earth Summit in Rio in 1992 and its *Agenda 21*, a greater focus has been placed on green economy, green growth and low-carbon or climate resilient policy instruments in recent years in response to the global financial crisis of 2008 (e.g. the green fiscal packages of G20 countries) and under the auspices of the United Nations Framework Convention on Climate Change and other international agreements.

With regard to specific policy measures, the Rio+20 outcome document provides limited guidance for governments apart from acknowledging that a mix of policy measures, including *"regulatory,*

[3] See for example recent publications by the World Bank (2012) and the UNEMG (2011).

voluntary and others applied at the national level" could promote green economy (paragraph 63). Despite this generality, Rio+20 did serve to focus global attention on green economy, and a plethora of new publications, analyses and papers were published in the lead-up to Rio+20 that outlined policy measures and instruments that governments could use to green their economies. This included publications by the OECD, the World Bank, UNEP, UNESCAP, UNDESA, UNEMG, UNCTAD, the ILO, the Global Sustainability Panel, the Green Growth Leaders, the Global Green Growth Institute, the Green Economy Coalition, and a range of academics and experts (including Edward Barbier, Aaron Cosbey, Herman Daly and Jose Antonio Ocampo, amongst others)[4].

For example, the Global Sustainability Panel (2011) highlights that policy action is needed in key areas to move towards green growth, including internalising environmental and social costs, creating incentives for investment, increasing finance and expanding how we measure progress beyond GDP. The OECD (2011a) highlights that a mix of policy instruments will be required, drawing from two broad areas: (i) framework conditions that mutually reinforce economic growth and the conservation of natural capital; and (ii) policies targeted at incentivising the efficient use of natural resources and making pollution more expensive. It acknowledges that there is no "one-size-fits-all" prescription for implementing strategies for green growth, and that the choice of instruments will depend on countries' policy and institutional settings, level of development, resource endowments and particular environmental pressure points.

The World Bank (2011) highlights that green growth is best served by a combination of policy instruments, including price-based policies, norms and regulations, public production and direct investment, information creation and dissemination, education and moral suasion, and industrial and innovation policies. Similarly, UNEP (2011b) highlights that key policy objectives include establishing sound regulatory frameworks, prioritising government investment and spending in support of a green economy, limiting government spending in areas that deplete natural capital, using taxes and market-based instruments to promote green investment and innovation, and investing in capacity-building, training and education. UNESCAP (2012) indicates that policy priorities include reforming the economic incentives framework, promoting sustainable infrastructure investment, and facilitating investment in natural capital.

A number of authors also highlight that making policy measures work in the real world is complex, with numerous barriers including governance, institutional and market failures, vested interests and entrenched behaviours (World Bank, 2012; OECD 2011a). As such, the policy mix is also likely to include a suite of complementary policies that address barriers and risks, including public investment, innovation and industrial policy, education and training, labour market and governance reforms, social protection policies, and awareness raising and communication campaigns. These publications also identify an extensive and varied array of green economy policy priorities, instruments, diagnostic tools and process guidelines that are available to governments.

A number of developing and developed countries have also released national green economy strategies for the first time, some of which aim to identify initial green economy policy options (or 'low-hanging fruit') that exploit policy synergies that deliver outcomes across all three – economic, social and environmental – dimensions in the short to medium term. For developing countries, these often focus on development pathways that would reduce carbon emissions, increase climate resilience, and tap into emerging climate financing. This is explored in more detail in **Section 3** and **4** below.

[4] Issue 1 of *A Guidebook to the Green Economy* provides a guide to these and many other recent publications. See http://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=634&menu=35.

2.3. A typology of green economy policies

Most publications use a short set of intuitive policy 'types' or 'categories' under which a variety of specific policy measures can be grouped. However, there is little consistency among the various categories or types proposed across publications. For example, a summary of the different categories used in over 30 recent publications and papers is provided in **Appendix 1.** This highlights that, whilst the types of policy measures being proposed often overlap, there is little consistency in how these measures are being grouped and categorised. In general, it can be seen that four main 'approaches' to categorisation are used, based on: (i) the desired outcome or pathway; (ii) the 'type' of policy measure; (iii) the target sectors or types of 'capital'; or (iv) a mixed approach adopting a combination of these. The scope of policy measures also varies between publications, with some authors focusing on the interface between economy and environment, whilst others take a broader approach incorporating a range of complementary social policies. This broader approach aligns more adequately with emerging definitions and principles for green economy which integrate a strong social component (i.e. the 'inclusive green economy').

For the purposes of this paper, a typology of green economy policies has been developed which draws upon the categories used in recent publications by a number of leading international organisations and experts (in particular, see Barbier, 2011; Cosbey 2011; OECD, UN and the World Bank, 2012; and ILO, 2012). This typology of green economy policies is set out in **Table 1** below and proposes six categories that cover the breadth of green economy and complementary policy measures addressing all three dimensions of sustainable development and using an intuitive format based around "6 Is": Internalising; Incentivising; Institutions; Investment; Information; and Inclusion[5].

Within these six categories, **Table 1** also outlines a consolidated list of 20 green economy and complementary policy sub-categories that were identified through the desktop review of green economy publications. In many cases, this involved intuitively grouping specific and related policy measures together to streamline and avoid duplication (for example "taxes, charges and fees" are grouped together). This typology enables us to explore the range of policy measures and most common instruments that are being proposed by practitioners and experts to transition towards greener economies.

Table 1 – Typology of green economy policy measures

Policy Category: 6 'Is'	Policy Sub-Categories
Internalising (externalities)	1. Taxes, charges, fees, levies on 'bads' (i.e. pollution, resource use or proxy) 2. Cap-and-trade permit or certificate systems
Incentivising	3. Investment incentives – low-interest loans; micro-financing; tax exemptions etc. 4. Subsidies, feed-in tariffs and other direct support for 'goods' 5. Removing policy-induced distortions and perverse incentives (e.g. harmful subsidies) 6. Leveraging finance – PPPs, long-term guarantees, phased out support, removal of barriers to FDI, lower administrative burden, credit guarantees
Institutions	7. Regulations – norms, standards, info disclosure, labelling, prohibitions, fines and enforcement, mandatory targets 8. Property right and access right laws, including IPR 9. Governance & institutional capacities – accountability, transparency, enforcement, anti-corruption

[5] This adapts and expands on the approach by Edward Barbier (2011) based on "5Is": Incentives, Institutions, Investment, Infrastructure and Information, however the scope is broadened to include a wider range of policy measures and adjusted to avoid duplication between categories. There is also scope to expand this approach further to "8Is", by establishing separate categories for Infrastructure and Innovation.

	10. Integrated planning, decision-making and resource management - EIA/SEA, IWRM, ICZM, LCA, MCA/CBA, disaster preparedness, other diagnostic tools
Investment *(in natural capital, agriculture, human capital, infrastructure, and innovation).*	11. Sustainable public procurement 12. Investment in natural capital – PES, protected areas, direct management and rehabilitation 13. Investment in sustainable agriculture 14. Investment in human capital – capacity building, training, skills 15. Investment in infrastructure – energy, water, transport, waste, ICT 16. Investment in innovation – R&D, deployment, information sharing
Information	17. Voluntary approaches – information provision, labelling, CSR, targets, agreements, educational initiatives 18. Measuring progress – green accounting, green targets and indicators, carbon inventories
Inclusion	19. Labour market policies – skills (re-)training, job search assistance, income support and benefits 20. Social protection floors – unemployment insurance and pensions, cash transfers, compensation for price increases, health care

Table 2 below uses this green economy policy typology based on six categories and 20 policy sub-categories to provide an overview of the array of green economy policy instruments that were included in 15 recent green economy publications. Based on this analysis, it can be seen that a wide variety of measures are being proposed in most publications, from economic instruments and regulatory measures, to information-based measures and social policies. The most common green economy policy measures that were proposed across all of the publications were measures for **internalising externalities** (such as taxes and cap-and-trade systems) and **regulatory measures** (such as standards, labelling, prohibitions and compliance). Other policies that were proposed in most of the publications included **investment in infrastructure** (such as sustainable energy, water, transport and waste) as well as **investment in innovation** (through measures such as funding for R&D and deployment). Green economy policy measures that were the least common across the various publications included measures such as property rights and access rights, integrated planning and resource management, sustainable public procurement and social protection policies.

Table 2 – Review of policy measures identified in a selection of recent publications and initiatives

	Internalising		Incentives				Institutions				Investment						Information		Inclusion	
Country	Taxes, charges, fees, levies, pricing for 'bads' (i.e. pollution, resource use or proxy)	Cap-and-trade permit or certificate systems	Investment incentives – low-interest loans; micro-financing; exemptions, reducing import tariffs, insurance, rebates	Subsidies, feed-in tariffs and other direct support for 'goods'	Removing policy-induced distortions and perverse incentives (e.g. harmful subsidies)	Leveraging finance – PPPs, long-term guarantees, phased out support, removal of barriers to FDI, lower administrative burden, credit guarantees	Regulations – norms, standards, info disclosure, labelling, prohibitions, fines and enforcement, mandatory targets	Property right and access right laws, including IPR	Governance – accountability, transparency, enforcement, capabilities, anti-corruption, data & measurement, carbon inventories	Integrated planning, decision-making and resource management - EIA/SEA, IWRM, ICZM, LCA, disaster preparedness	Sustainable public procurement	Investment in natural capital – PES, protected areas, direct management and rehabilitation	Investment in sustainable agriculture	Investment in human capital – capacity building, training, skills	Investment in infrastructure – energy, water, transport, waste, ICT	Investment in Innovation – R&D, deployment, information sharing	Voluntary approaches – information provision, labelling, CSR, targets, agreements, educational initiatives	Measuring progress –green accounting, green targets and indicators, carbon inventories	Labour market policies – skills (re-)training, job search assistance, income support and benefits	Social protection – unemployment insurance and pensions, cash transfers, compensation for price increases, health care
UNEP (2011)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Cosbey (2011)	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x		
OECD, UN, World Bank (2012)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
OECD (2011a)	x	x		x		x	x		x						x	x	x	x	x	
OECD (2011b)	x	x		x			x										x			
OECD (2011c)	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x		x	x
UNESCAP (2012)	x	x	x	x		x	x		x	x		x	x		x					
World Bank (2011)	x	x	x				x				x					x	x			
Green Growth Leaders (2011)	x	x					x								x	x				
ILO, EU, ILLS (2011)	x	x					x				x	x	x	x	x	x				
Barbier (2011)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
World Bank (2012)	x	x	x	x	x		x			x		x		x	x	x			x	
UNEMG (2011)	x	x				x	x			x				x	x	x		x	x	x
Daly (2011)	x	x					x											x	x	
Green Economy Coalition (2011)	x	x	x	x			x		x	x		x	x	x		x			x	

2.4. Recent green economy policy toolkits

For governments to implement green economy measures will require much more than simply selecting a policy instrument or instruments from a list of green economy policy measures. It will require them to establish clear goals and targets, to analyse synergies and tradeoffs between different policy options for achieving their goals, to effectively design and implement priority actions, and to monitor progress and review their policies over time through an ongoing adaptive management process. This will be particularly challenging for developing countries that may lack the institutional capacity, adequate data and information, and access to financing and other resources that are required for successful policy development and implementation.

Recognising that a broader framework is required, a number of international organisations have recently begun to elaborate green economy policy toolkits, expanding upon published lists and typologies of green economy policies. These toolkits vary in their approach and level of detail, but it can be seen that more recent iterations provide not only a suite of green economy policy instruments that can be used by governments to green their economies. They also provide a range of diagnostic tools that can help with policy design, evaluation, and monitoring, as well as mechanisms that can help to mainstream green economy into national economic planning and decision making and build the necessary institutions and enabling conditions to support the implementation of national green economy plans. These are outlined below and in **Boxes 1** to **4** below. As such, they provide a more useful product for governments and practitioners in applying green economy policies. They are also a step forward in delivering on Rio+20, which invited the development of green economy toolboxes and other resources.

In 2011 the OECD released a policy toolkit for green growth - *Tools for Delivering on Green Growth* - which provides a suite of policy options for addressing green growth constraints and challenges, focusing on green innovation, infrastructure investment, labour market transitions, consumer behaviour, and competitiveness (see **Box 1**). Many of the policy instruments outlined are economic instruments focused on internalising externalities and incentivising investment, and this is likely to be more useful for developed countries as it assumes that institutional capacity exists to effectively design and implement such policies.

Box1. Tools for Delivering on Green Growth (OECD, 2011)

The following policy options are listed to address specific policy constraints as follows:

1. Inadequate infrastructure: Taxes, Tariffs, Transfers, Public-private partnerships
2. Low human and social capital and poor institutional quality: Taxes, Subsidy reform/removal
3. Incomplete property rights, subsidies: Review and reform
4. Regulatory uncertainty: Set targets, Create independent governance systems
5. Information externalities and split incentives: Labeling, Voluntary approaches, Subsidies, Technology and performance standards
6. Environmental externalities: Taxes, Tradable permits, Subsidies
7. Low returns on R&D: R&D subsidies and tax incentives, Focus on general-purpose technologies
8. Network effects: Strengthen competition in network industries, Subsidies or loan guarantees for new network projects
9. Barriers to competition: Reform regulation, Reduce monopoly power

Weblink
http://www.oecd.org/greengrowth/48012326.pdf

More recently, in 2012 the OECD published a preliminary draft of a policy framework specifically targeting developing countries which builds on previous analyses and sets out a policy framework based around three broad categories: (i) enabling conditions, (ii) mainstreaming mechanisms and (iii) policy instruments (see **Box 2**). This expands on the previous toolkit by incorporating not only a list of green economy policy measures, but also a number of mechanisms and tools to build institutional capacity and establish the evidence base for green economy policy design and implementation. This is an important addition to the policy toolkit for developing countries. Following a series of consultations with developing countries, the report will be finalised in mid-2013 and will also include different country case studies.

Box 2. Green Growth and Developing Countries (OECD, 2012)

This report proposes a green growth policy framework for developing countries which includes a suite of tools across 3 categories:

1. Six national enabling conditions for green growth created through a National Green Growth Plan:
    - Shift government expenditure;
    - More effective enforcement of legislation;
    - Education and training;
    - Resource and land rights regimes;
    - Creating enabling conditions for psychological and behaviour change;
    - Facilitating businesses to fully integrate sustainability and equity concerns.
2. Four green growth mainstreaming mechanisms:
    - Public Environmental Expenditure Review;
    - Strategic Environmental Assessment;
    - Councils for Sustainable Development;
    - Greening Accounting/Alternative Development Measures.
3. Eight green growth policy instruments:
    - Certification of Sustainable Production and Trade;
    - Subsidy Reform;
    - Payments for Ecosystem Services;
    - Environmental Fiscal Reform;
    - Green Energy Investment Frameworks and Incentives;
    - Inclusive Green Social Enterprise;
    - Sustainable Public Procurement;
    - Green Innovation.

Weblink
http://www.oecd.org/dac/environmentanddevelopment/greengrowthanddevelopment.htm

Under the Mexican Presidency, the G20 is also pursuing the development of a non-prescriptive good practice guide and toolkit for enabling national policy frameworks for inclusive green growth. As part of this process, two products are of particular note. The first is a report produced by the OECD, UN and World Bank on incorporating green growth policies into structural reform agendas which draws heavily on the green growth work of the OECD (see **Box 3**). The report was prepared primarily for G20 countries and focuses on improving framework policies, removing policy-induced distortions, and a suite of environmental policy instruments. As such, it does not incorporate tools for evaluating, selecting and designing policies.

Box 3. Incorporating green growth and sustainable development policies into structural reform agendas (OECD, World Bank, UN, 2012)

The report outlines a number of broad elements of structural packages to promote green growth and sustainable development as follows:

- Reforming the structure of taxes and charges to promote economic growth and make it greener
- Strengthening markets

- Inducing greener behaviour through regulatory and information policies
- Getting infrastructure "right"
- Targeting and leveraging investment by international corporate players
- Fostering innovation for greening growth
- Lowering barriers to the diffusion of green goods, services and technologies
- Encouraging job creation and equity for inclusive green growth

The report also includes a list of structural policy instruments across three broad categories as follows:

1. Improving framework policies: competition policies; tax reform; labour market policies; investment policies; network sector policies; and innovation.
2. Removing policy-induced distortions: removal of perverse subsidies; removal of barriers to trade and investment in green goods and services; ensuring well-targeted compensatory measures for the poor.
3. Implementing environmental policy instruments: cap-and-trade permit systems; taxes or charges on pollution or proxy; baseline-and-credit permit systems; subsidies and other direct support; deposit-refund systems; performance standards; technology standards; voluntary approaches; information and regulatory policies.

Weblink
http://www.oecd.org/eco/economicpoliciestofostergreengrowth/G20_report_on_GG_and_SD_final.pdf

The second is a preliminary toolkit of policy options to support inclusive green growth developed by the African Development Bank (AfDB), OECD, World Bank and UN[6] (the "IGG Toolkit") (see **Box 4**). This toolkit was developed for G20 countries and focuses on a combination of policy instruments for incentivising investment and internalising externalities, as well as a number of tools for policy evaluation, integrated decision-making, monitoring of progress and attracting finance. As such, it advances beyond providing a short list of policy instruments to embrace a broader range of tools that governments can use to support more effective design, evaluation and implementation of green economy policies.

Box 4. A Toolkit of Policy Options to Support Inclusive Green Growth (AfDB, OECD, UN and World Bank, 2012)

Outlines a practical and flexible green growth policy toolkit, which includes a step-by-step guide. It has four main categories of policy tools: **1. Incentivize**: Tools for pricing pollution and natural resource use; Tools to complement pricing policies; and Tools to foster inclusiveness; **2. Design**: Tools to manage uncertainty; **3. Finance**: Financing and investment tools; and **4. Monitor**: Monitoring tools. A number of policy tools are listed that fall into one or more of these categories:

- Environmental fiscal reform
- Public Environmental Expenditure Reviews
- Sustainable Public Procurement
- Strategic Environmental Assessments
- Social Protection Instruments
- Payments for Ecosystem Services
- Certification for Sustainable Production
- Green innovation and industrial policies
- Project-Level Impact Assessment
- Integrated Water Resources Management
- Green Accounting.

Weblink
http://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=695&menu=35

[6] Both reports were prepared for the G20 Summit in Los Cabos in June 2012 (http://www.oecd.org/document/10/0,3746,en_2649_37465_44076170_1_1_1_37465,00.html)

The participating organizations of the IGG Toolkit are working during the remainder of Mexico's G-20 presidency to finalize the toolkit, including integration of new or better tools on energy, water, and climate change. The authors are also discussing how best to disseminate the toolkit and transform it into a living document or 'wiki' platform, possibly to be hosted by the Green Growth Knowledge Platform or one of its affiliated programs (UNDESA, 2012).

There is substantial scope to refine further these toolkits so that they are intuitive, useful and easily accessible. The further development of green economy toolboxes could draw from recent experience in related fields, in particular low-carbon development, where process guidelines and toolkits are more advanced.

