

Transitioning to a Green Economy

Political Economy of Approaches
in Small States

Edited by Nadine Smith, Anna Halton and Janet Strachan



The Commonwealth

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Preface

The concept of a 'green economy' has received considerable international attention as a model of how to overcome the challenges of climate change and promote sustainable development. A large amount of discussion and analysis has helped to conceptualise the green economy and set out model policies that could help to realise it. There has been far less analysis of the realities of putting this concept in practice, and in particular, what the implications and options are for small states to transform their economies in this way. There is recognition that the transformation to a green economy requires a consistent and joined-up approach, to shift incentives and investments toward less resource-intensive technologies and industries. It also requires sustained support from the highest levels of government, backed by communication campaigns to persuade businesses and citizens of the value of greening their activities. These are not straightforward or linear processes, and so it is worthwhile to reflect on which pathways may be identified by particular countries and what these can hope to achieve.

The purpose of this publication is to explore the process of transformation to a green economy in small states: the opportunities, constraints and challenges it presents, and what sort of policies it means in practice. As the international community has recognised, small island developing states and islands supporting small communities, are a special case for both environment and development, because they are ecologically fragile and vulnerable and their small size, limited resources, geographic dispersion and isolation from markets all place them at a disadvantage economically and prevent economies of scale. This publication comprises eight case studies from countries that have shown public commitment to transform to a green economy, namely: Botswana, Grenada, Guyana, Jamaica, Mauritius, Nauru, Samoa and Seychelles.

We are delighted to be producing this publication in 2014, the International Year of Sustainable Development in Small Island Developing States. We hope that the material contained in this publication will prove valuable to many in small states in considering how to start a process of transformation to a green economy, or in exploring further what this concept could mean in their own country. This year also marks 25 years since the landmark Langkawi Declaration on Environment, when Commonwealth Heads of Government set out formally the need for environmental protection to be fully integrated with development objectives. Although the concept of a green economy did not emerge until much later, many of the principles set out in 1989 share the aims and aspirations of the green economy concept.

The case studies presented in this book were initially put forward for discussion at the Second Global Biennial Conference on Small States, convened in September

2012 by the Commonwealth Secretariat, and they have since been reviewed at regional meetings related to the green economy. The Biennial drew the participation of senior government officials, representatives from regional and international organisations and academics from within the Commonwealth and beyond to discuss on key developmental issues for small states and propose practical steps to support sustained growth and development, including green growth and the green economy concept. The case studies were produced by independent researchers based in the respective countries. The authors used a mixed approach to their analysis, drawing from review of literature and policy documents, combined with a series of interviews with stakeholders from government, the private sector, and civil society. The authors were able to review the different studies and reflect on the different approaches and successes identified in each country, to reflect on comparisons and similarities. The case studies represent the findings and analysis of the authors, and should not be taken to reflect the views of the respective governments or the Commonwealth Secretariat.

Nadine Smith, Anna Halton and Janet Strachan
Editors

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Abbreviations and acronyms

| | |
|---------|------------------------------------------------------------------------------------------------|
| A/C | Air-Conditioning |
| (A)NSI | (Adjusted) Net Savings Index |
| AOSIS | Alliance of Small Island States |
| BIDPA | Botswana Institute for Development and Policy Analysis |
| BPoA | Barbados Programme of Action for the Sustainable Development of Small Island Developing States |
| BWP | Botswana Pula |
| CANARI | Caribbean Natural Resources Institute |
| CARICOM | Caribbean Community |
| CAR | Centre for Applied Research (Botswana) |
| CBNRM | Community-Based Natural Resources Management |
| CBO | Community-Based Organisation |
| CDM | Clean Development Mechanism |
| CEB | Central Electricity Board (Mauritius) |
| CI | Conservation International |
| CIDA | Canadian International Development Agency |
| CSAP | Comprehensive Sustainability Assessment Policy tool (Jamaica) |
| CSO | Central Statistics Office (Botswana) |
| CWIP | Coastal Water Improvement Project (Jamaica) |
| DDP | District Development Plan (Botswana) |
| DEA | Department of Environmental Affairs (Botswana) |
| DWNP | Department of Wildlife and National Parks (Botswana) |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EMS | Environmental Management System |
| ENACT | Environmental Action Programme (Jamaica) |

