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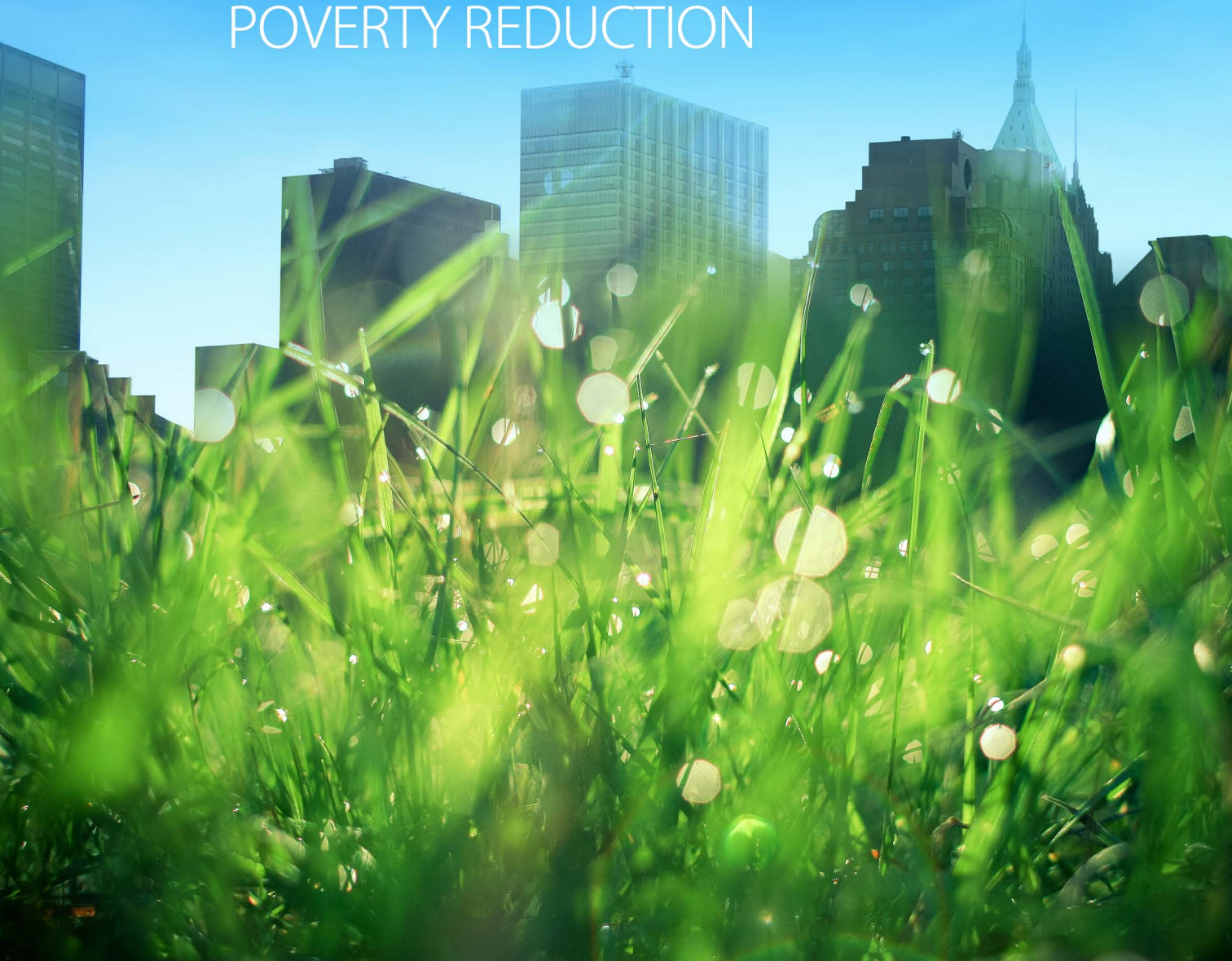
TOWARDS GREEN AND INCLUSIVE PROSPERITY

BUILDING GREEN ECONOMIES THAT DELIVER ON POVERTY REDUCTION



This report contributes new insights into the growing body of literature on inclusive green economy approaches as a key means for eradicating poverty and advancing the evolving post-2015 sustainable development agenda. The report draws on a range of country experiences and a series of case studies commissioned through the UNDP-DESA-UNEP Joint Programme Supporting a Green Economy Transition in Developing Countries and LDCs: Building Towards Rio+20 and Beyond, with the generous support of the Government of The Netherlands. Its non-prescriptive findings are designed to inform country-led efforts to transition to greener, more inclusive economies in ways that deliver on poverty reduction.

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TOWARDS GREEN AND INCLUSIVE PROSPERITY – BUILDING GREEN ECONOMIES THAT DELIVER ON POVERTY REDUCTION

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FOREWORD

2015 marks the adoption and launch of the Sustainable Development Goals. The new sustainable development agenda builds on the success and lessons of the Millennium Development Goals (MDGs), which made significant strides in reducing income-based poverty and hunger, improving access to water, and saving millions from deaths due to AIDS, malaria, and tuberculosis. Despite this progress, in 2015 almost 1 billion people still live in extreme poverty, and millions still lack access to clean water or improved sanitation, while facing malnutrition, poor health, gender discrimination, and vulnerabilities from climate change and environmental degradation. The Sustainable Development Goals (SDGs) recognize the need to complete and go beyond the unfinished MDG agenda. They are now universal across all countries and call for integrated policy approaches that bring together the economic, social and environmental dimensions of sustainable development for current and future generations.

The post-2015 agenda also draws on the results of the Rio+20 Conference of 2012, which involved extensive consultations on how to advance sustainable development at global, national, and community levels, including through inclusive green economy approaches. These debates helped highlight different perspectives on green economy approaches within and across countries and institutions, and their links to the MDGs and post-2015 preparations. As the Rio+20 Outcome Document notes, inclusive green economy policies can be an important means to reducing poverty and supporting more sustainable development. At the same time, there are different green economy approaches available to each country depending on context and needs. The Rio+20 Outcome Document also invites the UN system to coordinate and provide information on different options for advancing green economy approaches.

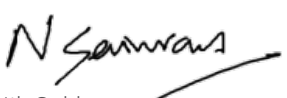
While there are tradeoffs across policy options that must be addressed, inclusive green economy approaches do not mean choosing between growth, social progress, or environmental sustainability. With strong planning and policy frameworks, green economies can be designed in ways that limit potential harm for groups or sectors over time, while increasing access to economic investments in ways that reduce inequalities and promote social well-being. Many countries have expressed their aspirations and are already making the transition to greener economies to advance sustainable development. Within and across regions, countries have interpreted "green economy" in different ways. Some have seen it as a new export opportunity to develop goods and services to provide employment. Other views are more cautious and shaped by concerns that the transition to resource-efficient, lower-carbon growth could be accompanied by financing conditionalities, or non-tariff trade barriers.

Evidence on how inclusive green economy or green growth can be planned, implemented and evaluated in different contexts, however, remains relatively limited. Coordination among stakeholders involved with developing tools and methodologies for planning inclusive green economy requires strengthening. Expertise and data is often siloed across institutions responsible for environment, energy, climate change, agriculture, trade and social areas at all levels. For these reasons, harnessing the potential and opportunities afforded by inclusive green economy approaches can be challenging for policymakers even when there is an understanding of the potential social, economic and environmental gains. Country contexts differ widely with respect to development starting points and priorities; political will and stability; institutional capacities; technical, financial, and natural resources; economic structure and position within regional and global markets.

To ensure that the design and implementation of integrated green economy approaches are informed by relevant information, government decision-makers, including central ministries of finance, economy, planning, and partners from civil society and the private sector require access to good practices and policy examples. As global efforts now focus on advancing the post-2015 SDG agenda, including the eradication of poverty and a reduction in gender and other inequalities, a key challenge for national governments involves understanding how to design and implement green economy approaches that address the multidimensions of poverty, including income, health, resilience, and access to resources.

This report, ***Towards green and inclusive prosperity – building green economies that deliver on poverty reduction***, and its complementary set of Case Studies, has been prepared through the Netherlandsfunded UNDP-DESA-UNEP Joint Programme on ***Supporting a Green Economy Transition in Developing Countries and LDCs*** to facilitate South-South learning and help fill this knowledge gap. Its nonprescriptive findings for policy-makers and practitioners are designed to inform country-led efforts to transition to greener, more inclusive economies that help eradicate poverty. The report highlights the social and environmental opportunities for investing in environmentally sustainable growth policies, as well as lessons learned from designing and implementing national and sector-based green economy initiatives. The report draws on a range of UNDP commissioned case studies covering: environmental fiscal reform, employment generation programmes, sustainable ecosystem management, ecotourism, energy, waste management, and reducing emissions from deforestation and forest degradation.

As such this publication represents an important addition to the global community's growing set of resources for informing and advancing our post-2015 work on sustainable development.



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EXECUTIVE SUMMARY

Background

As global efforts focus on defining the development agenda beyond 2015, central to which will be the eradication of poverty, a reduction in inequality and sustainable development, a key challenge for national governments is designing and implementing inclusive green economy approaches, that is, identifying the optimal green growth strategies and initiatives for reducing poverty and achieving broader sustainable development goals. Inclusive green economy approaches address the multidimensions of poverty, including income, health, education, resilience and access.

This policy paper addresses the following key questions:

- Does a green economy automatically benefit the poor or can it negatively impact or exclude the poor?
- What are the synergies and trade-offs between a green economy and poverty reduction?
- How can inclusive green economy initiatives be designed and implemented to ensure that they optimize multiple development objectives?

The paper is based on a series of case studies commissioned by UNDP covering key policies, sectors and issues. The case studies are focused on Environmental Fiscal Reform (EFR), employment generation programmes, sustainable ecosystem management, ecotourism, energy and waste management. The case studies analyse the potential for pro-poor green economy synergies and trade-offs, drivers of success and policy implications and informed the development of non-prescriptive generic guidance for policymakers on the design and implementation of inclusive green economic initiatives.

Case studies

Environmental Fiscal Reform (EFR) has been applied in some developing countries and achieved triple wins in terms of revenue generation, environmental improvement and poverty reduction (OECD, 2005). However, some potential trade-offs associated with EFR need to be analysed and understood in order to design integrated green economy and poverty reduction initiatives. Although environmental taxes are generally progressive, there is a need for careful analysis to identify their impacts on particular vulnerable groups. For example, 'dirty' fuels such as coal are predominantly used by marginalized urban poor households who may not have access to cleaner fuels such as cooking gas (LNG or LPG); an increased tax on coal is therefore likely to be regressive. Removal of subsidies on diesel can result in kerosene (meant for the poor) being diverted to industrial and commercial uses (for adulteration of more expensive diesel with cheaper kerosene).

The poor have typically benefited where there has been a clear commitment to use the revenues from EFR to benefit or compensate them. Experience shows that EFR succeeds where there has been careful management of the reforms within an inclusive political process and where reforms are tailored to a country's circumstances. Careful coalition-building and leadership can overcome the vested interests that may hamper reform.

Employment generation programmes. A number of developing countries have in place Public Employment Programmes (PEP) as anti-poverty strategies, some of which specifically focus on natural resource management (NRM) such as weeding, land preparation, forestry, de-sludging of water resources, local level watershed protection and flood protection measures.

PEPs are typically not the most effective option if only one objective is being pursed. For example, to enhance social protection, other schemes like cash-transfers may well be more suitable. The attraction and challenge of PEPs lie in achieving objectives simultaneously and managing trade-offs, which requires a good design of the scheme, professional implementation and ongoing monitoring to adjust the scheme to ensure that the right balance is found and maintained.

The Working for Programmes in **South Africa** illustrate how employment programmes can be designed to achieve inclusive green economy objectives. The Working for Programmes have capitalized on the synergy between the labour-intensive nature of many natural resource management activities and the need for employment creation in a country with high levels of unemployment and poverty. The Programmes have benefited from consistent and professional administrative leadership and have played a critical role in the development of legislation and related regulations on invasive species, which has in turn strengthened the position of the programme by providing a legislative mandate. In terms of poverty alleviation, the Programme might best be viewed as one of a set of policy instruments that can together address the various dimensions of poverty, with the integration of the programmes into the Expanded Public Works Programme being an important step in this regard.

Public Employment Programmes are only one type of policy intervention to provide employment and income generation opportunities and are mostly designed as policies for short-term employment. In order to integrate green economy, employment and poverty reduction objectives, other issues that need to be considered include: raising labour productivity; skills-building and upgrading; entrepreneurship development; and formalization of employment in sectors such as waste.

Sustainable ecosystem management. Ecosystems are important components of national wealth and drivers of economic growth. On average, 26 percent of the total wealth of low-income countries is derived from ecosystems, compared to 2 percent in high-income countries, and 4 percent of new wealth created globally from 1995-2005 was derived from natural capital (OECD, 2013). The sustainable management of ecosystems delivers macroeconomic dividends in terms of a continuous stream of income from natural assets such as forest, minerals and fisheries. This income can directly benefit the poor by strengthening and expanding their livelihood base as well as by providing an important source of development finance that governments can reinvest in poverty-focused growth (World Bank, 2006).

Many poor men and women are heavily dependent on access to ecosystems such as soils, water, forests and fisheries, which underpin their commercial and subsistence activities and often provide a safety net in times of crisis. Ecosystem services and other non-marketed goods have been estimated to account for 47 percent and 87 percent of social 'GDP of the poor' (i.e., the effective GDP or total source of livelihood of rural and forest dwelling poor households); however, in national GDP agriculture, forestry and fisheries account for only 6 percent to 17 percent. Moreover, these households have few means to cope with loses of critical ecosystem services, such as drinking water purification or protection of natural hazards. Sustainable management of natural capital is therefore an important element contributing to poverty reduction (TEEB, 2010).

Well-designed interventions can contribute directly to poverty reduction by allowing income to be generated through environmental activities such as maintaining or improving watersheds and local water resources, management of communal forestry and sustainable collection of native plant species and other non-timber forest produce. Sustainable management of ecosystem services can also be cost-effective climate adaptation and mitigation options. For example, mangrove conservation or rehabilitation can reduce the impact of storms for vulnerable coastal communities while sustaining the livelihoods of local fishing communities by protecting fish stock.

However, green economy investments in biodiversity and ecosystems services that restrict the access of the poor to natural resources can exacerbate poverty when poor people are relegated to making a living from small areas of land or resources with low productivity. Trade-offs may also occur between sustainable livelihoods based on existing (traditional) patterns of production and national policies aimed at creating growth from market-oriented industries based on natural resources. This can draw people away from sustainable livelihoods in the anticipation of increased income and a possible exit from poverty.

Ecotourism is an important tool for achieving inclusive sustainable development (United Nations, 2013). Many ecotourism initiatives contribute to sustainability and poverty reduction objectives. For example, following the development of the Nguna-Pele Marine and Land Protected Area (MLPA) in **Vanuatu**, the average incomes of the villagers doubled when they shifted from fishing to ecotourism as an alternative livelihood activity (UNDP, 2012). However, making sure that the benefits of ecotourism initiatives reach all sections of the community, particularly the poor and vulnerable, requires understanding and managing some trade-offs. Trade-offs include: (i) lost livelihoods and income from restrictions placed on land uses and natural resource extraction; (ii) reduced health resulting from loss of access to natural-based foods; and (iii) loss of employment ensuing from changes in labour requirements related to modifications in land uses. In addition, negative economic impacts can result from leakages of ecotourism income away from the local economy and demand volatility influenced by political instability, safety issues (e.g., crime, weather) and the trendiness of the destination. Potential social trade-offs include: (i) increased land prices resulting from an increased demand for land; (ii) loss of cultural heritage or commodification of culture from abandoning or selling traditions; (iii) loss of control or flexibility over local development options where easements or long-term contracts specify a narrow range of management alternatives or where community land owners and landless do not become involved; (vi) inequality due to a failure to distribute benefits fairly; (v) increased competition from markets that lead to marginalization of weaker groups; and (vi), at the extreme, sexual

exploitation, stress, crime and child labour. Deliberate and complementary poverty reduction policies integrated in ecotourism design and implementation are therefore required for ecotourism to directly result in poverty reduction.

Energy is an important input to all sectors of the economy, fuelling agriculture, industry, transport and social services such as education and health, and there is strong empirical evidence that no country has developed or reduced its poverty significantly without available, affordable and secure energy. Poverty is intrinsically linked to energy. The majority of the 2.8 billion people relying on traditional biomass for cooking and the 1.2 billion without access to electricity are poor (SE4ALL, 2013; IED, 2007). A billion people, the majority of them poor, are served by health facilities without electricity and more than 50 percent of children in developing countries go to primary schools that are not electrified (Practical Action, 2013). There is also a significant gender dimension, given that the burden of collecting traditional biomass fuels falls mainly on women and girls.

A shift to clean(er) renewable energy can deliver multiple benefits to poor communities and contribute to an inclusive green economy such as: increased energy security and macroeconomic savings; financial and economic benefits; job creation; health benefits; gender benefits; improved education; environmental benefits through avoided deforestation and carbon dioxide and methane emissions; and improved resilience. In expanding energy access, trade-offs may arise between policies that improve living conditions (e.g., energy for lighting) and that enable productive activities (e.g., energy for water pumping and irrigation). While the first makes a direct and more immediate contribution to better living standards and offers social dividends, the second enables sustained poverty reduction and economic development.

Policies needed to develop access to energy in ways that maximize benefits to the poor and vulnerable include: (i) a concerted national programme to optimize options; (ii) making energy access a national development priority supported by a legal and regulatory framework including reform of tariffs and subsidy systems; (iii) coherence and coordination between energy and other sectoral policies; and (iv) policy coherence across various levels of governance.

Integrated waste management approaches can reduce poverty, create jobs, reduce pollution, conserve natural resources, diminish society's ecological footprint, reduce greenhouse gas emissions, protect public health and improve industrial competitiveness.

Millions of poor individuals make a living from waste. The informal waste sector (IWS) provides a livelihood to about 1 percent of the urban population in the developing world, i.e., about 15 million people worldwide survive by working with waste, including around six million in **China** and one million in **India**. Many IWS workers are low-income, vulnerable individuals, such as children, women, elderly, disabled, unemployed and migrants. Traditionally, IWS workers have been considered a problem and their activities declared illegal. Now it is increasing recognized that the IWS, with the right policies in place, can be part of the solution contributing to a country's green growth and poverty reduction.

Recycling activity saves governments money by reducing the amount of wastes that need to be collected, transported and disposed of. It also supplies industry with inexpensive raw materials and conserves natural resources, reduces pollution, saves energy and water and protects the environment. Scavenging can also save foreign currency by reducing imports of raw materials. Alternatively, if industrial demand is stronger in a neighbouring country, scavenging can become a source of foreign currency by exporting the materials recovered by waste pickers. The groups likely to oppose initiatives embracing IWS are local governments and middlemen. Local governments prefer to award contracts to large companies and are often reluctant to work with the IWS. Middlemen often pay low prices to waste pickers and sell the materials to industry at a considerable mark-up. If waste pickers get organized into cooperatives, micro-enterprises or public-private partnerships, they can bypass the middlemen, thus earning higher incomes.

Guidelines

The case studies demonstrate that the relationship between green economy policies and poverty reduction is not automatic. While compelling synergies exist, poverty reduction is unlikely to occur unless explicitly emphasized in policy design and implementation. Careful design of green growth initiatives can anticipate and eliminate trade-offs that have the potential to disempowered poor households from participating in programmes and/or adversely impact them and instead structure initiatives to maximize the benefits to the poor and vulnerable.

Key design components generic to initiatives are:

Initiatives need to be adapted to a **country's circumstances** (institutional and cultural) in order to maximize their effectiveness and ensure buy-in. This requires an **understanding of the local context** and data analysis to determine what will work and what will not work in a given context.

All stakeholders need to be involved in the design of initiatives at the outset to discuss trade-offs and build synergies between poverty reduction and green growth. This allows initiatives to be well targeted and ensures buy-in. Opposition to initiatives needs to be addressed and alternative livelihood/compensation provided to those who are expected to be disadvantaged from the introduction of an initiative.

Synergies and trade-offs need to be understood if effective initiatives are to be designed. A range of tools can be used to clarify trade-offs and synergies and distributional impacts, including integrated ecosystem assessments, participatory tools and cost-benefit analysis. If the poor and vulnerable are clearly identified and the winners and losers from proposed initiatives clearly understood, then it is possible to work with stakeholders to design viable compensation mechanisms.

Gender considerations need to be built into the design of projects. Gender balance is necessary to progress towards sustainable livelihoods, improved participation in decision-making, improved health and education, and inclusive human rights.

Targeting. Initiatives need to target markets and activities where the poor operate in rural and urban areas. Given that different groups need different types of interventions, differentiating people and their needs is very important

Clear link to policy. The ability of an initiative to link to a government policy can lend support for its successful implementation, including ongoing financial support. This will be more challenging when a country does not have a green growth strategy and where there is limited mainstreaming of sustainability issues and poverty reduction across sector policies and plans.

Monitoring and evaluation frameworks should be part of project design.

Generally applicable implementation guidelines are:

All key stakeholders should be involved in the implementation of initiatives, including government (national and local), private sector, households and consumers. This facilitates the development of partnerships across multiple levels and a common understanding of an initiative's objectives.

Strengthening capacities across a range of areas is important for successful implementation. For example, local communities need to be supported to develop the required skills to successfully implement ecotourism projects (e.g., an understanding of how the industry works, business skills and standards for community-run SMEs).

Initiatives need to be backed by secure and sustainable funding. A range of financing mechanisms may be employed (e.g., direct budget allocations, taxes, fees or charges on resource use, payment for ecosystem services, earnings from state-owned enterprises or state lands or equivalent sources in fiscally decentralized, subnational circumstances, and donor support). In some cases, e.g., initiatives to promote access to sustainable energy provision, financial support to lower investment costs for the poorest consumers is essential.

Piloting enables initiatives to be tested and refined before being rolled out to similar sites or at a national scale.

Communication and outreach activities help to inform and raise awareness of green economy among major stakeholders about the multiple opportunities offered by a green economy in terms of reducing poverty and social inequalities.

Commonly cited drivers of success are: commitment and collaboration among stakeholders; supportive programmes and legislation that provide a policy framework and the legal mandate for initiatives; devolution of management authority to local governments and communities; strong leadership and commitment at the highest levels of government; communication and advocacy within and outside of government; careful targeting of programmes and subsidies to communities most in need; support from international organizations and the private sector; and transparent financing.

What needs to be done?

Key needs to facilitate a successfully transition to an inclusive green economy are:

Establishing an enabling macro-policy environment. National government must take ownership of a transformation to an inclusive green economy by establishing a supportive macro-policy framework that mainstreams and prioritizes a pro-poor green economy into national policy, planning and budgeting/financing processes. Understanding the macro-micro links is important. Local initiatives cannot be sustained if the national framework works against conservation; hence, the links between macro-frameworks (policies and strategies) and micro-needs (local integrated approaches) need to be strengthened throughout government. Furthermore, a cross-sectoral approach to policy, plans and programmes is required to enhance the effectiveness of initiatives through integrated (complementary) policymaking and planning across sectors.

Supporting subnational institutions. The role of subnational governments in development is growing with the recognition that national governments cannot deliver all public services and that involvement of communities and local governments is essential for development. Mechanisms for accountability between local institutions and their national counterparts and between local institutions, the poor and other stakeholders are crucial. Local government also requires sufficient financial resources, capacity and authority to manage initiatives.

Strengthening the interface between research and policymaking. In order to target the poor, it is first necessary to identify and characterize them and understand how they will be affected by proposed green growth initiatives. Typically, poverty data are poor and baseline studies are required at national, state, district and village scale to better inform policy development and the targeting of (micro-level) initiatives. A greater understanding of the distributional implications of initiatives needs to be generated at the design stage and monitored throughout implementation. Another important area of research is the valuation of ecosystems services to ensure that the right market signals are reflected in policy instruments. These studies need to be anchored in a consultation process from the early stages and provide answers to relevant policy questions.