For example, the LEDS Global Partnership (established by Open Energy Info or OpenEI, an initiative sponsored by the US Government) lists over 40 different LEDS support tools that are available online[7]. This includes a suite of tools and guidelines developed by the UNDP for developing low-emission, climate-resilient development strategies. Similar publications have been authored by a range of other organisations, including UNEP, OECD, the Climate Development Knowledge Network (CDKN), the World Bank's Energy Sector Management Assistance Programme (ESMAP), the International Energy Agency (IEA) and others. OpenEI also includes an online LEDS gateway which assembles several toolkits and resources and a complete LEDS development process based on proven best practice[8]. Many of these tools tend to be step-based process guidelines for developing national strategies rather than toolkits of different policy measures and evaluation tools. Another example of a web-based toolbox is the Global Water Partnership's online toolbox for Integrated Water Resources Management[9].

In addition to these green economy toolkits, a number of UN agencies and development banks have been active in developing best practices in applying green economy policy measures, including the development of policy-specific guidelines and tools as well as process guidelines for the elaboration of low-carbon strategies. For example, UNEP has prepared policy guidelines on the development and application of green economy indicators at the country level, UNOPS and UNEP have developed guidelines on sustainable procurement, the ADB has prepared a suite of tools and guidelines focused on climate change adaptation, UNHABITAT has released a suite of guidelines on urban patterns for a green economy, UNESCAP has developed a 'train the trainers' toolbox on green growth, the UNDP has produced process guidelines for low-carbon development, and the UN Statistical Commission has coordinated the revision of the System of Environmental-Economic Accounting (SEEA) which provides a conceptual framework for green accounting.

A number of UN agencies and other organisations have also developed methodologies for the analysis of green economy policies. Such methodologies are now beginning to form an integral part of the green economy toolkit, as can be seen in the IGG toolkit (**Box 4**) and OECD developing countries toolkit (**Box 2**). These toolkits incorporate a number of diagnostic tools and indices, such as long-term planning and modelling tools, labour market and income analysis, strategic environmental assessment, public expenditure reviews, and green accounting which can help in the selection, design and implementation of policies. There is scope to compile further information on these various methodologies, explore their utility in different country contexts for analysing green economy policies, and draw together examples and case studies.

[7] See http://en.openei.org/wiki/LEDS_Global_Partnership_Activities
[8] See http://en.openei.org/wiki/Gateway:Low_Emission_Development_Strategies
[9] Global Water Partnership toolbox: http://www.gwptoolbox.org/

3. International experience in implementing national strategies for sustainable development, low-emission development, and green economy

Whilst most countries do not yet have an overall national strategy for a green economy, there is emerging international practice in the design and implementation of green economy policies in both developed and developing countries. This has been catalysed through international agreements which have promoted the development of national strategies for sustainable development, climate change and environmental management spanning back at least 20 years. In this context, the development of national low-carbon, green economy and green growth strategies can be seen as more recent iterations of national sustainable development strategies, which aim to build on past experience and more effectively integrate the three dimensions of sustainable development to address ongoing global crises and emerging priorities. National government efforts have also been facilitated by a number of international organisations, including UN organisations, that are committed to advancing the development of national strategies through advisory and technical assistance services and capacity building.

This section provides a summary of recent experience in the design and implementation of national sustainable development strategies in the form of low-emission development, green economy and green growth strategies. It also provides some initial insights into how governments, through their green economy strategies, are trying to overcome some of the key challenges experienced over many years of implementation of sustainable development. In particular, these include challenges associated with institutional capacities, financing and integration. It also includes a brief overview of key international partners and practitioners facilitating this work; this latter topic, however, will form the basis for a subsequent publication in this series of green economy guidebooks.

3.1. National Sustainable Development Strategies

Chapter 8 of Agenda 21 agreed at the UN Conference on Environment and Development in Rio in 1992 called for the development of National Sustainable Development Strategies (NSDS). Ten years later, the World Summit for Sustainable Development in 2002 also urged states to take immediate steps to progress their national strategies and begin implementation by 2005. In response, a large number of countries have developed what have been (often loosely) defined as NSDS. UNDESA reports that, as at 2009, 106 countries were implementing a NSDS based on reporting to the UN Commission on Sustainable Development[10]. However, some of these strategies are now quite dated and it is uncertain if they continue to be implemented.

A NSDS has been defined as a coordinated, participatory and iterative process of thoughts and actions to achieve economic, environmental and social objectives in a balanced and integrative manner (UNDESA, 2002). This would imply that a NSDS would not simply be a list of policy measures, programmes and projects, but would also establish the necessary institutional, information and financial arrangements for implementation as well as a feedback mechanism comprising clear targets and indicators for measurement of progress and ongoing policy review and adaptive management. The particular label applied to a NSDS is not important, as long as the underlying principles characterizing a NSDS are adhered to and that economic, social and environmental objectives are balanced and integrated.

Over the past two decades, a variety of strategies have been prepared on the basis of national needs and priorities. Many were either sponsored by multilateral financial institutions or were

[10] See http://www.un.org/en/development/desa/climate-change/strategies.shtml).

advocated by global conventions with financial support provided for their formulation. A variety of approaches have been adopted, including strategies targeting sustainable development, strategies dealing with economic recovery and growth, strategies providing a long-term national vision, strategies supporting social development/poverty reduction, and strategies focused on integrating environmental conservation into development.

Numerous international organizations have been involved in supporting the development of such strategies, including the World Bank, the International Monetary Fund (IMF), UNDESA, UNDP, the International Union for the Conservation of Nature (IUCN) and the OECD. For example, the World Bank and IMF have supported a variety of programs and approaches including strategies for economic growth and recovery (e.g. Structural Adjustment Programmes, Comprehensive Development Frameworks), strategies for poverty reduction (e.g. first and second generation Poverty Reduction Strategies), and strategies dealing with integrating environment and conservation into development (e.g. National Environmental Action Plans). The broad-scale adoption of the Millennium Development Goals as an outcome from the Millennium Summit in 2000 (which included a goal relating to environmental sustainability) provided new impetus and guidance for these strategies.

A number of UN conventions have also driven the development of strategies, including National Biodiversity Action Plans (under the Convention on Biological Diversity and funded by the Global Environment Facility), and National Action Programmes against Desertification (introduced under the Convention to Combat Desertification and Drought and sponsored by the UNDP). Other organizations such as the IUCN and UNDP have supported strategies targeting environmental protection, such as National Conservation Strategies and National Agendas 21. More recently, the proposal for low-emission development strategies (LEDS) has emerged under the UNFCCC, and the development of green economy and green growth strategies has received impetus from discussions in the context of Rio+20 and has been promoted by various international organizations.

A number of reviews have been undertaken and policy guidelines developed over the years to enhance the design and implementation of NSDS. For example, over the period 1992 to 2002, at least 30 separate papers and guidelines were published by experts and international organizations on NSDS experience and practice (Dalal-Clayton and Bass, 2002). Building on its experience in supporting the development of NSDS in developing countries, the OECD's Development Assistance Committee articulated 12 principles to guide the development of NSDS (OECD, 2001). Guidelines for developing NSDS were also published by UNDESA in 2002, and in 2006 the OECD also published best practices in strategy development used by OECD countries. A summary of principles and best practices for NSDS is provided in **Table 3** below.

Using the principles outlined in the OECD DAC guidelines, a review of experiences in eight developing countries highlighted a number of problems, including that many strategies were not integrated into a country's mainstream strategic planning system, and that most were 'wish-lists' which lacked clear objectives and achievable targets[11] (Dalal-Clayton and Bass, 2002). The same review highlighted that achieving sustainable development requires deep structural changes, including the promotion of economic growth patterns that favor the poor, fiscal policies that promote environmental protection, and a market pricing structure in which prices reflect the full social and environmental costs of production and consumption.

[11] Bolivia, Burkina Faso, Ghana, Tanzania, Namibia, Pakistan, Nepal and Thailand (see Dalal-Clayton and Bass, 2002 at http://books.google.com/books?id=bbWCHRN4h_sC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false)

Building on previous studies, a review of NSDS experience in 19 developing and developed countries concluded that few countries were acting strategically and that many challenges remained (Swanson, Pinter, Bregha, Volkery and Jacob, 2004). This included the lack of an integrated set of indicators to allow analysis of the inherent tradeoffs and inter-linkages among the economic, social and environmental dimensions of sustainable development. Another key challenge was that most NSDS remained at the periphery of government decision making and failed to engage finance ministries and central planning agencies in the strategy development process. As such, they failed to integrate the objectives of sustainable development with fiscal priority setting and national expenditure and revenue generation. Another important conclusion was that, whilst many countries were implementing a mixture of policy initiatives, economic instruments and environmental fiscal reform initiatives were under-utilized. Until nations leverage the instruments of environmental fiscal reform (e.g. ecological taxes, subsidy reform, user fees etc.) and economic instruments such as emissions trading, the review concludes, efforts toward sustainable development will be playing at the margin (Swanson et al., 2004).

The UNDESA also highlighted a number of similar shortcomings in early experience with NSDS, including the lack of a clear and pragmatic vision for development, limited national ownership and lack of public consultation, a lack of integration with broader development policy and limited monitoring and evaluation (UNDESA, 2002). However, it also noted that experience with NSDS has had notable achievements in some areas. For example, earlier efforts in developing NSDS had some success in supporting economic recovery; building awareness about sustainable development and the environment; capacity building and development of institutions; and the adoption of environmental laws and legislation (UNDESA, 2002).

Overall, it would appear that the NSDS experience has had at best mixed results, with notable achievements in some areas but serious shortcomings in others. For green economy strategies to overcome the problems and challenges outlined above and become an important tool for implementing sustainable development, it is critical that we learn from the experience gained over 20 years of NSDS implementation. Indeed, more recent iterations of NSDS have attempted to address the challenges outlined above by adopting more integrated and participatory approaches, focusing on institutional reforms and enabling conditions, using more advanced diagnostic and measurement tools for policy evaluation, and applying economic instruments and market-based measures.

Table 3. Principles and good practices for developing national sustainable development strategies

Main Element	OECD (2006)	UNDESA (2002)	OECD (2001)
Policy integration	Policy integration – national strategies should give consideration to environmental, economic and social concerns in integrated approaches contained in national plans and reports.	Integrate economic, social and environmental objectives. Link different sectors	Integrate economic, social and environmental objectives. Ensure comprehensive and integrated strategy
Inter-generational timeframe	Intergenerational timeframe – national strategies should adopt long-term timeframes which enable inclusion of intergenerational principles and indicators.	Develop shared strategic and pragmatic vision. Link short term to medium/long term	Develop consensus on long-term vision.
Analysis and assessments	Analysis and assessments – integrated assessment tools should be used in national reports to identify the environmental, economic and social costs and benefits of policy and strategy options.	Anchor strategy in sound technical and economic analysis. Build on existing mechanisms and strategies.	Base strategy on comprehensive and reliable analysis. Build on existing processes and strategies.
Coordination and institutions	Co-ordination and institutions – a wide range of government departments and agencies should be involved in the formulation and implementation of national strategies, with overall responsibility in the office of the Prime Minister or equivalent.	Ensure a strong institution or group of institutions spearheading the process	Embed strategy in high-level government commitment and influential lead institutions
Local and regional governance	Local and regional governance – local and regional authorities should be fully involved in the development of national strategies, with certain delivery aspects devolved to sub-national levels.	Link national, regional and global levels	Link national and local levels
Stakeholder participation	Stakeholder participation – stakeholders (e.g., business, unions, nongovernmental organisations) should participate with government representatives in commissions responsible for developing and implementing national strategies.	Ensure access to information for all stakeholders, transparency and accountability. Develop partnerships among government, civil society, private sector and external institutions.	Ensure effective participation. Develop a people-centred strategy.
Indicators and targets	Indicators and targets – strategies should be based on structured indicator systems (enumerated in national plans and reports) to assist in monitoring progress and to serve as quantitative targets.	Base strategy on realistic, flexible targets	Include targets with clear budgetary priorities
Monitoring and evaluation	Monitoring and evaluation – independent bodies or processes should be established to act as watchdogs monitoring implementation of national strategies and providing recommendations for their improvement.	Include integrated mechanisms for assessment, follow-up, evaluation and feedback	Incorporate monitoring, learning and improvement

3.2. Low-Emission Development Strategies (LEDS)

Although the introduction of LEDS terminology emerged only recently in UNFCCC negotiations, planning for economic development that incorporates climate change mitigation and adaptation is not a new concept, and both developed and developing countries have been active in producing a variety of national climate change plans and strategies over the past two decades. A LEDS can perhaps best be described as a development paradigm that contributes to addressing the twin challenges of addressing climate change and advancing development (Van Tilburg, Wurtenberger, Coninck, and Bakker, 2011). It seeks to promote economic growth or sustainable development while keeping greenhouse gas (GHG) emissions low, or lower than without interventions, and increasing resilience to climate change impacts.

The terminology used and the breadth of issues considered have evolved over time, moving from GHG inventories and monitoring capabilities, to separate plans considering GHG mitigation and climate change adaptation in isolation, and then to low-carbon or climate-compatible development plans that attempt to integrate climate change outcomes (both mitigation and adaptation) into national socio-economic development planning.

The evolution of these plans towards enhanced integration with central development planning and decision making has thus followed a similar trajectory to the experience with NSDS. Clearly, the process is evolving as countries and international partners aim to develop a more comprehensive and integrated approach, focusing on actions that support national development and economic priorities that are simultaneously low carbon and climate resilient. This is essentially a process of identifying tradeoffs and focusing on synergies. While the terminology 'LEDS' might imply a narrow focus on carbon reduction in a limited range of key sectors (energy, transport, agriculture, forestry), it often addresses a far broader range of social, economic and environmental issues in search of policies and actions that will increase society's *resilience* to climate change impacts and external shocks.

This concept of resilience, whilst difficult to pinpoint or quantify, has become a common goal shared by environmental and developmental practitioners alike and extends far beyond climate change adaptation. It is closely linked with our capacity to cope with shocks while maintaining function, whether these shocks are related to climate change, food, oil, energy, financial or other crises. After all, responding to climate change is more about coping with an increasing frequency and severity of existing threats rather than addressing new threats. As such, measures that we take to increase adaptive capacity and build resilience to climate change are likely to permeate across all three dimensions of sustainable development.

International experience in low carbon development is growing rapidly - by 2010, at least 46 countries had produced a national climate change strategy or LEDS, including both developed (30) and developing countries (16) (OECD, IEA, 2010). The UNDP estimates the total number is now well over 80 countries[12] and highlights that this has been driven by approximately USD290m of financing through the GEF Trust Fund, Least Developed Countries Fund, Special Climate Change Fund and the Adaptation Fund. With this growing international experience, a number of reviews have been conducted which provide guidance on international good practice (for example, see

[12] See: http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/focus_areas/climate_strategies/undp_projects_thatcontributetogreenlecrds.html

OECD, IEA 2010; ODI, 2009; Van Tilburg et al, 2011; Project Catalyst, 2009; and Pye, Watkiss, Savage and Blyth, 2010).

The earliest climate strategies date back more than 20 years, some of which contain elements of a low-carbon development strategy (Van Tilburg et al, 2011). Over the past five years, several emerging economies with substantial GHG emissions (notably Brazil, China, India, Indonesia, South Africa and South Korea) have developed integrated strategies on climate change and development or low-carbon growth. Moreover, a number of least-developed countries have elaborated integrated climate and development strategies, for instance Papua New Guinea, Bangladesh, Rwanda and Kenya. Low carbon development objectives have also been incorporated into recent national development planning documents released by a number of countries, including China (China's *12th Five Year Plan*, 2011), Japan (Japan's *New Growth Strategy*, 2011), and Europe (*Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth*).

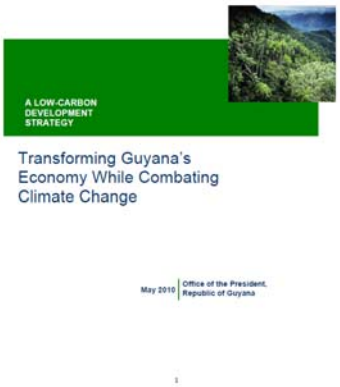
Very recently, several countries have prepared strategies that are more clearly defined as LEDS, for example *Guyana's Low-Carbon Development Strategy* (2010), the *UK's Low Carbon Transition Plan* (2009) and Indonesia's *Creating Low Carbon Prosperity in Jambi*[13] (2010). **Boxes 5** to **7** below provide a quick reference guide to these strategies, while **Appendices 2** to **5** provide a more detailed overview of the key elements of these strategies, including (where available) their aims, institutional arrangements, predicted costs, policy measures, priority sectors and partners.

Box 5. Republic of Guyana: A Low-Carbon Development Strategy (LCDS) – Transforming Guyana's Economy While Combating Climate Change (2010)

The document sets out Guyana's strategy to forge a new low carbon economy over the coming decade. It identifies 8 priorities that will be the initial focus of LCDS implementation in 2010 and 2011, gives an outline of priorities for the period 2012-15, and sets out the framework for further consultation and strategy development on Guyana's long-term low carbon development. The strategy focuses on avoiding deforestation and using funding to enable low carbon economic development of new sectors. The strategy will lead to action in four areas:

- Investing in low-carbon economic infrastructure
- Facilitating investment and employment in low-carbon economic sectors
- Sustainably managing forest-based economic sectors, in particular forestry and mining
- Generally enhancing the nation's human capital and creating new opportunities for forest-dependent and other indigenous communities.

The development of the strategy was led by the Office of the President with the assistance of the Government of Norway and the International Institute for Environment and Development. The strategy augments the country's National Development Strategy and National Competitiveness Strategy, identifying areas where these broader development goals and targets can be achieved in a low-carbon manner.



Weblink
http://sustainabledevelopment.un.org/index.php?page=view&type=99&nr=11&menu=1299

[13] This is a provincial strategy rather than a national strategy, but is supported by the national government.

Box 6. United Kingdom: The UK Low Carbon Transition Plan – National Strategy for Climate and Energy (2009)

This White Paper sets out the UK's transition plan for becoming a low carbon country: cutting emissions, maintaining secure energy supplies, maximizing economic opportunities, and protecting the most vulnerable. The plan includes a series of targets across five key areas within a 2020 timeframe:

- Protecting the public from immediate risk.
- Preparing for the future.
- Limiting the severity of future climate change through a new international climate agreement.
- Building a low carbon UK (aiming to cut UK emissions by 34% by 2020 and at least 80% by 2050 - compared with 1990 levels - through investment in energy efficiency and clean energy technologies,).
- Supporting individuals, communities and businesses to play their part.

The plan was approved pursuant to the UK's Climate Change Act and the Department of Energy and Climate Change has overall responsibility for its delivery. An independent Committee on Climate Change was responsible for setting emissions reduction targets and has an ongoing review function. Under the plan, each government department is issued with a carbon budget and must publish a plan on how it will achieve this.