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| EPA | Environmental Protection Agency (Guyana) / Environmental Protection Act (Seychelles) |
| EPF | Environmental Protection Fee (Mauritius) |
| EMA | Environmental Management Act (Botswana) |
| EMPS | Environmental Management Plan of Seychelles |
| ENGO | Environmental NGO |
| EU | European Union |
| EVI | Environmental Vulnerability Index |
| GBT | Grenada Board of Tourism |
| GDP | Gross Domestic Product |
| GEF | Global Environment Facility |
| GFC | Guyana Forestry Commission |
| GNI | Gross National Income |
| GoB | Government of Botswana |
| GoG | Government of Grenada |
| GoJ | Government of Jamaica |
| GoS | Government of Samoa |
| GTBR | Green Tax and Budget Reform |
| HDI | Human Development Index |
| ICT | Information and Communications Technology |
| IDA | International Development Association |
| IBRD | International Bank for Reconstruction and Development |
| IPPs | Independent Power Producers |
| ITU | International Telecommunications Union |
| IWRM | Integrated Water Resources Management |
| IWRM-WE | IWRM-Water Efficiency Plan |
| JANEAP | Jamaica National Environmental Action Plan |
| kTOE | Kilotonnes of Oil Equivalent |
| LCDS | Low Carbon Development Strategy (Guyana) |
| LDC | Least-Developed Country |
| LNG | Liquefied Natural Gas |

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|----------|------------------------------------------------------------|
| MAURITAS | Mauritius Accreditation Service |
| MDG | Millennium Development Goal |
| MEA | Multilateral Environmental Agreement |
| MEWT | Ministry of Environment, Wildlife and Tourism (Botswana) |
| MIC | Middle-Income Country |
| MID | Maurice Ile Durable project (Mauritius) |
| MIDF | MID Fund |
| MFDP | Ministry of Finance and Development Planning (Botswana) |
| MNRE | Ministry of Natural Resources and Environment (Samoa) |
| MoF | Ministry of Finance (Samoa) |
| MoNRE | Ministry of Natural Resources and the Environment (Guyana) |
| MoU | Memorandum of Understanding |
| MRV | Monitoring, Reporting and Verification |
| MRVS | Monitoring, Reporting and Verification System (Guyana) |
| MSB | Mauritius Standards Bureau |
| MUR/MRs | Mauritian rupees |
| NAWASA | National Water and Sewerage Authority (Grenada) |
| NBSAP | National Biodiversity Strategy and Action Plan (Samoa) |
| NCP | National Climate Policy (Samoa) |
| NDP | National Development Plan (Botswana) |
| NEF | National Environmental Fund (Botswana) |
| NEP | National Energy Policy (Samoa) |
| NEPA | National Environment and Planning Agency (Jamaica) |
| NGO | Non-Governmental Organisation |
| NRA | Natural Resource Accounting |
| NSDS | National Sustainable Development Strategy (Nauru) |
| NSSD | National Strategy for Sustainable Development (Botswana) |
| NWMP | National Water Master Plan (Botswana) |
| ODA | Official Development Assistance |
| OECS | Organization of Eastern Caribbean States |
| PA | Protected Area or Per Annum |