Capacity-building, empowerment and institutional development. Capacity to transition to a green economy needs to be built across the broad range of stakeholders party to its delivery. For example, the capacity of communities, including women, youth and indigenous communities, needs to be developed along with access to education, resources and information necessary to benefit from green economy approaches. Local government requires administrative, technical, financial, planning, outreach and management capacity-building. National governments require capacities to establish legal, regulatory and policy structures and effective institutions that can drive national goals for poverty reduction and a green economy and scale up local efforts.

Measuring development progress and programme success. There is a lack of appropriate macro-level indicators that capture green economy and poverty reduction outcomes; more studies are needed to develop new and tailored metrics and data collection systems. There is also a need for more household indicators that demonstrate, for example, the connection between ecosystem services and poverty and that link ecosystem services at different spatial scales to the concept of resilience or the ability of a community or ecosystem to withstand external shocks (environmental, social, economic).

Financing. Increased financing will be needed to cover the high upfront costs of a transition to a green economy. Potential sources of finance include: (i) targeting of public revenue, which includes harnessing the benefits that take place elsewhere to benefit the poor, e.g., investing resource flows from minerals in education and health; (ii) policy incentives – removal of negative subsidies and environmental taxes can raise revenue for reinvestment in initiatives. Conditional cash transfers to poor people can promote growth and improvements in the incidence of multidimensional poverty from the bottom up; (iii) reduced deforestation and land degradation (REDD), carbon markets as well as climate adaptation finance; (iv) private sector and capital funds; and (v) direct donor support.

Conclusions

There is a broad range of policy opportunities for transitioning to an inclusive green economy that countries can pursue and adapt to their context and circumstances. These opportunities cut across key economic sectors such as agriculture, forestry, fisheries, tourism, energy and waste management and, in many instances, can deliver triple wins in terms of revenue generation, environmental improvement and poverty reduction.

For green economy approaches to deliver on inclusion and poverty reduction and to avoid exacerbating poverty and inequality, deliberate and complementary poverty reduction policies need to be integrated into their design and implementation, a supportive macro-environment established, capacity across stakeholders developed and sustainable financing secured.

1 INTRODUCTION

As global efforts focus on defining the development agenda beyond 2015, central to which will be the eradication of poverty, a reduction in inequality, and sustainable development, a key challenge for national governments consists in designing and implementing **inclusive green economy approaches**. This involves identifying the optimal green growth strategies and initiatives for reducing poverty and achieving broader sustainable development goals, in a specific country or local context. Inclusive green economy approaches seek to address the multidimensions of poverty, including income, health, education, resilience and access.

This policy paper[1] explores the synergies and trade-offs between a green economy and poverty reduction and identifies opportunities for transitioning to greener economies that optimize well-being, particularly of the poorest and most vulnerable communities. The paper seeks to inform policies and plans that build green economies and simultaneously address social challenges and provides generic guidance on how inclusive green economy initiatives may be designed and implemented. It is targeted towards national policymakers from ministries of finance, planning and sector ministries, as well as development practitioners.

The paper addresses the following key questions:

- Does a green economy automatically benefit the poor or can it negatively impact or exclude the poor?
- What are the synergies and trade-offs between a green economy and poverty reduction?
- How can inclusive green economy initiatives be designed and implemented to ensure that they optimize multiple development objectives?

The paper draws significantly on a series of case studies covering key policies, sectors and issues. The case studies are focused on Environmental Fiscal Reform (EFR), employment generation programmes, sustainable ecosystem management, ecotourism, energy and waste management. This paper is not an exhaustive review of the literature and initiatives in this area. However, the extensive review and synthesis of country experiences in applying green economy initiatives across core sectors and policy areas has facilitated the development of generic guidance for policymakers on the key opportunities and trade-offs an inclusive green economic presents and on the policies and actions needed to optimize the outcomes of such initiatives. Such inclusive green growth opportunities may also be supported by complementary advisory services of the

1 This paper is a part of the UNDP-DESA-UNEP joint programme Supporting a Green Economy Transition in Developing Countries and LDCs: Building Towards Rio+20 and Beyond.

2 The Green Economy Joint Programme is a collaboration between UNDP, UNEP and the United Nations Department of Economic and Social Affairs (UNDESA) to support governments and stakeholders in their post-Rio+20 efforts to green economies through more integrated development approaches that help ensure social progress, inclusive growth and environmental sustainability.

Green Economy Joint Programme,[2] UNDP-UNEP's Poverty-Environment Initiative,[3] and related work supported through the Green Growth Knowledge Platform (GGKP).[4]

1.1 DEFINING A GREEN ECONOMY

Understanding the components of a green economy enables links to be made with the multidimensional components of poverty and to align the constituent components of a green economy with the Rio+20 Outcome Document 'The Future We Want'.[5]

Box 1 provides a range of definitions of a green economy, all of which seek to promote human well-being, social equity, resilience and environmental sustainability. Core common elements of a green economy include:

- **Efficient resource use.** Using natural resources, especially land and soils, water, energy and minerals, in an efficient and sustainable manner to drive economic growth
- **Reducing impacts**
  - Reducing climate change, inducing emissions along with the health impacts of such pollution
  - Enabling the transition from non-renewable to renewable sources of energy and reducing energy and water intensity
- **Reducing vulnerabilities**
  - Anticipating and preventing resource scarcities
  - Recognizing the value of ecosystem services and protecting ecosystem stocks and flows, thereby sustaining a safety net for the poor whose livelihoods depend on ecosystem services and enabling their contribution to poverty reduction
  - Preventing irreversible changes and reducing ecological footprints
- **Promoting an inclusive and transparent approach**
  - Empowering local communities and enabling all stakeholders to shape decisions
  - Clarifying shared and individual responsibilities

A green economy incorporates sectors (e.g., energy, agriculture, fisheries), topics (e.g., pollution, carbon emissions), principles (e.g., prevention and loss) and policies (for growth, resource efficiency and sustainability). It can also describe an underpinning strategy, such as the mainstreaming of environmental policies or a supportive economic structure.

3 The PEI is a global programme supporting country-led efforts to mainstream poverty-environmental linkages into national development and subnational development planning.

4 The Green Growth Knowledge Platform comprises a diverse group of knowledge partners, including the Green Growth Institute, the Organisation for Economic Cooperation and Development (OECD), UNEP and the World Bank, working to identify and address knowledge gaps in green growth theory and practice.

5 The document calls for a wide range of actions, including launching a process to establish sustainable development goals (SDGs), which will replace the Millennium Development Goals when they expire in 2015, and detailing how the green economy can be used as a tool to achieve sustainable development.

BOX 1: DEFINITIONS OF A GREEN ECONOMY

One that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low-carbon, resource-efficient and socially inclusive. In a green economy, growth in income and employment should be driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency and prevent the loss of biodiversity and ecosystem services (UNEP, 2012).

A system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks or ecological scarcities (UNEP, 2009).

An economy that results in improved human well-being and reduced inequalities, while not exposing future generations to significant environmental risks and ecological scarcities. It seeks to bring long-term societal benefits to short-term activities aimed at mitigating environmental risks. A green economy is an enabling component of the overarching goal of sustainable development (UNCTAD, 2011).

Green economy is "a resilient economy that provides a better quality of life for all within the ecological limits of the planet" (Green Economy Coalition, 2011).

'Green economy' is described as an economy in which economic growth and environmental responsibility work together in a mutually reinforcing fashion while supporting progress on social development (International Chamber of Commerce, 2011).

The green economy is not a state, but a process of transformation and a constant dynamic progression. The green economy does away with the systemic distortions and disfunctionalities of the current mainstream economy and results in human well-being and equitable access to opportunity for all people while safeguarding environmental and economic integrity in order to remain within the planet's finite carrying capacity. The economy cannot be green without being equitable (Danish 92 Group, 2012).

The green economy involves largely new economic activities and must provide an important entry point for broad black economic empowerment, addressing the needs of women and youth entrepreneurs and offering opportunities for enterprises in the social economy (Government of **South Africa**, 2011).

Green economy can be seen as a lens for focusing on and seizing opportunities to advance economic and environmental goals simultaneously (Rio+20 Objectives and Themes of the Conference – UNCSD, 2011).

1.2 DEFINING MULTIDIMENSIONAL POVERTY

One of the world's main priorities is to reduce poverty across some dimensions as enshrined in the Millennium Development Goals and the forthcoming Sustainable Development Goals. Over the last two decades, some of the most populous countries have made great strides in poverty reduction: the percentage of population living on US$1.25 a day declined from 17.2 percent to 6.1 percent in **Brazil**; from 60.2 percent to 13.1 percent in **China**; and from 49.4 percent to 32.7 percent in **India**. Between 1990 and 2008, **China** lifted 510 million people out of poverty (UNDP, 2013). However, according to the most recent estimates from the World Bank, just over one billion people worldwide continue to live on less than US$1.25 a day.[6] In 2011, 2.2 billion people lived on less than US$2 a day and are vulnerable to environmental scarcity and climatic shocks and hence falling into extreme poverty. Furthermore, in some countries, the gap between the rich and the poor is increasing.[7]

Multidimensional poverty is a measure of the number and intensity of overlapping human deprivations in health, education and standard of living, a problem afflicting an estimated 1.57 billion people, or more than 30 percent of the population of the 104 countries studied for the Human Development Report 2013 (UNDP, 2013).

Poverty has historically been measured by per capita income relative to the amount required to purchase an essential basket of goods and services. While such conventional definitions of poverty, which have a narrow focus on getting people above the 'poverty line' defined by a minimum income level, are practical, they do not consider the wider range of factors that contribute to well-being. The 'dollar-a-day' approach introduced in the 1990 World Development Report has been widely adopted, but criticized because: (i) it does not account for price differentials within countries, intra-household/gender allocation of expenditure or the difference between chronic and transient poverty;[8] (ii) it values only goods and services delivered through the market; and (iii) it does not consider the non-material dimensions of poverty such as lack of voice and agency, vulnerability to shocks, access to public services (health, education, etc.) or common property resources (forests, pastures, fishing grounds and ecosystem services in general).

As a result, definitions of poverty have broadened over time. The 'basic needs' approach, for example, highlights issues such as food, water, health, shelter, sanitation, education and transport (Streeten et al., 1981). More recently, while recognizing the importance of income and the satisfaction of basic material needs, attention has increasingly focused on the less tangible aspects of poverty, including vulnerability to shocks, access to social services and environmental quality. For instance, the three fundamental causes of poverty described by the World Development Report 2000/2001 are lack of income and assets, lack of voice and agency, and vulnerability to adverse shocks. In particular, several writers have argued that the essential characteristic of poverty is captured not by incomes or production, but by what makes people fear the future – namely vulnerability[9] (Bohle et al., 1994; Chambers, 1989). To be poor is to be vulnerable. To be vulnerable is to lack control over decisions that affect one's life

6 In 1981, 1.93 billion lived on less than US$1.25, falling to 1.91 billion in 1990.

7 This report is focused on the interactions between a green economy and poverty alleviation. Inequality is addressed indirectly through the linkages between poverty and inequality.

8 Chronic poverty describes an individual deprivation, per capita income or consumption level below the poverty line over many years. Transient poverty denotes a temporary state of deprivation and is frequently seasonal and triggered by an individual's or household's inability to maintain income or consumption levels in times of shocks or crises (e.g., when crops fail) (IPPC 5th Assessment Report).

and thus to lack self-respect, autonomy, security, sustainability and self-reliance.

Therefore, while income is central to defining poverty, the concept of poverty has evolved to suggest that improvements in non-income dimensions are needed for sustained poverty reduction and eradication. People can experience deprivations in multidimensions that can offset gains in income and leave a person or a household the same or worse off. It is therefore vital for an inclusive green economy to be able to address the multiple dimensions of poverty for sustainable progress.

1.3 LESSONS LEARNED ON GROWTH AND POVERTY REDUCTION

Realizing an inclusive green economy necessitates sustained growth, green jobs[10] and livelihoods (particularly for the poor); public revenues for social investments (health, education, social protection); access to green energy and efficient use; and targeted approaches to empower communities and reduce poverty.

There is growing evidence on the factors and approaches that allow poverty, in its multiple dimensions, to be reduced and eradicated over time through the complex and interactive features of growth, redistribution, as well as direct targeting of the poor. They include:

- **Sustained economic growth**, which is necessary but not sufficient for poverty reduction.[11,12]
- **Economic growth in sectors that provide employment, production and entrepreneurship opportunities to the poor.** These include sectors where the poor are more likely to find their livelihoods, such as agriculture, fishing, forestry and other natural resources, and others where unskilled labour is important. In addition, a growing body of evidence suggests that access to energy by the poor can lead to benefits across multiple dimensions ranging from income to education and health outcomes and the well-being of women (UNDP, 2010).
- **Improvements of labour productivity, conditions of work and the returns and benefits people derive from their work** are essential to reduce poverty, especially in regions with large numbers of informal workers. Employment plays its intermediary role between growth and poverty reduction only if it is productive (ILO, Global Employment Trends, 2013). This is possible in part through the shift of labour from less productive to more productive sectors, in particular service sectors and industry.

9 The emphasis on vulnerability highlighted by the sustainable livelihoods framework (DFID, 1999) has been instrumental in raising another key issue – access to stocks of assets versus access to flows of income. The argument here is that it may be more important to focus on the assets of the poor rather than flows of income available to them, and on shocks (short-term impacts) rather than stresses (longer-term threats to income) (Chambers, 1989). Such issues have gained central importance in notions of livelihoods and have also highlighted the particularly important role that ecosystems may take on as savings and security, especially in times of crisis. Interestingly, it is such broader conceptions of livelihoods – highlighting the role of ecosystems – that tend to emerge from self-assessments such as participatory poverty assessments undertaken recently (see, for example, the Pakistan Participatory Poverty Assessment Report).

10 'Green jobs' can include: jobs that themselves have net positive contribution to environmental sustainability; jobs that deal with reducing environmental impacts of an otherwise 'dirty' industry; jobs that help others to choose more efficient use of resources; and jobs that are mainly aimed at monitoring of environmental resources and communicating or mobilizing action. Some of these would require higher levels of human capital and hence may be available only for those with education, but many of these can be directly targeted at the poor households. UNEP, ILO et al., 2008 broadly define a green job as any decent job that contributes to preserving or restoring the quality of the environment, whether it is in agriculture, industry, services or administration.

11 For example, a joint report on MDG progress by the African Development Bank, African Union Commission and United Nations Economic Commission for Africa (2010) finds that, despite recent strong and persistent economic growth in the region, the 'joblessness' of growth remains a major impediment to reducing poverty.

12 Cross-country studies confirm that, on average, growth tends to be positively correlated with improvements in the incomes of poor people overall (World Bank, 2005). Growth also tends to be positively correlated with improvements in food supply and protein and calorie intake (Haddad, 2003). Averages, however, conceal the fact that the poor often gain proportionally less.

- **Redistribution of the benefits** of growth through public spending in the provision of equitable, quality services (in health, education, water and sanitation and others) for the poor that helps improve their, and their children's, skills and productivity. In turn, the poor boost growth when they are equipped with assets and resources to actively take part in the development process.
- **Proactive focus on women, the excluded and hard-to-reach population groups** who may need special help to gain access to employment and quality services. These may have important multiplier effects, positively affecting several dimensions of well-being – for example, educated mothers tend to have better nourished and educated children.
- **Empowering the poor and marginalized,** including women to play an effective role in the decisions that determine their long-term well-being.
- **Providing protection against negative shocks** such as natural disasters and those arising from global crises such as high food prices so as to reduce vulnerabilities and avoid slowdowns or reversals in poverty reduction.

These factors/approaches indicate what a green economy needs to continue to do if it is to alleviate the many dimensions of poverty. Generalizing, therefore, an inclusive green economy that 'works for the poor' might be expected to display the following characteristics:

- **Mainstreams** efficient use of natural resources including energy, water, land and minerals into policies, plans and programmes.
- **Maintains growth and reduces emissions** for the economy as a whole, while promoting the creation of jobs and other economic opportunities in sectors that are labour-intensive and hence predominantly employ the poor, namely, agriculture, mining, most forms of manufacturing, construction, tourism and retail business sectors.
- **Generates adequate amounts of public revenues** to allow investment in quality services with equitable access by the poor.
- **Retains biodiversity and ecosystem services** by understanding optimal sustainable use patterns and enabling poverty reduction and sustainable livelihoods.
- **Enhances energy and resource efficiency in the economy,** including through the equitable access to energy by the poor and the promotion of its efficient use.
- **Expands choices for all communities** and especially for poor households to choose from a range of clean and affordable energy sources.
- **Addresses structural and threat-based vulnerabilities** by building resilience to all kinds of context-specific risk through the development of adaptive capacities at the individual, community and societal levels.
- **Creates an enabling environment for private sector** investment and involvement in an inclusive green economy through a supportive regulatory framework and tax regime.

1.4 LAYOUT OF PAPER

The rest of this paper is organized as follows: Section 2 provides a conceptual framework for linking the green economy and poverty reduction and outlines the likely synergies and trade-offs. Section 3 presents the case studies that review poverty reduction in the context of a green economy transition for key sectors and policies. Section 4 draws upon the case study analysis to provide a set of non-prescriptive policy guidelines on transitioning to an inclusive green economy that may be adapted to a country's context. Section 5 discusses the key needs for a successful transition to an inclusive green economy. Section 6 concludes the paper.

2 LINKING POVERTY REDUCTION TO THE GREEN ECONOMY CONCEPT

2.1 CONCEPTUAL MODEL

Figure 1 provides the conceptual framework adopted in this paper to understand the links between a green economy and poverty reduction, and what is needed to transition to an inclusive green economy. Given that green economy initiatives can in certain cases negatively impact the multidimensions of poverty or may not automatically result in poverty reduction, an understanding of the synergies and trade-offs is important. Understanding how green economy initiatives interact with efforts to increased incomes, create jobs, improve access to services and reduce vulnerability for the poor allows the right policies to be put in place to optimize synergies and minimize or compensate for trade-offs. This includes targeting of initiatives, policy incentives and mechanisms to compensate 'losers'. For an inclusive green economy to thrive, some enabling factors may be identified including – a supportive policy environment, strong institutions, multi-level partnerships, a convincing evidence base, capacity across stakeholders, communications, results-based monitoring and adaptive learning.

FIGURE 1: CONCEPTUAL MODEL OF LINKS BETWEEN A GREEN ECONOMY AND POVERTY

Inclusive green economy to achieve sustainable development and poverty eradication

How can the effectiveness of inclusive green economy initiatives be maximized?
- Targeting of initiatives
- Policy incentives and compensation mechanisms

What are the synergies with poverty reduction? Increased/secured income; livelihoods and jobs; improved access to quality

What are the trade-offs with poverty reduction? Reduced income; lost jobs; reduced access to services; increased vulnerability

Green economy approaches
Using resources efficiently/sustainably; reducing impacts; reducing vulnerabilities; promoting inclusive and transparent decision-making

Enabling factors: Supportive policy environment; strong institutions; multi-level partnership; evidence based; capacity across stakeholders; communications; results-based monitoring and adaptive learning

2.2 TRADE-OFFS & SYNERGIES

Because of the multidimensional features of poverty (e.g., income, health and education, vulnerability to shocks and exclusion) and the characteristics of a green economy (e.g., efficient resource use, reducing carbon emissions and pollution and reducing vulnerabilities), the relationship between the two is clearly not straightforward, but can be expected to exhibit trade-offs as well as synergies. Given that positive and negative impacts on the different dimensions of poverty are anticipated as countries transition to a green economy, it is important to understand key impacts and the transmission mechanisms through which they will occur.

Synergies occur when green economy policy actions achieve sustainable growth and poverty reduction goals. Trade-offs may be regarded as less desirable, as they are based on progress in one policy area at the expense of another (Vorsatz, 2011). Examples of the potential synergies and trade-offs between multidimensional poverty reduction and green economy initiatives are discussed below and explored in more detail in the case studies in Section 3.

Reducing carbon emissions and pollution. While mitigating carbon emissions is central to addressing the risks of climate change, air pollution in poor communities, which is caused mainly by a lack of access to cleaner fuels, is an urgent health issue. Increased attention to CO2 mitigation can sometimes lead to delaying or neglecting issues of urban air pollution and indoor air pollution caused by cooking fuel.[13] Also, investments to reduce carbon emissions and pollution need not generate jobs in sectors that employ the poor.

Energy and resource efficiency. Energy access is considered key to development. It can stimulate productive activities that generate income, especially in rural areas. Improving access to cleaner cooking fuels can directly contribute to reducing the disease burden and prolonging healthy years of life for the poor, especially for women. However, unless interventions are carefully designed, a switch to cleaner fuels can lead to a bigger share of household expenditure being allocated to fuel and an increase in energy poverty while reducing expenditures on other essential consumption (such as spending on health care or climate change adaptation).

Waste collection and disposal. There is some evidence that waste pickers might be more vulnerable to various infectious diseases and thus may have significantly lower life expectancy (United Nations, 2010:119). Thus, improved waste collection and disposal can add some healthy years of life in the poorer communities. However, such changes can also displace many workers who at present depend on scavenging and waste recycling for their livelihood. Waste management programmes therefore need to understand these synergies and trade-offs and integrate such workers or provide alternative training opportunities.

Sustainable management of biodiversity and ecosystem services. Ecosystem services make a significant contribution to GDP, employment and foreign exchange earnings and reduce poverty by supporting ecosystem dependent communities who derive income and non-income benefits from ecosystems. Well-designed interventions can contribute directly to poverty reduction by allowing income to be generated through environmental activities such as maintaining or improving watersheds and local water resources, management

13 WHO, 2002; WHO, 2008; Duflo et al., 2008; Zhou et al., 2011.

of communal forestry and sustainable collection of wild fruits and other non-timber forest produce. Public employment programmes that are targeted at the environmental sector can also be deployed to specifically address environmental concerns and create employment for the poor at the same time. For example, work programmes in **India**, **Ethiopia** and **South Africa** have included significant natural resource management (NRM) components, as described in Section 3. However, green economy investments in biodiversity and ecosystems services that restrict the access of the poor to natural resources can exacerbate poverty when poor people are relegated to making a living from small areas of land or resources with low productivity. For example, ecotourism may be good for conservation and raising finance, but might not help the poor if their access to tourism sites is restricted and/or they are not party to ecotourism ventures. Integrated policies are therefore needed to ensure that green economy measures are also good for the poor.

2.2.1 ANALYTIC TOOLS TO IDENTIFY AND ASSESS TRADE-OFFS AND SYNERGIES

A clear understanding of synergies and trade-offs and the winners and losers from a proposed initiative, and of the perception of stakeholders, is required to design and implement successful initiatives. Table 1 summarizes key analytic tools that can help one understand and manage the trade-offs and synergies between a green economy and poverty reduction.

TABLE 1: ANALYTICAL TOOLS TO ASSESS AND MANAGE TRADE-OFFS AND SYNERGIES

TOOL	DESCRIPTION	USE
Participatory tools	Examples include Participatory Rural Analysis (PRA), Integrated Sustainability Assessment (ISA), stakeholder analysis, household surveys and semi-structured interviews. Engage communities/stakeholders more effectively with government.	Essential for understanding trade-offs and synergies and addressing pro-poor issues of ownership, sustainability and human rights. Commonly employed to identify poor households and design appropriate policies and interventions Appreciative Participatory Planning and Action (APPA) approach commonly used to design ecotourism projects.
Integrated Ecosystem Assessments	Capture information about ecosystem conditions and services using social, economic and environmental variables. This information is used to develop future scenarios and options for improved management of ecosystems for human well-being and pro-poor economic growth.	These tools are often applied at the subnational and community levels.