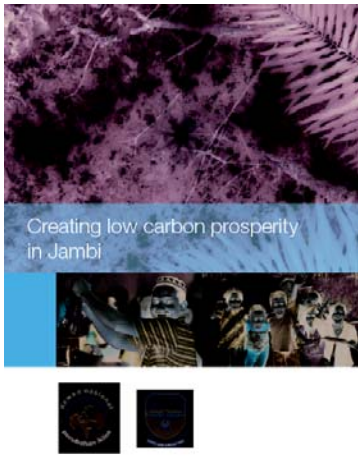
Weblink
http://centralcontent.fco.gov.uk/central-content/campaigns/act-on-copenhagen/resources/en/pdf/DECC-Low-Carbon-Transition-Plan

Box 7. Jambi Province, Indonesia: Creating Low Carbon Prosperity in Jambi (2010)

This report evaluates the potential for low-carbon prosperity in Jambi Province, Indonesia. The report outlines a high-level a strategy for delivering economic growth while making deep cuts in carbon emissions. It focuses on three core elements:

1. CO2 mitigation: estimating the size of current and future emissions; assessing the technical abatement potential and feasibility of abatement levers; developing an action plan to capture prioritised abatement opportunities.
2. Economic development: analysing existing competitive strengths and weaknesses; prioritising growth opportunities based on impact and feasibility; developing an action plan to capture prioritised growth opportunities.
3. Institutional enablers: developing a strategy for critical enablers that will underpin the success of the low-carbon growth strategy (institutions, monitoring and evaluation, financial mechanisms, spatial planning).

The report was led by the Office of the Governor of the Province of Jambi, the Dewan Nasional Perubahan Iklim and Indonesia's National Climate Change Council with the support of the Agence Francaise de Developpement, the ClimateWorks Foundation, the Norwegian Government and the Packard Foundation. Analytical support was provided by McKinsey and Company.



Weblink
http://photos.mongabay.com/10/jambi_report_090810_english.pdf

Common elements of LEDS that have been formally communicated to the UNFCCC include: reducing energy demand, such as through investments in energy efficiency and infrastructure; ensuring energy security based on increasing renewable and low-carbon sources of energy as a proportion of total energy used; adopting supportive technologies and policies in non-energy sectors; and managing land sustainably (UNESCAP, 2012).

Such measures are likely to bear significant financial costs and face significant challenges and barriers in implementation. Low carbon growth policy is a long-term process and there is often significant institutional inertia among local regulators and policy makers due to perceived

institutional risks of adopting new technologies, existing vested interests, and a lack of capacity to assess economic benefits and costs (Pye et al, 2010). In terms of financing, even where positive net present values are estimated for mitigation measures, upfront investments may still be significant, and may require higher levels of investment than traditional alternatives. A key shortcoming for many LEDS (as well as for NSDS more generally) is that they have failed to provide clear pathways to funding. This may be due to a general lack of revenue for the implementation of policy initiatives (often faced by developing and transitional countries) and/or from a lack of linkage with central planning and budget allocation processes.

Recent international climate negotiations have resulted in significant commitments to increase the flow of climate finance from developed to developing countries, in particular the Copenhagen Accord which commits to USD30 billion in Fast Start financing for the period 2010-2012, and USD100 billion per year by 2020. Other funds include the Adaptation Fund managed by GEF (80-330m), the Climate Change Fund of the Asian Development Bank (40m) and the Strategic Climate Fund of the World Bank (6 billion). This injection of finance will assist with the effective design and implementation of LEDS and has catalysed the efforts of a number of quick-to-move developing and least developed countries. By moving early and demonstrating national leadership, these developing countries have attracted significant international finance and assistance (Van Tilburg et al, 2011).

In developing countries, national institutional capacities, information and data, and access to financial resources are often limited, and for the development and implementation of a LEDS they rely heavily on international support for analytical work, process support, funding and technical assistance (Van Tilburg et al, 2011). In response, there has been a proliferation of international organisations and initiatives providing assistance to countries to undertake research and develop LEDS and other climate change plans. For example, the recently established Low-Emission Capacity Building Programme (an initiative of UNDP, the European Commission, the Government of Germany, and the Government of Australia) is supporting the efforts of over 30 countries in developing LEDS[14]. Other key players include the World Bank Low-carbon Growth Country Studies program (part of ESMAP), the Climate and Development Knowledge Network (funded by the UK and Dutch Governments), the ClimateWorks Project Catalyst (often involving McKinsey and Company) and the US Government's LEDS program. Globally, there are over 200 LEDS-related support activities underway[15], and there has also been a proliferation of over 50 networks and knowledge platforms supporting low emission and climate compatible development planning, up from fewer than 10 only three years ago (CLEAN, 2011). A more comprehensive overview of practitioners and partners will be addressed in a subsequent green economy guidebook in this series.

Clearly, development of LEDS is no longer in its infancy and, as with international experience in implementing NSDS, a lot can be learned from this experience for the development of green growth and green economy strategies. A range of national and international development organisations, practitioners, research institutes and private consultancy firms have been actively working on developing and refining methodological approaches to support countries in the development of LEDS. With regard to the process of strategy development, key success factors and lessons learned have been derived, many of which are not specific to LEDS, but are drawn from integrated or multi-sectoral planning more broadly, or reflect "best practice" thinking in development theory (Van Tilburg et al, 2011). A number of recent reviews of LEDS have been

[14] Countries include Argentina, Bhutan, Chile, China, Colombia, Costa Rica, Democratic Republic of Congo, Ecuador, Egypt, Ghana, Indonesia, Kenya, Lebanon, Malaysia, Mexico, Moldova, Morocco, Peru, The Philippines, Tanzania, Thailand, Trinidad and Tobago, Uganda, Vietnam and Zambia.
[15] OpenEI LEDS Global Partnership database http://en.openei.org/wiki/LEDS_Global_Partnership_Activities).

undertaken which identify challenges and lessons learned, as summarised in **Table 4** below. Again, it will be important that governments and practitioners learn from this experience with LEDS in the development of green economy strategies.

Table 4 – Lessons learned for developing LEDS

Category	Lessons Learned
1. Fact base	A LEDS needs to build on a strong basis of high-quality and timely data on GHG emissions and socio-economic indicators, and the credibility of the research depends on the quality of and availability of data.
2. Capacity	Analytical capacity is needed for various tasks in the process, such as assessing the current situation and identifying alternative development pathways. Collaboration with international experts may improve the analysis, but national capacity is essential to ensure that the strategy is sufficiently rooted in the reality of the specific country.
3. Awareness and leadership	Government, the private sector and civil society stakeholders need to be aware of how low-carbon development can affect them. This awareness is essential to create buy-in for the strategy and its implementation. Strong, senior leadership from government is a key success factor for developing a LEDS that is integrated across all policy areas.
4. Government coordination	Clear roles and policy mandates need to be established. Governments on the sub-national level needs to be engaged in the strategy as early as possible, since they are typically crucial for the implementation. To establish momentum for implementation, a LEDS ideally needs to be integrated into the mainstream national decision-making process.
5. Stakeholder Involvement	Engage stakeholders from the start of the process to provide and improve input, and to create support for the strategy. Lack of time, resources and commitment may lead to late involvement and a narrow base for participation, which in turn may create a gap between the strategy and on-the-ground realities.

Source: adapted from Van Tilburg et al (2011); Project Catalyst (2009); Clapp et al (2010), Kok et al (2008), ESMAP (2009b).

3.3. Green Economy & Green Growth Strategies

Building on international experience with NSDS and LEDS, a number of countries have begun to develop national green economy strategies. While these concepts are all closely related, green economy strategies could be seen as a further step in the evolution of integrated sustainable development strategies, promising new tools and a fresh approach for overcoming the gaps and challenges experienced over the past 20 years in the implementation of NSDS.

The central focus on the economy could assist with engaging central planning and finance ministries, integrating with national expenditure and fiscal priority setting, and the utilisation of economic instruments and fiscal reform to implement sustainable development. Building on recent experience with LEDS, the shift to green economy strategies could move beyond the integration of climate change with development to address a wider range of environmental, social and economic issues in a more comprehensive and integrated manner.

International experience with green economy policy development is rapidly expanding across the globe. Over the period 2010 to 2011, green economy scoping studies were completed in 25 different countries under UNEP's Green Economy Initiative. The Global Green Growth Institute (GGGI) is currently supporting the development of national green growth plans in twelve countries, namely Brazil, Indonesia, Cambodia, Thailand, United Arab Emirates, Kazakhstan, Ethiopia, Mongolia, the Philippines, Rwanda, China and Vietnam. To undertake this work, the GGGI has partnered with respective national governments as well as a number of other organisations, including UNESCAP, the Korea Institute for International Economic Policy, the Korea Legislative Research Institute, the European Bank for Reconstruction and Development and UNEP Risoe. The

European Commission also recently funded a study on green economy options in the Eastern Partnership Countries (Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova and the Ukraine)[16], a study is currently underway looking at green growth policies for Mediterranean countries (funded by the World Bank and others)[17], and the UN Economic Commission for Africa recently prepared a discussion paper with UNEP on green economy implications for African countries[18].

The OECD is also providing regular guidance that is tailored to the needs of individual countries through its core advice in country-specific reviews (e.g. the Economic Surveys, Environmental Performance Reviews, Investment Policy Reviews and Innovation Reviews) and multilateral surveillance exercises, such as the *Going for Growth* flagship report, covering advanced and emerging economies. In addition the OECD has developed a set of green growth indicators and measurement tools that countries can use to monitor their progress in this area. Countries like the Czech Republic, Denmark Korea and the Netherlands have already applied the OECD green growth measurement framework and indicators to their specific national contexts to assess their state of green growth. With the support of OECD, the Latin America Development Bank, the Latin American and the Caribbean Economic System and the United Nations Industrial Development Organization, work is underway in Mexico, Colombia, Costa Rica, Ecuador, Guatemala, Peru and Paraguay to apply the OECD indicators as a way to identify key areas of national concern and the scope for improving the design, choice and performance of policy instruments.

Although much of this work remains at a scoping or early analytical phase, a number of countries have now published national green economy strategies or roadmaps. The Republic of Korea has been a front-runner in these efforts, finalising its *National Strategy for Green Growth* and *Five Year Plan* in 2009. Other national green economy strategies are also starting to emerge, including Cambodia's *National Green Growth Road Map* (2009), France's *National Sustainable Development Strategy: Towards a Green and Fair Economy* (2010), Ethiopia's *Climate-Resilient Green Economy Strategy* (2011), South Africa's *Green Economy Accord* (2011), Rwanda's *Green Growth and Climate Resilience – National Strategy for Climate Change and Low Carbon Development* (2011), and Grenada's *Roadmap on Building a Green Economy for Sustainable Development in Carriacou and Petite Martinique, Grenada* (2012). **Boxes 8** to **14** below provide a short reference guide to these publications, while **Appendices 2** through **5** provide a more detailed overview of the key elements of these strategies (where available), including their aims, institutional arrangements, costs, policy measures, priority sectors and partners.

[16] *Opportunities and Options for Promoting a Green Economy in the Eastern Partnership Countries*, Consortium Safege, 2011.
[17] *Toward Green Growth in Mediterranean Countries – Implementing Policies to Enhance the Productivity of Natural Assets*, 2012 MED Report Overview.
[18] *A Green Economy in the Context of Sustainable Development: What are the implications for Africa?*, UNECA, UNEP, 2011.

Box 8. Republic of Korea: National Strategy for Green Growth and Five Year Plan (2009)

In 2008, partly in response to the global financial crisis, the Republic of Korea (RoK) adopted 'low carbon green growth' as the country's new development vision, which was followed shortly after by the release in 2009 of their *National Strategy for Green Growth* and *Five-Year Plan for Green Growth*. Their strategy has three objectives:

1. Promote a synergistic relationship between economic growth and environmental protection.
2. Improve people's quality of life and promote a green revolution in their lifestyles.
3. Contribute to international efforts to fight climate change and other environmental threats.

The development of the strategy was led by a Presidential Commission on Green Growth which was established in 2009. The adoption of the strategy was formalised through the country's National Assembly and the enactment of a *Framework Act on Low Carbon Green Growth.*

Weblink
http://english.mest.go.kr/web/42208/en/board/enview.do?bbsId=265&pageSize=10&currentPage=13&boardSeq=1226&mode=view

Box 9. Kingdom of Cambodia: National Green Growth Road Map (2009)

Cambodia's Roadmap is an initial attempt to outline the possibilities for greening economic growth. It recognises that uncoordinated, ill-sequenced and disconnected sectoral policies will not green the economy, and that the Roadmap will need to align with central development plans and strategies and development goals. It focuses on providing additionality to the development objectives articulated in the National Strategic Development Plan and the Government's Rectangular Strategy.

The roadmap addresses seven access areas: access to clean water and sanitation; access to renewable energy; access to information and knowledge; access to means for better mobility; access to finance and investments; access to food security (agriculture) and non-chemical products; Access to sustainable land-use.

The roadmap was led by the Ministry of the Environment through an inter-ministerial working group and proposes to establish a new National Ministerial Green Growth Council for implementation. The development of the roadmap was supported by the UN Economic and Social Commission for Asia and the Pacific.

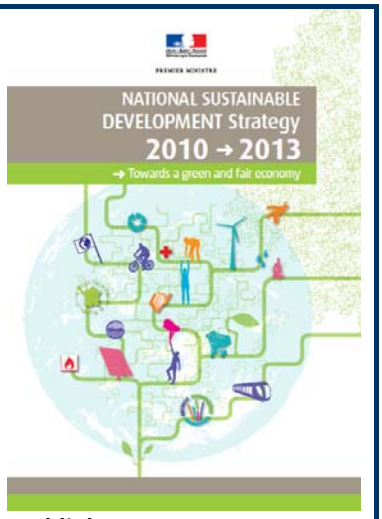
Weblink
http://www.greengrowth.org/sites/default/files/pictures/Final%20Draft%20Roadmap,%20Feb26-2010.pdf

Box 10. Republic Francaise: National Sustainable Development Strategy – Towards a Green and Fair Economy

By developing a decarbonised economy using far fewer resources, the strategy aims to make France a major player in the green economy whilst pursuing social justice and equity. The strategy aims to ensure coherence and complementarity of France's international and European commitments and national, cross-cutting and sectoral policies. It is based on nine strategic challenges which must be taken up to move towards a green and equitable economy. For each challenge, the strategy provides context, priorities, objectives with quantitative targets, and policy measures.

The development of the strategy was coordinated by the Ministry of Environment, Sustainable Development and Energy, however it reflects the outcomes of an extensive stakeholder consultation process undertaken through the 'grenelle de l'environnement'.

The strategy includes a 'sustainable development scoreboard' with comprising a set of quantitative indicators across key sectoral and cross-sectoral issues.



Weblink
http://www.developpement-durable.gouv.fr/IMG/pdf/NSDSp60.pdf

Box 11. Federal Democratic Republic of Ethiopia: Ethiopia's Climate Resilient Green Economy – Green Economy Strategy (2011)

The objective of Ethiopia's strategy is to identify green economy opportunities that could help Ethiopia reach its ambitious growth targets while keeping greenhouse gas emissions low. The government intends to attract development partners to help implement this new, sustainable growth model.

The vision is to achieve middle-income status by 2025 in a climate-resilient green economy. The strategy is part of the broader Climate-Resilient Green Economy initiative led by the Prime Minister's Office and which has three objectives:

- Fostering economic development and growth;
- Ensuring abatement and avoidance of future emissions – i.e. to transition to a green economy;
- Improving resilience to climate change.

The four pillars of the strategy are: adoption of agricultural and land use efficiency measures; Increased GHG sequestration in forestry; deployment of renewable and clean power generation; and use of appropriate advanced technologies in industry, transport and buildings – leapfrogging to modern and energy efficient technologies.

The strategy is aligned with Ethiopia's Growth and Transformation Plan which has the goal of reaching middle-income status by 2025. The strategy follows a sectoral approach and identifies and prioritises more than 60 initiatives which support achievement of development goals and reduce GHG emissions.

Weblink
http://www.epa.gov.et/Download/Climate/Ethiopia's%20Climate-Resilient%20Green%20economy%20strategy.pdf

Box 12. Republic of South Africa: New Growth Path: Accord 4 – Green Economy Accord (2011)

South Africa's Green Economy Accord was led by the Economic Development Department and is a partnership between government, the business community, the trade union movement and community organisations to create large numbers of jobs, provide a spur for industrialisation and help to create a sustainable future for current and future generations. It is one of a series of agreements in which social partners commit to work together to achieve the goals its central development strategy the "New Growth Path", including a goal of five million new jobs by 2020. In this context, the Accord has a goal of creating at least 300,000 jobs by 2020 in the green economy and activities that green the economy.

Weblink
http://www.info.gov.za/view/DownloadFileAction?id=159756

Box 13. Republic of Rwanda: Green Growth and Climate Resilience – National Strategy for Climate Change and Low Carbon Development (2011)

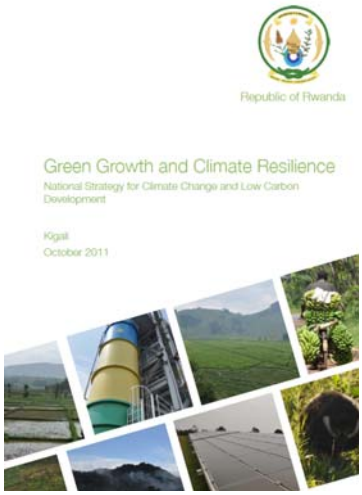
The purpose of the strategy is threefold:

1. To guide national policy and planning in an integrated way.
2. To mainstream climate change into all sectors of the economy.
3. To position Rwanda to access international funding to achieve climate resilience and low carbon development.

The strategy will contribute to Rwanda's Vision 2020 development strategy which aims to transform Rwanda from a subsistence agriculture economy to a knowledge-based society, with high levels of savings and private investment, and thereby reduce the country's dependence on external aid. It includes the aim of reaching middle income status by 2020.

The strategy outlines 3 strategic objectives which are guided by 5 principles. Specific actions are required in 14 Programmes of Action across 13 sectors. Five enabling pillars establish the processes and enabling environment required to mobilise the strategy.

The development of the strategy was coordinated by the Ministry of Natural Resources and was directed through an inter-ministerial committee. The strategy was supported by the UK Government and CDKN, with analysis undertaken by the Smith School of Enterprise and Environment at Oxford University.



Weblink
http://www.smithschool.ox.ac.uk/wp-content/uploads/2011/03/Rwanda-Green-Growth-Strategy-FINAL.pdf

Box 14. Carriacou and Petite Martinique, Grenada: Roadmap on Building a Green Economy for Sustainable Development in Carriacou and Petite Martinique, Grenada (2012)

The primary objective of this roadmap is to help design an integrated strategy, based on government criteria and expert assessment, for the transformation of the economy of Carriacou and Petite Martinique into a greener and more sustainable economy. The Road Map sets out a list of potential projects and initiatives across key sectors. The study serves as a starting point for the development of a more in-depth, systematic assessment for designing green economies in small island developing states.