| | |
|---------|--------------------------------------------------------------------------------------------|
| PATH | Programme of Advancement through Health and Education (Jamaica) |
| PC | Per Capita |
| PEI | Poverty–Environment Initiative |
| PIFS | Pacific Islands Forum Secretariat |
| PIOJ | Planning Institute of Jamaica |
| PPCR | Pilot Program for Climate Resilience |
| PPP | Public–Private Partnership or Purchasing Power Parity |
| PUC | Public Utilities Corporation (Seychelles) |
| ReCoMaP | Regional Program for Sustainable Management of Coastal Zones in the Indian Ocean Countries |
| REDD | Reduced Emissions from Deforestation and Forest Degradation |
| Rio+20 | Rio+20 UN Conference on Sustainable Development (2012) |
| SADC | Southern African Development Community |
| SB | Statistics Botswana (formerly CSO) |
| SCP | Sustainable Consumption and Production programme (Mauritius) |
| SDC | Sustainable Development Council (Grenada) |
| SDS | Samoa Development Strategy |
| SEA | Strategic Environmental Assessment |
| SIDS | Small Island Developing States |
| SME | Small or Medium-sized Enterprise |
| SPC | Secretariat for the Pacific Community |
| SPREP | Secretariat of the Pacific Regional Environment Programme |
| SSDS | Seychelles Sustainable Development Strategy |
| STDP | Samoa Tourism Development Plan |
| SWH | Solar Water Heater |
| TWG | Thematic Working Group |
| UNCBD | UN Convention on Biological Diversity |
| UNCCD | UN Convention to Combat Desertification |
| UNCSD | UN Commission on Sustainable Development |
| UN DESA | UN Department of Economic and Social Affairs |
| UNDP | UN Development Programme |

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| UN ECLAC | UN Economic Commission on Latin America and the Caribbean |
| UN ESCAP | UN Economic and Social Commission for Asia and the Pacific |
| UNEP | UN Environment Programme |
| UN FCCC | United Nations Framework Convention on Climate Change |
| VOC | Volatile Organic Compound |
| WAVES | Wealth Accounting and Valuation of Ecosystem Services |
| WDM | Water Demand Management |
| WUC | Water Utilities Corporation (Botswana) |

About the authors

Dr Vinaye Ancharaz is a Senior Development Economist with the International Centre for Trade and Sustainable Development. Prior to joining ICTSD, Mr Ancharaz was a Principal Research Economist in the Development Research Department of the African Development Bank. In that capacity, he managed the African Economic Outlook 2011 theme chapter on 'Africa and its Emerging Partners' and led work on the African Development Report 2012 on green growth as well as contributing to the design of the Bank's Green Growth Strategy. Previously, he was a senior lecturer at the University of Mauritius. He has authored several reports commissioned by the African Economic Research Consortium (AERC), the UN Economic Commission for Africa, the International Centre for Trade and Sustainable Development, the African Development Bank and the World Bank. He holds a BSc (Hons) in economics from the University of Mauritius and MSc and PhD degrees in international economics from Brandeis University, USA, where he was a Fulbright scholar.

Centre for Applied Research (CAR) is based in Gaborone, Botswana. CAR provides consultancy, research and training services in Botswana and across southern Africa. The Centre's activities focus on sustainable development issues that contribute to lasting poverty reduction. These are grouped into three broad thematic programmes: environmental economics and sustainable development; policy and project design, evaluation and support; and sustainable rural development.

Dr Graham Baines has extensive experience in educational, research, conservation and resource management in Asia and the Pacific island region. His specialisms are terrestrial and marine environmental and biodiversity management, including: project design and evaluation; policy formulation, negotiation of international treaties; training and the development of procedures for environmental and social impact assessment; environmental education and training; development of environmental guidelines for energy projects, logging, mineral exploration, coastal tourism; coastal zone management; and assistance to Pacific islander village communities to develop their capacity for management of the land and sea areas over which they have customary tenure. Dr Baines has also held posts at national and at provincial levels in developing country governments and established and led a non-government organisation in Fiji.