TOOL	DESCRIPTION	USE
Climate-land-energy-water (CLEWS) model	An integrated tool (based on different modelling approaches for different resources) to analyse interactions and implications associated with sustainable development goals related to fuel, food and water supply.	Provides information to planners and policymakers on the synergies and trade-offs of sustainable development.
Poverty and Social Impact Analysis (PSIA)	Assesses the distributional impacts of initiatives on the welfare of different stakeholders, particularly poor and vulnerable groups.	PSIAs are commonly used to gather evidence to support advocacy efforts to programmatic decisions.
Environmental Impact Assessments (EIA) and Social Impact Assessments (SIA)	Identify, evaluate and anticipate environmental and social impacts of development projects in advance of implementation.	Designed to ensure that environmental and social considerations are mitigated or offset.
Multi-Hazard Risk Assessment	Includes hazard assessment (including downscaled global climate models), a vulnerability assessment, a risk assessment, a risk reduction assessment and benefit –cost analysis.	Designed to reduce risks and prioritize investments.
Valuation of Ecosystem Services	Monetary estimates of provisioning, regulating and cultural services using best practice valuation techniques to inform decision-making.	Improve decision-making by illustrating value of often unpriced goods and services and /or the cost of degradation.
Cost-Benefit Analysis	Decision-making framework for assessing and comparing economic and financial cost and benefits of alternative options.	Standard tool for appraising and evaluating programmes, projects and policies. It is also a framework into which ecosystem valuation can easily be integrated.
Multi-Criteria Analysis	Decision-making framework. Weighs & compares the preferences of stakeholders across multiple dimensions (e.g., ecological, social and economic) that cannot be reduced to a single dimension such as money.	Particularly applicable where significant environmental and social impacts cannot be assigned a monetary value. Allows inclusion of a full range of social, environmental, technical, economic and financial criteria.

TOOL	DESCRIPTION	USE
Natural Capital Accounting	The UN Statistical Commission of the System for Environmental Economic Accounts (SEEA) provides an internationally agreed method, on par with the current System of National Accounts (SNC), to account for material natural resources such as minerals, timber, fisheries, water and agricultural land. Experimental Ecosystem Accounting is also under development with the support of the Wealth Accounting and Valuation of Ecosystem Services partnership (WAVES).	Measures natural wealth underpinning a country's income. Tracks sustainability of natural resource use and provides detailed statistics for better management of the economy and for promoting inclusive development.
Green Jobs Assessments	Measurement of the labour market impacts of green economy interventions using methodologies such as input-output tables and analysis; social accounting matrixes; or full economic models.	Improves decision-making or policy reforms by informing ex ante of potential impacts on jobs of green economy interventions or informing ex post of effects that policies implemented had on labour markets.
Green economy policy assessments (GEPA)	It consist of determining the amount of investments required to achieve the targets, identifying policy reforms that are essential for enabling green investments, and assessing the economic, social and environmental impacts of proposed policies including the impact on natural capital assets.	Provides useful evidence to stakeholders involved in incorporating green economy principles into their national development agenda.

2.3 POLICY INSTRUMENTS

Policymakers typically have some goals in designing policy instruments (such as selecting the instrument that is most cost-effective, has the biggest impact on decreasing negative externalities and increasing positive externalities or can raise the most revenue). A further important consideration is how instruments can best be applied to promote a green economy and reduce poverty.

Green economy initiatives may require the use of policy instruments to create appropriate incentives and address distributional issues. The protection of forests to improve carbon sequestration and mitigate climate change would have global benefits, but might be accompanied by lower levels of income in the short term for those whose livelihoods are tied to the forest, requiring some form of transfer from those deriving benefits. To be sustainable, growth must be grounded in clean technologies and sustainable natural resource use. This may require imposing stringent regulations and standards on certain industries and may result in job losses and a contraction in the sector. The transition to a green economy therefore needs to be managed transparently and sensitively so that anticipated impacts on particular vulnerable groups can be mitigated by pre-emptive actions including training, skilling and the formation of networks.

UNDESA (2013) presents a typology of green economy policies organised into six categories based around "6 Is": Internalizing; Incentivizing; Institutions; Investment; Information; and Inclusion (Table 2).[14] Within these six categories, a consolidated list of 20 green economy and complementary policy sub-categories is presented, reflecting the range of policy measures and most common instruments proposed by practitioners and experts to transition towards greener economies.

TABLE 2: TYPOLOGY OF GREEN ECONOMY MEASURES

POLICY CATEGORY	POLICY SUB-CATEGORY
Internalizing (Externalities)	Taxes, charges, fees and levies on 'bads' (i.e., pollution, resource use or proxy) Cap-and-trade permit or certificate system and subsidies for the 'goods' (i.e. access to renewable energy, sustainable public transportation and potable water)
Incentivizing	Investment incentives – low-interest loans, micro-financing, tax-exemptions, etc. 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
Institutions	Regulations – norms, standards, information disclosure, labelling, prohibitions, fines and enforcement, mandatory targets Property right and access right laws, including IPR Governance and institutional capacities – accountability, transparency, enforcement, anti-corruption and interagency coordination Integrated planning, decision-making and resource management – EIA/SEA, IWRM, ICZM, ICA, MCA/CBA, disaster preparedness, other diagnostic tools

14 This typology of green economy policies was based upon the categories used in recent publications by some leading international organizations and experts (in particular, see Barbier, 2011; Cosbey, 2011; OECD, UN and the World Bank, 2012; and ILO, 2012).

POLICY CATEGORY	POLICY SUB-CATEGORY
Investment (e.g., in natural capital, agriculture, human capital, infrastructure and innovation)	Sustainable public procurement Investment in natural capital – PES, protected areas, direct management and rehabilitation Investment in sustainable agriculture and tourism Investment in human capacity – capacity-building, training, skills Investment in infrastructure – energy, water, transport, waste, ICT Investment in innovation – R&D, deployment, information-sharing
Information	Voluntary approaches – information provision, labelling, CSR, targets, agreements, educational initiatives Measuring progress – green accounting, green targets and indicators, carbon inventories
Inclusion	Labour market policies – skills (re-)training, job search assistance, income support and benefits Social protection floors – unemployment, insurance and pensions, cash transfers, compensation for price increases, health care

Source: UNDESA (2013)

The movement to a green economy will take place against a backdrop of other longer-term transitions, such as increasing urbanization, climate variability (Box 2), altering demographic structure and structural change in developing country economies that are taking place concurrently, albeit at different rates and in different ways, in each country. Such transitions can present challenges and opportunities, which also need to be addressed by green economy policies. It is beyond the scope of this paper to assess the multiple challenges affecting transitional growth trajectories, the context and conditions of which will be country-specific and influenced by a country's stage of development and natural resource base.

BOX 2: CLIMATE CHANGE AND POVERTY REDUCTION

Energy reform, dissemination of technology and innovation represent major agenda items for international climate change negotiations. However, until recently, there has been limited focus on the potential poverty impacts. There is an emerging consensus that climate change will challenge the ability to eradicate poverty in the medium term. More variable climates are expected to make it harder for the poor to climb out and stay out of poverty and for countries to achieve and sustain development goals. Therefore, for development to be climate-resilient, policy instruments to reduce poverty and enable climate adaptation and mitigation must be integrated and include the climate-vulnerable poor (CDKN, 2011).

The IPPC 5th Assessment Report for the first time includes a chapter on livelihoods and poverty. It states, "Poverty and persistent inequality are the most salient conditions that shape climate related vulnerability" and concludes:

- Climate change is an additional burden on rural and urban people living in poverty. Climate-related hazards act as a threat multiplier, often with negative outcomes for livelihoods.
- Climate change will create new poor between now and 2100 and jeopardize sustainable development. The majority of severe impacts are projected for urban areas and some rural regions in sub-Saharan Africa and Southeast Asia.
- Wage-labour dependent poor households that are net buyers of food will be particularly affected due to food price increases in urban and rural areas, especially in regions with high food insecurity and high inequality (particularly in Africa), although the agricultural self-employed could benefit.
- Some current mitigation and adaptation policies will be detrimental for the poor and marginalized, despite potential synergies between climate policies and poverty reduction.

Ensuring effective development in the face of climate change requires action on five fronts: investing in a stronger climate and poverty evidence base; applying the learning about development effectiveness to how we address adaptation needs; supporting nationally derived, integrated policies and programmes; including the climate vulnerable poor in developing strategies; and identifying how mitigation strategies can also reduce poverty and enable adaptation (CDKN, 2011).

3 CASE STUDIES

This section summarizes some case studies commissioned by UNDP to inform this study.[15] It builds the evidence base on the relationship between a green economy and poverty reduction. The case studies analyse when the potential for pro-poor policy opportunities arises and when trade-offs are inevitable. They also highlight the drivers of success, policy implications and where gaps and additional challenges might need to be overcome. The case studies focus on the following themes: environmental fiscal reform; employment generation programmes; ecotourism; sustainable ecosystem management; energy; and waste management.

3.1 ENVIRONMENTAL FISCAL REFORM[16]

Fiscal mechanisms for pro-poor environmental management show that triple wins of revenue generation, environmental improvement and poverty reduction are possible, but require that the revenue generated be invested in environmental management and poverty reduction.

3.1.1 OVERVIEW

Fiscal policy is a crucial aspect of public policy and can be used to combine environmental and pro-poor outcomes central to a green economy (OECD, 2005; World Bank et al., 2005). EFR have been applied in some developing countries and have achieved triple wins of revenue generation, environmental improvement and poverty reduction (OECD, 2005).

EFR encompasses a wide range of policy changes including: energy and water pricing reforms to remove, for example, environmentally harmful subsidies in agriculture and energy; targeted subsidies to achieve inclusion objectives without compromising efficiency; and using taxes and charges to internalize the costs of ecosystem degradation and (industrial) pollution. Poverty can be reduced by ensuring that poor households benefit through the allocation of revenue to improve social services and through environmental health gains from reduced pollution. Public resources generated have been used to invest in the provision of quality services to the poor, but also can be applied to social protection expenditure to cushion the loss of

15 Other key sectors not case-studied in this report but key to the development of an inclusive green economy include the agriculture and transport sectors. Agriculture, especially in developing countries, is at the crossroads of poverty reduction, green job creation and environmental sustainability. Upwards of 50 percent of many of countries' labour forces reside within the agriculture sector, such as Bhutan, Cambodia, Cameroon, India, Liberia and Viet Nam. Agriculture is also the fourth largest GHG-emitting sector and the largest contributor of non-CO2 GHG emissions. The transport sector is the third largest GHG-emitting sector and, as more than 50 percent of the world's population is now housed in urban areas, sustainable urban transport solutions are becoming ever more critical (GEF UNDP, 2006): Environmentally Sustainable Transport and Climate Change: Experiences and lessons from community initiatives.
16 Based on a case study by Steele (2013).

jobs, training in new green jobs through investment in renewable energy, energy infrastructure and efficiency during the transition to a green economy.

There are some potential trade-offs associated with EFR:

- Although environmental taxes are generally progressive and thus the price corrections introduced by them tend to be pro-poor, there is a need for careful analysis to identify impacts of EFR on particular vulnerable groups. For example, 'dirty' fuels such as coal are predominantly used by marginalized urban poor households who may not have access to cleaner fuels such as cooking gas (LNG or LPG). Increased tax on coal is thus likely to be regressive and further increase fuel poverty among such households.
- Removal of subsidies on diesel can result in kerosene (meant for the poor) being diverted to industrial and commercial uses (for adulteration of more expensive diesel with cheaper kerosene).
- Increase in import taxes on small-scale diesel generators (used extensively by informal enterprises) can increase input costs of such enterprises and can make them uncompetitive compared with more formal sector enterprises that enjoy a price advantage of cleaner fuels (such as electricity from the grid).

3.1.2 EFR DESIGN

Poorly designed fiscal instruments can distort signals, encourage inefficient and excessive use of resources and discourage innovation. The IMF (2013) highlights that, while pre-tax **subsidies** globally amount to some US$480 billion per annum (or 0.7 percent of GNP), the amount is US$1.90 trillion per annum (or 2.7 percent of GNP) when other hidden subsidies are taken into account.[18] In many oil- and gas-producing countries, consumers are subsidized to up to 10 percent of GDP. Reducing fuel subsidies, making these **transparent** and **protecting the poor communities** through targeted cash transfers can work if such interventions are designed carefully and institutions and mechanisms of transparency guarantees are in place. Withdrawal of fuel subsidies before alternative protection mechanisms are put in place results in much anxiety for all households, especially for the most vulnerable. This highlights the importance of policy timing and sequencing as well as use of EFR tools and design options for reducing regressiveness of green taxes and charges on the poor, such as through life line tariffs.

Environmental fiscal reform (EFR) requires an **understanding of macroeconomic dynamics** in order to design environmental policy instruments that can deliver significant social benefits. For example, if fiscal instruments to encourage efficient technologies in manufacturing and industry are introduced without a full understanding of the dynamic effects on industrial performance, growth and productivity, some types of firms (most typically SMEs) might be unable to adjust or transform production processes quick enough. Energy and natural resources are two sectors that require careful macroeconomic measures to cushion national policy design from external factors such as global energy and commodity price movements. Appropriate instruments for stabilization and consumption-smoothing devices are needed. These are not easy, especially for price-takers and small countries.

18 IISD estimates subsidies to fossil fuels to be around US$600 billion per year.

EFR reform will be influenced by a country's underlying social and cultural context. For example, some OECD countries have used green fiscal incentives to make highly energy-efficient and carbon-neutral technologies such as hybrid and electric cars affordable. In the **UK**, a subsidy of up to GBP 5,000 was provided to car manufacturers of such cars, targeted through the 'car scrappage' scheme by linking the subsidy with buy-back of cars more than nine years old. That is, in the **UK**, the scheme was mainly framed as an economic recovery and transport pollution issue in order to encourage 'buy-in', while, in **Germany**, the scheme was framed within an environmental discourse about climate change (Aldred and Tepe, 2011). ERF is also influenced by short-term factors such as a fiscal crisis, environmental disasters or new political leadership.

Building coalitions with stakeholders at the design stage is important and can benefit from an understanding of who the beneficiaries and losers of any fiscal reforms will be. It is important to understand vested interests, manage perceptions and ensure that the losers are compensated. Different kinds of fiscal instruments will face challenges from various stakeholders that will need to be addressed for the instrument to be effective:

- For subsidy removal and taxes on natural resource extraction (e.g., fossil fuel mining, industrial fishing fleets or commercial timber processing), there may be powerful industrial players who resist reforms. However, the general public can be persuaded that such reforms are 'fair'. Better information and communication strategies, transparent decision-making processes and engagement of all stakeholders are essential.
- Subsidy removal or taxes on fossil fuel energy prices may negatively impact middle-class consumers as well as poor consumers and affect inflation further impacting the purchasing power of the poor, and compensatory measures that include the timing and staging of such reform may be needed to lower the burden.
- Positive subsidies, such as for renewable energy, are less controversial, although may face challenges during a period of fiscal restraint. Energy subsidies require considerable financial allocations and, over long periods, are known to sap financial resources; combined with high transaction costs, transmission and distribution losses, this has contributed to the poor state of utility operations in some countries (e.g., extensive use of unmetered water pumps in parts of **India**). This, in turn, has limited the ability of utilities to maintain their systems and to expand into new areas to meet demand. Unfortunately, subsidized fuels have often been poorly targeted or even diverted from their intended recipients, benefiting those who were never intended as targets of the subsidy programme and, again, creating huge losses without necessarily providing attendant welfare gains.

3.1.3 IMPLEMENTATION OF INITIATIVES

The key players involved in the EFR process are the government, private sector, household consumers and development partners including civil society, universities and think tanks (who can play a role in supporting the evidence base, design and transparency for reform). Within these groups, there are further subdivisions, such as the role of different ministries within the government or of the different groupings within the private sector and households (including the poor and vulnerable).

The poor have typically benefited where there has been a clear commitment to use the revenues from EFR to benefit or compensate them. This has been particularly true for fossil fuel price changes where poor households have been seen as an important political constituency for the success of reforms. However, the International Energy Agency (2011) noted that of the US$409 billion in energy subsidies in 2010 in developing countries, only US$35 billion reached the poorest quintile of the population. Thus, while subsidies may be justified on the grounds that they benefit the poor, in reality few of those subsidies may actually reach the poor. Similarly, life line tariffs may be needed to reduce the adverse impact of environmental taxation and subsidy reform.

3.1.4 MONITORING AND EVALUATION OF RESULTS

The fiscal, environmental and poverty reduction benefits of EFR can be measured. For instance, **China's** pollution levy system applies to over 200 different air and water pollutants and raised more than US$1.2 billion in 2004, which is used to fund environmental protection. However, pollution has continued to worsen in many areas in **China** (GIZ, 2013). It is possible that the pollution levy might have been set too low or may have been perceived as legitimizing pollution, thus losing its effect as an incentive to change to less polluting processes. To reduce pollution, the Chinese Government is now taking steps to also increase charges on inputs, such as energy.

In **Brazil**, the government has used VAT tax revenues (ICMS-E in Portuguese) to reward states for creating protected areas. It is estimated that, in the state of Parana, increasing the number of protected areas in the state by 158 percent has generated revenue of US$170 million over 14 years. Overall, ICMS-E revenues were US$200 billion in 2009 (GIZ, 2013). Criticisms of ICMS include that it is one of the most regressive taxes and that it varies significantly from state to state (see IADB, 2013).[19]

However, while the fiscal benefits of **China** and **Brazil's** schemes are easy to quantify, the environmental benefits of the fiscal reforms are not so clear and insufficient attention has been paid to identifying the link between fiscal revenues and environmental outcomes.

3.1.5 DRIVERS AND POLICY IMPLICATIONS

Experience shows that EFR succeeds where there has been careful management of the reforms within an inclusive political process and where reforms are tailored to a country's circumstances. Careful coalition-building and leadership can overcome the vested interests that may hamper reform.

In designing fiscal instruments, there is a need to consider property rights, because a combination of fiscal policies and ownership incentives affect policy goals such as climate change mitigation and adaptation, conservation of forests, wetlands, grasslands and other habitats for biological diversity conservation.

19 The use of 'polluter-pays' pricing schemes with cascading/tiered/alternating rates is considered a more 'fair' and 'effective' approach. However, many developing countries' fiscal systems are less mature, and only recently have some countries been able to successfully implement single-rate value-added taxes. The next step would be to apply differentiated pricing rates to products and services based on their 'good' or 'bad' value. However, this should be approached carefully, taking into consideration institutional capacities and readiness to adopt and implement such measures.

3.2 EMPLOYMENT GENERATION PROGRAMMES[20]

Employment and work programmes, including those not directly aimed at natural resource management, can contribute to efficient resource use and to reducing impacts and vulnerabilities. Careful design and assessment are needed to clearly show the impact of such programmes on poverty reduction.

3.2.1 OVERVIEW

A number of developing countries have Public Employment Programmes (PEPs)/Employment Generation Programmes as anti-poverty strategies. Some national work programmes focus on any employment, while some specifically focus on natural resource management (NRM) such as weeding, land preparation, forestry, de-sludging of water resources, local-level watershed protection and flood protection measures. The potential for PEPs to contribute to a greener economy and to benefit the income and non-income dimensions of the poor is increasingly recognized.

Governments can create 'green jobs' and align poverty reduction and employment creation in developing countries with a broader set of investments in environmental conservation and rehabilitation to also preserve biodiversity, restore degraded land, combat erosion and remove invasive alien species.

PEPs are typically not the most effective option if only one objective is being pursed. For example, to enhance social protection, other schemes like cash-transfers may well be more suitable. The attraction and challenge of PEPs lies in achieving objectives simultaneously and managing trade-offs, which requires a good design of the scheme, professional implementation and ongoing monitoring to adjust the scheme to ensure that the right balance is found and maintained, even as contexts and conditions inevitably change.

Two innovative examples – the Working for Programmes in **South Africa** and the Mahatma Gandhi National Rural Employment Guarantee Act in **India** (MGNREGA) – suggest how employment programmes can be designed to achieve poverty reduction and inclusive green economy objectives and are case-studied below. Other programmes that contain specific components addressing environmental concerns and or transitions to a green economy are the Productive Safety Net Programme (PSNP) in **Ethiopia**, the *Programa de Empleo Temporal* in **Mexico**, the Labour-Intensive Works Programme in **Yemen** and **Brazil's** Bosa Verde programme. MGNREGA and PSNP focus more on social protection aspects than the Working for Programmes, which accords relatively high importance to environmental outcomes.

3.2.2 SOUTH AFRICA

A cluster of labour-intensive natural resource management programmes of the **South African** Government demonstrates how PEPs can enable the poor to contribute to and benefit from such a shift to a greener economy. The Working for Water Programme in **South Africa** started in 1995 and focuses on the removal of invasive plants where they are posing a serious threat to water resources, biodiversity and grazing. Keeping cattle on communal land remains an important economic

20 Based on Lieuw-Kie-Song, 2013.

activity in many parts of **South Africa**, but, in many areas, the quality of communal land is deteriorating due to soil erosion and the invasion of non-edible plants that displace edible grasses.[21]

Working for Water has since spawned various additional 'Working for' programmes that address a range of environmental issues, such as deteriorating wetlands, wildfire risks and waste management (Table 3). Together, they address core components of an inclusive green economy, namely:

- They focus on natural resource management activities that create environmental benefits.
- They create employment for the poor unemployed in **South Africa** and thereby provide them with income and a vehicle to contribute to the country's development.
- They demonstrate and highlight the linkages between poverty, the economy and the environment, thus creating awareness of this at many levels, from the poor employed in the programmes to policymakers and politicians.

TABLE 3: THE MAIN 'WORKING FOR PROGRAMMES'

NAME	CATEGORY	FOCUS AREA & ACTIVITIES
Working for Water	Sustainable Land-based Livelihoods	Control of invasive alien plants that use up water, displace native vegetation and threaten water resources, biodiversity and land used for grazing.
Working on Wetlands	Sustainable Land-based Livelihoods	Restoration of wetlands to enable them to fulfil their important water management service, building gabions, allowing re-vegetation and plugging drainage channels. Workers also remove invasive alien plants and re-vegetate areas with indigenous plant species.
Working on Fire	Sustainable Land-based Livelihoods	Fire prevention and awareness activities, fire detection and suppression, prescribed burning, fire damage rehabilitation, resource sharing and coordination.
Working for the Coast	Coastal Management	Upgrading boardwalks and cleaning and rehabilitating hiking trails and coastlines. Planting nurseries, rehabilitating dunes.
Working on Waste	Waste Management	Cleaning and waste removal in parks, rivers, cemeteries, beaches, streets and other public areas, greening and grass-cutting in public areas, bush-clearing, recycling and composting, and maintenance of landfill sites.

Source: Environmental and Culture Sector Guidelines for EPWP Phase 2.

21 Perhaps the most serious of these is Chromolaena Odorata or Triffid Weed, which is inedible for domestic cattle (and wildlife) and has rapidly spread across many areas of South Africa. In wet years, it needs to be cleared seven times a year and, in some areas, farmers have had to abandon their land, as they cannot cope with the speed at which it grows (Preston, 2011).

The programmes provide temporary employment to more than 100,000 poor people across **South Africa**, 51 percent of whom are women and 56 percent youth. On average, each person was employed for about 84 days and earned about R 6,000 (US$750)[22] (DPW 2013). In total, the equivalent of 35,000 full-time jobs were created.

BOX 3: THE GREEN JOBS POTENTIAL OF THE WORKING FOR PROGRAMMES

The Working for Programmes have enormous employment creation potential, as the natural resource management services that these programmes provide is expected to keep growing, especially with an increased shift towards a greener economy. A recent study on the potential for the creation of Green Jobs in **South Africa** found that the greatest potential lay in natural resource management, followed by energy generation. It is estimated that the Working for Programmes could collectively employ more than 95,000 persons on a full-time basis by 2017 and 230,000 by 2025. Furthermore, through the biomass extracted from the Working for programmes, there is a huge potential for green energy creation as well. Working for Energy programmes could create an additional 50,000 jobs over the long term.

With a track of more than 15 years the Working for programmes provide a solid platform to lead such growth of the natural resource and green energy sectors in **South Africa** and provide an example for other countries.

Source: Maia et al., 2011

3.2.2.1 PROGRAMME DESIGN

Focus on specific environmental problem versus integrated area-based approach. A distinct design feature of these programmes is their focus on a specific environmental risk or problem. This has increased efficiencies (e.g., in contracting and monitoring), built specific technical expertise and facilitated in-depth research. The downside of not taking a more integrated area-based approach is that separate interventions are required to address other environmental concerns within the area. However, an integrated approach requires a much greater (interdisciplinary) expertise to design, manage and supervise and such skills are scarce in many countries, including in **South Africa**.