It represents an attempt to formulate a "green economy road map" for the transition towards sustainable development in a time frame of one or two decades. The study assesses and presents proposals for change in major development blocks including: energy, water, education, employment, transport, agriculture and food security, ecotourism and environmental issues.

The study was led by the UN Division for Sustainable Development in cooperation with the Ministry of Carriacou and Petite Martinique Affairs and the Ministry of Environment, Foreign Trade and Export Development of Grenada.

Weblink
http://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=523&menu=35

4. Some initial insights from ten recent national strategies for green economy and low-emission development

Experience with designing and implementing national green economy strategies is rapidly emerging. **Appendices 2** to **5** provide an overview of ten recent green economy, green growth or low emission development strategies that have been published for both developing and developed countries. In this section, the term "strategy" is used quite broadly, as the documents reviewed vary in formulation and content. Some of these are obviously preliminary scoping studies, 'road maps' or wish lists of potential options and projects (e.g. Cambodia, Grenada, Jambi Province in Indonesia), whereas others are more sophisticated analyses that use research and policy evaluation to select initial priority actions and measures to build the necessary capacities for implementation (e.g. Ethiopia, Rwanda, Guyana, and to some degree Jambi, Indonesia). Others can better be defined as white paper policy documents incorporating national mid-term and long-term targets and indicators, policy measures, costings and responsibilities for implementation (e.g. RoK, UK and to some degree France and South Africa).

As such, the lessons from this review are not meant to be conclusive or a reflection on a particular country or process, but rather the review attempts to provide some initial insight into the application of the green economy concept by a small group of developing and developed countries. The review was based only on the information contained in the strategy documents themselves along with any supporting documents where available.

Despite these limitations, the review hopes to provide some new insight into recent efforts by governments in implementing sustainable development, and how they are using concepts such as green economy to potentially overcome the challenges experienced over many years of implementation of NSDS-type strategies. In particular, these challenges relate to:

- the level of political leadership, institutional arrangements and capacities for strategy development and implementation, engagement of central finance ministries, and integration with national budgetary processes;
- the calculation of costs for strategy implementation and clear linkages to sources of funding;

- the establishment of feedback and review mechanisms for monitoring progress, including the use of quantitative targets and indicators and other tools for identifying policy synergies and tradeoffs; and
- the use of integrated approaches and a broad mix of policy instruments including economic instruments.

4.1. Leadership, engagement, institutions and integration with national budgetary processes

Achieving sustainable development depends a great deal on high-level political commitment, well-functioning government institutions and overcoming coordination failures in public policies (OECD, 2006). In order to develop and implement a national strategy, strong leadership is required along with effective institutional arrangements to ensure the transparent and effective flow of information, knowledge and financial resources. Involving a range of government departments and stakeholders is important to facilitate these flows and also assists with the identification of tradeoffs and synergies across policy areas.

One of the key challenges experienced in the design and implementation of NSDS has been the lack of high-level political leadership, failure to involve central economic planning and finance ministries, and lack of integration with budgetary processes and linkages with sources of finance. To overcome this requires institutional and governance arrangements that ensure senior leadership within government, engagement across the various agencies and levels of government during strategy development with clear roles and policy mandates, broader consultation with stakeholders and the public, and integration with the mainstream economic decision-making process. For example, the preferred approach would be to place overall leadership and coordination responsibility with the office of the prime minister or equivalent supported by a whole-of-government inter-ministerial coordinating committee.

Appendix 3 provides a brief overview of the coordination and institutional arrangements adopted for the development and implementation of the ten strategies being reviewed. It can be seen that five countries put in place arrangements that ensure senior government leadership of the development of the strategy. This was either at the most senior level from the office of the prime minister or president (e.g. Guyana, RoK, Indonesia[19]) or by centralised economic development or planning agencies (e.g. Ethiopia, South Africa). For a number of other strategies, the process was led by line agencies, in particular environmental, natural resource and energy ministries. While this will not necessarily define the success or otherwise of the plan, the risk of coordinating line agencies is that they do not generally have the same level of political clout as centralised agencies and it may lead to problems with government engagement, financing and follow-up. Leadership at the most senior level is more likely to ensure that there is engagement and commitment across government and that the process is adequately linked to central finance and budget processes.

From the strategies reviewed, it can also be seen that countries are using a range of different institutional support structures and arrangements for whole-of-government engagement in the development and implementation of the strategy. Such arrangements are particularly important where a line agency is the lead to ensure engagement across government and the involvement of central economic planning and finance ministries and a broader range of stakeholders.

In many cases, new institutional arrangements were established to prepare the strategies and in some cases these remain in place to coordinate implementation and follow-up. It would appear that a primary purpose of these mechanisms was to enable whole-of-government input into the

[19] Led by the Governor of Jambi province.

development of the strategy, as well as to provide opportunities for broader stakeholder consultation. For example, whilst Cambodia's roadmap was led by its Ministry of Environment, it established an inter-ministerial working group comprising at least 17 ministries, including ministries of economy and finance, which provided an important link to these central agencies and budgetary processes. Similarly, while Rwanda's strategy was coordinated by the Ministry of Natural Resources, it was developed through a steering committee (National Climate Committee) comprising ten Cabinet ministries, including those for finance and economic planning. RoK established a Presidential Commission on Green Growth to lead its strategy. Ethiopia established sophisticated arrangements including an inter-ministerial steering group and seven sectoral sub-committees of government representatives and experts. France's strategy was initially led by its *Comité national du développement durable et du grenelle de l'environnement* and coordinated through an inter-ministerial Committee for Sustainable Development. The UK coordinated its plan through their newly established Department of Energy and Climate Change.

Based on this brief review, it would seem that most countries are utilising whole-of-government coordinating bodies to develop their national strategies, some of which remain in place to support strategy implementation. Building institutional capacity for strategy implementation was also a key priority targeted in some of the developing country strategies reviewed, in particular Guyana, Rwanda and Ethiopia. This includes the establishment of new coordination offices, technical committees, research centres, and funds (see **Box 15** below). Indonesia's provincial plan for Jambi also includes some useful recommendations regarding the proposed establishment of a new coordination and delivery unit for low carbon development (see **Box 16** below).

Box 15: Proposed institutional arrangements for strategy implementation in Guyana, Rwanda & Ethiopia

Guyana (Republic of Guyana, 2010)

To ensure successful execution of its strategy, Guyana is developing five new enhanced institutional capabilities:

1. An Office of Climate Change (OCC) established in the Office of the President to consolidate and streamline existing Government efforts to encompass, among other things, the coordination of engagement with multilateral processes and negotiations including UNFCCC. It has the overall coordinating responsibility for the strategy.
2. A strategy Project Management Office established to drive key projects under the strategy and report directly to the President.
3. A Guyana REDD Investment Fund (GRIF) will be established to manage forest payments, to reduce the cost of capital on other essential investments, and over the long-term to act as a permanent investment fund for low carbon investments.
4. A strengthened EPA will ensure that social and environmental safeguards are applied to the appropriate internationally recognised standards for all GRIF investments.
5. The REDD Secretariat at the Guyana Forestry Commission will be the implementing agency for REDD readiness activities, including a MRV system.

Rwanda (Republic of Rwanda, 2011)

The strategy acknowledges that it will require large amounts of finance and human capacity to be implemented, requiring significant support from development partners, civil society and the private sector, and leveraging of foreign direct investment. Capacity building is underway in government but needs to be scaled up to meet the needs of the strategy. Initially, this will require technical assistance from the international community, and local staff will need to study and gain experience abroad until the technical courses are running in Rwanda.

Moving forward, the government is finalising legislation for a National Fund for Climate and the Environment within the Ministry of Finance and Economic Planning as a 'basket fund' that will play a key role in managing climate funds that flow into Rwanda. Two additional new organisational structures will also be

established – a Centre for Climate Knowledge for Development (CCKD) and a Technical Coordinating Committee (TCC) to lead and facilitate the flow of knowledge among the different organisations.

The CCKD will be a focus organisation for interpreting climate information in the form required for each sector. It will be a multi-disciplinary organisation with expertise in climate change and sectors. It will work with the TCC to provide information to relevant Ministries and stakeholders. The TCC would comprise department heads from the Revenue Authority, Rwanda Natural Resources Authority, the Energy Water and Sanitation Authority, the Rwanda Housing Authority, the Rwanda Transport Development Agency, the Private Sector Federation, the Rwanda Development Board and other agencies and representatives from civil society, academia, development partners and the private sector.

Ethiopia (Federal Democratic Republic of Ethiopia, 2011)
The Government is establishing a permanent platform for implementation of the strategy. Overall responsibility will lie with Ethiopia's Environmental Council, which is chaired by the Prime Minister and comprises members drawn from Federal Ministries, Presidents of National Regional States, and representatives of non-governmental bodies, the private sector and trade unions. A Ministerial Steering Committee and a Technical Committee sit under the Environmental Council, as well as eight sub-technical committees focusing on specific sectors. The Government will install a subsidiary body to govern the Climate-Resilient Green Economy initiative under the co-responsibility of the Ministry of Finance and Economic Development and the EPA.

Box 16. Recommendations for Jambi's (Indonesia) Delivery Support Unit

This strategy from Indonesia is at the provincial level for Jambi Province, but nevertheless includes some useful recommendations for establishing a delivery unit for implementing low carbon strategies as follows:

1. It must have a direct relationship with and a clear mandate from the highest levels of government;
2. It needs to include representatives from different levels of government;
3. Relationships and decision-making rights must be clearly defined between the new unit, ministries, and other stakeholders;
4. Employee compensation and value proposition must be competitive with the commercial sector to attract top talent; and
5. A rigorous performance management framework around a few priority outcomes must be developed.

Where external financing will be critical for strategy implementation, some strategies also propose the establishment of new financial mechanisms and institutional arrangements. For Ethiopia, the Government has developed an action plan to establish a permanent financial mechanism, and proposes that the climate change and green economy work will be the co-responsibility of a partnership between the EPA and the Ministry of Finance and Development. The UNDP has offered to support this by establishing a Multi-Donor Trust Fund within the finance ministry through which international funds can be channelled.

Similarly, Rwanda's strategy flags the need for an institutional arrangement that ensures transparent and effective flows of information, knowledge and financial resources. As such, a National Fund for Climate and the Environment is being established and will play a key role in managing climate funds that flow into Rwanda. The Fund will seek to employ a wide range of public financing mechanisms, such as performance-based grants, loan guarantees, lines of credit, and public venture capital to create an attractive investment environment for low-carbon activities. Issues relating to financing are discussed in more detail below.

4.2. Costs and Financing

It is important to undertake sound analysis of policy measures, identify the underlying trade-offs and synergies among economic, environmental and social objectives and use this information to set policy priorities. An important component of this is cost-benefit analysis which requires adequate information on the costs associated with implementing policies. It is unlikely that

policies will be implemented unless the costs are calculated and a clear pathway to funding is provided, particularly where these costs are high. The lack of adequate information on costs and sources of financing has been another challenge experienced in the implementation of NSDS over the years.

From the ten recent strategies reviewed, six strategies outlined the projected costs associated with implementation of the measures outlined in the strategy. These indicative costs are outlined in **Table 5** below. This highlights the significant funding that will be needed to support green economy as well as the need to mobilise capital investment in the early years of development. However, it is also recognised that not all of this expenditure is necessarily additional to business as usual investment.

The necessary investment varies significantly between countries and it is evident that, for developing countries in particular, the required investment as a percentage of annual GDP is substantial. For example, Ethiopia's strategy will require funding of 25% of annual GDP (as at 2010) per year over 20 years. Upfront costs for Guyana represent 90% of annual GDP as at 2010; however no timeframe is given for this investment. The required investment for the UK, RoK and South Africa relative to GDP is much lower, ranging from 0.17% to 2% of annual GDP.

Table 5 - Indicative costs of implementing green economy strategies

Country	Costs indicated in strategy
Ethiopia	The strategy will require USD150 billion over 20 years, including 80 billion in capital investment and 70 billion in operating and programme expenses, with high initial capital expenditure of USD22 billion required by 2015. This averages out at USD7.5 billion per annum, which is a considerable 25% of Ethiopia's annual GDP of USD29.7 billion (as at 2010).
Guyana	The strategy identifies a requirement for USD1billion in essential capital projects fully or partially funded through private investment assisted by REDD+ payments, which represents almost 45% of annual GDP (USD2.23 billion in 2010). A further USD1billion is also predicted to be required for climate change adaptation, bringing total costs to almost 90% of GDP. However, there is no set timeframe for these investments and this may be expended over several years.
South Africa	Total funding identified in South Africa's green economy accord amounts to USD28.46billion over approximately 5 years[20], or approximately USD5.7 billion per annum. This represents approximately 1.56% of annual GDP of USD363.9 billion (as at 2010).
RoK	The government has earmarked USD97 billion of public investment for supporting green growth from 2009 to 2013, which is about 2% of the country's annual GDP.
UK	The plan estimates that total net costs of policies set out in the 10 year plan including both public and private costs are between USD39 billion and USD49billion. Averaged at USD3.9 to 4.9 billion per annum over 10 years, this represents 0.17 to 0.21% of annual GDP (i.e. of USD2.25 trillion as at 2010).
Jambi, Indonesia	In the first year, between USD 19 million and 39 million will be required to establish basic readiness functions to support low-carbon growth. From 2011–2030, ongoing running costs to support implementation of carbon abatement and sustainable livelihood opportunities will gradually increase and reach between USD 373 million and USD 676 million in 2030, assuming capture of the full 55 Mt CO2e in potential abatement.

In addition to the countries outlined in the above table, France's national strategy provides some financing targets such as the allocation of 3% of GDP to research and development from 2010 onwards (to be financed by both government and business) as well as mobilising 1 billion

[20] Note that whilst most costings provide timeframes within the next 5 years, this is not always made clear.

additional Euros for research and development on sustainable development by 2012. Grenada's roadmap also includes some costing estimates for potential energy-related projects.

Linked to the issue of costs associated with strategy implementation is the need to identify clearly sources of funding and establish the appropriate institutional arrangements to attract external funding. As mentioned above, a clear objective in some of the strategies reviewed for developing countries is to facilitate access to emerging climate finance. For example, the strategies for Guyana, Rwanda and Ethiopia all prioritise the establishment of appropriate financial frameworks necessary for attracting and managing climate finance (see **Table 6**). Rwanda's strategy highlights that "*a financial framework is just as important as an institutional framework and needs to be implemented as soon as possible to allow climate finance to flow into the country*" (Republic of Rwanda, 2011).

Table 6 – Financial Frameworks for attracting climate finance

Country	Financial Frameworks
Guyana	A Guyana REDD Investment Fund (GRIF) will be established to manage forest payments, to reduce the cost of capital on other essential investments, and over the long-term to act as a permanent investment fund for low carbon investments.
Rwanda	A National Fund for Climate and the Environment (FONERWA) is being established and will play a key role in managing climate funds that flow into Rwanda. The Fund will seek to employ a wide range of public financing mechanisms, such as performance-based grants, loan guarantees, lines of credit, and public venture capital to create an attractive investment environment for low-carbon activities. The Government is in the process of finalising a Bill to operationalise this basket fund which will be housed in the Ministry of Finance and Economic Planning.
Ethiopia	The Government plans to govern the Climate Resilient Green Economy initiative under the co-responsibility of the EPA and the Ministry of Finance and Economic Development (MoFED). The UNDP has offered its support in establishing a Multi-Donor Trust Fund within MoFED through which international funds can be channelled.

These countries also identify particular sources of climate finance which best align with their natural resource endowments and national circumstances. As a nation with significant forest resources, Guyana aims to finance avoided deforestation by targeting REDD+ funding, which it will direct toward low carbon economic development in new sectors, including hydropower, agriculture and aquaculture. Guyana also aims to target Fast Start Funding for adaptation priorities, in particular to address risks from coastal flooding. Ethiopia aims to fast-track a series of priority measures that promote immediate growth, capture large abatement potential, and attract climate finance for their implementation, including investment in hydropower, large-scale promotion of advanced cooking technologies, and efficiency improvements in livestock. It will also target REDD+ payments for forest restoration. Rwanda aims to implement 'big wins' that will make a significant impact on adaptation, mitigation and economic development whilst increasing food and energy security and reducing vulnerability to oil price spikes, as well as a short-list of priority 'quick wins' that include measures to put in place institutional arrangements necessary to access Fast Start Finance for adaptation.

Box 17 below provides a summary of sources of finance identified by Rwanda and Ethiopia. Whilst this is identifying a clear pathway to potential funding, it remains uncertain whether or not funding will be forthcoming and, if so, whether or not it will be sufficient to implement their strategies. In the case of Ethiopia, given the significant funding target of $20 billion annually, this seems unlikely. As such, additional sources of financing would be critical.

Box 17 – Identified funding sources and financing priorities for developing countries

Rwanda's priorities for strategy financing (Republic of Rwanda, 2011)
The 5 priorities for the finance pillar are:

- Operationalise the National Fund for Climate and the Environment
- Secure grants from the Green Climate Fund, the Adaptation Fund and other climate funds targeted at LDCs
- Promote CDM and voluntary carbon projects and push for simplified baseline calculations and monitoring methods at UNFCCC
- Investigate and employ environmental fiscal reforms, a feed-in tariff, a green investment index and public financing mechanisms to encourage green consumerism and investment
- Encourage conversation through PES schemes.

Ethiopia's proposed funding sources (Federal Democratic Republic of Ethiopia, 2011)
A funding pool of at least $20 billion annually should be obtained from various climate finance schemes set up to foster the green economy initiatives of developing countries. In the short term this could take the following forms:

- Bi-/multilateral grants primarily for project setup, capacity building, technology development and dissemination
- Bi-/multilateral pay-for-performance deals, i.e., payments linked to verified GHG abatement
- Trading schemes or offset markets, i.e., emission reduction, for example resulting from the CDM, sold to companies (ETS) or committed countries (cap and trade) or via voluntary carbon markets.

4.3. Feedback and review mechanisms – use of targets, indicators and other tools

Clear quantitative targets and indicators make it easier for governments to identify and assess trade-offs and synergies among the economic, environmental and social dimensions. They also provide the means to measure progress, undertake policy review and corrective measures, and enhance policy transparency and accountability (OECD, 2006).

Another challenge identified through international experience in NSDS implementation has been that few countries have developed quantitative targets and an integrated set of indicators to allow the measurement of progress, as well as to analyse synergies, tradeoffs and inter-linkages between policy options and outcomes.