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Chapter 1

The Political Economy of Transitioning to a Green Economy in Small States

Dr David Smith

1.1 Introduction

The United Nations (UN) recognises 38 small island developing states (SIDS) and a further 14 SIDS that are not UN members. The Commonwealth defines small states as those with a population of 1.5 million or less, but considers some larger countries (e.g. Botswana, Jamaica, Lesotho, Namibia and Papua New Guinea) as small states because they share many of their characteristics.

Small states have distinct perspectives on sustainable development shaped by their experiences and geographical contexts. The Barbados Programme of Action for the Sustainable Development of Small Island Developing States (BPoA) indicates that small population size, low capacity, remoteness, vulnerability,¹ a small, narrowly based economy,² high dependence on imported sources of energy and exposure to an array of natural hazards adversely affect development in small states.³ Most small states are particularly vulnerable to climate change and lack the resources required to adapt to its effects. For most small states, climate change will increase damage from severe weather such as cyclones, increase the effects of drought and cause a rise in sea level, thus eroding coastal resources and infrastructure.

The majority of small states have small, open economies, based on a few sectors. They are vulnerable to changes in world demand and pricing and have little influence on world markets. Additionally, for many states, distance from markets increases the cost of imported and exported goods. In many cases, the important economic sectors (e.g. mining or tourism) could severely damage the natural environment if not properly managed.

1.1.1 Green growth and the green economy

The concepts of green growth and the green economy have received considerable recent attention and traction at the national and international levels, in both developed and developing countries. The green economy was also given significant impetus through its identification as one of two key themes for the Rio+20 UN Conference on Sustainable Development held in June 2012 (Rio+20).

The current international discourse on green growth and the green economy has paid insufficient attention to the challenges of small states. Yet, several small states have begun conceptualising their pathways to a green economy, with different models and approaches emerging. There is an opportunity to analyse through a series of case

studies the different pathways proposed and taken to transform to a green economy in small states, the levers of influence, the road blocks encountered, policy interventions undertaken and blockages that still need to be cleared.

The purpose of this book is to provide a picture of the practical policy processes implemented in eight small states (Botswana, Grenada, Guyana, Jamaica, Mauritius, Nauru, Samoa and Seychelles) and to examine some of the benefits and challenges that have been encountered in each case. It will also provide practical examples for policy-makers in small states as models and pathways that can be explored in the development of green economies and in enabling green growth.

1.2 Background

This review covers eight countries with a combined population of 6.9 million. Selected statistical information on the eight countries in the study is summarised in Table 1.1. Although the countries in the study are all classified by the UN Development Programme (UNDP) as having medium or high human development, no small state, including the countries in the study, has achieved a Human Development Index (HDI) of 0.800. This is important because Moran et al. (2008, 470–474) argue that countries with an HDI of less than 0.800 are not sustainable. High levels of poverty (30 per cent or more) and social inequality remain in many small states. With the exception of Botswana, the debt to gross domestic product (GDP) ratios of the countries studied are very high. Indeed, several small states have ratios in excess of 100 per cent, and according to the UN Economic Commission on Latin America and the Caribbean (UN ECLAC) ratios over 40 per cent impact negatively on growth (ECLAC 2008).

The World Bank classifies the countries studied (except Nauru) as middle income, based on gross national income (GNI) per capita. Apart from masking the sometimes-profound disparities between the wealth of individuals in a population, comparing *per capita* measures of GNI (or GDP) ignores the error caused by dividing GNI by very small populations, which has the effect of causing small states to appear wealthier than they actually are. As a result, many small states have graduated to middle-income status by virtue of their *per capita* GNI and are no longer eligible for concessional finance from the World Bank. This creates a barrier to green growth, which is discussed later in this paper. This research suggests that further investment is required for the small states to attain sustainability, despite their artificially high *per capita* GDP.