Task-based organization and payment approach. The programmes are labour-intensive and wages are a key cost factor. The wage, around R 72 a day (US$8 a day), is determined by the Department of Labour, based on a system applicable to all EPWP programmes. Task-based payment is adopted where workers are paid based on work outputs, not time, increasing productivity by a factor of up to three.

22 As a reference, while employment is generally not for an entire year, but for only four months a year, income of participants is around R 1,500 per month for the months employed , which is similar to top range of poorest 25 percent of earners in South Africa.

Gender. A gender balance was achieved through specific targeting. It involved the institution of a quota system of at least 40 percent women and making crèches available for the children of women working in the programme.

Targeting and selection. While results were generally good in terms of reaching the poor, the selection processes were not always transparent and fair. More transparent and fair selection criteria and procedures are set to become an important priority of the EPWP in its third phase and will also become an important aspect for the Working for Programmes.

Many environmental benefits do not accrue directly to the poor. If, for example, the poor do not have access to farmland, increased water availability for farming is of little direct benefit to them. One approach has been to implement programmes that look at downstream benefits. For example, some invasive trees like Black Wattle, which is also planted commercially, provide a very high quality wood. This can be used for making furniture and, in some areas, initiatives have been established where this wood is used to produce school furniture. Similar synergistic benefits, but at a much larger scale, also exist for the generation of energy from all the biomass of removed IAP. It has been estimated that IAP could generate sufficient biomass for the installation of 720 MW of power and that this could create jobs for approximately 50,000 people annually (Preston, 2011). This enormous potential has formed the basis for the introduction of the Working for Energy Programme, which is exploring ways to realize this potential.

Clear policy links. The Working for Water Programme has emphasized and demonstrated two benefits that resonate with policymakers: (i) the creation of employment for the poor – in a country with a unemployment rate of above 25 percent; and (ii) increasing the availability of water in a water-scarce country. This approach has been persuasive enough for the government to allocate annual budgets to the Programme for the past 18 years.

3.2.2.2 PROGRAMME IMPLEMENTATION

Capacity-building. The Working for Water Programme has invested in well-established training interventions resulting in a cadre of workers with the capacity to implement the Programme. In the Working on Fire Programme, an integrated approach was adopted. Workers undergo an intensive training regime on fighting and controlling fires, while the capacities of other stakeholders to prevent fires are developed and affected communities are empowered to understand the benefits of naturally occurring fires and the potential harm caused by more intense fires subsequent to changes in ecosystems and land use.

Financing. During its inception, the WFW programme was funded through the Reconstruction and Development Programme (RDP), which had specific funds targeted at poverty alleviation programmes. The programmes are now mainstreamed and funded through annual departmental allocations. In the 2012-13 financial year, expenditure amounted to approximately R 2 billion (US$250 million[23]), more than 95 percent of which is funded by the **South African** Government. Non-government funding is received through stakeholders, such as farmers and water authorities, who have strong interests in water quality and quantity and catchment management.

23 Exchange rate: 8 ZAR = 1 US$, which is the approximate rate over the 2012-13 financial year.

3.2.2.3 MONITORING AND EVALUATING RESULTS

The immediate outputs of these programmes, such as hectares of land cleared or wetlands restored, and of the direct employment benefits are easy to measure and this is being done on an ongoing basis. Harder to measure are the outcomes and impacts on ecosystem services and the welfare of the poor. There is limited research to build on and Working for Water is probably leading the way in developing planning tools to control IAPs and methods to assess their impacts on ecosystem services.[24]

The clearing of invasive plants is estimated to have contributed to an increase in stream flow of 46 million cubic metres per annum and a NPV R 80 million (per year) (Marais and Wanneburgh, 2008). The value of three ecosystem services (water resources, grazing and biodiversity) is estimated at R 152 billion annually. R 6.5 billion is lost every year due to invading alien plants, but an additional R 41.7 billion would have been lost, had no control of these plants been carried out (De Lange et al., 2010).

Given that the employment created is generally temporary, studies have concluded that it is important to target the poorest to maximize the impact. A study by CASE 2007 found that 90 percent of Working for Water and 86 percent of Working on Fire participants could be considered poor, based on the household subsistence level of income (Potgieter et al., 2004).[25]

3.2.2.4 DRIVERS AND POLICY IMPLICATIONS

The Working for Programmes have effectively capitalized on the synergy between the labour-intensive nature of many natural resource management activities and the need for employment creation in a country with high unemployment and poverty. An important advantage of these programmes is that the results of the work are highly visible, a fact that increases support for the programmes. For example, it is easy to see when the invasive plants have been removed and to experience resultant increase in stream flow thereafter.

Consistent and professional administrative leadership of these programmes has been a driver of success. This administrative leadership team has been in place since 1995 and has managed to consistently demonstrate and articulate the importance of the programmes, maintaining support even through difficult political and economic periods.

Policy development. The Working for Water Programme has played a critical role in the development of legislation and related regulations on invasive species, which has, in turn, strengthened the position of the programme[26] by providing a legislative mandate. The programmes have also raised awareness about the economic importance of addressing environmental concerns, especially within government, thereby also contributing to the shift towards a green economy. At the same time, the success of the programmes has been important to the **South African** Government, which has adopted public employment programmes to alleviate high rates of poverty and unemployment. This has resulted in the establishment of the Expanded Public Works Programme. The Working for Programmes are now an integral part of this and furnish it with a vehicle to access broad political support and continued funding.

24 Examples include: the WFW Information Management System – a GIS-linked system used to calculate the workload for clearing the area which forms the basis for contracts (CSIR, 2008); the South African Plant Invaders Atlas (SAPIA) - an electronic atlas that tracks the spread of invasive plants (Henderson, 2007); and the National Invasive Alien Plant Survey (NIAPS) – which uses remote sensing technology to estimate the spread of invasive plants (CSIR, 2008).

25 South Africa does not have an official poverty line and academic references are often used to be able to establish whether programmes reach the poor.

26 Of particular relevance are the 2001 amendments of the regulations of the Conservations of Agricultural Resources Act of 1983.

In terms of poverty alleviation, the Programme might best be viewed as one of a set of policy instruments that can together address the various dimensions of poverty. This requires better aligning the Programme with other anti-poverty interventions so that participants can receive a range of complementary benefits simultaneously. The integration of these programmes into the Expanded Public Works Programme was one important step in this regard. The alignment with other public employment programmes in other sectors made it possible, for example, to define the role of public employment programmes within the country's overall social protection framework, as has been articulated in the recently released National Development Plan (National Planning Commission, 2011).

Ability of participants in the Programme to exit into other employment has been limited due to the lack of job opportunities; consequently, workers remain quite dependent on the Programme. Greater mainstreaming of green economy activities in **South Africa** would increase green jobs and traction of these programmes as a training ground for such work.[27]

3.2.3 INDIA

The Mahatma Gandhi National Rural Employment Guarantee Act (NREGA) promulgated in 2005 guaranteed 100 days of paid (unskilled) employment per year per household. As of 2013-14, 130 million households in 645 districts were registered in the programme, generating wage employment equivalent to 2,130 million person-days (GoI, 2014). Although the target is 100 days of employment, the average in 2013-14 was about 45 days, with some high-performing states achieving 75 days of work per household. An evaluation by the Institute of Applied Manpower Research based on a survey of 20 districts found that, in all the districts, the NREGA had a positive impact on wage income. However, whether increased income results in improved quality of life depends on a number of factors, including whether payments were made in cash, local levels of corruption, and access to other mechanisms that reduce vulnerability, such as kinship ties and traditional forms of support by extended family members.

Based on in-depth studies in four districts covering four different agro-climatic regions in **India**, a study by the Indian Institute of Science (IISc) (2013) assessed the programme's potential to produce environmental benefits. The study found that 80 percent of all works implemented in the programme were linked to natural resources such as water, forests and croplands. Many of the activities relate to water resources conservation, such as activities to reduce droughts and their impacts and to improve local water storage. The findings of the IISc study are in line with other studies (IITM, 2012).

IISc 2013 reports the following results of NREGA activities: (i) groundwater levels have improved or stabilized at pre-NREGA times despite increased use of groundwater; (ii) agricultural yields have increased in 30 of the 40 villages studied as a result of water conservation activities; (iii) surface water conservation increased the area under irrigation and crop production in 21 out of 30 villages studied; and (iv) drought-proofing work has led to increased forest areas and forest conservation and improved carbon sequestration. Another study in the mountain state of Sikkim found that over 40 springs and four lakes have been resurrected and rural household incomes have risen (GoI, 2013).

27 Other important green economy initiatives in South Africa include the Green Economy Accord, the Green Fund managed by the Development Bank of Southern Africa and the National Greening Programme.

Between 60 percent and 80 percent of respondents to the MGNREGA survey do not have access to improved sanitation (ITTM, 2012). In Rajasthan and Tamil Nadu, the state governments have used innovative ways to engage rural stakeholders by combining MGNREGA with other schemes, including the Total Sanitation Campaign (TSC), to achieve significant improvement in access to sanitation in rural areas. In Tamil Nadu, 0.15 million toilets were built under this programme (GoI, 2013). Opportunity therefore exists to connect employment programmes such as MGNREGA with schemes to improve access to sanitation.

3.2.4 OTHER POLICIES

Public Employment Programmes are only one type of policy intervention to provide employment and income generation opportunities and are designed mostly as policies for short–term employment. In order to integrate green economy, employment and poverty reduction objectives, other issues that need to be considered include:

- **Raising labour productivity** is critical. Low productivity of jobs is one of the main reasons that sub-Saharan Africa, for example, has made limited progress on poverty reduction despite having relatively strong economic growth and low rates of unemployment (around 7 percent). Employment can play a useful link between economic growth and job creation only if jobs are productive and generate sufficient benefits for workers (ILO report on Global Employment Trends, 2013).
- **Skills-building and upgrading.** Most PEPs are made for low-skilled workers, who have no other means to enter the formal labour market. Therefore, for PEPs to provide an effective transition towards more lasting and formal employment opportunities to result in poverty reduction, they must go hand-in-hand with skills development.
- **Entrepreneurship development.** Many of the job creation opportunities that green growth offers are likely to emerge in new sectors where entrepreneurship can be promoted.
- **Formalization of employment.** Many poor people work and live from activities of environmental protection/conservation such as recycling, but still remain trapped in poverty because of the informal nature of such jobs, low productivity and low incomes. Thus, an important part of employment-related interventions should address the informality in environment-related sectors. The experience of **Brazil** with formalization of waste pickers is discussed in Section 3.6.[28]

3.3 SUSTAINABLE ECOSYSTEM MANAGEMENT[29]

Within a green economy, investments in maintaining and improving biodiversity and ecosystems have the potential to deliver 'triple wins'– revenue generation, environmental improvement and poverty reduction.

3.3.1 BACKGROUND AND RATIONALE

Ecosystems are important components of national wealth and drivers of economic growth. On average, 26 percent of the total wealth of low-income countries is derived from ecosystem, compared to 2 percent in high-income countries, and 4 percent of new wealth created globally from 1995-2005 was derived from natural capital (OECD, 2013).

28 Other examples are discussed in ILO, 2013. 'Sustainable development, decent work and green jobs', Report V. International Labour Conference, 102nd Session, 2013. http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_207370.pdf

29 Based on Hannan (2013).

The sustainable management of ecosystems delivers macroeconomic dividends in terms of a continuous stream of income from natural assets such as forests, minerals and fisheries. This income can directly benefit the poor by strengthening and expanding their livelihood base as well as by providing an important source of development finance that governments can reinvest in poverty-focused growth (World Bank, 2006). Degradation and unsustainable use of natural resource stocks (e.g., overharvesting of forests or overextraction of minerals and overfishing) may be associated with short-term growth, revenue and job generation. Such short-term gains are often encouraged by political economies where election cycles work against sustained (but delayed) long-term benefits of a well-managed environment and natural resource base. Such unsustainable practices can undermine the quantity and quality of natural resources, increase the poverty and vulnerability of dependent poor people and reduce their livelihood options.

The many services provided by ecosystems are fundamental inputs into key economic sectors (Box 4). For example, water provision and quality are essential for agriculture and industry, landscape and aesthetic beauty are essential for ecotourism, and the soil stabilization functions of forests can greatly enhance the efficiency of hydropower plants by protecting against the premature siltation of dams. Ecosystem services also make a significant contribution to GDP, employment and foreign exchange earnings.

Ecosystems also contribute to reducing poverty by allowing ecosystem-dependent communities to continue to derive income and non-income benefits and to creating possibilities for new livelihoods related to ecosystems such as ecotourism. In many countries, poor households rely on natural capital for a disproportionately large fraction of their income (e.g., in agriculture, forestry and fisheries), which underpins their commercial and subsistence activities and often provides a safety net in times of crisis.[30] Ecosystem services and other non-marketed goods have been estimated to account for 47 percent to 87 percent of social 'GDP of the poor' (i.e., the effective GDP or total source of livelihood of rural and forest-dwelling poor households); however, in national GDP, agriculture, forestry and fisheries account for only 6 percent to 17 percent. Moreover, these households have few means to cope with loses of critical ecosystem services, such as drinking water purification or protection of natural hazards. Sustainable management of natural capital is therefore an important element of poverty reduction (TEEB, 2010). The challenge is often to add value to these ecosystem services through the development of the enabling conditions for green (micro) enterprises and to lift the incomes of the poor. A body of literature also links sustainable management of ecosystems to the prospects of long-term, sustained, pro-poor growth based on optimal use of such resources.[31]

Within a green economy, investments in maintaining and improving biodiversity and ecosystems have the potential to deliver 'triple wins' – revenue generation, environmental improvement and poverty reduction. Moving to sustainable ecosystem management can also create jobs, livelihoods and enterprises (including through the provision of access to business services, markets and skills for the poor).

30 Bass et al., 2005; World Resources Institute, 2005, 2008; Tieguhong et al., 2009; Sayer et al., 2012.
31 See some papers in OECD, 2008, Natural resources and pro-poor growth, Paris: OECD.

BOX 4: ECOSYSTEM SERVICES

An ecosystem is a dynamic complex of plant, animal and microorganism communities and the non-living environment, interacting as a functional unit. Ecosystems (e.g., forests, wetlands, marine, cultivated land) provide a range of services that may be categorized into: ***provisioning services***, such as fish and timber; ***regulating services***, which refer to the natural processes of ecosystems such as waste assimilation and carbon sequestration; ***cultural services,*** such as tourism and educational use of the environment; and ***supporting services***, which are necessary for the production of all other ecosystem services (e.g., soil formation or nutrient cycling). Ecosystems, through the services they provide, contribute to individual and social well-being. Importantly, this contribution extends beyond the provision of goods such as mineral products, timber or fish to the natural regulating functions of ecosystems such as carbon sequestration and water purification and regulation.

Source: Millennium Ecosystem Assessment, 2005.

Well-designed interventions can contribute directly to poverty reduction by allowing income to be generated through environmental activities such as maintaining or improving watersheds and local water resources, management of communal forestry and sustainable collection of wild fruits and other non-timber forest produce. Sustainable management of ecosystem services can also be a cost-effective option for climate adaptation and mitigation. For example, mangrove conservation or rehabilitation can reduce the impact of storms for vulnerable coastal communities while sustaining the livelihoods of local fishing communities by protecting fish stock. Sustainable forest management can support livelihoods through the provision of NTFPs while reducing vulnerability to floods and droughts through a forest's watershed and soil protection functions.

Synergies among ecosystems can contribute to human well-being and improved livelihoods. **Fiji's** primarily coastal population relies on marine resources for food and livelihoods, but these resources are threatened by unsustainable activities including overfishing and deforestation. A land-sea planning approach determined that investments in forest protection could improve the condition of the country's coral reef ecosystems by 8 percent to 58 percent if the remaining forests are protected rather than deforested. As a result, the Fiji Protected Area Committee is attempting to create a marine network to protect 20 percent of the land and 30 percent of the inshore waters by 2020 (Klein et al., 2010).

However, green economy investments in biodiversity and ecosystems services that restrict the access of the poor to natural resources can exacerbate poverty when poor people are relegated to making a living from small areas of land or resources with low productivity. Trade-offs may also occur between sustainable livelihoods based on existing (traditional) patterns of production and national policies aimed at creating growth from market-oriented industries based on natural resources. This can draw people away from sustainable livelihoods in the anticipation of increased income and a possible exit from poverty. The links between ecosystem health and poverty and examples of synergies and trade-offs in the agriculture are provided in Box 5.

BOX 5: PROMOTING SUSTAINABLE PRO-POOR AGRICULTURE

The high incidence of poverty among smallholder farmers in the Cotopaxi region of **Ecuador**, set in the highlands of the Andes, is attributed to environmental degradation from overexploitation, lack of access to markets and decreasing access to quality land, resulting in low agricultural productivity. As the changes in land use continue to erode the natural resources base and limit the space available for agricultural production, smallholder farmers are faced with persistent poverty from a lack of other livelihood opportunities and scant access to services such as health care and education (Tekelenberg et al., 2009).

A natural habitat reclamation process in the Xizhuang Watershed in Yunnan, **China**, adversely impacted livelihoods, biomass production and soil quality. Consolidating land available for agriculture led to intensive practices that increased pesticide and pollution levels throughout the watershed; biodiversity and soil quality were reduced by the use of inappropriate trees species for reforestation and plantation (income-generation). As a result, many labourers sought additional work to supplement family incomes (Jun and Jianchu, 2009). Conversely, the **China** Loess Plateau Watershed Rehabilitation Project employed a variety of technical approaches in soil and water conservation and rangeland management to deliver significant environmental benefits to downstream areas and users that contributed to increased labour productivity, allowed for on- and off-farm income diversification, smoothed income and labour distribution throughout the year and expanded employment options for women (World Bank, 2008).

3.3.2 INITIATIVE DESIGN

Understanding the local context is critical to the successful design of initiatives, given the complexity of ecosystems, their varied uses and the diversity of customary practices and decision-making processes evident. For example, the management of pastoral lands in the **Horn of Africa** relies upon the ability of pastoral peoples to move freely between rangelands and to resolve conflicts and enforce decisions over access and use of resources. Customary and formal institutions govern management and involve different power dynamics that can influence social structures such as the decision-making role of tribal elders versus young herders.

A community-based watershed restoration programme initiated over 20 years ago by a local NGO in the Avari Basin of Rajasthan in **India** revived a traditional water collection technology in parallel with the establishment of contemporary social management structures to combat income, health and natural resource poverty exacerbated by lack of water for human and livestock consumption, crop failure and soil erosion. Approximately 1,050 villages in the region have adopted the programme (Galizzi and Herklotz, eds., 2008).

Participation of stakeholders. Integrated approaches across sectors, administrative layers and development partners are needed to realize synergies and address trade-offs between poverty reduction and environmental sustainability. This requires the participation of a broad range of stakeholders in the design of initiatives. Opposition and challenges to inclusive green economy

initiatives can arise across groups for a variety of reasons. Communities may be concerned about elite capture, patronage or clientelism and the loss of access to, or even ownership of, natural resources. Producers, suppliers or buyers along resource-based value chains may incur the cost of environmental externalities within the costs of goods and services. National government may focus on the initial costs rather than long-term benefits or may resist reform, viewing sustainable resource management as a barrier to economic development; local governments may promote sectoral interests or the interests of elite groups through patronage or clientelism above the interests of poor stakeholders.

Understanding synergies and trade-offs. Agreement can be secured and opposition mitigated through an understanding of trade-offs and synergies to help define how different social groups and institutions may benefit or suffer. Assessment tools can be used to quantify the costs and benefits of specific policies and initiatives and the associated winners and losers, facilitating the design of mitigation approaches. Compensating traditional land owners either for loss of land or access to resources after the establishment of a protected area is a common example of mitigating losses to livelihoods for the conservation of natural resources (Cernea and Schmidt-Soltau, 2006).

Effective targeting is required for initiatives to be successful, but may face challenges such as: differences in targeting methods and criteria for establishing eligibility levels that can overlook vulnerable households; powerful actors that can sway decisions; lack of coordination and understanding of targeting methods by surveyors; methods that are not understood or accepted by stakeholders; and methods that are too expensive to deploy or insufficiently budgeted.

Gender consideration needs to be built into the design of initiatives to avoid groups being disadvantaged and to promote effect implementation. Initiatives can disadvantage certain gender groups if not well-designed. For example, women in the Bamana region in **Mali** were displaced from their household gardens to external plots after men began growing the local plants in response to a burgeoning market for exotic forest foods. Food collection efforts were similarly diverted as women and youth began foraging for forest products that the men eventually sold in the markets, rather than for household consumption (Wooten, 2003). A study of 135 community forestry groups in **India** and **Nepal** revealed that the proportion and socio-economic composition of women in the leadership committees improved the management performance of the respective groups, leading to improved forest conservation outcomes (Agarwal, 2010).

Box 6 provides examples of tools that have been applied to assess, design, implement and monitor sustainable ecosystems management initiatives.

BOX 6: EXAMPLES OF SEM ASSESSMENT TOOLS

As part of the Poverty and Environment Initiative (PEI) **Thailand** country programme, an **integrated assessment** is underway at different watershed locations (upper, middle and lower) in Nan, Khon Kaen and Samut Songhan Provinces. The objective of the assessment is to inform community- and provincial-level decision makers about development options that will enable economic improvement with minimal degradation to the environment and natural resource base. As part of the assessment, the capacity of national institutions to carry out assessments and to make use of findings to inform decision makers is being strengthened (PEI, 2012b).

The subnational integrated planning process in the three Thai provinces devised a scoring system to ascertain the depth of poverty and environment linkages that were captured by the indicators and incorporated into development plans. The stakeholders consulted acknowledged a link between livelihoods and maintaining healthy fish stocks through mangrove forest protection. Thus, specific actions for mangrove management were prioritized for inclusion in the development plans (PEI Thailand).

The Sepik Wetlands Management Initiative (SWMI) in **Papua, New Guinea** covers a 1.5-million-hectare area primarily managed under customary ownership. The initiative promotes the sustainable harvesting of crocodile products as an alternative to subsistence farming and hunting. It successfully generates income and protects crocodile and habitats within the wetlands. The Initiative regularly conducts **participatory rural appraisals** to understand the composition and status of the wetlands and local communities and adjust activities when necessary. As a result, revenues from sustainable harvesting have also been directed to local education, conservation and health projects (UNDP, 2010).

In **Botswana**, the Government used a **PSIA** to analyse the social, economic and environmental outcomes of a donor-supported agriculture programme. The programme was designed to increase farm output and productivity, promote food security at the household and national levels, improve incomes through access to credit and markets and provide farmers with a level of social protection from shocks of market failure and agricultural risks. Using participatory tools including PRA, focus groups of key stakeholders and individual interviews, the PSIA determined that the project did successfully reach vulnerable people and was consistent in applying its eligibility criteria. Yet the project ultimately was unable to increase grain production, which impacted food insecurity for poor and vulnerable beneficiaries (PEI, 2013a).

3.3.3 INITIATIVE IMPLEMENTATION

Broad stakeholder involvement. Key implementation partners are communities, local and national governments, the private sector, civil society and international donors. At the local level, many countries employ community-based management that combines modern development theories with customary forms of knowledge about the resource and management practices. A common challenge faced by these local management systems and institutions is how to create legal and regulatory

frameworks that retain and codify customary systems, rather than to subordinate the enforcement abilities of the associated community institutions (Techera, 2008).

Building capacity across the local, subnational and national levels is key to the successful implementation of initiatives. For example, to be effective, local governments require sufficient administrative, technical, financial, planning, outreach and management capacity. They also need to understand the capacity of ecosystems services and the threats that they face from a range of investment decisions. That requires better knowledge, education, awareness, engagement and data.