From the strategies reviewed, four of the strategies attempted to articulate clear quantitative targets and/or develop sets of indicators to measure progress and assess synergies and tradeoffs (see **Table 7** below). The best examples of this were France and RoK who clearly established a set of quantitative targets and associated indicators as a mechanism for monitoring progress and providing feedback into ongoing policy review. For example, France outlined 50 quantitative targets and associated indicators and has developed a sustainable development 'scoreboard'. The UK also had an innovative approach for monitoring progress whereby an overall emissions reduction target was established in legislation at a level advised by an independent expert group, and within this target each government department was allocated its own carbon budget according to its core functions and responsibilities. Each department was then required to publish a plan and seek funding through the Treasury to meet its obligations for GHG mitigation.

Table 7 – Targets and Indicators Identified in National Strategies

Country	Targets and indicators
RoK	Clear targets for major green indicators – Co2, afforestation, energy intensity, share of renewables & nuclear, share of eco-agricultural products, market share and specialists in green tech, recycling, green exports, green partnerships, green industry, foreign patents, telecom exports, carbon market, public investment in green tech and industry, green enterprises, public transport, national parks, labelling, procurement, green ODA.

UK	Establishes clear mid-term (18% by 2020) and long-term (80% by 2050) targets for GHG mitigation. Additional quantitative targets set for specific sectoral outcomes: homes and communities; workplaces and jobs; power and heavy industry; transport; farming and land; and waste. Each government department is issued a carbon budget based on its functions, and has to publish a plan on how it will meet this budget. Treasury's role is supporting the delivery of carbon budgets. The Committee on Climate Change has an ongoing review function and reports each year on progress against targets and budgets.
South Africa	Sets out quantitative targets for a range of outcomes, including: green jobs; renewable energies; energy efficiency; waster, recycling, reuse and recovery; biofuels; etc. The parties to the Accord, within the broader framework of the New Growth Path dialogue, will meet at least twice a year to review progress and assess necessary changes.
France	Establishes 50 quantitative targets and objectives across key sectoral or cross-sectoral issues. Also establishes a NSDS scoreboard comprising context indicators, 15 headline indicators, and 35 additional indicators across 9 challenges: 1. sustainable consumption and production; 2. knowledge society; 3. governance; 4. climate change and energies; 5. sustainable transport and mobility; 6. conservation and sustainable management of biodiversity and natural resources; 7. public health, risk prevention and management; 8. social inclusion, demography and immigration; and 9. international challenges of sustainable development and world poverty.
Rwanda	Identifies key indicators that could be used to measure success of policy interventions across 14 program areas.

In addition to the countries listed above, Rwanda also identified potential key indicators that could be used to measure success of policy interventions across 14 program areas. However it is unclear at this early stage of implementation whether Rwanda has established the institutional capacity and data required to measure these indicators or put a framework in place to undertake monitoring and review.

It is noted that most of the countries listed in **Table 7** are developed or emerging economies, and therefore it is likely an area where a lack of institutional and data capacity is limiting the ability of developing countries to establish adequate measurement and feedback mechanisms. As developing countries move towards a green economy, they will require greater government capacity to analyse challenges, identify opportunities, synergies and tradeoffs, prioritise interventions, implement policies and evaluate progress.

A number of strategies from developing countries clearly acknowledge this gap in capacity and propose initial actions to build institutional capacity in government. For example, Rwanda proposes to establish a Centre for Climate Knowledge for Development and a Technical Coordinating Committee, and it has also established eight technical expert groups for each of its key sectors to undertake measurement, reporting and verification of project outcomes.

In lieu of having a measurable set of indicators and supporting data to enable the measurement of progress and analyse policy trade-offs and synergies, it is interesting to note some of the evaluation and diagnostic tools used by developing countries to identify initial synergies among the economic, environmental and social dimensions. These include the use of modelling and analysis against BAU development scenarios (supported by partners and expert advisors), the identification of potential policy options, and the use of policy screening frameworks and multiple-criteria analysis to select a small suite of priority options (see **Box 18** below).

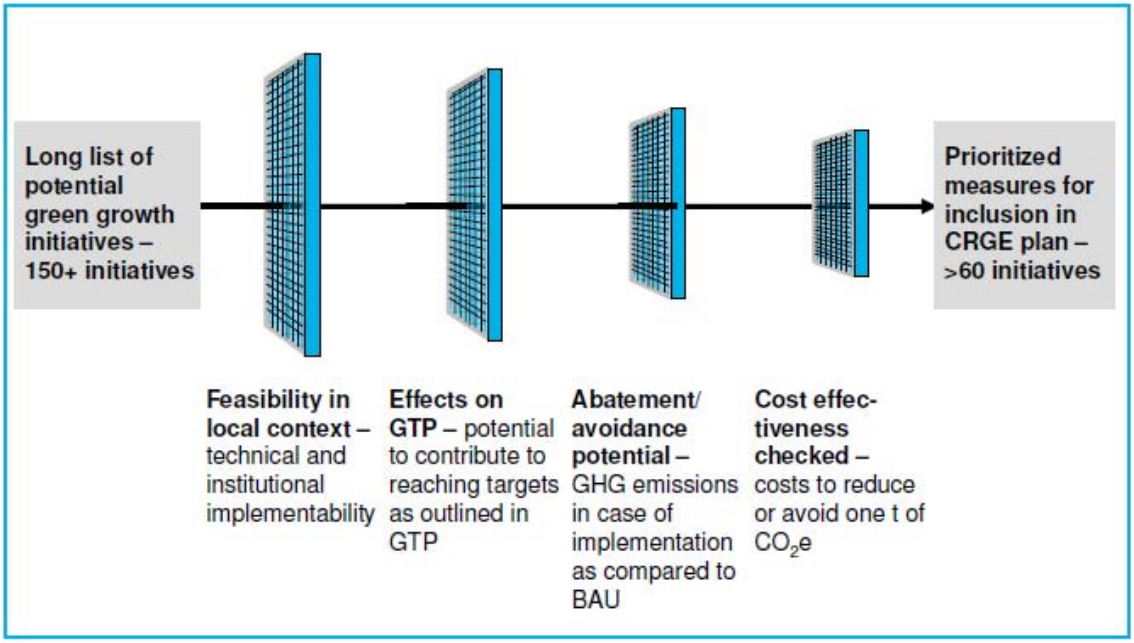
Box 18 – Policy screening processes for identifying policy synergies

Ethiopia (Federal Democratic Republic of Ethiopia, 2011)

Ethiopia undertook a policy screening exercise to prioritise possible policy options using three key criteria. To be retained in the strategy as a priority, each policy measure had to:

- pass an initial assessment of relevance and feasibility in the local context;
- enable a positive contribution to reaching the targets of the national development plan (the Growth and Transformation Plan); and
- provide significant abatement potential at reasonable cost for the respective sectors.

Of the 150 potential green growth initiatives that were screened, approximately 60 were short-listed for inclusion in the strategy. A diagrammatic representation of this screening framework is provided below.



Rwanda (Republic of Rwanda, 2011)

Similarly, Rwanda's strategy used a screening template to review its programmes of action based on:

1. Alignment with strategic development objectives;
2. Which enabling pillars are required to support implementation;
3. What key indicators could be used to measure success;
4. An estimate of comparative costs;
5. Impact on emissions reduction and climate resilience;
6. An indicative timescale to initiation and programme length; and
7. Potential sources of climate finance that could fund implementation.

Using this template, initial priority actions were identified for implementation. These were classified as: (i) 'big wins' or large-scale economy-wide programmes that will take years to fully implement and would make a significant impact on adaptation, mitigation and economic development; and (ii) 'quick wins' or actions that can be implemented immediately to begin addressing the enabling pillars required to implement the strategy and focus on mainstreaming climate resilience and low carbon development into initiatives that are currently underway.

Rwanda's strategy acknowledges that further work is required to quantify, in monetary terms, each of its programmes of action, and that cost-benefit analysis should be conducted in an integrated, cross-sectoral approach (including future generations and valuing of ecosystem services) to help prioritise actions and develop a timeline.

4.4. Use of a mix of green economy policy instruments

As outlined in **Section 2**, governments have a mix of policy instruments at their disposal to green their economies, including economic instruments for internalising externalities, measures for incentivising green or sustainable practices, measures to enhance institutional capacity and

regulatory capabilities, green investment across key sectors, information-based and voluntary measures, and complementary social policies to drive inclusion.

Experience with the implementation of NSDS highlights that while a mix of policy measures has been pursued by countries, economic instruments appear to be under-utilized. This is problematic because countries increasingly rely on the market to allocate resources efficiently and market-based instruments can thus provide the policy levers necessary to change behaviours and deliver desired policy outcomes, in principle at least cost. Markets comprise a complex array of actors such as consumers, producers, investors, and lenders, each of whom have the potential to impact on the environmental and social systems that support our well-being (Swanson et al, 2004). Establishing appropriate market conditions through economic policies, incentives and market-based measures is critical for establishing appropriate 'rules of play' and sending the right market signals that ensure that resources are allocated as efficiently as possible (e.g. by taxing 'bads' and in some instances subsidising 'goods').

The policy instruments utilised and priority sectors targeted in the ten strategies that were reviewed vary from country to country based on national circumstances and are summarised in **Appendix 4**. To provide a brief analysis of the scope and breadth of the policy instruments used, the strategies were analysed using the generic green economy policy typology developed in **Table 2** of **Section 2** above. **Table 8** below provides an overview of this analysis, which highlights the great diversity in policy instruments that are being incorporated by governments into their national strategies.

From this analysis, it can be seen that only the UK, RoK and France adopt economic instruments in their strategies for internalising externalities, such as taxes, charges and levies on pollution and resource use, or cap-and-trade permit systems[21]. However, almost all developed and developing countries adopt economic instruments that provide incentives for green investment, including low-interest loans, micro financing and tax or tariff exemptions[22]. For developing countries, these tended to be small-scale investment incentives such as micro-financing, micro-insurance, small grants and government-backed loans, rebates and cash-back schemes. Again, this highlights potential gaps associated with institutional capacities in developing countries (or could also be associated with a lack of political willingness, resistance from stakeholders or other factor) to implement more complex fiscal reforms and market-based instruments.

Other areas of policy focus for both developed and developing countries appear to be government investment in infrastructure, in particular in the energy and transport sectors, as well as the use of regulations such as technical and performance standards, building codes, environmental regulation, and mandatory targets.

For developing countries, there was also a tendency to focus on governance and institutional reforms to build capacities, including in analysis, implementation, and enforcement. Other common policy measures included investment in human capital through education and training schemes, investment in natural capital (including through REDD+, payments for ecosystem services), and investment in sustainable agriculture.

[21] However, it is noted that Cambodia also includes such measures in its strategy; however they are identified as a potential measure rather than a measure that will be implemented.

[22] Note that Indonesia's strategy is a provincial-level plan. At the national level, Indonesia is utilizing economic instruments for sustainable development, including its work in phasing out fossil fuel subsidies and valuing natural resources.

With regard to developed and emerging economies, their strategies tended also to incorporate measures for investment in innovation (including R&D), voluntary approaches targeting awareness raising (e.g. focusing on consumption), as well as measuring progress through targets and indicators and establishing institutional arrangements to monitor progress and coordinate follow-up actions as required.

Table 8. Analysis of policy instruments adopted in ten recent green economy, green growth and low carbon development strategies

	Internalising		Incentives				Institutions				Investment						Information		Inclusion	
Country	Taxes, charges, fees, levies, pricing for 'bads' (i.e. pollution, resource use or proxy)	Cap-and-trade permit or certificate systems	Investment incentives – low-interest loans; micro-financing; exemptions, reducing import tariffs, insurance, rebates	Subsidies, feed-in tariffs and other direct support for 'goods'	Removing policy-induced distortions and perverse incentives (e.g. harmful subsidies)	Leveraging finance – PPPs, long-term guarantees, phased out support, removal of barriers to FDI, lower administrative burden, credit guarantees	Regulations – norms, standards, info disclosure, labelling, prohibitions, fines and enforcement, mandatory targets	Property right and access right laws, including IPR	Governance – accountability, transparency, enforcement, capabilities, anti-corruption, data & measurement, carbon inventories	Integrated planning & decision-making and resource management - EIA/SEA, IWRM, ICZM, LCA, disaster preparedness	Sustainable public procurement	Investment in natural capital – PES, protected areas, direct management and rehabilitation	Investment in sustainable agriculture	Investment in human capital – capacity building, training, skills	Investment in infrastructure – energy (e), water (w), transport (t), waste (wa), ICT (i)	Investment in Innovation – R&D, deployment, information sharing	Voluntary approaches – information provision, labelling, CSR, targets, agreements, educational initiatives	Measuring progress –green accounting, green targets and indicators, carbon inventories	Labour market policies – skills (re-)training, job search assistance, income support and benefits	Social protection – unemployment insurance and pensions, cash transfers, compensation for price increases, health care
Ethiopia (2011)			x				x		x			x	x		Xewt					
Rwanda (2011)			x			x	X		x	x		X	x	x	Xit	x				
Guyana (2010)			x				x	x	x	x		X	x	x	Xeti					x
Cambodia (2009)	x		x		x	x	x	x	x	x		x	x	x	Xe		x			
Grenada (2012)			x				x	x		x			x	x	Xewt					
Jambi, Indonesia (2010)							x	x	x	x		x	x	x		x	x			
South Africa (2011)			x			x	x							x	Xet	x	x	x		
Republic of Korea (2009)	x	x	x			x						x			Xet	x	x	x		x
UK (2009)	x	x	x				x				x		x		Xet	x	x	x		x
France (2010)	x	x	x	x			x			x		x	x	x	Xt	x	x	x	x	x

4.5. Summary

From this brief desk-top review of ten recent national strategies for green economy, green growth and low-emission development, some initial insights can be drawn. While the strategies reviewed vary in formulation and content, there is some emerging evidence that the more advanced green economy strategies are attempting to address some of the key challenges experienced in developing and implementing NSDS. This is particularly the case with strategies for developed countries, such as those for RoK and the UK, but also for a number of developing countries, in particular Rwanda, Ethiopia and Guyana. Overall, however, it can also be seen that results are mixed and there are some key gaps that remain. A table summarising the outcomes of the analysis from this section is included at **Appendix 5**.

With regard to political leadership and institutional arrangements to facilitate whole-of-government engagement and linkages with central finance ministries and budgetary processes, it can be seen that several strategies were being led at the most senior level by the office of prime minister or equivalent, or through a centralised economic development agency. However, this was not always the case and environmental line ministries also led in a number of countries which may create problems with government engagement, financing and follow-up.

For almost all of the strategies reviewed it could be seen that countries established institutional arrangements for the development of the strategy that facilitated whole-of-government engagement as well as broader consultation. This generally took the form of an inter-ministerial steering committee, working group or commission, chaired by the lead ministry and including representatives from finance ministries. In cases where this was not done, the strategies tended to take the form of initial scoping studies rather than a policy document.

For a number of developing countries, the establishment of new institutions was identified and prioritised in their strategies. Good examples of this can be seen in the case of Guyana and Rwanda, where new coordination offices, technical committees, research centres and funds are proposed to assist with implementation.

Around half of the strategies reviewed included information on the costs associated with strategy implementation. Where costs were included, they highlighted the significant levels of funding that will be required for countries to green their economies. This was particularly the case for developing countries where high upfront capital investment would be necessary in the early years of strategy implementation (e.g. see Ethiopia and Guyana).

Where external financing will be critical for strategy implementation, a number of developing countries also clearly identified potential sources of financing for implementation of their strategies, primarily targeting emerging climate finance. As an initial priority in their strategies, countries such as Rwanda, Guyana and Ethiopia are establishing new funds and institutions to better attract and manage climate finance. These countries also identify particular sources of climate finance that best align with their natural resource endowments and national circumstances; however it seems unlikely that the significant levels of funding required will be available through emerging climate finance alone.

A limited number of strategies from developed countries attempted to articulate clear quantitative targets and/or develop sets of indicators to measure progress and assess synergies and policy tradeoffs. This highlights an area where a lack of institutional capacity and data is likely limiting the ability of developing countries to establish adequate measurement and feedback mechanisms. However, In lieu of having a measurable set of indicators and supporting data to

enable the measurement of progress and analysis of trade-offs and synergies, developing countries are working with partners and experts and using a range of policy evaluation and screening tools to identify initial policy synergies among the economic, environmental and social dimensions.

Finally, it can be seen that all countries are using economic instruments to incentivise green investment, including low-interest loans, micro financing and tax or tariff exemptions. For developing countries, these tended to be small-scale investment incentives such as micro-financing, micro-insurance, small grants and government-backed loans, rebates and cash-back schemes[23]. Only developed countries identify policy instruments for internalising externalities in their strategies, such as taxes, charges and levies on pollution and resource use or cap-and-trade permit systems. Again, this highlights potential gaps associated with institutional capacities in developing countries to implement more complex fiscal reforms and market-based instruments.

5. Conclusion

Deliberate policy and investment decisions will need to be taken by governments to green their economies. The options that are open to them and how they evaluate alternatives and select the best course of action will vary from country to country depending on their level of development, governance frameworks, institutional capacities and resource endowments. In this regard, there will be no single green economy, but rather numerous green economies. However, with this flexibility also comes ambiguity about what action is required of governments.

The Rio+20 outcome document stated green economy principles but did little to clarify the types of policy measures that governments might implement. Fortunately, a substantial and growing volume of green economy literature is helping to address this knowledge gap, and some governments are leading the way in applying the concept according to their own national circumstances. Of course, the implementation of policy measures that could fall under the banner of green economy is nothing new, and countries have decades of experience in environmental, sustainable development and climate change policies. But it remains to be seen how green economy builds upon (or differs from) what countries are already doing, and how it might prove to be an important tool for sustainable development that helps governments to overcome the challenges and barriers experienced over the past 20 years of implementation, e.g., of national sustainable development strategies.

Based on the review of emerging literature using a green economy policy typology, it could be seen that the most common measures being proposed were policies for internalising externalities (such as taxes and cap-and-trade systems) and regulatory measures (such as standards, labelling, prohibitions and compliance). Other policies that were proposed in most of the publications included public investment in infrastructure (such as sustainable energy, water, transport and waste) as well as public investment in innovation (through measures such as funding for R&D and deployment). A number of green economy policy toolkits are beginning to emerge, which go beyond the identification of green economy policy instruments, to providing policy tools that can help countries more effectively to design, evaluate, implement and monitor these policies.

Whilst most countries do not yet have an overall national strategy for a green economy, there is emerging international practice in the design and implementation of green economy policies in

[23] Beyond these country cases, a significant number of developing and developed countries make use of a variety of economic instruments for promoting sustainable energy and other environmentally sound technology scale-up; e.g., a sizeable number of countries have introduced feed-in-tariffs for renewable electricity.

both developed and developing countries. This has been catalysed through international agreements on sustainable development, climate change and biodiversity (amongst others) which have promoted the development of national strategies and action plans. The past 20 years have seen most countries develop national sustainable development strategies in various forms, and low-emission development strategies and green economy strategies can be seen as an extension of this work.