Seychelles has the highest HDI of the countries studied and the highest GDP per capita in sub-Saharan Africa. Its level of environmental protection does not seem to have come at the cost of economic development. This is important, since many assume that green growth means slower growth. Further, the poverty levels suggest that inequality is low and that growth has been inclusive. The Seychelles' fisheries sector is also an opportunity to realise the so-called 'blue economy' that is of interest to SIDS. The Government of Seychelles has provided effective leadership and shown strong commitment to sustainable development. Additionally, the government and people of Seychelles recognise that the natural environment is Seychelles' only asset.⁴

Table 1.1 Selected statistics

| | Botswana | Grenada | Guyana | Jamaica | Mauritius | Nauru | Samoa | Seychelles |
|-------------------------------------------------------------------------|------------------------------------------------------------------|--------------|--------------|--------------|--------------|-------|--------------|--------------|
| HDI^a | 0.633 | 0.748 | 0.633 | 0.727 | 0.728 | NA | 0.688 | 0.773 |
| Inequality adjusted HDI^b | NA | NA | 0.492 | 0.61 | 0.631 | NA | NA | NA |
| Debt:GDP ratio (%)^c | 16 | 87 | 60 | 141 | 50 | NA | NA | 82 |
| Debt service, % of exports^d | 1.5 | 14.3 | 2.6 | 27.9 | 2.4 | NA | 5.2 | 5.7 |
| World Bank category^e | Upper middle | Upper middle | Lower middle | Upper middle | Upper middle | NA | Lower middle | Upper middle |
| World Bank loan category^f | IBRD | Blend | IDA | IBRD | IBRD | NA | IDA | IBRD |
| Per capita CO₂ emissions^g 2008^h | 2.48 | 2.37 | 2.03 | 4.54 | 3.12 | NA | 0.89 | 7.84 |
| CO₂ emissions/2005 PPPⁱ | 0.25 | 0.22 | 0.7 | 0.62 | 0.27 | NA | 0.22 | 0.39 |
| Energy use per \$1000 GDP^j | 85.82 | 75.4 | 234.79 | 236.39 | 85.91 | NA | 77.34 | 114.66 |
| Population | 2,000,000 | 105,000 | 756,000 | 2,700,000 | 1,300,000 | 9,800 | 187,820 | 86,000 |
| Government spending % of GDP | 46 | 27 | 31 | 33 | 26 | NA | 38 | 34 |
| Global Footprint^k | Does not include EEZ and is not calculated for most small states | | | | | | | |
| Environmental performance index | 41.3 | NA | 59.2 | 58 | 80.6 | NA | NA | NA |
| 3rd education enrolments/100,000^{l,m} | 874 | 6,556 | 1,067 | 2,657 | 2,019 | NA | 685 | NA |
| Murders per 100,000ⁿ | 14.5 | 11.5 | 18.6 | 52.2 | 2.5 | 9.8 | 1.1 | 8.3 |
| Corruption perception index^o | 6.1 | NA | 2.5 | 3.3 | 5.1 | NA | 3.9 | 4.8 |
| Mining | Y | N | Y | Y | N | Y | N | N |

Notes:

^a UNDP (2011) Human Development Report.
^b *Ibid.*
^c World Bank database (accessed 25 August 2012).
^d World Bank database (accessed 25 August 2012). Data for 2010, except for Guyana (2008).
^e World Bank data, available at: <http://data.worldbank.org/about/country-classifications/country-and-lending-groups> (accessed 3 September 2012).
^f *Ibid.*, note that the criterion used here is GNI per capita.
^g World Bank database (accessed 9 September 2012).
^h USA is 17.96, Singapore is 6.67, Barbados is 4.97, Trinidad 37.39.
ⁱ USA is 0.42, Singapore is 0.14, Trinidad is 1.55. PPP is purchasing power parity.
^j World Bank database (accessed 9 September 2012).
^k See: www.footprintnetwork.org/en/index.php/GFNI/ (accessed 1 September 2012).
^l World Bank database, available at: <http://databank.worldbank.org/Data/Views/VariabileSelection/SelectVariables.aspx?source=Education%20Statistics> (accessed 1 September 2012).
^m USA is 6.673, UK is 3.968, Canada 4.051, Japan 3.056.
ⁿ From UN Office on Drugs and Crime (UNODC), available at: www.unodc.org/unodc/en/data-and-analysis/homicide.html (accessed 3 September 2012). Data refer to 2010 unless otherwise noted here: Botswana is 2009, Seychelles is 2006, Samoa and Nauru refer to 2008.
^o Transparency International, available at: www.transparency.org/country (accessed August 2012).