Financing. Natural resource management and ecosystem-based approaches require significant upfront and long-term funding to support technical requirements and necessary capacity-building. However, over time, community and ecosystem management systems can become self-supporting through income generation, enterprise development and market integration supported by national and subnational policies. Financing options include budget allocations, taxes, fees or charges on resource use, payment for ecosystem services, earnings from state-owned enterprises or state lands or equivalent sources in fiscally decentralized, subnational circumstances. Donor support is also common. Over the past decade, for example, the World Bank has spent approximately US$85 billion on local participatory development, including on community-based resource management (CBNRM) (Mansuri and Vijayendra, 2013). Continued direct donor support is expected to be needed for: establishment of temporary external structures (outside of the government system); staff positions that are not defined within budgeted staffing levels and organizational structures; and long-term, wide-scale ecosystem restoration.

BOX 7: PAYMENT FOR ECOSYSTEM SERVICES SCHEMES AND POVERTY REDUCTION

The Payment for Ecosystem Services (PES) entails the creation of arrangements whereby individuals or communities are paid to undertake actions that increase the levels of ecosystem services desired by those who stand to benefit from those services. The **Clean Development Mechanism (CDM)** is perhaps the best known of these arrangements. It facilitates payment, by the global community, for carbon emission reductions to those providing the emission-reduction ecosystem service. PES policies are a growing trend because they offer a direct and possibly poverty-alleviating method for achieving environmental objectives. However, transaction costs of implementation, monitoring and enforcement can be high if there are many agents, such as when there are many individual landowners whose collective action threatens certain ecosystem services.

An RFF study (Persson and Alpizar, 2011) notes that, while most PES initiatives tend to small-scale, some significant PES schemes are in place, such as Costa Rica's PSA programme, **Mexico's** programme of payment for hydrological services (PSAH) and **China's** sloping lands conservation programme (SLCP). However, there is as yet limited evidence of the effectiveness of such programmes in achieving both environmental and poverty reduction objectives.

3.3.4 MONITORING AND EVALUATING RESULTS

There has been a focus on assessing results at the subnational or local community levels where they are easier to measure; indicators linking social and environmental outcomes are lacking at the macro level.

General indicators of poverty reduction such as change in income levels, change in income distribution, change in diet or nutrition and access to productive resources appear to take dominance over the more difficult measurement of ecosystem services. Projects designed to protect areas of ecosystems tend to focus on conservation objectives and community access rather than on indicators of social development.

More focus is needed to develop linked poverty and environment indicators. There is also a need for more household sustainability indicators to demonstrate connection between ecosystem services and poverty and to link ecosystem services at different spatial scales to the concept of resilience or the ability of a community or ecosystem to withstand external shocks (environmental, social, economic). Indicators should correspond to the multiple dimensions of poverty and the interrelationships of ecosystems; be easily understood and based on accessible data; and be built into policies and initiatives early in the process to address current and future management issues. A key consideration is to reconcile the disparity between policy or management expectations (often short-term) and the longer timeframe required to identify or restore healthy ecosystems.

3.3.5 DRIVERS FOR SUCCESS AND POLICY IMPLICATIONS

Two key drivers of success are strategic leadership from government and devolved management.

Strategic leadership from government. While most experience is at the subnational and local levels, national governments must provide the strategic leadership and institutional context to successfully guide short- and long-term interventions and policies.

Devolution of management authority to local governments and communities is widely considered to be an effective system to achieve multiple objectives of poverty reduction and sustainable natural resources outcomes. However, this needs to be supported by the right complementary policies to facilitate pro-poor growth. When the **Philippine** Government decentralized the management of fisheries resources in the 1990s, enabling the community-based management of MPAs, it did so without complementary policies for a national reduction in fishing effort or enforcement of community management rights. The National Tourism Authority constructed a resort on Balicasag MPA and non-local diving businesses started operations in the protected area, diverting business opportunities and employment away from community members. The biological impacts of inadequate monitoring and enforcement of fishing regulations led to a significant decline in fish abundance within the protected area and the adjacent reef (Christie, 2004).

3.3.6 POLICY IMPLICATIONS FOR EFFECTIVE DESIGN, IMPLEMENTATION AND SUSTAINABILITY OF INITIATIVES

- **Mainstreaming the role of ecosystem services into national development policy, planning and budgetary processes** to ensure the links between poverty and the environment is positively reinforcing. Sustainable resource use is informed by policies on national- and subnational-level environmental accounting and the valuation of natural resources and ecosystem services. The sustainable use of natural resources is also supported by the creation of market policies for biodiversity and ecosystems services (e.g., ecotourism markets and sustainable timber) and green technologies.
- **Strengthening the links between macro frameworks (policies and strategies) and micro needs (local integrated approaches).** Experience shows that sector-specific and cross-cutting bottlenecks hinder progress on poverty and sustainability. Effective implementation requires sustained commitment and engagement that brings together key sectoral and cross-sectoral ministries (such as those for finance and planning) and domestic and external partner initiatives from the beginning, to support the implementation of specific sets of solutions around a country-owned action plan.
- **Removing perverse incentives** and introducing appropriate taxes and subsidies to give incentives for sustainable use of natural resources and ecosystem services, penalize polluters and encourage best practices.

Namibia is internationally recognized as being in the vanguard in the establishment of legal, economic and social incentives and relationships to promote poverty reduction and the conservation of wildlife and natural resources through community-based natural resource management. Namibia revised the legal framework for land management on private and communal lands to spur private sector and community involvement in the conservation of natural resources and to enable a more equitable distribution of the economic benefits (ODI, 2010).

3.4 TOURISM[32]

Carefully designed and managed ecotourism programmes can bring significant benefits to local communities and help poor households develop sustainable livelihoods derived from the natural resources at the centre of tourism activity.

3.4.1 BACKGROUND AND RATIONALE

Ecotourism is an important tool for achieving inclusive sustainable development (United Nations, 2013). It provides "pathways for bringing together the social, economic, and environmental objectives of sustainable development in ways that can benefit poor and vulnerable groups and reduce inequality" (PEP Working Group, 2013).

Over the past 20 years, ecotourism has grown at 20 percent to 34 percent per annum compared to around 7 percent to 10 percent per annum for the conventional tourism sector. By 2012, ecotourism was estimated to account for a quarter of all tourism earnings. According to the UNWTO (2013), international tourist arrivals exceeded 1 billion persons in 2012 and continued to increase in 2013.

32 This section is based on Bustam, 2013.

The need for this rapidly growing sector to align with sustainable development objectives was recognized in the UN General Assembly resolution on sustainable tourism at its 68th session in 2005. There are two alternative approaches to achieve this: (i) to examine conventional tourism and identify policy challenges to make every segment of such tourism 'green'; or (ii) to promote ecotourism.[33]

Many ecotourism initiatives contribute to sustainability and poverty reduction objectives, as the following examples illustrate. Since 2002, 16 indigenous communities have been collaborating to develop the Nguna-Pele Marine and Land Protected Area (MLPA) in **Vanuatu**. Following the development of this network, the average incomes of the villagers doubled when they shifted from fishing to ecotourism as an alternative livelihood activity (UNDP, 2012). In the Nam Ha ecotourism project in **Lao People's Democratic Republic**, communities directly benefit from the jobs created in trekking, guiding, accommodation and local services. In **Nepal**, the Simikot Train sustainable tourism project benefited 56 poor households who lived along the trail from activities related to tourism. In **Ecuador**, Kapawi Ecolodge began in 1995 as a private venture, but was handed in 2008 to the Achuar people to manage and operate. The ecolodge now provides most of the income for the local Achuar community, who have increased the protected area by more than 618,000 hectares. The Koh Yao Nai community ecotourism club was set up in **Thailand** by the local community as a mechanism to prevent large-scale commercial trawlers from overexploiting local fisheries. The club offered home-stays and fishing expeditions directly benefiting 35 local families and in turn created strong incentives for preserving the fragile fisheries. Ferraro and Hanauer (2014) determined that protected areas in Costa Rica benefited the poor mainly through ecotourism and ecosystem services. The case studies highlight how empowered communities were able to regulate actions of larger players (such as trawlers). Mitchell and Ashley (2010) note that the share of tourist spending that reaches (or benefits the poor people) varies between 7 percent in **Cambodia** to over 27 percent in **Lao PDR** and **Tanzania**.

However, making sure that the benefits of ecotourism initiatives reach all sections of the community, and particularly the poor and vulnerable, is often challenging and requires understanding and managing some trade-offs (Box 8).

3.4.2 DESIGNING INITIATIVE

A number of factors should be considered in the design of ecotourism projects.

Multi-stakeholder participation. All stakeholders, including local communities, vulnerable groups such as women, the elderly and communities that do not have any alternative livelihoods, should be consulted in project design. Multi-stakeholder participation is critical for fostering economic synergies (Box 9).

33 A strict definition of ecotourism includes activities involving nature-based travel, education and sustainability; a broader definition could include all 'green' aspects of tourism.

BOX 8: TRADE-OFFS BETWEEN POLICIES, ECOSYSTEMS AND PEOPLE

Trade-offs between ecotourism and poverty reduction may include: (i) loss in livelihoods and income from restrictions placed on land uses and natural resource extraction; (ii) worse health resulting from loss of access to natural-based foods; and (iii) loss of employment ensuing from changes in labour requirements related to modifications in land uses.

Negative economic impacts, in addition to livelihood impacts, can result from leakages and volatility. Leakages occur when earnings generated through ecotourism leave the local economy. The overall spending by tourists in developing countries is several times the magnitude of Official Development Assistance; however, much of the spending leaks back to developed countries because of the way the tourism industry is organized. In addition, formal tourism operators and firms capture many of the benefits in the developing countries, with a small share flowing to local communities. The ecotourism industry is inherently volatile, with demand influenced by political instability, safety issues (e.g., crime, weather) and the trendiness of the destination.

Potential social trade-offs include: (i) increased land prices resulting from an increased demand for land; (ii) loss of cultural heritage or commodification of culture from abandoning or selling traditions; (iii) loss of control or flexibility over local development options where easements or long-term contracts specify a narrow range of management alternatives or where community land owners and landless do not become involved; (vi) inequality due to a failure to distribute benefits fairly; (v) increased competition from markets that leads to marginalization of weaker groups; and (vi) at the extreme, sexual exploitation, stress, crime and child labour that can lead to family disintegration, increased use of drugs or alcohol and displacement and that can threaten long-term security by undermining economic security, self-determination and health.

BOX 9: BUILDING ECONOMIC SYNERGIES THROUGH MULTI-PARTNER COLLABORATION

Earnings are provided through partnership with multiple stakeholders through wage employment, selling goods and services (e.g., food, crafts, guide services), collective income (e.g., profits from community-run enterprises, dividends from a private sector partnership (e.g., concession or lease agreement), land rental paid by an investor, user fees for passing through a village, and charitable donations. In **Thailand**, the Koh Yao Noi Community-Based Ecotourism Club fostered commitment and collaboration by developing partnerships and strategic networks. The Club is a result of partnership between two organizations that support communities in the development of SMEs. These organizations assisted community members in conducting community-based research projects, using research tools to determine how to develop tourism. In addition, involvement and ownership of the Club resulted in increased community cooperation and participation, which includes new roles and the provision of a voice for local youth, women, elderly and disadvantaged minorities.

Multiple partnerships also build linkages and the supply chain for sales to ecotourism enterprises and tourists by the poor. Linkages are present in the Pro-Poor Pilot Programme, **South Africa**, where connections were made between the formal and informal sectors. For example, the formal sector has procured liquid petroleum gas, construction of a new deck and invasive vegetation clearing.

Synergies and trade-offs between policies, ecosystems and people need to be assessed. It is necessary to ensure that the benefits accrue to the poor and those dependent on natural resources, not just to the elite wealthier and more powerful groups who are better placed to access jobs and finance small and micro enterprises (SMEs).

Understanding local context. Projects should build on the knowledge and information of local communities to correctly identify their needs, current practices and opportunities. Ecotourism projects need to be specific to the local area concerned and take into consideration existing livelihoods that they may be in conflict with.

Multi-level approach to initiative planning and delivery. Effective initiatives illustrate success at three levels – destination, national and international. For example, in **Ecuador**, the Achuar established the destination level through partnerships with the informal sector (i.e., 20 local suppliers), the national level by organizing their 64 communities under a NGO that manages all community projects and the international level by obtaining international recognition for conducting tourism that reduces biodiversity impacts (as evidenced in certification from Smart Voyager, Rainforest Alliance and Best ECO Lodges).

Gender considerations. The Global Report on Women and Tourism (UNWTO and UN Women, 2010) notes that, while a large number of women are employed in tourism, they tend to be employed in clerical and low-productivity roles.

Minimize leakages to ensure that benefits accrue to local communities and national governments. To minimize leakages in **Ecuador**, the Achuar developed product markets for local suppliers to sell products to the eco-lodge and tourists (e.g., produce, fish). Similarly, in **Lao PDR**, the Nam Ha Ecotourism Project provided linkages for SME merchants to sell services to tourists (e.g., transport, food, water, guides, handicrafts).

Targeting/inclusion programmes. Some groups will need to be identified and targeted to benefit from ecotourism initiatives (e.g., poorest of the poor). In **Ecuador**, an inclusion policy was developed to provide the opportunity for women and people with disabilities to gain employment at the eco-lodge. The Nam Ha Ecotourism Project in **Lao PDR** initiated an Ethnic Minority Participation Programme to encourage ethnic minority participation in conservation and development activities, with success; in 2006, 20 percent of guides were women and 95 percent were members of ethnic minorities.

A **timeline** for the project should be developed. Practitioners recommend supporting projects with a timeframe of three to five years because tourists typically do not begin to regularly visit an area before the third or fourth year of implementation.

3.4.3 IMPLEMENTATION OF INITIATIVES

Key factors needed for successful implement ecotourism initiatives are:

Community engagement and ownership. The Oslo Statement on Ecotourism 2007 by the International Ecotourism Society highlights in its first recommendation that indigenous communities should be recognized not only as beneficiaries, but also as equal stakeholders.

Partnerships at multiple levels. A leading role for government is critical, particularly with support for policy changes. An external party, such as an NGO, is essential to bind and support efforts of

others as well as to help with sustainability. Donor support for tourism plans is essential. The private sector is imperative for provision of technical advice to develop skills, marketing links and commercial expertise.

Financial planning. Effective implementation necessitates initiatives to be costed, budgeted and financed. Ecotourism business plans should include a financial analysis of capital and operating costs, revenue projections and financing options in addition to a market analysis (Bustam and Stein, 2010a, 2010b). A lack of credit and capital is a common constraint among ecotourism initiatives, although initiatives can be financed through donations, government subsidies, private company grants or financial assistance from NGOs. Successful projects typically have some level of community financial investment from the outset. This can be supported by strengthening access to micro-finance.

The Achuar people in **Ecuador** use collective income from the Kapawi Ecolodge, while pro-poor ecotourism in **South Africa** is premised on dividends from private sector partnership. Specifically, the local community retains 14.5 percent of ownership in the Rocktail Bay and Ndumu Lodges with a 20-year lease and 12.5 percent share in lodge operations (Poultney and Spenceley, 2001). The Nam Ha Ecotourism Project in **Lao PDR** has user fees built into a permit system for guided treks to the NPA.

Patient and long-term involvement, given that projects can take a long time to become established.

Building the capacity of communities in planning, designing, implementing and monitoring initiatives. Skills and an understanding of ecotourism are often lacking. Education and training are needed in understanding of tourists and how the industry works, business skills, standards for community-run SMEs, and community organization (e.g., managing common resources, distributing benefits).

Piloting and understanding the replicability of initiatives. Many initiatives start with small site-specific projects as pilot sites that can be replicated elsewhere and that build on the lessons learned at the pilot site.

3.4.4 MONITORING AND EVALUATING RESULTS

Monitoring ecotourism initiatives is imperative to ensure natural resources are sustained and communities supported. It is possible to develop indicators at the local level to capture the environmental footprint per tourist or natural capital per tourist to monitor the scale of impact on environmental quality and manage this carefully within the limits of the system. Two key frameworks available to determine the success of poverty reduction through ecotourism are certification and assessment.

Various **ecotourism certification programmes** prove that operators follow pre-established sustainability practices that encompass socio-cultural, economic and environmental dimensions (Bustam et al., 2012). For example, Smart Voyager is a programme initiated by Conservation and Development, an Ecuadorian citizen's group, to reduce environmental impacts. They certify operations across Latin America that meet conservation standards. The Rainforest Alliance certifies global operators based on sustainability standards that focus on ecological, social and economic benefits. Best ECO Lodges selects operations that meet eco-friendly requirements for accommodations.

Some suitable tools, such as the Toolkit for Monitoring and Managing Community-Based Tourism (Twining-Ward, 2007), focus on environmental, socio-cultural, economic and community involvement impacts. Many indicators can be used to measure progress; Box 10 provides indicators commonly used. However, it is important to remember that there is not one blueprint to replicate at each location, as indicators will be project- and location-specific.

BOX 10: COMMONLY USED ECOTOURISM INDICATORS

Benefits to the local culture: In **Nepal**, donations from tourists to the Namkha Khyung Zong Monastery helped support religious culture.

Job opportunities and expansion of business opportunities: The Pro-Poor Tourism Pilots Programme in **South Africa** created 50 permanent jobs for local people in the formal sector as well as more than 60 casual labour jobs. In **Lao PDR**, four new, private eco-guide service units were launched in connection with the NPA.

Vulnerability: In **Nepal**, the development of SMEs reduced vulnerability by diversifying income, which enabled hotel and campsite owners to contribute to their primary household income by paying for food in deficit months.

Gender equity and social inclusion: The Ethnic Minority Participation Programme initiated in **Lao PDR** enabled women to shift from spending one to two days collecting bamboo and rattan shoots and one day transporting these to the market, with profits of US$1 to US$2 per day, to spending two to three hours preparing tourist meals and earning US$3 to US$6 without leaving the village.

Health and safety: In **Nepal**, sanitation was improved by building toilets along the community trail, access to water was improved due to trail improvement and access to health care was improved by the development of new health posts.

Revenue generation: In **Lao PDR**, 18 percent of all revenue goes to the villages with 8 percent of the total revenue going to village development funds. From 2001-2005, gross revenue of US$137,794 was collected, while US$9,485 went directly to the villages.

Local earnings: Income generated from eco lodge-related activities in **Ecuador** totalled 83.95 percent of all income generation. Local suppliers also benefit by selling their products to the eco lodge.

Forest conservation: In **Lao PDR**, communities work with the NPA authorities to create cooperative agreements that define stakeholder responsibilities in protecting resources where ecotourism is based (e.g., provide guidance on harvesting NTFPs, prohibit unlicensed hunting, set aside tracts of village-managed forests as sanctuaries).

Infrastructure: Trail improvements in **Nepal** improved horse and mule travel, which opened communications.

Access to investment funds: Community support funds are available to CBO members in **Nepal**.

Community organization and cohesion: In **South Africa**, communities have a commercial partnership with the formal sector and with the tribal authority (i.e., shares in lodge ownership and operations), resulting in community-wide benefits.

3.4.5 DRIVERS AND POLICY IMPLICATION

The most common drivers of success are: (i) commitment and collaboration across multiple partners; (ii) transparent revenue sharing processes; and (iii) proper planning including establishing commercial viability, product development, marketing and investment.

Ecotourism can benefit poor populations from its growth as an industry and provision of employment. However, the link between ecotourism and poverty reduction is not automatic. **Deliberate and complementary poverty reduction policies** integrated in ecotourism design and implementation are required for ecotourism to directly reduce poverty.

Poverty issues must be made a leading variable if a pro-poor approach to ecotourism is to be effective, possibly over and above economic and environmental benefits. This focus needs to go beyond community benefits, where elite capture is possible, and must extend to solving poverty issues so that the poor populations enjoy equitable benefits.

Regulations and incentives. A supportive policy and planning framework is needed in the form of regulations and incentives to strengthen the bargaining power and improve working conditions of the poor. Such enabling policies and frameworks target the poor and give them voice. This allows them to communicate local messages to decision makers and grants them access to business services, markets, jobs and skills while facilitating access to financial benefits. Pro-poor ecotourism implementation requires addressing **land ownership and tenure issues.** Planning gain is one tool for strengthening communities' rights. This practice requires that external investors include community involvement in their proposals (e.g., common property resources for the benefit of the community through ecotourism initiatives).

Investment in physical infrastructure. Limited transportation and communications infrastructure to meet ecotourism needs is prevalent in impoverished areas. To mitigate this constraint, roads, airports and utilities should be considered as part of the ecotourism initiative planning, which can be supported by local government or through donor support.

3.5 ENERGY[34]

Renewable energy technologies have good potential to provide poor people access to energy while at the same time creating employment, generating small enterprises, reducing poverty, achieving health and education outcomes and improving the well-being of women.

3.5.1 BACKGROUND AND RATIONALE

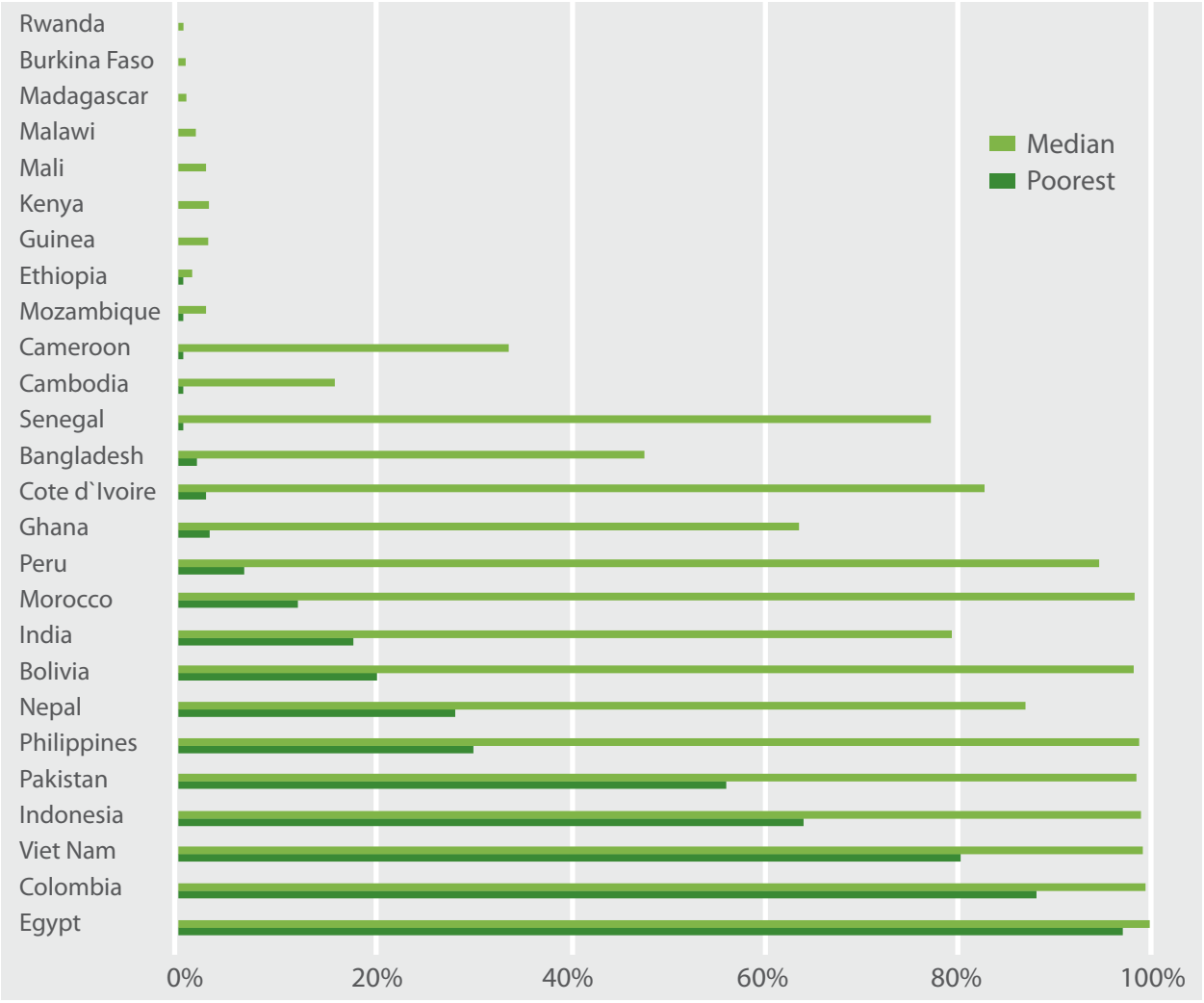
Energy is an important input to all sectors of the economy, fuelling agriculture, industry, transport and social services such as education and health, and there is strong empirical evidence that no country has developed or reduced its poverty significantly without available, affordable and secure energy.