However, experience has shown at best mixed results, with notable achievements in some areas but serious shortcomings in others. Key challenges have included a lack of senior political leadership, inadequate institutional arrangements and capacities for strategy development and implementation, lack of engagement of central finance ministries and linkages with central budgetary processes, lack of capacity or failure to assess costs and benefits, failure to identify a clear pathway to funding, lack of feedback, monitoring and review mechanisms, and failure to use a broad mix of policy instruments including economic instruments. For green economy strategies to overcome these challenges and become an important tool for implementing sustainable development, it is critical that we learn from the experience gained over 20 years of implementation of NSDS and, more recently, LEDS.

A number of countries have begun to take a leadership role in the development of national green economy strategies. Such strategies could be seen as a further step in the evolution of integrated sustainable development strategies, promising new tools and a fresh approach for overcoming the gaps and challenges experienced over the past 20 years in the implementation of NSDS. The central focus on the economy could assist with engaging central planning and finance ministries, integrating with national expenditure and fiscal priority setting, and the utilisation of economic instruments and fiscal reform to implement sustainable development. Building on recent experience with LEDS, the shift to green economy strategies could move beyond the integration of climate change with development to address a wider range of environmental, social and economic issues in a more comprehensive and integrated manner.

Based on a preliminary desktop review of ten recent national green economy and low-emission development strategies, there is clear evidence that some strategies are learning from our experience with NSDS and are attempting to overcome these challenges.

For a number of countries, the policy process is being driven at the most senior level by the prime minister or equivalent. Most countries are establishing whole-of-government coordinating bodies and other institutional or governance arrangements to develop their strategies, facilitating engagement from both central planning and finance ministries as well as relevant line agencies. Further, some developing countries are clearly prioritising action to build institutional capacity in analysis, implementation, monitoring, and financial management in the early years of strategy implementation.

Only around half of the strategies reviewed included information regarding the costs of strategy implementation. Where costs were included, they highlighted the significant levels of funding that will be required, particularly for developing countries where high upfront capital investment would be necessary in the early years of strategy implementation. Where external financing will be critical for strategy implementation, some strategies also propose the establishment of new financial mechanisms and institutional arrangements, including new bucket funds for attracting climate finance and delivering these funds through a range of public finance mechanisms, such as grants, loans, lines of credit and public venture capital.

It would appear that articulating clear quantitative targets and developing sets of indicators to measure progress and assess synergies and tradeoffs is an area that requires further development, particularly for developing countries. However, it is noted that in lieu of institutional capacity and data to adequately establish these feedback mechanisms and analyse policies, developing countries are working with partners and experts and using a range of policy evaluation and screening tools to prioritize and to identify policy synergies among the economic, environmental and social dimensions. However, it is noted that these methodologies can only go so far and that these gaps will need to be addressed if green economy policies are to be effectively implemented in the mid- to long-term.

Finally, based on this preliminary analysis, there appears to be an interesting disconnect between the green economy literature and what governments are doing in practice with regard to the use of economic instruments. Whilst all green economy publications reviewed in **Section 2** proposed economic policies for internalising externalities, from the ten strategies reviewed only the three strategies for developed countries adopted such policy measures. This highlights a potential gap between green economy theory and practice for developing countries, which is likely related to institutional capacity or could also be due to a lack of political appetite or stakeholder resistance to such measures. Nevertheless, it seems that most developing countries are using economic instruments to incentivize small-scale investment, particularly in the form of micro-financing, micro-insurance, small grants and government-backed loans.

Overall, there is some emerging evidence that green economy and related strategies are heeding the lessons learned from 20 years of implementing sustainable development. Indeed, more recent iterations of national strategies have attempted to address key challenges by adopting more integrated and participatory approaches, focusing on institutional reforms and enabling conditions, using more advanced diagnostic and measurement tools for policy evaluation, and to some degree using economic instruments and market-based measures.

However, only time will tell if the green economy will prove to be more than a new label for business as usual, to be an important new tool to overcome the challenges experienced to date in implementing sustainable development, to become something that is truly transformative. Early evidence suggests that there is a lot of potential provided we continue to learn from the lessons of the past and build upon and scale up our successes.

6. References

AfDB, OECD, UN and World Bank (2012) *A Toolkit of Policy Options to Support Inclusive Green Growth,* Submission to the G20 Development Working Group, www.enterprise-**development**.org/download.ashx?id=2038

AtKisson, Institute for Studies in Happiness, Economy, and Society (2012). Life Beyond Growth, ISIS Academy, http://www.isisacademy.com/resources/

Barbier E (2011) *Policy challenges for green economy and sustainable economic development*, in A United Nations Sustainable Development Journal, November 2011, Volume 35, Number 4.

CLEAN (2011) *Review of Networks and Platforms for Low Emission and Climate Compatible Development Planning – Discussion Paper*, Prepared by the Coordinated Low Emissions Assistance Network (CLEAN), 1 December 2011, available at: http://en.openei.org/wiki/Gateway:Coordinated_Low_Emissions_Assistance_Network_(CLEAN).

Climate Development Knowledge Network (2011) *Green Growth: Implications for Development Planning*. CDKN Guide July 2011, http://cdkn.org/wp-content/uploads/2011/07/CDKN-Guide-to-Green-Growth.pdf

Climate Works Australia. (2010) *Low Carbon Growth Plan for Australia,* Clayton, Australia.

Climate Works Foundation, European Climate Foundation (2009) *Low Carbon Growth Plans: Advancing Good Practice, Project Catalyst*, http://www.climateworks.org/download/low-carbon-growth-plans-advancing-good-practice

Consortium Safege (2011) *Opportunities and Options for Promoting a Green Economy in the Eastern Partnership Countries*, Report for the European Commission.

Cosbey A (2011) "Trade, sustainable development and a green economy: Benefits, challenges and risks", in UN-DESA, UNEP, UNCTAD. (2011). *The Transition to a Green Economy: Benefits, Challenges and Risks from a Sustainable Development Perspective*, UNDESA, New York, http://www.uncsd2012.org/rio20/content/documents/Green%20Economy_full%20report.pdf

Costanza R, Alperovitz G, Daly H, Farley J, Fraco C, Jackson T, Kuiszewski I, Schor J, Victor P (2012) *Building a Sustainable and Desirable Economy-in-Society-in-Nature*, New York, UN Division for Sustainable Development, http://www.un.org/esa/dsd/dsd_sd21st/21_pdf/Building_a_Sustainable_and_Desirable_Economy-in-Society-in-Nature.pdf

Crawford J (2011) *Low Carbon Green Growth – Integrated Policy Approach to Climate Change for Asia-Pacific Developing Countries*, UNESCAP, http://www.greengrowth.org/

Dalal-Clayton B and Bass S (2002) *Sustainable Development Strategies: A Resource Book*, IIED, OECD, UNDP, Earthscan Publications Ltd, London, http://books.google.com/books/about/Sustainable_Development_Strategies.html?id=bbWCHRN4h_sC

Daly H (2011) "From a failed growth economy to a steady-sate economy", in UNCTAD (2011) *The Road to Rio+20 – For a development-led green economy*, UNCTAD, Geneva, http://unctad.org/en/Docs/ditcted20108_en.pdf

Economic Development Department, Republic of South Africa. (2011). *Green Economy Accord (Vol. 1)*. Pretoria, Government of South Africa, http://www.info.gov.za/view/DownloadFileAction?id=159756

Ellis K, Baker B, Lemma A (2009) *Policies for Low Carbon Growth,* Overseas Development Institute (ODI), www.odi.org.uk.

ESMAP (2010) *Low-Carbon Development for Mexico*, World Bank, Washington.

European Commission (2010) *Europe 2020: A strategy for smart, sustainable and inclusive growth*, European Commission, http://ec.europa.eu/europe2020/index_en.htm

Federal Democratic Republic of Ethiopia (2011) *Ethiopia's Climate-Resilient Green Economy: Green Economy Strategy*, http://www.epa.gov.et/Download/Climate/Ethiopia's%20Climate-Resilient%20Green%20economy%20strategy.pdf

Global Green Growth Institute (GGGI) (2012) *Green Growth Planning GGGI Country Programs*, GGGI, RoK, http://www.gggi.org/project/main

Global Sustainability Panel (2011) *Resilient People, Resilient Plant: A Future Worth Choosing*, http://www.un.org/gsp/

Government of Indonesia (2011) *Creating low carbon prosperity in Jambi*, DNPI, http://photos.mongabay.com/10/jambi_report_090810_english.pdf

Green Growth Leaders (2011a) *Shaping the Green Growth Economy*, Berkeley Roundtable on the International Economy, http://www.uncsd2012.org/content/documents/Shaping-the-Green-Growth-Economy_report.pdf

Green Growth Leaders (2011b) *Green Growth: From Religion to Reality*, Berkeley Roundtable on the International Economy, http://brie.berkeley.edu/publications/From-Religion-to-Reality.pdf

HM Government. (2011). Enabling the Transition to a Green Economy: Government and business working together. London, UK.

HM Government (2009) *The UK Low Carbon Transition Plan: National strategy for climate and energy*, London, UK.

ILO (2012) *G20 Policy Brief: Working towards Sustainable Development – opportunities for decent work and social inclusion in a GE (draft).*

ILO, European Union and the International Institute for Labour Studies (2011) *Policy instruments for a green economy.* EC-IILS Joint Discussion Paper Series No. 12.

Jones, R.S. and Yoo, B. (2011) 'Korea's Green Growth Strategy: Mitigating Climate Change and Developing New Growth Engines', *OECD Economics Department Working Papers*, No. 798, OECD Publishing, available at: http://www.oecd-ilibrary.org/economics/korea-s-green-growth-strategy_5kmbhk4gh1ns-en

Kingdom of Cambodia. (2009). *The National Green Growth Roadmap,* Kingdom of Cambodia, Phnom Penh, http://www.greengrowth.org/sites/default/files/pictures/Final%20Draft%20Roadmap,%20Feb26-2010.pdf

Khor M (2011) "Challenges of the green economy concept and policies in the context of sustainable development, poverty and equity"*,* in UN-DESA, UNEP, UNCTAD (2011) *The Transition to a Green Economy: Benefits , Challenges and Risks from a Sustainable Development Perspective*, UNDESA, New York, http://www.uncsd2012.org/rio20/content/documents/Green%20Economy_full%20report.pdf

Kolstad C (2011) *Environmental Economics (2nd Edition)*, Oxford University Press, New York.

Lander, E (2011) *The Green Economy: the Wolf in Sheep's Clothing*, the Transnational Institute, http://nogreeneconomy.org/wp-content/uploads/2012/02/green-economy-lander1.pdf

MED (2012) *Toward Green Growth in Mediterranean Countries – Implementing Policies to Enhance the Productivity of Natural Assets*, MED Report Overview.

OECD (2012) *Green Growth and Developing Countries – Consultation Draft*, OECD, Paris, http://www.oecd.org/dac/environmentanddevelopment/50559116.pdf

OECD, World Bank, UN (2012) *Incorporating Green Growth and Sustainable Development Policies into Structural Reform Agendas – prepared for the G20 Summit (Los Cabos, 18-19 June)*, OECD, Paris, http://www.oecd.org/eco/economicpoliciestofostergreengrowth/G20_report_on_GG_and_SD_final.pdf

OECD (2011a) *Towards Green Growth*. OECD Publishing, http://www.oecd.org/document/10/0,3746,en_2649_37465_47983690_1_1_1_37465,00.html

OECD (2011b) *Towards Green Growth – A summary for policy makers*, OECD Publishing, Paris, http://www.oecd.org/document/10/0,3746,en_2649_37465_47983690_1_1_1_37465,00.html

OECD (2011c) *Tools for Delivering Green Growth,* OECD Publishing, Paris, http://www.oecd.org/document/10/0,3746,en_2649_37465_47983690_1_1_1_37465,00.html

OECD, IEA (2010) *Low-Emission Development Strategies*. OECD Publishing, Paris, http://www.oecd.org/environment/climatechange/46553489.pdf

OECD (2006) *Good Practices in the National Sustainable Development Strategies of OECD Countries*, OECD, Paris, http://www.oecd.org/greengrowth/36655769.pdf

OECD (2001) *The DAC Guidelines: Strategies for Sustainable Development – Guidance for Development Cooperation*, Development Assistance Committee, http://www.oecd.org/dac/environmentanddevelopment/2669958.pdf

Pardee Centre (2011) *Beyond Rio+20: Governance for a Green Economy*, Boston University, http://www.bu.edu/pardee/files/2011/03/Rio20TFC-Mar2011.pdf

Pearce D, Barbier E, Markandya A, Barrett S, Turner R, Swanson T (1991) *Blueprint 2: Greening the World Economy*, Earthscan Publications Ltd, London.

Pearce D, Markandya A, Barbier E (1989) *Blueprint for a green economy,* Report for the UK Department of the Environment, Earthscan Publications Ltd, London.

Planet Under Pressure (2012) *Rio+20 Policy Brief: A green economy for a planet under pressure*, http://www.icsu.org/rio20/policy-briefs/GreenEconomy_LR.pdf.

Project Catalyst (2009) *Low Carbon Growth Plans: Advancing Good Practice*, Climate Works and European Climate Foundation, http://www.climateworks.org/download/low-carbon-growth-plans-advancing-good-practice

Pye S, Watkiss P, Savage M, Blyth W (2010) *The Economics of Low Carbon, Climate Resilient Patterns of Growth in Developing Countries: A Review of the Evidence*, UK DfID and Stockholm Environment Institute.

Rao PK (2010) *The Architecture of Green Economic Policies*, Springer, Berlin.

Republic Francaise (2010) *National Sustainable Development Strategy: Towards a Green & Fair Economy*, Republic Francaise, Paris, http://www.developpement-durable.gouv.fr/IMG/pdf/NSDSp60.pdf

Republic of Guyana (2010) *Transforming Guyana's Economy While Combating Climate Change – Low Carbon Development Strategy*, Office of the President, http://www.uncsd2012.org/content/documents/Revised-LCDS-May-20-2010-draft-for-MSSC.pdf

Republic of Korea (2009) *Road to Our Future: Green Growth*, Seoul, http://english.mest.go.kr/web/42208/en/board/enview.do?bbsId=265&pageSize=10&currentPage=13&boardSeq=1226&mode=view

Republic of Rwanda (2011) *Green Growth and Climate Resilience*. Kigali, http://www.smithschool.ox.ac.uk/wp-content/uploads/2011/03/Rwanda-Green-Growth-Strategy-FINAL.pdf

Stakeholder Forum, BioRegional, The Earth Charter Initiative (2012) *Principles for the Green Economy*, http://www.unep.org/civil-society/Portals/59/Documents/13_GMGSF/additional_Resources/Principles_for_a_green_economy.pdf

Swanson D, Pinter L, Bregha B, Volkery A and Jacob K (2004) *National Strategies for Sustainable Development – Challenges, Approaches and Innovations in Strategic and Coordinated Action*, IISD, Canada, http://www.iisd.org/pdf/2004/measure_nat_strategies_sd.pdf

The Danish 92 Group Forum for Sustainable Development (2012) *Building an Equitable Green Economy,* http://www.92grp.dk/cms/images/Fokus%20og%20Nyheder/Greeneconomy.pdf

Third World Network (2011) *TWN Update on Sustainable Development Conference 2012,* January 2011 and January 2012, Third World Network.

UNCSD Secretariat (2011) *Objectives and themes of the United Nations Conference on Sustainable Development – Report of the Secretary General*, Preparatory Committee for the UNCSD 7-8 March 2011. http://www.uncsd2012.org/index.php?page=view&type=13&nr=28&menu=24

UNCSD Secretariat (2011) *Synthesis report of best practices and lessons learned – Note by the Secretariat*, Preparatory Committee Meeting 7-8 March 2011. http://www.uncsd2012.org/index.php?page=view&type=13&nr=28&menu=24

UNDESA (2012) *Audit of current initiatives and actors involved in Post-Rio+20 green economy work*, http://sustainabledevelopment.un.org/content/documents/1439AttachementA_Matrix%20summary%20of%20agency%20responses.pdf

UNDESA, UNEP, UNCTAD. (2011) *The Transition to a Green Economy: Benefits, Challenges and Risks from a Sustainable Development Perspective*, UNDESA, NY, http://www.uncsd2012.org/rio20/content/documents/Green%20Economy_full%20report.pdf

UNDESA (2002) *Guidance in Preparing a National Sustainable Development Strategy: Managing Sustainable Development in the New Millennium*, UNDESA, NY, http://www.un.org/esa/dsd/resources/res_publsdt_nsds.shtml

United Nations Development Programme (UNEP) (2011) *Preparing Low-Emission Climate-Resilient Development Strategies*, http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/Climate%20Strategies/UNDP-LECRDS-Guidebook-v17-web.pdf

UNECA, UNEP (2011) *A Green Economy in the Context of Sustainable Development: What are the implications for Africa?* http://www.undp.org.ye/reports/1505d84165a6a9-A%20Green%20Economy%20in%20the%20Context%20of%20Sustainable%20Development%20and%20Poverty%20Eradication%20(20-25%20October%202011).pdf

UNEP, (2011), *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, www.unep.org/greeneconomy

UNEP, UWI, Government of Barbados (2012) *Green Economy: Scoping Study Synthesis Report Barbados,* Christchurch, Barbados.

UNEP (2012) *Background Paper for the Ministerial Consultations*, Twelfth special session of the Governing Council/Global Ministerial Environment Forum, 2012.

UNEP (2009) *Background Paper for the Ministerial Consultations,* Eleventh special session of the Governing Council/Global Ministerial Environment Forum, Dec 2009.

UNESCAP and KOICA (2012) *Low Carbon Green Growth Roadmap for Asia and the Pacific*, UNESCAP, http://www.unescap.org/esd/environment/lcgg/

UNESCAP, ADB, UNEP (2012) *Green Growth, Resources and Resilience*, http://www.unescap.org/publications/detail.asp?id=1484

United Nations Environment Management Group (UNEMG) (2011) *Working towards a Balanced and Inclusive Green Economy*, http://www.unemg.org/Portals/24182/Documents/IMG/GreenEconomy/report/GreenEconomy-Full.pdf

United Nations Conference on Trade and Development (UNCTAD) (2011) *The Road to Rio+20: For a development-led green economy – Issue 3*, http://unctad.org/en/PublicationsLibrary/ditcted2012d2_en.pdf

UNCTAD (2011) *The Road to Rio+20: For a development-led green economy – Issue 2*, http://unctad.org/en/docs/ditcted2011d6_en.pdf

UNCTAD (2011) *The Road to Rio+20: For a development-led green economy – Issue 1*, http://unctad.org/en/Docs/ditcted20108_en.pdf

UNCTAD (2011) *The Green Economy: Trade and Sustainable Development Implications,* http://unctad.org/en/Docs/ditcted2011d5_en.pdf

UN Global Compact, UN Environment Programme, Oxfam, World Resources Institute (2011) *Adapting for a Green Economy: Companies, Communities and Climate Change*.