34 This section is based on Dutta (2013).

Energy sources account for two thirds of global greenhouse gas emissions (GHG) (World Energy Outlook 2013 (IEA, 2013)) and the global energy mix continues to be dominated by coal and oil, which together accounted for nearly 60 percent of total primary energy supply in 2011 (IEA, 2013). A transition to a green economy entails shifting to cleaner fuels.

Poverty is intrinsically linked to energy. The majority of the 2.8 billion people relying on traditional biomass[35] for cooking and the 1.2 billion without access to electricity are poor (SE4ALL, 2013; IED, 2007). Data from 21 countries show that lack of access to modern energy is most acute for the poorest households (Pachauri et al., 2013a) (Figure 2). The major advances in expanding energy access over the past 20 years have been offset by population growth. Moreover, most of the incremental electrification took place in urban areas; despite this, large populations living in slums and informal settlements continue to remain unconnected to electricity.

FIGURE 2: HOUSEHOLD ACCESS TO ELECTRICITY FOR THE MEDIAN AND POOREST WEALTH QUINTILES



35 Traditional biomass refers to solid biomass that is combusted in inefficient, and usually polluting, open fires, stoves or furnaces to provide heat energy for cooking, comfort and small-scale agricultural and industrial processing, typically in rural areas of developing countries (REN 21, 2013).

A billion people, the majority of them poor, are served by health facilities without electricity and more than 50 percent of children in developing countries go to primary schools that are not electrified (Practical Action, 2013). There is also a significant gender dimension, given that the burden of collecting traditional biomass fuels falls mainly on women and girls.

In line with the UN Secretary-General's Sustainable Energy for All initiative, national governments are trying to balance the demands of three broad objectives in the energy sector: energy security to ensure economic stability and growth; reducing energy poverty by ensuring access to electricity and clean-combusting fuels and equipment for the poor; and managing greenhouse gas emissions from energy. The World Energy Council has called this the "energy trilemma" – of how to achieve an appropriate balance between these sometimes-conflicting objectives (Pachauri et al., 2013a). The SE4ALL initiative will engage governments, the private sector and civil society partners globally to achieve three major goals by 2030: ensure universal access to modern energy services; reduce global energy intensity by 40 percent; and increase renewable energy use globally to 30 percent.

There is a growing recognition that clean energy technologies and energy-saving options with low lifecycle greenhouse gas emissions are necessary to sustainably meet future energy needs. Since energy poverty is correlated strongly with income poverty and is most acute for the poorest households in rural areas, addressing energy poverty can be viewed as a strategy to address poverty in its multiple dimensions. Access to electricity (along with appliances to use it), improved cooking technologies and mechanical power can help people to escape from persistent poverty (Pachauri et al., 2013a; UNDP, 2012) and allows income opportunities through new jobs and enterprises, improving existing jobs and livelihoods, enabling improved health and education services and improving opportunities and quality of life, particularly for women.

The full poverty reduction potential of energy access depends on the availability of three types of energy: energy for cooking; electricity for lighting and to power household and commercial appliances; and mechanical energy to power equipment for agriculture and other productive activities (e.g., irrigation) and to transport goods and people. A shift to clean(er) renewable energy can deliver multiple benefits to poor communities and contribute to an inclusive green economy, as discussed below.

Increased energy security and macroeconomic savings. Increasing energy supply from renewable sources reduces the risks from rising and volatile prices for fossil fuels, helps diversify the energy mix and produces macroeconomic savings. Most developing countries are net oil importers and face a constant threat of rising and volatile prices for fossil fuels. For example, oil accounts for 10 percent to 15 percent of total imports for oil-importing African countries and absorbs, on average, over 30 percent of their export revenue (UNEP, 2011). In 2005, households in Asia were spending 74 percent more on their energy needs than in 2002 due to higher oil prices, which led to rising input costs for primary sectors like agriculture and an upward spiral in overall cost of living (UNDP, 2007).

Financial viability. Analysis in **Nepal, Kenya** and **Sudan** shows that a shift to liquefied petroleum gas (LPG) and to cleaner burning and efficient stoves can offer internal rates of return ranging from 20 percent to 400 percent (Malla et al., 2011, cited in Pachauri et al., 2013a). A WHO study based

on several countries shows that a programme of universal distribution of improved cooking stoves might cost around US$650 million but generate annual benefits of over US$105 billion.

Household economic benefits. As a result of the **Nepal** Rural Energy Development Programme (REDP), average household incomes increased by around US$121 due to electricity access alone. Further benefits include reduced expenditure on energy and improved economic activity of small firms. For a typical South Asian household, the benefits of switching exclusively to improved cookstoves or from biomass to LPG amounts to about US$30 (Rs. 1,429) per year (World Bank, 2011). Rural electrification in **Bangladesh** increased household income by 12 percent through improving farm and non-farm income (Khandker et al., 2009).

Job creation. Renewable energy technologies are currently more labour-intensive than fossil fuel technologies, with solar Photovoltaics (PV) technology accounting for the highest number of job-years per gigawatt hour (GWh) over the lifetime of a facility (IRENA, 2011). Some 5.7 million jobs have been created in the renewable energy sectors (REN21, 2013), mainly in a small number of countries including **China**, **Brazil**, **Germany**, **the USA** and **India**. However, projections indicate that up to 20 million jobs could be generated in this sector by 2030. The largest number of jobs, about 1.38 million, is currently in the biofuels value chain, with **Brazil's** sugarcane-based ethanol industry being the largest biofuels employer. Examples of jobs created for the poor through renewable energy initiatives are summarized in Box 11.

BOX 11: EXAMPLES OF JOBS CREATED FOR THE POOR THROUGH RENEWABLE ENERGY INITIATIVES IN ASIA

Selling, installing and maintaining small solar home systems in rural **Bangladesh** employed some 150,000 people directly and indirectly. Grameen Shakti in **Bangladesh**, which operates a small loans scheme that enables poor households to buy a solar system though training local youth and women as certified solar technicians, aims to create 100,000 jobs in the renewable energy and related businesses.

The Renewable Energy for Rural Economic Development (RERED) project in Sri Lanka generates employment in construction, operation and maintenance of mini-hydro projects. Each project generally employs 8 to 11 local people during construction, providing 3,600 to 4,950 person-days of local employment, and four people for maintenance, generating another 90 to 120 person-days of employment per month. In addition, the 106,116 solar home systems installed under RERED created about 477,000 person-days (19,300 person-months) of employment (UNDP, 2012).

Energy-based projects foster the creation of thousands of rural enterprises that supply electricity and ensure the maintenance of equipment. For example, in **Cambodia**, 600 to 1,000 rural SMEs supply electricity to some 60,000 households (UNCTAD, 2009).

The Barefoot College, started by the Social Work and Research Centre in **India**, regularly trains 180 mostly illiterate women from **India** and other developing countries on solar electrification. The model has proved that illiterate and semi-literate men and women can fabricate, install, use, repair and maintain sophisticated solar units through basic knowledge share and hands-on practical training.

Health benefits. Cleaner energy reduces exposure to harmful pollutants, which contribute to respiratory illness and a range of other diseases, including cataracts and possibly cancer. Based on 2012 data, household air pollution caused by inefficient use of solid fuels is estimated to account for 4.3 million premature deaths a year (WHO, 2014).[36] Global estimates suggest that between 0.6 million and 1.8 million deaths could be averted in 2030 if universal access to clean combusting cooking is achieved (Rial et al., 2012; Pachauri et al., 2013a).

Gender benefits. Women, in particular, experience health benefits and gain from the reduced drudgery of daily chores such as collecting water, gathering firewood and preparing food. In **Bhutan**, women spend 28 fewer minutes per day collecting fuel wood and men 21 fewer minutes as a result of having electricity (ADB, 2010). In **South Africa**, electrification increased female employment outside the household within five years (Dinkelman, 2011).

Improved education. Electrification in rural **India** increased school enrolment by 6 percent for boys and 7.4 percent for girls and extended weekly study time by more than an hour (Khandker et al., 2012).

Environmental benefits – avoided deforestation and carbon dioxide and methane emissions. In developing countries, about 730 million tonnes of biomass are burned every year (WHO, 2006), amounting to more than 1 billion tonnes of carbon dioxide (CO2) emitted into the atmosphere. It is estimated that the new generation of advanced biomass cookstoves would reduce emissions by about 25 percent to 50 percent (World Bank, 2011). Open fires and primitive stoves are inefficient and up to two tonnes of biomass might be used per family a year. Biomass fuels burned in traditional ways contribute to a build-up of greenhouse gases (Bailis, Ezzati and Kammen, 2007; Venkataraman et al., 2010; World Bank, 2011) as well as other climate forcers, including black carbon, in the atmosphere. In addition, excess demand for biomass can deplete forest resources and cause local environmental problems.

Improved resilience. Renewable energy technologies are also climate adaptation measures, since access to this form of energy is likely to enhance the economic and social resilience of rural communities, whose livelihoods could be affected by climate change.

The other major energy use in rural areas is for lighting. Renewable energy options such as biogas plants, solar PV panels, wind energy systems and micro hydropower can be used to provide lighting without connecting with the centralized, fossil-fuel-based grid electricity, resulting in reduced consumption of kerosene, batteries and improved local air quality. Approximately 48 million domestic biogas plants have been installed since 2011 for rural electrification. The vast majority of these are in **China** (42.8 million) and **India** (4.4 million), with smaller numbers in **Cambodia** and **Myanmar** (REN 21, 2013).

In expanding energy access, trade-offs may arise between policies that improve living conditions (e.g., energy for lighting) and ones that enable productive activities (e.g., energy for water pumping and irrigation). While the former make a direct and more immediate contribution to better living standards and offer social dividends, the latter enable sustained poverty reduction and economic development.

36 WHO media centre fact sheet No. 292. Household air pollution and health. Updated March 2014.

3.5.2 DESIGNING INITIATIVES

Three broad set of initiatives can be identified: (i) initiatives related to improving access to modern fuels through expansion of 'conventional' networks; (ii) initiatives related to expanding access of the poor households to off-grid but modern fuels based on unconventional approaches such as bio-fuels or small-scale grids based on solar PVC; and (iii) initiatives related to cooking devices for more efficient use of fuels and reducing indoor air pollution exposure.

Adoption of an Energy Plus approach. Conventional approaches focus on providing energy services to meet basic energy needs for domestic consumption (i.e., lighting, cooking, heating). This 'minimalist' approach to energy access, in most cases, will not be enough to enable poor households to escape poverty. Complementary interventions are necessary, for example, investments in infrastructure, improved access to information, access to markets, business development services and capital. The coordination or co-investment in energy access with other interventions has been called the 'Energy Plus' approach by UNDP (UNDP, 2012). It emphasizes that energy access activities need to be mainstreamed within wider developmental efforts to maximize their welfare enhancing impacts on the poorest (UNDP, 2012).

Exploring non-electricity energy services. Electricity is not the most appropriate form of energy for cooking or the quickest or most cost-effective way of providing energy services to the poor, except for densely populated urban habitations. Providing clean modern energy services to poor communities will require expanding the choice of energy options to include conventional and non-conventional sources.

Engaging local actors and understanding user preferences. Communities need to be involved in planning to ensure that energy services are appropriate, socially acceptable and sustainable. Community participation can help reduce costs (Khennas and Barnett, 2000) by contributing labour and by enabling economies of scale through encouraging more people to participate in schemes. It also can be critical to ensuring that systems are looked after and used in the long run, as witnessed in REDP and the rural electrification efforts in **Ghana** and **Brazil**. At a basic level, local involvement is crucial for products to be in line with people's needs and preferences. Early cookstove projects sought little feedback from end-users and introduced products that could not withstand harsh conditions on the ground (e.g., dust, wind, wood of varying size, etc.) or were incompatible with cooking practices and food preparation by users (Mukhopadhyay et al., 2012). Often, rural households use different energy services at the same time to meet multiple objectives, so providing a replacement that meets only one of these objectives will prove unacceptable. For example, in the **South African** rural electrification programme, some communities did not switch to electric cooking stoves even when these were provided for free, as they relied on the coal stoves not just for cooking, but also for heating.

Provide energy services for public services. Public services that are critical for poverty reduction, such as health and education, require access to modern energy services. There is a correlation between human development outcomes (e.g., maternal mortality) and access to modern energy services (Practical Action, 2013). Investment in these social sectors (e.g., building clinics and schools) can include an energy supply (usually a stand-alone system) when there is no alternative energy supply available, such as the electricity grid.

Timescale. A sustained programme is essential before significant impacts can be seen, as demonstrated in **Brazil** and **Nepal**.

3.5.3 IMPLEMENTING INITIATIVES

Develop sustainable and transparent partnerships. An appropriate institutional framework for expansion requires all actors to do what each does best. Governments and development partners serve as facilitators and must support the 'doers' – the implementing organizations and private sector. As facilitators, they should finance 'common goods' that serve a variety of ends, including research and product development, promotion and market development, capacity-building, policy dialogue and advocacy. Energy projects and programmes, along with the private sector, should act as efficient, effective suppliers of energy products and services. NGOs and community-based organizations (CBOs) should take the lead in support functions, including promotion, awareness-raising and providing oversight. Only local citizens can identify the specific requirements of each location.

Capacity-building. In order to better align job opportunities in the renewables sector with poverty reduction, it is necessary to provide adequate training opportunities for poor households so that they can compete and secure some of the direct and indirect employment in the renewable energy sectors.

Financial support for the poorest people. A constraint faced in clean energy dissemination is the low purchasing power of the poor, compounded by lack of credit choices. In many cases, modern fuels cost significantly more than people are currently paying or can afford. Furthermore, significant initial payments (e.g., for improved cookstoves or biogas digesters) and/or the need to buy in bulk (e.g., LPG) present major obstacles to the poor. Some sort of financial support to lower investment costs for the poorest consumers is likely to be essential in coming years. Furthermore, subsidy reform or removal needs to contain measures to protect the poorest people from or compensate them for any negative impacts. Alternatives to subsidies, such as cash transfers, can also be considered to enable chronically poor people to access modern energy services (Pachauri et al., 2013).

3.5.4 MONITORING AND EVALUATING RESULTS

Several measures of energy poverty have been proposed. The more common among them can be classified as:[37] physical availability of an energy carrier (for example, the electrification rate and the use of clean-combusting fuels and stoves); minimum amount of physical energy necessary for basic needs such as cooking and lighting; type and amount of energy that is used for those at the poverty line; households that spend more than a certain percentage of their expenditure on energy; and the income point below which energy use and or expenditures remain the same, implying that this is the bare minimum energy need.

In the last few years, a few composite indicators have been developed that deal with a mix of energy carriers and technologies. These are multi-tier frameworks based on the attributes of people's energy supply and the services that they use based on that supply. They include:

37 http://www.energyfordevelopment.com/2010/06/energy-poverty.html

- **The Energy Development Index (EDI)** developed by the IEA is a macro-level indicator that measures the development of a country's energy system. It includes household level and 'community'-level indicators and derives from four indicators – per capita commercial energy consumption, per capita electricity consumption, share of modern fuels in residential energy use and share of population with access to electricity. Data available for 64 countries in 2011 show that oil-rich countries tend to have high EDI values, whereas eight of the 10 lowest-EDI-ranking countries were in sub-Saharan Africa.
- **The Poor People's Energy Outlook Report 2010** suggested a multidimensional and multi-tier framework for defining energy access, which includes household electricity, cooking/heating applications and mechanical power as the three dimensions, measured on a five-point scale.
- **The Multidimensional Energy Poverty Index (MEPI)** was developed by the Oxford Poverty and Human Development Initiative and measures the incidence of energy poverty and its intensity. It includes indicators for a range of energy services such as cooking, lighting and communications (Nussbaumer et al., 2011; Nussbaumer, 2012). In contrast to other tools, it focuses on quantifying energy deprivation, as opposed to energy access.
- Most recently, the **SE4ALL** global tracking framework has adopted a binary tracking of energy access as its starting point, using two measures: electricity access defined as availability of an electricity connection at home or the use of electricity as the primary source for lighting; and access to modern cooking solutions, defined as relying primarily on non-solid fuels for cooking (SE4ALL, 2013).

From a green economy perspective, the conventional, binary definitions (e.g., 'having access' or 'not having access') and indicators provide a rather incomplete picture of energy access. First, numbers on access to electricity do not reveal the quality of supplies, which is often poor, especially in rural areas, and issues that influence the use of electricity, such as connection times, supply disruptions, outages, the value of lost output, voltage quality, frequency stability and the need for on-site generation (Barnes et al., 2010). Second, these indicators do not account for the role that energy plays in operating businesses and micro and small enterprises (MSEs), a critical contributor to family incomes and poverty reduction. Perhaps the most serious limitation is that they fail to reflect (i) the extent to which energy production and consumption activities may be drawing down natural capital and (ii) the impact of those activities on emissions and ecosystems.

3.5.5 DRIVERS AND POLICY IMPLICATIONS

Critical drivers common to successful programmes are: (i) a strong commitment by national governments to sustain and implement the programme along with effective decentralization and participation by all levels of government; (ii) leadership capacity in the organizations designing and implementing the initiative; (iii) careful targeting of the programme and subsidies to communities most in need; (iv) making energy access an integral part of poverty reduction; and (v) the engagement of local actors.

Policy implications associated with developing access to energy in ways that maximize benefits to the poor and vulnerable are discussed below.

National programme to optimize options. Given the scale and nature of the current access gap in electrification, electricity will need to be provided through a combination of centralized and decentralized energy technologies and systems.

The optimal choice for each country to maximize reach and cost effectiveness will be driven by the availability of resources, the regulatory and policy environment, capacity and the relative costs of solutions. The National Electrification Scheme in **Ghana** highlights that it is possible to extend electricity access to rural households. However, a concerted national programme appears to be crucial, as is flexibility in choice between on-grid and off-grid options according to their economic viability. A World Bank (2006) study finds that, in Africa, the number one choice for improving access to renewable energy is off-grid systems.

Make energy access a national development priority supported by a legal and regulatory framework. Developing country governments must make expanding access to modern energy services a national development priority, backed up by sufficient funding. In most of Northern Africa, almost universal access achieved over the last 30 years has been partly a result of the high priority accorded to universal access by the country governments (Pachauri et al., 2013b). Other examples include electrification policies of **Botswana**, **South Africa**, **Brazil** and **Fiji**, which have consistently afforded high priority to rural electrification. The government needs to provide a legal and regulatory framework that encourages investment in pro-poor energy access strategies. This includes reform of tariffs, tariff structures, regulatory structure and the subsidy systems (including creative cross-subsidization) as well as building capacity of key actors at national and local levels.

Coherence and coordination between energy and other sectoral policies. A multi-sectoral approach builds on the inter-linkages between energy, food security, poverty reduction sectors as well as the influence of trade, investment and climate policies (Bonn, 2011). For example, investments in energy services for public services such as health and education are critical for well-being and catalyse poverty reduction. A successful attempt on a multi-sectoral approach was the **Senegalese** CIMES/RP, a mechanism created by Senegal's Rural Electrification Agency, which aims to facilitate access to energy services in rural areas, including by identifying possibilities of supporting or exploiting synergies with other sectors (e.g., water, education, health, telecommunications, gender, agriculture and the environment) (UNCTAD, 2009; ESMAP/World Bank, 2008).

Policy coherence across various levels of governance. Synergies are best realized when policies across sectors and at different levels of governance can be harmonized. The national, subnational and provincial actions must complement and strengthen each other. REDP in **Nepal**, for example, strengthens the capacity of the decentralized governance system in infrastructure service delivery, including energy. In sub-Saharan Africa, countries, including **Rwanda**, **Kenya, Ethiopia** and **South Africa**, are making progress in promoting micro-hydro schemes (MHP) that are suitable for isolated grids providing electricity to rural villages and that also feed into public grids. In these countries, decentralized renewable technologies have been mainstreamed into regional and national policy documents. Because MHP projects are small-scale, MHP sector development relies not only on good national-level policies, regulations, capacities and financing schemes, but also needs to incorporate the local level effectively. A good approach to increase governance capacity and coordination between different government institutions is to support the set-up of local energy plans, as in **Madagascar**. By including the local governments in the energy infrastructure planning process,

awareness, capacities and accountability for successful implementation of energy policies can be strengthened (GTZ and EUEI, 2010).

3.6 WASTE MANAGEMENT[38]

Integrated waste management approaches can reduce poverty, create jobs, reduce pollution, conserve natural resources, diminish society's ecological footprint, reduce greenhouse gas emissions, protect public health and improve industrial competitiveness. The poor are already part of the waste management solution and could play an even greater role with the proper support.

3.6.1 BACKGROUND AND RATIONALE

There are two significant linkages between waste management and poverty. First, the poor tend to suffer the most from inefficient waste management in the developing world. Slums and low-income settlements often do not pay property taxes and end up with sporadic, or no, waste collection. Uncollected waste can clog drains, causing floods particularly during the rainy season. If it blocks waterways, stagnant water can become a breeding ground for mosquitoes and other vectors of various diseases, such as malaria. The decomposition of organic materials produces methane, which can cause fire and explosions, and contributes to climate change. The World Bank estimates that, worldwide, garbage dumps and landfills generate 11 percent of the anthropogenic emissions of greenhouse gases (Cointreau, 2008). The biological and chemical processes that occur in open dumps produce strong leachates, which pollute surface and groundwater. Fires periodically break out in open dumps, generating smoke and contributing to air pollution. Animals feeding at the dumps may transmit diseases to humans living in the vicinity. Biodegradation of organic materials may take decades, which may limit the future use of the land on which open dumps are located.

Since the land around open dumps is cheap or free, the poor often settle around them. The World Bank estimated the life expectancy of communities surrounding the dumps in the outskirts of **Mexico City** at 53 years, compared to 67 years in the general population. A study conducted at a dump community in Port Said, **Egypt**, found that the infant mortality rate was 1/3 (i.e., one death of an infant under one year of age out of every three live births), which is several times higher than the rate for the region as a whole. An epidemiologic study of a community living around a dumpsite in Manila, **Philippines**, found an incidence of 35 different diseases – including tuberculosis, anthrax, poliomyelitis and cholera – higher than in the general population. Furthermore, waste processing and disposal facilities, such as hazardous waste dumps and incinerators, are mostly located in the poorest neighbourhoods (Wapner, 2002). Thus, the poor face higher risks to their health associated with wastes than middle- and high-income areas.

Second, millions of poor individuals make a living from waste. The informal waste sector (IWS) provides a livelihood to about 1 percent of the urban population in the developing world (World Bank, (2006), i.e., about 15 million people worldwide survive by working with waste, including around six million in **China** and one million in **India**. Many IWS workers are low-income, vulnerable individuals, such

38 This section is based on Medina (2013).

as children, women, elderly, disabled, unemployed and migrants. Traditionally, IWS workers have been considered a problem and their activities declared illegal. Now, it is increasingly recognized that the IWS, with the right policies in place, can be part of the solution contributing to a country's green growth and poverty reduction. The IWS handles one third of the city's waste in Cairo, **Egypt**; 15 percent to 59 percent in New Delhi, **India**; 30 percent in Jakarta, **Indonesia**, and 10 percent - 20 percent in **Brazil**.

The IWS includes the following types of activities related to solid wastes:

- **Informal waste collection.** Often in low-income neighbourhoods not served by municipal waste collection services, informal collectors charge a collection fee to residents. In Male, **Maldives**, informal collectors pick up most of the wastes generated by the population.
- **Informal recovery of recyclables** is the most common activity by which people recover materials from waste for reuse or recycling. In recent years and in many countries, incorporation of waste pickers in recycling programmes that involve separation at the source is becoming more common. Municipal collectors in many cities salvage recyclables during their waste collection routes to augment their income; others are engaged full-time. As many as 100,000 waste pickers recover recyclable materials in Guangzhou, **China.**
- **Manufacturing activities** use materials recovered from waste as raw materials. By adding value to waste materials, individuals can earn higher incomes than by just recovering and selling recyclables. Items manufactured from waste include pots and pans made from melted aluminium cans, roof tiles from plastic waste and cleaning mops made from textile waste. The transformation of organic waste into compost also falls into this category (Box 12).
- **Provision of waste management services** such as street sweeping and cleaning of facilities such as bus stations.

There is a link between these categories of activities and the potential for poverty reduction. From a business perspective, it makes sense to diversify. If a cooperative or a microenterprise depends on recycling income only, it is vulnerable to changes in the prices of recyclable materials. The global economic crisis of 2008, for instance, reduced demand for recyclables and prices dropped by 50 percent. The waste pickers who recovered recyclables suffered a drop in income as a consequence. But the groups/microenterprises that had other sources of income – for example, the manufacturing of products from waste – were not affected as much. Engaging in two or more of these four activities can greatly increase individuals' incomes. For example, in Ciudad Netzahualcoyotl, near **Mexico City**, informal collectors combining waste collection with the recovery of recyclables earn five times the minimum wage.

BOX 12: COMPOSTING AND THE CLEAN DEVELOPMENT MECHANISM

Considering the high proportion of organic matter in the waste generated in developing country cities (typically, over 50 percent), composting can be an option to reduce the amount of waste that is currently disposed of as landfill, thus extending the lifespan of dumps. It can also reduce methane emissions (a GHG) at low cost. Waste Concern, a local NGO, created a community-based composting programme in **Dhaka, Bangladesh** and in 2006 was the first composting project in the world to receive Clean Development Mechanism (CDM) funds. The composting CDM project processes 700 tonnes of materials per day and created nearly 1,000 jobs for low-income individuals. The resulting compost is blended with chemical fertilizer and sold to farmers. Thus, composting can create jobs, reduce poverty and protect human health and the environment.

Waste pickers are not always the poorest of the poor. When waste pickers organize themselves in micro-enterprises or cooperatives, or form public–private partnerships (PPPs) with municipalities, they can achieve a decent standard of living and improve their working conditions. In South America alone, more than 1,000 waste pickers cooperatives exist, and some successful micro-enterprises also exist in Africa and Asia. Successful recycling programmes operate in **Brazil**, **Colombia**, **Mexico**, **Argentina**, the **Philippines** and **Bangladesh**. Most of these are member-based organizations and thus can directly benefit the poor.

Recycling activities save governments money by reducing the amount of wastes that need to be collected, transported and disposed of. A study conducted in **China, India, Sri Lanka** and **Thailand** estimated that the IWS reduced waste arriving at the disposal sites by 30 percent to 45 percent (ILO, 2011). It also supplies industry with inexpensive raw materials and conserves natural resources, reduces pollution, saves energy and water and protects the environment. The IWS constitutes the largest provider of recyclable materials to industry in many countries: **Egypt** (85 percent in Cairo); 70 percent in **Chile**; 90 percent in **Brazil**; and 85 percent in **India**.

In **Brazil**, as a result of a national programme in support of the informal recycling sector, the working and living conditions of the country's waste pickers have improved, poverty and child labour have been reduced and industry is more competitive due to a reduced usage of virgin raw materials.

IWS workers' activities reduce GHG emissions by the energy savings involved in recycling and by reducing final disposal and avoiding production of methane, CO2 and other carbon gases. A study found that the IWS in New Delhi reduced GHG reductions by 962,133 tonnes of CO2 equivalent each year. That represents more than 350 percent in GHG emissions reductions than the largest waste-to-energy plant in New Delhi (the Timarpur-Okhla Plant).

Scavenging can also save foreign currency by reducing imports of raw materials. Alternatively, if industrial demand is stronger in a neighbouring country, scavenging can become a source of foreign currency by exporting the materials recovered by waste pickers.

The groups likely to oppose initiatives embracing IWS are the local governments and middlemen.

Local governments prefer to award contracts to large companies and are often reluctant to work with the IWS. Middlemen often pay low prices to waste pickers and sell the materials to industry at a considerable mark-up. If waste pickers get organized into cooperatives, micro-enterprises or public-private partnerships, they can bypass the middlemen, thus earning higher incomes.

3.6.2 INITIATIVES DESIGN

There is consensus that the approach to waste management most compatible with sustainable development is 'Integrated Waste Management'. This approach consists of a hierarchical and coordinated set of actions that reduces pollution, seeks to maximize recovery of re-usable and recyclable materials and protects human health and the environment. It comprises waste prevention, re-use, recycling, composting, incineration and sanitary landfilling. Integrated Waste Management should be adapted to the local conditions when implemented in developing countries.

A potential trade-off from making the transition to an integrated approach may include an initial loss in economies of scale already established in extraction (such as mining and the oil industry), which could have implications for the manufacturing industries, perhaps in terms of increased cost of goods in the short to medium terms. Nevertheless, it is expected that, as the new systems get mainstreamed and the markets mature, the costs of goods would stabilize (ILO, 2011).

Based on lessons learned so far from the integration of poverty reduction into a sustainable waste management system, a stepwise approach should be adopted to design initiatives, as presented below.

Determine multidimensions of poverty and indicators. Since many waste pickers and other IWS workers can earn an income above the poverty line, it might be concluded that they are not poor. But, seen from a multidimensional perspective, IWS workers often face serious risks to their health and have low educational levels and low living standards. Therefore, it is important that the multidimensions of poverty be considered.

Conduct a baseline study. Most countries do not collect official statistics on the IWS and often quantitative data are either unavailable or of poor quality. In order to design and implement a poverty reduction programme, it is necessary to know how many people work in the IWS as well as their degree of multidimensional poverty. In 1998, UNICEF conducted a national study of the waste picker population in **Brazil**. It found that more than 45,000 children worked as waste pickers and that 30 percent of them had no schooling at all. The public reaction was such that the **Brazilian** federal government had to create a programme to reduce poverty among waste pickers and to support their inclusion in waste management plans.

Develop a national policy framework. The framework should include the overarching principles, procedures and guidelines for reducing poverty and improving waste management for green growth. The specific goals, instruments and activities of this policy will vary from country to country, but are likely to include: (i) a goal to reduce poverty in its various dimensions; (ii) improve working and living conditions of waste workers; (iii) improve efficiency on the use of water, energy and materials; (iv) reduce emissions of greenhouse gases; (v) improve collection, transport, processing and final disposal of wastes; (vi) minimize pollution associated with waste management; (vii) maximize

the productive use of wastes by reuse, recycling and composting; and (viii) improve industrial competitiveness by supplying recyclable materials of good quality and reasonable cost.

Create a national programme on poverty reduction and sustainable waste management. In preparing a national programme, it is recommended to consider the following: (i) ensure broad-based support for the process and the implementation of the resulting plan; (ii) ensure that all stakeholders are involved, including public agencies, the public, community groups, NGOs, the private sector and the informal waste sector and academics. Inter-ministry coordination and collaboration are also very important from policy decision, to financing, implementation and monitoring/evaluation; (iii) involve women, as the critical service users, in the process; (iv) establish clear objectives and targets; (v) ensure that the target level is affordable; (vi) focus on the short term (Action Plan) as well as on the long term (strategy or vision); (vii) define opportunities for, as well as barriers and constrains to, improvement; (viii) measure key data to provide a sound basis for decision-making; (ix) ensure that the Action Plan is practicable and covers organizational and operational aspects; (x) test innovative ideas in pilot projects prior to full implementation; (xi) ensure that all residents have access to waste management services, regardless of whether they live in an irregular settlement or pay property taxes; and (xii) define a monitoring and evaluation programme.

In designing initiatives, the poor and vulnerable can be targeted by making sure that waste pickers and other IWS workers are specifically mentioned in the initiatives and that they are legitimate stakeholders that can participate in the decision-making process.

3.6.3 INITIATIVES IMPLEMENTATION

Involvement of key stakeholders. Key partners are the government, NGOs, the private sector, the IWS and international organizations. **External support for the IWS is usually needed in terms of technical assistance, training, funding and credit.** But when the authorities allow IWS participation, it can be a powerful incentive for entrepreneurs to mobilize community resources in order to take advantage of opportunities. In terms of financing, large generators of greenhouse gases could buy carbon offsets to support recycling and composting initiatives. Grants and loans can be provided by foundations, development banks, private industry or the government.

The World Bank has provided technical assistance for the inclusion of the IWS in the **Philippines'** Ecological Waste Management Law. The World Bank was also instrumental in the creation of **Brazil's** conditional cash transfer programme, which has reduced significantly child labour and poverty among the country's waste pickers. The International Finance Corporation (IFC), part of the World Bank, played an important role in the incorporation of waste pickers in **Mexico's** PET recycling programme.

BOX 13: BUILDING PARTNERSHIPS WITH THE INFORMAL SECTOR

A growing number of countries and cities now recognize the informal sector as a potential partner. Indonesia was the first country in the world to legalize its informal recycling sector. It has a programme in Jakarta that pays waste pickers for the materials that they recover for recycling. **The Philippines** created a national programme to include the informal recycling sector in waste management activities. Tunisia enacted an extended producer responsibility programme for packaging. The Mexican bottling industry created a national PET recycling programme that incorporates the waste pickers in its supply chain in order to improve their working and living conditions.

Brazil is one of the world's most advanced countries in incorporating poverty reduction into waste management. The **Brazilian** federal government created a national programme, Waste and Citizenship Programme (WCP), which links the IWS and solid waste. WCP has the following goals: reduce poverty among IWS workers; create a conditional cash transfer programme in order to reduce child labour in the IWS; legalize IWS activities; support the creation of IWS organizations and provision credit for their activities; make the IWS a legitimate stakeholder in the waste management system; and maximize recycling, particularly through segregation at the source. Several agencies of the federal government and the **Brazilian** Development Bank have supported WCP. Large private sector partners have provided valuable moral and financial support to WCP, with multinational companies such as Petrobras and Coca-Cola supporting WCP as part of their corporate social responsibility. CEMPRE, a foundation funded by the private sector, has conducted research on relevant topics and made data available to various stakeholders. Some foundations and non-profit organizations have also become partners. WCP encouraged the creation of the world's largest waste picker movement, with about 500 member organizations throughout the country.

3.6.4 MONITORING & EVALUATING RESULTS

Efforts to reduce poverty and improve waste management should be monitored and evaluated periodically. The following Indicators could be used to measure progress:

- Resource consumption rate (material use in kg/capita)
- Waste generation rates (kg/capita/year, overall and by economic sector)
- Percentage of waste being collected
- Percentage of waste that is reused or recycled
- Percentage of the population served by waste management
- Index of multidimensional poverty among IWS workers
- Index of multidimensional poverty in low-income areas
- Income of IWS workers
- Health of IWS workers
- Number of children working in the IWS
- Education of IWS workers
- Standard of living of IWS workers
- Percentage of virgin material displacement in production
- Percentage of materials diverted from landfills
- Reduction in greenhouse gas emissions due to avoided landfilling
- Percentage of waste disposed in landfills
- Extent of capture, recovery and/or treatment of polluting emissions such as leachate
- Landfill gas

A growing number of evaluation studies and surveys have shown improvements in the **Brazilian** IWS population due to WCP in the following poverty dimensions: income, quality of work, empowerment, physical safety and ability to go about without shame.

3.6.5 DRIVERS AND POLICY IMPLICATIONS

Key drivers promoting the integration poverty and green economy objectives in waste management are:

- **Supportive programmes and legislation,** which provide a policy framework and legal mandate for initiatives.
- **Increased awareness of the issues.** For example, a UNICEF study that highlighted the plight and neglect of **Brazilian** waste pickers was a key driver for reform.
- **Strong political leadership.** Commitment at the highest levels of government makes a big difference. Luiz Inácio Lula da Silva, former President of **Brazil**, became personally involved in supporting the country's waste pickers. As a result, **Brazil** is today at the forefront in the social inclusion of informal waste sector workers.
- **Development of IWS organization.** In order to be considered as a partner, the IWS needs to be organized. The main organizational forms are community-based organizations, cooperatives and micro-enterprises. The creation of a National Movement of Waste Pickers in **Brazil** was instrumental in educating the public on their activities and in convincing the authorities of the benefits of their work and why the IWS should be supported.

- **Private sector support.** An increasing number of private sector companies have decided, often through their corporate social responsibility programmes, to support the waste pickers in their supply chains.
- **International organization support (technical and financial).** The World Bank and the Inter-American Development Bank now support the social inclusion of the IWS in waste management and poverty reduction programmes.
- **Increased social inclusion of waste pickers.** Historically, waste pickers have been marginalized, but there is now agreement that societies should pursue the social inclusion of marginalized groups in order to create a more just world.
- **Climate change.** Recycling of inorganic materials such as plastics, metals and glass saves energy and, if everything else remains the same, it also reduces emissions of greenhouse gases. Thus, waste management can contribute to a less carbon-intensive development.

POLICY IMPLICATIONS

Development of policy framework. Most developing countries have not designed a national policy for improving waste management and reducing poverty; policy frameworks therefore need to be enacted and implemented. Even though waste management is a municipal responsibility, national governments should provide a national policy framework that incorporates green growth goals with an integrated waste management strategy that guides and reinforces local decisions.

Understanding the macro-micro links is important. A growing number of grassroots efforts – local initiatives, community-based programmes, cooperatives and microenterprises – exist throughout the developing world. **Colombian** waste pickers created the world's first grassroots waste pickers' movement in the 1980s, but support at the national level has been lukewarm. On the other hand, **Brazil's** national programme on poverty and waste has had strong support at the national level. This is needed to guide local decisions and mobilize resources in support of local efforts.

A combination of **command and control and market-based policy instruments** can be used to optimize programmes. One example would be the institution of a ban on the disposal of hazardous wastes at municipal waste landfills or a payment to households per kilogram of compost that they make from their own organic waste at their homes. Conditional cash transfers were successfully used to reduce child labour in **Brazil.**

4 GUIDELINES TO MAXIMIZE INCLUSIVE GREEN GROWTH POLICY OPPORTUNITIES

This section provides generic guidance on how to design and implement inclusive green growth initiatives based on the broad convergence of lessons learned and best practice approaches across the sectors and issues case-studied in Section 3.

4.1 DESIGN GUIDELINES

The relationship between green economy policies and poverty reduction is not automatic. While compelling synergies exist, poverty reduction is unlikely to occur unless explicitly emphasized in policy design and implementation. There is also scope for trade-offs to derail initiatives or lessen their intended outcomes if they are not clearly identified and addressed upfront. Careful design of green growth initiatives can anticipate and eliminate trade-offs that can disempower poor households from participating in programmes and/or harm them; instead, those initiatives can maximize the benefits to the poor and vulnerable. Key design components of initiatives are discussed below.

Initiatives need to be adapted to a **country's circumstances** (institutional and cultural) in order to maximize their effectiveness and ensure buy-in. This requires an **understanding of the local context** and data analysis to determine what will work and what will not work in a given context; success stories need 'local engineering'. Projects should build on the knowledge and information of local communities to correctly identify their needs, current practices and opportunities.

All stakeholders need to be involved in the design of initiatives. For green growth to be inclusive, it is necessary to engage all stakeholders at the outset to discuss trade-offs and build synergies between poverty reduction and green growth. This allows initiatives to be well targeted and ensures buy-in.

Some groups and individuals may oppose initiatives. For instance, government authorities may not be fully supportive unless they can realize the financial benefits. The formal sector (e.g., in waste management and tourism) may not wish to create linkages with the informal sector for fear of loss of business. The private sector may not be supportive if it is not involved in planning. Residents who were not part of decision-making, but suffer restrictions (e.g., to protected areas in ecotourism initiatives), may be in disagreement. Such differences need to be addressed at the planning stage and alternatives, livelihoods or compensation must be provided to those who expected disadvantages from the introduction of an initiative.

Synergies and trade-offs need to be understood if effective initiatives are to be designed. There is a range of tools that can be used to clarify trade-offs and synergies and distributional impacts including integrated ecosystem assessments, participatory tools and cost-benefit analysis (see Table 1). If the poor and vulnerable are clearly identified and the winners and losers from proposed initiatives clearly understand then it is possible to work with stakeholders to design viable compensation mechanisms.

Gender considerations need to be built into the design of projects. Gender balance is necessary to progress towards sustainable livelihoods, improved participation in decision-making, improved health and education, and inclusive human rights. Many dimensions of poverty affect men and women differently. Women are primarily responsible for the household, including nutrition, food security, childcare and family health. Thus, they face trade-offs in terms of the time that they allocate to daily activities and in their access to resources and assets that underpin paid and unpaid production activities.

Targeting. Inclusive green economy approaches have the best impact on poverty reduction when they are effectively targeted at communities most in need or address the most significant poverty-environment-linked outcomes of concern. Initiatives need to target markets and activities where the poor operate in rural and urban areas, recognizing that different groups need different types of interventions. Targeting can be information-intensive, which is often challenging. Where possible, schemes can be designed such that poor households self-select into a programme. For example, the emphasis of **India's** MGNREGA on unskilled work and the limit of 100 days of guaranteed employment appear to have helped target the programme at the rural poor.

Clear link to policy. The ability of an initiative to link to a government policy can lend support for its successful implementation, including ongoing financial support. This will be more challenging when a country does not have a green growth strategy and where there is limited mainstreaming of sustainability issues and poverty reduction across sector policies and plans.

Table 4 summarizes the key design components, supported by examples from the case studies, which should be considered in the design of all initiatives to develop well-targeted and well-supported inclusive green growth programmes. These design components are all interlinked and, when considered holistically, should facilitate successful implementation.

TABLE 4: NECESSARY DESIGN COMPONENTS

DESIGN REQUIREMENTS	EXAMPLES
Tailored to country/local circumstances	• EFR – **Germany** and the **UK** framed their fiscal incentives to promote hybrid and electrical cars differently, aligning with local cultures in order to maximize 'buy-in'. • Sustainable Ecosystem Management – It is critical that initiatives be tailored to the local context, given the complexity of ecosystems, their varied uses and the diversity of customary practices and decision-making processes. • Ecotourism – Projects need to be location-specific and consider existing livelihoods that they may be in conflict with. • Energy – Early cookstove projects sought little feedback from end-users and were inefficient due to incompatibility with local conditions and customs. • Waste – Integrated Waste Management should be adapted to local conditions.
Stakeholder involvement	• Sustainable Ecosystem Management and ecotourism case studies demonstrate the importance of engaging all stakeholders, including those competing for resources. • Waste – All stakeholders should be involved in developing national programmes on poverty reduction and waste.
Built on an understanding of synergies & trade-offs	• EFR – This is important to be able to compensate potential losers. • Sustainable Ecosystem Management – This can identify winners and losers and design compensation mechanisms such as PES, thereby mitigating potential opposition. • Ecotourism – An assessment of synergies and trade-offs is needed to factor in economic opportunities in project design and minimize leakages.
Gender	• Employment-generation programmes in **South Africa** – A gender balance was achieved through a quota system of at least 40 percent women and the availability of crèches for the children of women working in the Programme. • Sustainable Ecosystem Management – In **India** and **Nepal**, the inclusion of women in the leadership committees improved management performance and associated forest conservation outcomes. • Energy – Embedding a gender perspective accelerates achievement of gains.

DESIGN REQUIREMENTS	EXAMPLES
Targeting	• Employment-generation programmes in **India**. MGNREGA's emphasis on unskilled work and limit of 100 days of guaranteed employment have helped target the programme at the rural poor. • Ecotourism. In **Ecuador**, an inclusion policy was developed to provide women and people with disabilities the opportunity to gain employment at the ecolodge. • Waste – The poor and vulnerable need to be specifically targeted in initiatives.
Link to policy	• Working for Water Programme in **South Africa** is linked to two policy priorities: reducing unemployment and reducing water scarcity.

4.2 IMPLEMENTATION GUIDELINES

Pro-poor green growth initiatives need to be implemented through practical approaches that bring key sectors and partners together while addressing trade-offs in ways that protect and empower the poor. Drawing on the cases studies, some generally applicable key implementation components can be identified, as discussed below.

All key stakeholders should be involved in the implementation of initiatives, including government (national and local), private sector, households and consumers. The roles and responsibilities of partners are broadly outlined in Box 14. This facilitates the development of partnerships across multiple levels and a common understanding of an initiative's objectives.

BOX 14: ROLES AND RESPONSIBILITIES OF KEY PARTNERS

Communities should be involved in all initiatives as individual producers, employees, casual labourers and operators of SMEs as well as members of communities. In certain cases (e.g., ecotourism initiatives), community ownership is also important.

Local government is assuming more enforcement, budgetary and policy-setting authority as more national governments adopt decentralization. Being broad, national policies may run parallel to the directions that local governments are taking. Local government can bridge the gaps between community needs and national spending, planning policies and priorities.

National government has a vital role in articulating strategies and displaying leadership to advance green growth through poverty reduction and sustainable management of resources. This is a continual process comprised of setting objectives and outcomes; understanding the theory of change behind the outcomes; implementing inclusive policies; and mainstreaming sustainable resource management and poverty reduction into policies and plans throughout government institutions, development plans and fiscal and budgetary systems.

Private sector can bring resources and business practices that can help green economy and poverty reduction initiatives deliver more value. This can be achieved through partnerships with communities and government, employment options, training and skills development, and product innovation and development and marketing designed to serve different segments of the population.

Civil society has an established ability in advocacy and representation in development processes for communities, the poor and vulnerable. A green economy transformation could provide an inclusive platform for civil society participation across sectors and policies by supporting accountability, implementation, monitoring, transparency and functioning as a catalyst to bring communities and government together where necessary. Community organizations play a role in the development of products based on commonly owned goods, negotiations between a community and other stakeholders, receipt and distribution of collective income, and representation of community views to others (e.g., government).

The engagement of civil society and the private sector is also essential for scaling up pro-poor inclusive green economy initiatives through top-down and bottom-up approaches.

International cooperation is important for finance, capacity-building, technology and regional interaction (e.g., for the sustainable management of ecosystems that span geopolitical boundaries). International cooperation initially provides most financial, technical knowledge and capacity support to community, national and subnational governments.

Strengthening capacities across a range of areas is important to successful implementation. For example, local communities need to be supported to develop the required skills to successfully implement ecotourism projects (e.g., an understanding of how the industry works, business skills and standards for community-run SMEs).

Initiatives need to be backed by secure and sustainable funding. In terms of financing, a range of financing mechanisms may be employed (e.g., direct budget allocations; taxes, fees or charges on resource use; payment for ecosystem services; earnings from state-owned enterprises or state lands or equivalent sources in fiscally decentralized, subnational circumstances; and donor support). In some cases, e.g., those involving initiatives to promote access to sustainable energy provision, financial support to lower investment costs for the poorest consumers is essential. Generally, external financing is needed, but such external financing can wane as capacities are acquired, government finance and budget frameworks absorb more of the costs through increased revenues and

mainstreaming and community-level projects begin to incorporate an enterprise component for sustainability. For example, external support is for technical assistance to the government and for integrated waste management (IWS) organizations. But when the authorities allow IWS participation, it can be a powerful incentive for entrepreneurs to mobilize community resources in order to take advantage of opportunities.

Piloting enables initiatives to be tested and refined before they are rolled out to similar sites or on a national scale.

Communication and outreach activities help to inform and raise awareness of green economy among major stakeholders about the multiple opportunities offered by a green economy in terms of reducing poverty and social inequalities.

Monitoring and evaluation frameworks should be part of project design. Regular monitoring and evaluation are critical to assess progress towards agreed outcomes, demonstrate achievements and adapt projects as required throughout their implementation. However, appropriate indicator sets are lacking for many areas.