Van Tilburg X, Wurtenberger L, Coninck H, and Bakker S (2011) *Paving the way for low-carbon development strategies*, Energy Research Centre of the Netherlands (ECN), http://www.ecn.nl/docs/library/report/2011/e11059.pdf

World Bank (2012) *Inclusive Green Growth: The Pathway to Sustainable Development*. World Bank Group, Washington, http://siteresources.worldbank.org/EXTSDNET/Resources/Inclusive_Green_Growth_May_2012.pdf

World Bank (2011) *From Growth to Green Growth: A Framework,* World Bank Group, Washington, http://elibrary.worldbank.org/docserver/download/5872.pdf?expires=1352927965&id=id&accname=guest&checksum=86C5375F1C0B45CF96EC8612610AEE31

World Bank (2010) *Climate Change and the World Bank Group: The Challenge of Low-Carbon Development,* Washington DC, http://siteresources.worldbank.org/EXTCCPHASEII/Resources/cc2_full_eval.pdf

World Bank. (2010) *Brazil Low-carbon Country Case Study,* World Bank Group, Washington.

WWF (2011) *Planning Development in a carbon constrained world,* http://www.wwfblogs.org/climate/sites/default/files/WWFBinaryitem25183.pdf

WWF and PWC (2011) *Roadmap for a green economy in the Heart of Borneo: a scoping study,* http://awsassets.panda.org/downloads/pwc_report_green_economy_roadmap_1.pdf

7. Appendices

Appendix 1 - Categories used for summarising green economy and green growth policies in recent publications

Source	Policy categories
Outcome-based or Pathway Approach	
UNEP (2011)	• Establishing sound regulatory frameworks • Prioritizing government investment and spending in support of a green economy • Limiting government spending in areas that deplete natural resources • Using taxes and market-based instruments to promote green investment and innovation • Investing in capacity-building, training and education • Strengthening international governance
OECD, UN, World Bank (2012)	• Reforming the structure of tax and charges to promote economic growth and make it greener • Strengthening markets • Inducing greener behaviour through regulatory and information policies • Getting infrastructure “right” • Fostering innovation for greening growth • Lowering barriers to the diffusion of green goods, services and technologies • Encouraging job creation and equity for inclusive green growth
Global Sustainability Panel (2011)	• incorporating social and environmental costs into the regulation and pricing of goods and services, as well as addressing market failures; • creating an incentive road map that increasingly values long-term objectives; • partnering to leverage new investments; and • establishing a common framework for measuring progress
UNESCAP and KOICA (2012)	• TRACK 1: Improving the quality of growth and maximizing net growth • TRACK 2: Changing the invisible structure of the economy: Closing the gap between economic and ecological efficiencies • TRACK 3: Changing the visible structure of the economy: Planning and designing eco-efficient infrastructure • TRACK 4: Turning green into a business opportunity • TRACK 5: Formulating and implementing low-carbon development strategies
Cosbey (2011)	• Institutional • Economic

Source	Policy categories
	• Information-based
Cosbey (2012)[24]	• Governance • Market • Infrastructure • Information
UNCSD Secretariat (2011b)	• Green stimulus packages • Eco-efficiency • Greening of markets and public procurement • Investment in green infrastructure • Restoration and enhancement of natural capital • Getting prices right • Eco-tax reform
Constanza et al (2012)	• Sustainable scale: respecting ecological limits • Fair distribution: protecting capabilities for flourishing • Efficient allocation: building a sustainable macro-economy
UNDESA, UNEP, UNCTAD (2011)	• Recognising the economic and social value of environmental resources. • Conserving resources as well as rehabilitating damaged environments and eco-systems • Enabling prices to better reflect their environmental value, while also enabling ordinary people and the poor to access basic goods and services. • Government promotion of environmental objectives through financial, industrial and technological policies and measures, • Regulating the market. • Recognising the link between livelihoods and living conditions of small rural producers and communities and the environment. • Promotion of sustainable consumption and lifestyles. • Food security, rural livelihoods and sustainable agriculture.
OECD (2011c)	• Inadequate infrastructure: Taxes, Tariffs, Transfers, Public-private partnerships • Low human and social capital and poor institutional quality: Taxes, Subsidy reform/removal, • Incomplete property rights, subsidies: Review and reform or remove • Regulatory uncertainty: Set targets, Create independent governance systems • Information externalities and split incentives: Labeling, Voluntary approaches, Subsidies, Technology and performance standards • Environmental externalities: Taxes, Tradable permits, Subsidies, • Low returns on R&D: R&D subsidies and tax incentives, Focus on general-purpose technologies • Network effects: Strengthen competition in network industries, Subsidies or loan guarantees for new network projects • Barriers to competition: Reform regulation, Reduce government monopoly
Policy-based approach	
OECD, World Bank, UN	• Improving framework policies - Competition policies; Tax reform; Labour market; Investment policies; Network sector policies; Innovation

[24] Sourced from unpublished presentation.

Source	Policy categories
(2012)	• Removing policy-induced distortions: Removal of policies that have negative environmental and economic effects (e.g. subsidies, barriers to environmental goods and services) • Environmental policy instruments: Cap-and-trade permit systems; Taxes or charges on pollution or resource use; Taxes or charges on a proxy (input or output); Baseline-and-credit permit systems; Subsidies and other direct support; Deposit-refund systems; Performance standards; Technology standards; Voluntary approaches; Information and regulatory policies
AfDB, OECD, UN, World Bank (2012)	• Incentivize: o Tools for pricing pollution and natural resource use o Tools to complement pricing policies o Tools to foster inclusiveness • Design: tools to manage uncertainty • Finance: financing and investment tools • Monitor: monitoring tools
OECD (2011a)	• Market instruments: Taxes and permits; and Subsidies • Regulations and the regulatory environment • Enabling changes in consumer behaviour • Innovation: Green innovation; Strengthening R&D; Supporting innovation and deployment; Demand-side policies; Technology transfer and diffusion • Investing in infrastructure: Energy; Transport; Water; Leveraging public and private sector finance • Institutions and governance • Labour market implications • Measuring progress – indicators beyond GDP
OECD (2011b)	• Cap-and-trade • Taxes or charges on pollution or a proxy for pollution • Subsidies • Performance standards • Technology standards • Voluntary approaches – information provisions, voluntary agreements, CSR
UNESCAP, ADB, UNEP (2012)	• Reforming the economic incentives framework to close “price” and “time” gaps: Taxing bads, not goods; Subsidizing goods, not bads; Internalizing the economic values of ecosystem services; Regulation, compliance and enforcement; Financing green growth • Promoting sustainable infrastructure development: clean energy, water and sanitation, sustainable transport, and solid waste management. • Facilitating investments in natural capital: national budgets, land-use zoning policies and regulations, direct management and rehabilitation, and establishment of protected areas, PES schemes, sustainable agriculture.
World Bank (2011)	• Price-based policies • Norms and regulation • Public production and direct investment • Information creation and dissemination • Education and moral suasion

Source	Policy categories
	• Industrial and innovation policies
UNCSD Secretariat (2011b)	• Environmental taxes and emissions trading schemes. • Regulation and legislation • Green procurement, notably for promotion of resource efficient and low-emission technologies • Spreading green technology through development of standards, whilst avoiding barriers to trade. • SCP • Synergies between environmental policies and job creation in national contexts.
Green Growth Leaders (2011b)	• carbon pricing to incentivize both technological development and low-emissions energy adoption; • technology policy to support research and development • regulatory policy to change market rules to favour new forms of energy production, distribution and use • direct state action for public infrastructure investment and industrial policy
ILO, EU, IILS (2011)	• Regulations • Tax instruments • Trading systems (certificates and licenses) • Negotiations • R&D and technological development • Public investment
Barbier (2011)	• Information • Incentives • Institutions • Investment • Infrastructure
Sector-based or Capital-based Approach	
UNEP (2011)	• Investing in natural capital: Agriculture, Fisheries, Water, Forests • Investing in energy and resource efficiency: Renewable energy, Manufacturing, Waste, Buildings, Transport, Tourism, Cities
Cosbey (2011)	• Agriculture, Cities, Energy, Waste, Buildings, Fisheries, Forests, Manufacturing, Transport, Water
UNEMG (2011)	The five drivers of green growth are: natural capital, human capital, social capital, manufactured capital, financial capital.
UNCSD (2011a)	Renewable energy, energy and material efficiency improvements, sustainable buildings, agriculture, transport.
Mixed Approach	
OECD (2012)	• Six national enabling conditions for green growth • Four green growth mainstreaming mechanisms • Eight green growth policy instruments
World Bank (2012)	• Influencing firms, consumers and policy makers through market and non-market mechanisms • Green innovation and industrial policies • Human capital: implications of green growth policies for labour markets and job creation

Source	Policy categories
	• Natural capital: managing resources for sustainable growth • Physical capital – the role of infrastructure
ILO (2012)	• Environmental and other policy levers • Supporting the green transition at the firm level • Labour market policies • Social protection floors
UNEMG (2011)	Policy measures: • Infrastructure investment • Investing in social capital – access to basic services • Investing in human capital – education and training, social protection • Private finance – project investment and public-private collaboration • Full cost pricing – based on Environmental effectiveness, Efficiency and Equity (3 Es) • Regulatory instruments • Sustainable trade and green markets • Innovation and technology • Indicators
Daly (2011)	• Cap-auction-trade systems for basic resources. • Ecological tax reform • Limit the range of inequality in income distribution • Free up the length of the working day, week, and year • Re-regulate international commerce. • Stop treating the scarce as if it were non-scarce, but also stop treating the non-scarce as if it were scarce. • Stabilize population. • Reform national accounts
Green Economy Coalition	• Investing in natural capital • Investing in People • Greening high impact sectors and services • Driving investment and financial flows • Improving governance and measurement
The Danish 92 Group (2012)	• Sustainable infrastructure • SCP • Removal of barriers to trade and investment • Subsidies – removal of harmful subsidies • Green jobs and decent work

Appendix 2 – Ten recent green economy, green growth, and low-carbon development strategies

Country/Strategy	Aim/Objectives	Partners
1. Republic of Korea - National Strategy for Green Growth and Five-Year Plan (2009-2013)	Three objectives of the Strategy: 1. Promote a synergistic relationship between economic growth and environmental protection. 2. Improve people's quality of life and promote a green revolution in their lifestyles. 3. Contribute to international efforts to fight climate change and other environmental threats.	
2. Kingdom of Cambodia - National Green Growth Road Map (2009)	The overall vision of the Roadmap is to make Cambodia a liveable and lively country so that Cambodians love and are proud to call home. The strategy addresses 7 access areas: access to clean water and sanitation; access to renewable energy; access to information and knowledge; access to means for better mobility; access to finance and investments; access to food security (agriculture) and non-chemical products; Access to sustainable land-use. The Roadmap is an initial attempt to outline the initial possibilities for greening economic growth. The Road Map recognises that uncoordinated, ill-sequenced and disconnected sectoral policies will not green the economy, and that the Roadmap will need to align with central development plans and strategies and development goals. It focuses on providing additionality to the development objectives articulated in central plans.	UNESCAP
3. Ethiopia's Climate-Resilient Green Economy – Green Economy Strategy (2011)	The objective is to identify green economy opportunities that could help Ethiopia reach its ambitious growth targets while keeping greenhouse gas emissions low. The government intends to attract development partners to help implement this new and sustainable growth model. **Vision:** to achieve middle-income status by 2025 in a climate-resilient green economy. **The Plan**: to follow a green growth path that fosters development and sustainability. The initiative has three objectives: • Fostering economic development and growth; • Ensuring abatement and avoidance of future emissions – i.e. to transition to a green economy; • Improving resilience to climate change. The four pillars of the strategy are: adoption of agricultural and land use efficiency measures; Increased GHG sequestration in forestry; deployment of renewable and clean power generation; and use of appropriate advanced technologies in industry, transport and buildings – leapfrogging to modern and energy efficient technologies The plan follows a sectoral approach and identifies and prioritises more than 60 initiatives which support achievement of development goals and reduce GHG emissions.	Sectors were selected based on a green growth study undertaken for Ethiopia by the Global Green Growth Institute (GGGI) and EDRI.
4. South Africa - Green Economy Accord (New Growth Path: Accord 4) (2011)	The Accord is a partnership between government, business community, trade union movement and community organisations to create large numbers of jobs, provide a spur for industrialisation and help to create a sustainable future for this and the next generations. It is one of a series of agreements in which social partners commit to work together to achieve the goals of the New Growth Path, including a goal of five million new jobs by 2020.	

Country/Strategy	Aim/Objectives	Partners
	It has a goal of creating at least 300,000 jobs by 2020 in the green economy and activities that green the economy.	
5. Rwanda - Green Growth and Climate Resilience – National Strategy for Climate Change and Low Carbon Development (October 2011)	The purpose of the strategy is threefold: 4. To guide national policy and planning in an integrated way. 5. To mainstream climate change into all sectors of the economy. 6. To position Rwanda to access international funding to achieve climate resilience and low carbon development. The Strategy is related to its Vision 2020 development strategy which aims to transform Rwanda from a subsistence agriculture economy to a knowledge-based society, with high levels of savings and private investment, and thereby reduce the country's dependence on external aid. It includes the aim of reaching middle income status by 2020. A vision for 2050 is given, along with 3 strategic objectives which are guided by 5 principles. Specific actions are required in 14 Programmes of Action across 13 sectors. Five enabling pillars establish the processes and enabling environment required to mobilise the strategy.	UK DFID,CDKN, University of Oxford. Developed over a period of nine months from November 2010 to July 2011 as a collaborative effort between the Government of Rwanda, the Smith School of Enterprise and Environment (SSEE) at the University of Oxford, and the donor institutes UK DFID-Rwanda and the Climate and Development Knowledge Network (CDKN). The principal investigator was Professor Sir David King and the Programme Manager was Megan Cole from SSEE.
6. France – National Sustainable Development Strategy: Towards a Green & Fair Economy	By developing a decarbonised economy using far fewer resources, the strategy aims to make France a major player in the green economy whilst pursuing social justice and equity. The strategy pr aims to ensure coherence and complementarity of France's international and European commitments and national, cross-cutting and sectoral policies. It is based on nine strategic challenges which must be taken up to move towards a green and equitable economy. For each challenge, the strategy provides context, priorities, objectives with quantitative targets, and policy measures.	
7. Grenada – Road Map on Building a Green Economy for Sustainable Development (2012)	The primary objective of this study is to design an integrated strategy, based on government criteria and expert assessment, for the transformation of the economy of Carriacou and Petite Martinique into a greener and more sustainable economy. The Road Map sets out a list of potential projects and initiatives across key sectors. This publication summarizes initial analysis, findings and proposals. The study serves as a starting point for the development of a more in-depth, systematic assessment for designing green economies in SIDS. The effort represent an attempt to formulate a "green economy road map" for the transition towards sustainable development in a time frame of one or two decades. The study assesses and presents proposals for change in major development blocks including: energy, water, education, employment, transport, agriculture and food security, ecotourism and environmental issues. The study results in cumulative knowledge and analysis useful for further development of feasibility studies for the building of the necessary systems and infrastructure that could allow the movement towards a greener economy. It is hoped that the information will be useful in the preparation of proposals for financial, technical and human support. Although an attempt is made to show quantitative assessments, it is clear that more data are necessary, especially time-series data, for thorough evaluation of priority areas. Nevertheless, the limited data available, combined with the expert analysis and qualitative	UNDSD

Country/Strategy	Aim/Objectives	Partners
	assessment, provide conclusive details about policies and actions for pursuing a more sustainable future.	
8. Guyana - A Low-Carbon Development Strategy (LCDS) – Transforming Guyana's Economy While Combating Climate Change (2010)	The document sets out Guyana's strategy to forge a new low carbon economy over the coming decade. It identifies 8 priorities that will be the initial focus of LCDS implementation in 2010 and 2011, gives an outline of priorities for the period 2012-15, and sets out the framework for further consultation and strategy development on Guyana's long-term low carbon development. Focus on avoiding deforestation and using funding to enable low carbon economic development of new sectors. The strategy will lead to action in four areas: • Investing in low-carbon economic infrastructure; • Facilitating investment and employment in low-carbon economic sectors • Sustainably managing forest-based economic sectors, in particular forestry and mining. • Generally enhancing the nation's human capital and creating new opportunities for forest-dependent and other indigenous communities.	Government of Norway and IIED
9. Indonesia's *Creating Low Carbon Prosperity in Jambi* (2010)	The Strategy has three core elements: 4. CO2 mitigation: estimating the size of current and future emissions; assessing the technical abatement potential and feasibility of abatement levers; developing an action plan to capture prioritised abatement opportunities. 5. Economic development: analysing existing competitive strengths and weaknesses; prioritising growth opportunities based on impact and feasibility; developing an action plan to capture prioritised growth opportunities. 6. Institutional enablers: developing a strategy for critical enablers that will underpin the success of the low-carbon growth strategy (institutions, monitoring and evaluation, financial mechanisms, spatial planning).	Governments of France & Norway, ClimateWorks, McKinsey & Company
10. The UK Low Carbon Transition Plan – National strategy for climate and energy (2009)	This White Paper sets out the UK's transition plan for becoming a low carbon country: cutting emissions, maintaining secure energy supplies, maximizing economic opportunities, and protecting the most vulnerable. The plan includes a series of targets across 5 key areas within a 2020 timeframe.	

Appendix 3 – Overview of coordination and institutional arrangements for ten national green economy or related strategies

Country/Strategy	Lead	Institutional Arrangements
1. Republic of Korea - National Strategy for Green Growth and Five-Year Plan (2009-2013)	Led by the office of the President.	Presidential Commission on Green Growth established in 2009. National Assembly adopted a Framework Law on Green Growth. Includes a long-term National Strategy for Green Growth (to 2050) and a Five-Year Plan.
2. Kingdom of Cambodia - National Green Growth Road Map (2009)	Prepared by the Ministry of Environment through its Green Growth Secretariat.	Established a Green Growth Inter-Ministerial Working Group for inter-agency consultation with representatives from 17 ministries, including the Ministry of Economy and Finance. For implementation, proposes the Road Map proposes to establish a new National Ministerial Green Growth Council. Also flags possibility of establishing Sub-national Green Growth Centres.
3. Ethiopia's Climate-Resilient Green Economy – Green Economy Strategy (2011)	Developed under the Climate-Resilient Green Economy (CGRE) Initiative led by the Prime Minister's Office, the EPA and the Ethiopian Development Research Institute (EDRI).	The CRGE initiative is directed by a Ministerial Committee (Chair EDRI) and is supported by a Technical Committee (Chair EPA) and seven sub-technical committees. Overall responsibility and oversight lies with Ethiopia's Environmental Council. Seven sectoral committees were established with more than 50 experts from 20 leading government institutions. These were coordinated by an inter-ministerial steering group. Regional and sectoral consultations were undertaken. Moving forward, the Government plans to govern the CRGE initiative under the co-responsibility of the EPA and the Ministry of Finance and Economic Development (MoFED). The next steps to be taken in coming years to put the GE strategy in motion include institution and capacity building to create a permanent institutional setup for a lasting platform.
4. South Africa - Green Economy Accord (New Growth Path: Accord 4) (2011)	The development of the Accord was led by the Economic Development Department.	The Accord was signed by Government and by its social partners, including Organised Labour organisations, Business, community and Government Ministers for a range of portfolios. It is an agreement under the country's economic development strategy, the "New Growth Path".
5. Rwanda - Green Growth and Climate Resilience – National Strategy for Climate Change and Low Carbon Development (October 2011)	The project was coordinated by the Ministry of Natural Resources.	It was directed through a Steering Committee (National Climate Committee) consisting of ten Cabinet Ministers from the following ministries: Disaster Management; Agriculture and Animal Resources, Trade and Industry, Finance and Economic Planning, Education, Infrastructure, Natural Resources, Local Government; and Health. Moving forward, the government is finalising legislation for a National Fund for Climate and the Environment within the Ministry of Finance and Economic Planning. Two additional new organisational structures will also be established – a Centre for Climate Knowledge for Development (CCKD) and a Technical Coordinating Committee (TCC) to lead and facilitate the flow of knowledge between the different organisations. The CCKD will be a multi-disciplinary organisation with expertise in climate change and sectors. It will work with the TCC to provide information to relevant Ministries etc. The TCC would comprise department heads from the Revenue Authority, Rwanda Natural Resources Authority, the Energy Water and Sanitation Authority, the Rwanda Housing Authority, the Rwanda Transport Development Agency, the Private Sector Federation, the Rwanda Development Board and other agencies and representatives from civil society, academia, development partners and the private sector.
6. France – National Sustainable Development Strategy: Towards a Green & Fair	Ministry of Environment, Sustainable Development and Energy.	The strategy was developed and approved through the Inter-ministerial Committee for Sustainable Development. The strategy was validated by the Grenelle of Environnement Monitoring Committee, various cabinet ministers, and the Economic, Social and Environmental Council. A broad and extensive consultation process was done through the 'grenelle de l'environnement' and the outcomes of this were incorporated into the strategy. The draft was circulated to key stakeholder organisations; public consultation was undertaken via the web.

Country/Strategy	Lead	Institutional Arrangements
Economy		State departments must report annually to an Inter-ministerial Delegate for Sustainable Development and annual reporting is required to Parliament against indicators and targets set out in the strategy.
7. Grenada – Road Map on Building a Green Economy for Sustainable Development (2012)	Led by the Ministry of Environment, Foreign Trade and Export Development of Grenada in collaboration with UNDSD.	Produced through an international study led by UNDSD in cooperation with the Ministry of Carriacou and Petite Martinique Affairs and the Ministry of Environment, Foreign Trade and Export Development of Grenada. Developed by experts from Grenada, consultants and UN personnel. One of the next steps is to continue the work that has been started with a follow-up, more in-depth assessment of specific aspects, factors and problems.
8. Guyana - A Low-Carbon Development Strategy (LCDS) – Transforming Guyana's Economy While Combating Climate Change (2010)	The strategy was led by the Office of the President.	The consultation process and a review of the draft were overseen by a nationally representative steering committee, and the process was monitored by a respected international NGO (IIED). The first draft was published in 2009 based on the President's vision, and was the subject of a four month national multi-stakeholder consultation, where over 10% of the country's population participated directly in information sharing and consultation sessions on the strategy. To ensure successful execution of the LCDS, Guyana is developing 5 new enhanced institutional capabilities: 6. An Office of Climate Change (OCC) established in the Office of the President to consolidate and streamline existing Government efforts and coordinate the strategy. 7. A LCDS Project Management Office established to drive key projects under the LCDS and report directly to the President. 8. A Guyana REDD Investment Fund (GRIF) will be established to manage forest payments, to reduce the cost of capital on other essential investments, and over the long-term to act as a permanent investment fund for low carbon investments. 9. A strengthened EPA will ensure that social and environmental safeguards are applied to the appropriate internationally recognised standards for all GRIF investments. 10. The REDD Secretariat at the Guyana Forestry Commission will be the implementing agency for REDD readiness activities, including a MRV system.
9. Indonesia's *Creating Low Carbon Prosperity in Jambi* (2010)	Led by the Governor of the Province of Jambi.	The analysis was commissioned by the Government of Jambi, the DNPI and the National Climate Change Council and was supported by workshops and meetings with government, private sector and NGOs. It proposes to establish a new institution (climate change delivery unit) that will serve 6 broad functions to support low-carbon growth: • Finance collection and distribution – attracting climate finance • Monitoring and evaluation (MRV) • Policy and spatial planning – regulatory responses to support carbon abatement (land tenure, land use planning) • Community engagement • Infrastructure – technology and systems infrastructure and hard infrastructure (energy, transport) • Support sustainable livelihoods – strategies for growth and investment
10. The UK Low Carbon Transition Plan – National strategy for climate and energy (2009)	The plan was led by the Secretary of State of Energy and Climate Change.	Developed as a whole-of-government White Paper and approved by Parliament pursuant to its Climate Change Act, which commits the UK to 80% reduction of GHG by 2050, a target set by an independent Committee on Climate Change. The strategy is also supported by a UK Low Carbon Industrial Strategy. The Department of Energy and Climate Change has overall responsibility for delivery of the Plan. The Committee on Climate Change has an ongoing review function and reports each year on progress. Each government department is issued with a carbon budget based on their functions, and has to publish a plan on how it will do so.

Appendix 4 – Overview of policy instruments and priority sectors for ten national green economy or related strategies

Country/Strategy	Sectors	Policy measures
1. Republic of Korea - National Strategy for Green Growth and Five-Year Plan (2009-2013)	Buildings, Transport Industry, Forests Energy, Agriculture Water, Health, Education	The Strategy includes ten policy agendas, with a variety of policy measures including: • Investment in natural capital – forestation, four major rivers restoration project • Investment in renewable energy, nuclear energy and hydropower • Investment in innovation – development of green technologies • Support to SMEs to green their business • Investment in health care, education, IT and tourism sectors • Emissions trading system • Ecological tax reform • Public credit guarantees to green industry • Investment in public transport • Carbon footprint labeling • Sustainable public procurement of green goods • Education on green growth • Green ODA There are 5 policy methods to achieve green growth: 1. Government's investment in R&D shall be selective and concentrated. Green technology R&D as a percentage of all R&D will increase from 16% as of 2009 to 20% by 2013; 2. Regulatory policy will be coordinated with inducement policy in order to maximize the combined; 3. Inducement policies such as subsidy will be utilized at the minimum stimulus level. Anti-inducement methods such as environmental taxes shall utilize market mechanisms to the fullest extent; 4. Positive externality and negative externality will be internalized; 5. Moral suasion can be expected from strengthening education of the citizens and through leading by example by the prominent in society. However, considering the difficulty in achieving long-term change through moral suasion, Korea should consider market inducements, such as carbon mileage. A range of incentives are to be offered for private sector investments. These include tax benefits to individual investors, the issuance of long-term and low-interest green bonds and savings, and the creation of a green fund aimed at facilitating access to credit by small and medium-sized enterprises. Individual investors will also be given tax exemptions on their interest income from "green bonds" and other financial products to be issued by banks. Credit guarantees for green projects will increase from 2.8 trillion won (US$ 1.9 billion) in 2009 to 7 trillion won (US$ 5.4 billion) in 2013. In addition, the government seeks to mobilize investment from pension schemes and to launch a green private equity fund.
2. Kingdom of Cambodia - National Green Growth Road	Eco-villages, Water Agriculture, Forests Energy, Waste	The plan reads more like a 'shopping list' of policy options that a strategy, including 37 priorities. Policy measures proposed include: • Governance and institutional arrangements • Index-based micro-insurance, micro-financing and government-backed loans for sustainable agriculture

Country/Strategy	Sectors	Policy measures
Map (2009)	management, Transportation	• Payment for Environmental Services • Green tax and budge reform, including taxes on harmful substances • Environmental education and awareness • Investment in sustainable infrastructure and energy • Investment in natural capital – reforestation • Property rights reform for land • Water pricing through metering and quantity-based pricing for domestic and municipal solid waste • Standards and codes for drinking water and greener design • Encourage PPPs for electricity and public transport • Investment in biogas pilot • Strengthen environmental regulation – forestry and protected areas, including participation provisions • Integrated forest management, land management and land-use planning • Retraining loggers to work in ecotourism • Carbon inventories for REDD and CDM • Green certification and labelling system for agriculture and hotels • Reducing import tariffs on green technologies • Investment in organic and sustainable agriculture
3. Ethiopia's Climate-Resilient Green Economy – Green Economy Strategy (2011)	Electric power supply Building and green cities, Forestry, Soil Livestock, Transport Industry. Two sectors – agriculture and forestry – should receive particular attention.	The strategy focuses on four pillars that will support Ethiopia developing a green economy. Policy measures include: • Investment in irrigation and rehabilitating degraded land • Investment in sustainable agriculture methods and technologies • Investment in fuel-efficient stoves or alternative-fuel cooking • Investment in reforestation and improved forest management. • Investment in renewable energy • Tariff adjustments • Governance and institutional arrangements – for implementing the plan, and for attracting climate finance • Fuel efficiency standards • Investment in electric rail for freight, urban light rail and public transport • Investment in biodiesel and bioethanol The government has selected four initiatives for fast-track implementation: exploiting the vast hydropower potential; large-scale promotion of advanced rural cooking technologies; efficiency improvements to the livestock value chain; and Reducing Emissions from Deforestation and Forest Degradation (REDD). These initiatives have the best chances of promoting growth immediately, capturing large abatement potentials, and attracting climate finance for their implementation.
4. South Africa - Green Economy Accord (New Growth Path: Accord 4) (2011)	Energy, transport, buildings, jobs and waste.	Policy measures include: • Investment in solar water heaters, incentives and regulatory measures to promote greater local manufacturing of components, secure guarantees on installed units • Awareness raising campaigns

Country/Strategy	Sectors	Policy measures
		• Technical and performance standards • Investment in green innovation, manufacturing and R&D • Investment in renewable energy and solar PV through PPPs • Skill development initiatives • Aspirational efficiency targets • Fuel regulations, investment incentives for biofuels, including supportive regulatory environment • Regulation to phase out incandescent lighting • Investment in public transport • Cooperatives and/or social enterprises of retrenched employees to be re-trained, especially young people • Expand training programs linked to skills needs of the green economy.
5. Rwanda - Green Growth and Climate Resilience – National Strategy for Climate Change and Low Carbon Development (October 2011)	Agriculture, water, land, built environment, transport, forestry, energy, industry, health, education, local government, disaster management.	Policy measures include: • Investment in sustainable agriculture, including techniques, technologies, infrastructure, and organic-fair trade • Integrated water resource management, land use planning and management. • Investment in spatial data and ICT • Renewable energy feed-in tariffs and PPPs, guidelines and codes of practice • Performance-based grants, incentives and standards for consumer finance for sustainable energy in rural areas. • Investment in efficient technologies, R&D • Build carbon trading capacity for CDM • Energy efficiency standards, measuring and reporting, including in building codes • Capacity building programs for new skills in energy and water management • Regulations for fuel quality and charcoal production • Investment in climate-resilient transport infrastructure and systems • Community benefit fund from tourism revenues • Participatory PES schemes. • Investment in reforestation and rehabilitation • Risk assessment and vulnerability mapping for vector-borne diseases. • Early warning systems and disaster response plans and associated regulations • Investment in climate change science **Initial Priorities:** Big Wins: • Low Carbon Development/Mitigation: Geothermal power generation; Integrated soil fertility management; high density walkable cities (all of which would qualify for climate finance). • Climate resilience/adaptation: irrigation infrastructure; robust road network; Centre for Climate Knowledge for Development; and Agroforestry. Quick Wins: • Institutional Framework: use the Integrated Development Programme to implement climate resilient low carbon development in rural areas;

Country/Strategy	Sectors	Policy measures
		• Finance: operationalise the National Fund for Climate and Environment to access international finance, especially Fast Start Finance for adaptation. • Integrated Planning and Data Management: implement regular measuring and reporting of energy use across sectors. • Capacity building: expand Technical and Vocational Education and Training to develop skills needed for Strategy implementation e.g. renewable energy, agroforestry and irrigation. • Knowledge Management: set up an online Climate Portal to communicate the Strategy to the public and international community. • Technology: use the Strategy to complete the UNEP Technology Needs Assessment to speed up TT for key sectors, particularly energy, water and agriculture. • Infrastructure: implement resource efficient design in the Special Economic Zone in Kigali. Enabling pillars: • Institutional arrangements • Finance • Capacity Building and Knowledge Management • Technology, Innovation and Infrastructure • Integrated Planning and Data Management.
6. France – National Sustainable Development Strategy: Towards a Green & Fair Economy	Waste, agriculture, industry, education, ICT, governance, energy, transport, biodiversity, health, disaster management, education, immigration	A range of different policy measures, including: • Education, training and curricula on SD • Information and awareness raising • Investment in R&D • Public-Private research – patent policy, competitiveness clusters, centres of excellence • Efficiency standards • Integrated local level planning, Regional adaptation planning, town planning policies • CSR • Environmental certification – ISO standards • SD indicators & national scoreboard • ETS – carbon price signal • Incentives for renewables through taxes, purchasing prices, specific financing and investment funds. • Ecolabeling • Energy diagnostic tools • Life-cycle assessment • Interest-free loans for energy efficient housing • Climate modelling • Investment in sustainable transport infrastructure, major investment in public transport • Sustainable procurement • Protected areas • Integrated CZM

Country/Strategy	Sectors	Policy measures
		• Sustainable agriculture and aquaculture • Recycling, reuse and sustainable waste management • Pollution standards • Social inclusion – pensions, job access, health care, housing • Micro-credit
7. Grenada – Road Map on Building a Green Economy for Sustainable Development (2012)	Energy, water, education, employment, transport, agriculture and food security, ecotourism and environmental issues.	Potential policy options identified include: • Tax exemptions for renewable energy • Investment in renewable resources – a range of wind, solar, geothermal, biomass options proposed. • Building and efficiency standards and certification • Investment in water infrastructure • IWRM • Education and training • Investment in sustainable transport • Investment in sustainable agriculture • Environmental regulation • Investment in ecotourism venture and infrastructure • Tax relief incentives • Urban planning standards and regulation – tenure, enforcement • Coastal monitoring
8. Guyana - A Low-Carbon Development Strategy (LCDS) – Transforming Guyana's Economy While Combating Climate Change (2010)	Forestry, biodiversity, agriculture, energy, disaster preparedness and risk reduction, infrastructure (ICT, transport), governance (institutional capacity development for REDD+) and indigenous rights.	Policy measures include: • Investment in low-carbon infrastructure – sustainable energy, transport, irrigation, agriculture, forestry • Regulation reform, monitoring and enforcement for mining and forestry • Investing in human capital – education, social services and basic infrastructure, health, ICT • Property rights for indigenous communities and voluntary inclusion in REDD • Investment in climate resilient infrastructure and defences • Strengthen building codes • Early warning systems • Financial and risk insurance measures • Institutional and governance arrangements – for the strategy and for REDD, including a new investment fund and MRV system.
9. Indonesia's *Creating Low Carbon Prosperity in Jambi* (2010)	Forestry, Agriculture, Transport, Energy, Building, Industry	Five carbon reduction opportunities are prioritised: 1. Prevent forest and peatland fires by providing practical technologies and financial incentives for manual land clearing, warning systems, fire brigades, strong enforcement and large penalties, public awareness. 2. Reduce deforestation through more effective land allocation policies and improving agricultural productivity. Use of REDD to pay for services, and targeting agricultural expansion in degraded areas.

Country/Strategy	Sectors	Policy measures
		3. Rehabilitate idle or degraded peatland – develop guidelines, fund research. 4. Manage forests sustainably – enforcement, technical support, improving governance, education. 5. Reforestation Mapping these opportunities against their full abatement cost and feasibility can help prioritize the implementation of emission reduction opportunities for Jambi Plan also identifies 6 priority growth sectors: 1. Estate crops on non-forested land (13 percent 1. of GDP in 2006): Develop non-forested arable land for crops such as palm oil, rubber, coffee, and spices. 2. Food crops on non-forested land (12 percent 2. of GDP in 2006): Develop non-forested arable land for commercial agriculture of high-value tropical fruits and rice for export. 3. Sustainable forestry (10 percent of GDP in 2006): Integrate primary and secondary processing of timber that has been more sustainably extracted under stringent controls enabling natural regeneration and sufficient re-growth during the rotation cycle. 4. Eco-tourism (2 percent of GDP in 2006): Develop tourism based on Jambi's unique wildlife (e.g., Sumatran tiger) and biodiversity that minimizes the ecological impact of growth in the sector. 5. Aquaculture (1 percent of GDP in 2006): Rear fresh water fish and shrimp on non-forested, non-arable land for export in the form of fresh, frozen, or processed product. 6. Financial services (1 percent 5. of GDP in 2006): Drive increases in the efficiency and penetration of financial services, extend access to microfinance, and tap international sources of capital (e.g., REDD).
10. The UK Low Carbon Transition Plan – National strategy for climate and energy (2009)	The focus is on emissions reduction in 5 key sectors: power and heavy industry, homes and communities, workplaces and jobs, transport and farming, land and waste.	Policy measures include: • Renewable energy and emissions targets • Market mechanism – European ETS • Investment in renewable energy, CCS and grid capacity • Streamlining regulatory and planning processes for nuclear power • Investment in community-based approach to energy efficiency in low-income areas • Pay-as-you-save models of long-term financing for energy saving technologies • Clean energy cash-back schemes or rebates. • Information measures - smart metering, performance ratings • Building codes and standards – zero carbon homes • Social protection – payments for older and more vulnerable people, subsidized energy efficiency and new heating and other grants. • Financial support and incentives for low carbon technologies, including a climate change levy • Investment in R&D • Investment in sustainable infrastructure and public transport • Sustainable public procurement – low-emission cars • Small grants for low-carbon vehicles • Investment in sustainable agriculture

Appendix 5 – Summary table from analysis of ten recent national strategies

Country	Led by PM or Equivalent	Institutional Arrangement for whole-of-government engagement in Strategy Development	New Institutions for Strategy Implementation	Costs provided	Sources of external finance identified	Feedback & Review Mechanisms	Economic instruments for internalising externalities	Economic instruments to incentivise investment
Ethiopia (2011)	Y	Y	Y	Y	Y			Y
Rwanda (2011)		Y	Y		Y	Y		Y
Guyana (2010)	Y	Y	Y	Y	Y			Y
Cambodia (2009)		Y	Y					Y
Grenada (2012)								Y
Jambi, Indonesia (2010)	Y	Y	Y		Y			
South Africa (2011)	Y	Y		Y		Y		Y
Republic of Korea (2009)	Y	Y		Y		Y	Y	Y
UK (2009)		Y		Y		Y	Y	Y
France (2010)		Y				Y	Y	Y