Table 5 summarizes key components considered to be critical for successful implementation and provides examples and insights from the case studies.

TABLE 5: NECESSARY IMPLEMENTATION COMPONENTS

IMPLEMENTATION REQUIREMENTS	EXAMPLES
Broad stakeholder involvement	• Sustainable ecosystem management – Many countries employ community-based management that combines modern development theories with customary forms of knowledge about the resource and management practices. • Ecotourism – Community engagement and ownership are essential ingredients, as are partnerships at multiple levels. Effective initiatives are successful at three levels – destination, national and international. • Energy – An appropriate institutional framework for expansion requires the participation of all actors.
Capacity-building	• Employment-generation programmes in **South Africa** have invested in well-established training interventions. • Sustainable Ecosystem Management – Building capacity across the local, subnational and national levels is key to the successful implementation of initiatives. • Ecotourism – Building the capacity of communities in planning, designing, implementing and monitoring initiatives is important for successful implementation. • Energy – Training for poor households so that they can access jobs created through the development of the renewables sector is required.

IMPLEMENTATION REQUIREMENTS	EXAMPLES
Financing	• The Working for Programmes in **South Africa** are mainstreamed and funded through annual department allocations. • Sustainable ecosystem management – Over time, community and ecosystem management systems can become self-supporting through income generation, enterprise development and market integration supported by national and subnational policies. • Ecotourism – Successful projects typically have some level of community financial investment from the outset. This can be supported by strengthening access to micro-finance. • Energy – Financial support to lower investment costs for the poorest consumers is essential. • Waste management – Conditional cash transfer programmes that address the needs of the poor and children in terms of income, education and health have been used (e.g., in **Brazil**). • Waste management – Large generators of greenhouse gases can buy carbon offsets to support recycling and composting in the developing world as a lower-cost option to reduce their ecological footprint.
Piloting	• Ecotourism – Many initiatives start with small site-specific projects that serve as pilots that can be replicated elsewhere and can build on the lesson learned. • Waste – Innovative ideas should be piloted prior to full implementation.
Communication and outreach	Communication and outreach programmes for informing stakeholders and the public on inclusive green economy may catalyse the implementation of projects (e.g., during the inception phase of PAGE Peru, more than 60 local journalists were trained on green economy). As a result, the country has experienced a boom of articles and interviews about green economy.
Monitoring and evaluation	• Sustainable ecosystem management – Focus on assessing results at the subnational or local community level, where they are easier to measure; indicators linking social and environmental outcomes are lacking at the macro level. • Ecotourism – Some ecotourism certification programmes are in place, e.g., Smart Voyager, The Rainforest Alliance and Best ECO.

4.3 KEY DRIVERS OF SUCCESS

Commonly cited drivers of success are:

Commitment and collaboration among stakeholders. This depends on inclusive and open design and implementation processes that build coalitions between stakeholders.

Supportive programmes and legislation that provide a policy framework and the legal mandate for initiatives. The Working for Water Programme itself played a critical role in the development of legislation and related regulations on invasive species, which in turn strengthened the position of the programme by giving these programmes a legislative mandate

Devolution of management authority to local governments and communities is widely considered to be an effective system to achieve multiple objectives of poverty reduction and sustainable natural resources outcomes. However, this needs to be supported by the right complementary policies to facilitate pro-poor growth.

Strong leadership. Commitment at the highest levels of government can make a significant difference. For example, Luiz Inácio Lula da Silva, former President of **Brazil**, became personally involved in supporting the country's waste pickers. As a result, **Brazil** is today at the forefront in the social inclusion of informal waste sector workers. In terms of EFR, leadership is required to overcome vested interests that may hamper reform. In **South Africa**, consistent and professional administrative leadership succeeded in maintaining support for the Water for Programmes through difficult political and economic periods.

Communication and advocacy. Advocacy within and outside of government remains an important driver for sustainability and poverty eradication. For example, a UNICEF study that highlighted the plight and neglect of **Brazilian** waste pickers was a key driver for reform.

Other key drivers of success already highlighted in this section include: careful targeting of programmes and subsidies to communities most in need; support from international organizations and the private sector; and transparent financing.

5 WHAT NEEDS TO BE DONE?

The transition to an inclusive green economy faces some implementation challenges, as the case studies in Section 3 illustrate. This section outlines the requirements for facilitating a successful transition to an inclusive green economy.

5.1 ESTABLISHING AN ENABLING MACRO-POLICY ENVIRONMENT

National government must take ownership of a transformation to an inclusive green economy by establishing a supportive macro-policy framework that mainstreams and prioritizes a pro-poor green economy into national policy, planning and budgeting/financing processes.[39]

Understanding the macro-micro links is important. Local initiatives cannot be sustained if the national framework works against conservation. Hence, the links between macro-frameworks (policies and strategies) and micro-needs (local integrated approaches) need to be strengthened throughout government. This is needed to guide local decisions and mobilize resources in support of local efforts.

Many developing countries lack a national green growth policy or strategy. This represents the high-level umbrella policy to which individual sector policies and plans (e.g., energy, waste, agriculture, tourism, water) can align, exploiting synergies. In an inclusive green economy, reducing poverty should also be a systemic feature, i.e., fairness, equality and social protection should be built into each aspect of the economy. The national green growth strategies and sector policies should link to national poverty reduction strategies, national development strategies and other anti-poverty interventions. This would allow green economy initiatives to be viewed as one of a set of policy instruments that can together address the various dimensions of poverty. Participants can then receive a range of complementary benefits simultaneously. Linking these frameworks is critical to ensure that scare resources are used efficiently and that externally financed programmes are consistent with core government priorities. Currently, many national sector polices (e.g., energy and water) are virtually devoid of poverty programming.

It is also necessary to reinforce links between the sustainable development agenda and the multidimensional poverty focus of the forthcoming

39 The policy context influences decisions about natural resource use and the resulting impacts on the environment and poverty reduction and can lend itself to finding consensus (Moseley, 2002; Weaver, 2000).

SDGs. Bringing these agendas together through the work of policymakers and practitioners and the policy and expenditure frameworks that they influence is key to delivering an inclusive green economy.

Synergies are best realized when policies across sectors and at different levels of governance can be harmonized. A **cross-sectoral approach** to policy, plans and programmes is required to address bottlenecks and to enhance the effectiveness of initiatives through integrated (complementary) policy-making and planning across sectors. For example:

- **Ecotourism and infrastructure.** Transportation and communications infrastructure to meet ecotourism needs is limited in impoverished areas. To mitigate this constraint, (rural) roads, utilities and airports should be considered as part of the ecotourism initiative planning, which can be supported by local government or through donor support.
- **Capturing added value.** Complementary policies are required to develop access to finance, skills and markets in order to add value to ecosystem services and enhance livelihoods. In agriculture, storage and processing facilities are required.
- **Adoption of an Energy Plus approach.** Initiatives to meet basic energy needs for domestic consumption need to be complemented with other interventions to lift people out of poverty. Examples of these include investments in infrastructure, improved access to information, access to markets, business development services and capital. In other words, energy access activities need to be mainstreamed within wider developmental efforts in order to benefit the poorest as much as possible (UNDP, 2012).
- **Coherence and coordination between energy and other sectoral policies.** A multi-sectoral approach builds on the links between the energy, food security and poverty reduction sectors and the influence of trade, investment and climate policies (Bonn, 2011). For example, investments in energy services for public services such as health and education are critical for well-being and catalyse poverty reduction.

A key challenge consists in mobilizing ministries, agencies and other stakeholders with differing mandates and resources to deliver on a holistic GE at the national level. An integrated approach requires cross-sectoral planning and coordination and appropriate institutional structures for formulating and carrying out policies and programmes. It also requires the commitment of senior convening ministries such as those responsible for finance and planning, to ensure that initiatives are fully financed and integrated into core sector plans. The gazetting of inter-ministerial steering committees or multi-stakeholders bodies helps to guarantee that the process is participatory and that the input of key stakeholders is taken into account.

Fiscal policy is a central area influencing environmental sustainability and social equity. Ensuring that prices reflect environmental side effects is key and requires removing perverse subsidies and addressing negative externalities encouraged by underpricing. For example, a carbon tax is being promoted internationally as a priority to address climate change, encourage efficient energy use and allow greener choices. Currently, 74 countries, 23 subnational jurisdictions and more than 1,000 businesses and investors are signatories to a World Bank petition supporting carbon pricing.

5.2 SUPPORTING SUBNATIONAL INSTITUTIONS

The role of subnational governments in development is growing with the recognition that national governments cannot deliver all public services and that involvement of communities and local governments is essential for development. Mechanisms for accountability between local institutions and their national counterparts and between local institutions, the poor and other stakeholders are crucial. Local government also requires sufficient financial resources and the capability and authority to manage those financial resources.

Some successful decentralized ecosystem management initiatives around the world have generated incomes and lifted people out of poverty; in many cases, the UNDP GEF Small Grants Programme (SGP) supported these. However, many of these remain islands of success. Where they have been taken to scale, such as community-based forest management in **Nepal**, evidence suggests that the more affluent take control and that, at the national level, political groups and parts of the government are keen to extract a share of the profits. The challenge lies in establishing effective governance mechanisms so that the poor can play a role; in making the links between national and subnational planning; and in decentralizing budgets to allow local authorities to be effective contributors to the achievement of sustainable development.

5.3 STRENGTHENING THE INTERFACE BETWEEN RESEARCH AND POLICYMAKING

In order to target the poor, it is first necessary to identify and characterize them and understand how proposed green growth initiatives will affect them. The vulnerability of households to the various dimensions of poverty can differ between groups. For example, urban poor households are more likely to be affected by issues governing access to finance, energy sources and infrastructure services, while rural poor households are likely to be much more vulnerable to short-term fluctuations in access to capital and access to markets. Improving resource efficiency can have positive and negative impacts on the different welfare dimensions of each such group; hence, there must be careful assessments of the impact of policies on vulnerable groups. Typically, poverty data are poor and recorded only every 10 years on the basis of household surveys. Baseline studies may therefore be required at the national, state, district and village levels to better inform policy development and the targeting of (micro-level) initiatives. For example, most countries do not collect official statistics on integrated waste systems (IWS), yet the design and implementation of a poverty reduction programme depend on knowing how many people work in the IWS as well as their degree of multidimensional poverty.

Typically, initiatives proceed on insufficient evidence of the winners and losers under baseline conditions and how proposed scenarios and stakeholders' attitudes to reform will affect this. Therefore, a greater understanding of the distributional implications of initiatives needs to be generated at the design stage and monitored throughout implementation.

Another important area of research is the valuation of ecosystems services to ensure that the right market signals are reflected in policy instruments. Understanding how ecosystems contribute to the economy and the implications of their degradation or loss at the national and local scales enables a more informed discussion of the trade-offs and the development of appropriate policies and programmes. Such research needs to benefit from a consultative process from the early stages of research planning. This guarantees that the studies address topic of interest for the country and that knowledge gaps for policy formulation are covered.

5.4 CAPACITY-BUILDING, EMPOWERMENT AND INSTITUTIONAL DEVELOPMENT

Capacity to transition to a green economy needs to be built across the broad range of stakeholders who are party to its delivery. Examples of the type of capacity-building and empowerment requirements for specific groups of stakeholders are provided below.

Community capacity-building and empowerment. The capacity of communities, including women, youth and indigenous communities, needs to be developed along with access to education, resources and information necessary to benefit from green economy approaches. For example, communities need the capacity to create the necessary rule-making methods to govern access to common-pool resources (such as water resources and forests) and the ability to deal with conflicts and trade-offs. Capacities also need to be created for social audits. Capacity-building leads to the poor gaining greater influence over policy and institutional environments. It also reduces vulnerability among the poor by fitting initiatives with long-term priorities (e.g., buffers against hard times) and supporting existing livelihood goals (e.g., economic security, cultural life, health). Empowering can take different forms and requires a good understanding of the local context, a long-term commitment and tailored communication programmes.

Local government requires administrative, technical, financial, planning, outreach and management capacity-building.

National governments require capacities to establish legal, regulatory and policy structures and effective institutions that can drive national goals for poverty reduction and a green economy and scale up local efforts and their benefits. Capacities need to be increased in planning and macro-policies such that poverty reduction and an inclusive green economy are embedded in core policies and strategies. Government institutions need the capacity to engage with multiple stakeholders and to develop appropriate indicators and information sets for more effective monitoring.

Capacity to apply analytical tools. The successful integration of poverty reduction into green economy initiatives requires the improvement of all stakeholders' capacity to apply and implement integrated assessments of nature and of the links between poverty reduction and green economy initiatives; it also requires the implementation of coherent, integrated responses and sectoral programmes.

5.5 MEASURING DEVELOPMENT PROGRESS AND PROGRAMME SUCCESS

MACRO-LEVEL INDICES

One of the key challenges of managing a transition to a green economy is the absence of appropriate indicators. While some indicators have been developed, the challenge is to develop multidimensional indicators that capture green economy and poverty reduction outcomes. Examples of existing processes include:

- UNDP's Inequality-adjusted Human Development Index (IHDI) presents a distribution-sensitive average level of human development for 145 countries. It could be further extended to measure 'inequality-adjusted green HDI', whereby each component of human development is assessed in terms of its resource efficiency and ability to reduce environmental vulnerability and impacts.
- The Happy Planet Index (HPI) produced by the New Economics Foundation (NEF) measures sustainable well-being for 151 countries on the basis of global data on ecological footprint, life expectancy and a (subjective) indicator on experienced well-being (happiness). It is possible to include indicators of poverty and inequality in this.
- The World Bank's Adjusted Net Savings (also known as genuine savings) is a sustainability indictor building on the concepts of green national accounts. It calculates the savings in an economy after netting out energy depletion, mineral depletion, net forest depletion, and carbon dioxide and particulate emission damage. The WAVES partnership is promoting green national accounts internationally.

A lack of baseline data restricts the design of monitoring and evaluation systems. More studies are needed to develop new and tailored metrics and data collection systems. Capacity needs to be enhanced in the public and private sectors to include multidimensional measures of poverty that better inform and target inclusive green economy policies.

MICRO-LEVEL INDICES

There is also a need for more household indicators that demonstrate, for example, the connection between ecosystem services and poverty and that link ecosystem services at different spatial scales to the concept of resilience or the ability of a community or ecosystem to withstand external shocks (environmental, social, economic). Indicators should: correspond to the multiple dimensions of poverty and the interrelationships of ecosystems; be easily understood and based on accessible data; and be built into policies and initiatives early in the process to address current and future management issues.

Stakeholders need to be able to participate in the development of subnational and local-level indicators and the monitoring of such indicators.

5.6 FINANCING

There is a presumed need for more financing to cover the high upfront costs of a transition to a green economy. Sustainable financing of initiatives is a fundamental requirement and can draw on some potential sources:

- Targeting of public revenue. This includes harnessing the benefits that take place elsewhere to benefit the poor, e.g., investing resource flows from minerals in education and health.

- Policy incentives – Removal of negative subsidies and environmental taxes can raise revenue for reinvestment in initiatives. Conditional cash transfers to poor people can promote growth and improvements in the incidence of multidimensional poverty from the bottom up.
- There is tremendous potential to raise climate finance through Reduced Deforestation and Land Degradation (REDD), carbon markets as well as climate adaptation finance. However, it will be vital to ensure that such financial mechanisms include social and environmental safeguards that protect and promote the interests of the poor (Box 15).
- Private sector involvement is critical, as public funds cannot possibly entirely cover the costs of the transition. Thus, there should be supportive incentives and regulations to encourage the mobilization of private sector and capital funds.
- Direct donor support will be needed to provide technical support and capacity-building and perhaps to fund staff positions that are not defined within budgeted staffing levels and organizational structures and long-term and wide-scale ecosystem restoration.

BOX 15: HOW REDD+ CAN SUPPORT A GREEN ECONOMY

REDD+ support activities are designed to: increase income from enhanced output on cultivated land; develop new 'green' industries; and promote forest-based ecotourism and sustainable production of key commodities for which demand is rising. REDD+ has great potential. For example, 33 of the world's 105 largest cities (such as Rio de Janeiro, New Delhi, Nairobi and Jakarta) obtain a significant amount of their water from protected areas and forest watersheds that could be potential sites for REDD+ investments. REDD+ investments and revenues not only provide a mechanism to account and pay for the climate mitigation ecosystem services of forests, but also provide financial support to sustainable forestry and sustainable landscape management. This provides multiple benefits to society beyond climate mitigation, including poverty alleviation, biodiversity benefits and ecosystem resilience. However, there is a need to create the conditions for REDD+ to succeed, from good governance and sustainable financial mechanisms to the equitable distribution of benefits. These conditions are themselves the building blocks for an inclusive green economy. Integrating REDD+ into a larger green economy framework and thus into all relevant economic planning processes is essential because (a) deforestation and forest degradation are ultimately driven by consumption patterns and processes in virtually every sector of the economy and (b) green economy innovations resulting from REDD+ can increase the resource efficiency of many of these sectors.

Source: UNEP (2014)

6 CONCLUSIONS

There is a broad range of policy opportunities for transitioning to an inclusive green economy that countries can pursue and adapt to their context and circumstances. These opportunities cut across key economic sectors such as agriculture, forestry, fisheries, tourism, energy and waste management and, in many instances, can deliver triple wins of revenue generation, environmental improvement and poverty reduction. Policy opportunities highlighted in the case studies, which are all important components of a green growth strategy, are:

Fiscal mechanisms for pro-poor environmental change. Appropriate and well-designed environmental fiscal policies can facilitate many aspects of a green economy such as efficient resource use and reducing impacts and vulnerabilities. Environmental fiscal reforms (EFR) offer the potential to internalize the costs of ecosystems degradation and resource-intensive use through the use of green taxes and user fees and to remove environmentally harmful subsidies (for example, those in the agriculture and energy sectors). EFRs have been applied in some developing countries and have achieved triple wins of revenue generation, environmental improvement and poverty reduction (OECD, 2005). The public resources that have been generated have been used to invest in services for the poor, but can also be applied to social protection expenditure to cushion the loss of jobs and to training in new green jobs through investment in renewable energy and the development of energy infrastructure.

Creating green jobs for poor men, women and youth that align poverty reduction and employment creation in developing countries with a broader set of investments in ecosystems conservation and rehabilitation to preserve biodiversity, restore degraded land, combat erosion, remove invasive species and promote recycling and waste management in urban areas (UNDP, 2009). There is also tremendous potential to generate jobs for the poor through developing climate-resilient infrastructure and adaptation investments to sustain growth. In most cases, the assets that these jobs create or refurbish continue to deliver benefits that the poor can harness for continued improvements in their well-being. Examples can be found in many public employment initiatives, such as **South Africa's** Working for Water in **India's** National Rural Employment Guarantee Scheme (NREGS).

Sustainable ecosystem management. The livelihoods and resilience of communities are inextricably linked to the health of ecosystems (e.g., forests, wetlands, coastal and marine areas). The poor depend on ecosystems for a range of resources, including water, food, wood products, medicines, building materials and storm protection. Ecosystem services also underpin the key productive sectors

of the economy such as agriculture, industry and tourism, which contribute to GNP, employment and foreign exchange earnings. Sustainable ecosystem management initiatives can reduce poverty by improving livelihoods, nutrition and health and by helping communities adapt to climate change, thereby reducing their vulnerability.

Ecotourism is being applied to achieve sustainability, community development and poverty reduction. The direct benefits of ecotourism for poverty reduction include employment, livelihoods, income and empowerment. Indirect benefits include improved living standards (e.g., assets, water, electricity, toilets, cooking fuel) and better education (e.g., more years of schooling) (Klugman, 2010) and health (e.g., greater disease control through improved sanitation).

Efficient and clean energy. Greater uptake of renewable energy and improved energy efficiency can significantly reduce poverty and greenhouse gas emissions and promote energy security. Access to electricity, together with the resources that enable its transformational application, improved cooking technologies and mechanical power can all help people to escape from persistent poverty. Clean sustainable energy, through higher productivity, can significantly benefit people's health, household income and the broader economy and help mitigate local environmental problems associated with energy use. Embedding a gender perspective accelerates achievement of these gains.

Improved off-grid green energy sources have good potential to provide poor people access to energy, with correspondingly large multiplier effects in employment creation, small enterprise generation, poverty reduction, the achievement of health and education outcomes and improvements in the well-being of women. If improved off-grid green energy sourced programmes are well designed, the increase in emissions can be small or even reduced to zero (in aggregate terms) through a proportionately greater reduction in emissions from other parts of the economy. Enabling the poor access to credit and skills can help these to deliver their full benefits.

Sustainable waste management. An increasing number of cases worldwide demonstrate that it is possible to improve waste management while reducing poverty, creating jobs, reducing pollution, conserving natural resources, diminishing society's ecological footprint, reducing greenhouse gas emissions, protecting public health, improving industrial competitiveness and saving cities money. The most significant opportunity to reduce poverty in waste management consists in including the informal sector in waste management systems.

Additional policy and programme approaches that are considered in this paper, but not presented as case studies for the effective promotion of a pro-poor green economy, include:

Low-carbon, sustainable agriculture to maintain growth and to address poverty, food security and ecosystem services. Most poor live in rural areas and depend on farming for their livelihoods (World Bank, 2008). Low-carbon, sustainable agriculture can promote growth, employment and food security while assisting with nutrient cycling and maintaining ecosystem services. This potential can be realized only if poor men and women farmers can access knowledge, technologies and green markets. Access to markets for the rural poor often requires the development of rural roads and extension services. Storage and processing facilities are required for farmers to capture the value added from their produce.

Enabling private sector companies to innovate, adopt and disseminate green methods of production. The private sector is the driving force in most national economies and plays an important role in developing sustainable production and consumption patterns. With their capacity to invest and innovate, they are uniquely positioned to create solutions that reduce emissions and resource use while generating growth and employment opportunities for the poor. For example, in **Ghana**, Toyola Energy Limited produces cookstoves and lanterns that target rural dwellers who largely depend on firewood and charcoal for their domestic cooking and on kerosene for lighting. Toyola provides a cleaner, healthier and cost-effective means to meet the energy needs of the poor and has expanded product output, generated new jobs and offset carbon emissions (UNDP, forthcoming).

Building the resilience of the poor. Climate change scenarios present new challenges to the poor by altering ecosystems and their services (despite where access is provided to the poor or ecosystems maintained). This can disrupt growth, livelihoods (e.g., including through additional outlays on adaptation measures to protect livelihoods) and food production, affect disease patterns and increase vulnerability to climatic shocks. This necessitates protecting the poor and near-poor from shocks as well as building their assets to increase resilience. **Ethiopia's** Productive Safety Net Programme (PSNP), for example, provides transfers to chronically food-insecure people while helping create assets at the community and household levels through public works (soil and water conservation, feeder roads, water supply, small-scale irrigation, etc.).

This policy paper demonstrates that the link between green economy initiatives and poverty reduction is not necessarily automatic. A transition to a green economy can exacerbate poverty and inequality (jobs could be lost, for example) if it is not managed properly.

For green economy approaches to deliver on inclusion and poverty reduction, they must integrate deliberate and complementary poverty reduction policies into their design and implementation. Key design considerations include: ensuring that initiatives are tailored to a country's and/or location's circumstances and conditions; including all stakeholders in the design process; building on an understanding of synergies (to maximize opportunities) and trade-offs (to compensate losers and mitigate any negative impact on the poor); ensuring that gender concerns are addressed; carefully targeting initiatives to benefit the poor, where possible; and linking to policy to facilitate support.

Successfully implementation of initiatives then requires broad stakeholder involvement, capacity-building across involved parties, a sustainable financing plan and a monitoring and evaluation system that provides a mechanism for learning and adaptation.

The transition to an inclusive green economy requires efforts to: establish a supportive macro environment; develop subnational institutions; strengthen the interface between research and policymaking and the design of initiatives; raise awareness and build capacity of all stakeholders and empower the poor and vulnerable; develop indications and systems to measure progress at the macro and micro scales; and develop sustainable financing that draws on fiscal instruments, private sector resources and international mechanisms such as REDD+ and donor support.

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