1.2.1 The effect of disasters on small economies⁵

Most small states are exposed to a wide variety of natural hazards, including drought, tropical cyclones, volcanoes, earthquakes or tsunamis. However, because of their size they often have limited resilience to extreme events. Such events may cause major loss of life and considerable economic impact. There are several examples of economic impacts of more than 100 per cent of GDP resulting from a single tropical cyclone event in SIDS;⁶ for example, in 2004 Cyclone Heta caused an impact of 800 per cent of GDP in Niue (Herrmann et al. 2004). This kind of occurrence is devastating and the relative impact (as a fraction of GDP) of these events is particularly large on small countries (Zapata and Madrigal 2009). Damage may be a defining setback even to relatively strong economies such as the Cayman Islands, which, according to UN ECLAC, suffered damage and loss of nearly 200 per cent of GDP (or US\$75,000 *per capita*) due to Hurricane Ivan in 2004. In effect, several years of development can be destroyed in a few hours. Smaller but repeated events will over time hamper economic growth. Most small states are also particularly threatened by the effects of climate change, including sea-level rise and the adverse effects of extreme weather events, such as drought and cyclones.

1.3 Conceptualisation of the green economy in the case countries

Traditionally, sustainable development can be thought of as having three main components: natural, social and economic (Table 1.2). Within these components, one can consider the existence of different types of capital; sustainability occurs as long as these capitals are not depleted. At one time, it was felt by development practitioners that the different types of capital could be exchanged, and that an abundance of one type could compensate for the removal of another. However, most practitioners now hold that development that continues to erode any of the different capital stocks, particularly natural capital, is unsustainable; in other words, there are limits to flows between the types and hence limits to growth.

Table 1.2 Components of sustainable development

| Natural | Social | | Economic | |
|-----------------|-----------------|--------------------|--------------|-------------|
| | Social | Human | Manufactured | Financial |
| Minerals | Governance | Life expectancy | Factories | Financial |
| Biodiversity | Health services | Education attained | Hotels | Services |
| Insolation | Schools | Personal | Roads | Trade |
| Soils | Crime | security | Ports | Agriculture |
| Forest | | | | Tourism |
| Fisheries | | | | Transport |
| Reefs | | | | |
| Seismicity | | | | |
| Weather/climate | | | | |
| Water | | | | |

The main objective of sustainable development is to increase people's well-being,⁷ and this involves more than simply increasing the size of the economy in which they live.⁸ This is because, as Stiglitz and Sen state, 'As statisticians and economists know very well, GDP mainly measures market production – expressed in money units – and as such it is useful. However, it has often been treated as if it were a measure of economic well-being. Conflating the two can lead to misleading indications about how well-off people are and entail the wrong policy decisions' (Stiglitz et al. 2010). Later in the same paper, they suggest, 'the time is ripe for our measurement system to shift emphasis from measuring economic production to measuring people's well-being'.⁹ Since an objective of sustainable development is to increase human well-being, it may be useful to consider a green economy as contributing to sustainable development and the achievement of the four Sustainable Development Goals indicated in the World Happiness report:

- end extreme poverty by 2030;
- environmental sustainability;
- social inclusion; and
- good governance (Helliwell et al., 2012).

Since the publication in 2011 of the UN Environment Programme's (UNEP) paper on the green economy, it has been the subject of numerous meetings, particularly in the lead up to Rio+20. In the Pacific, a study by the UN Economic and Social Commission for Asia and the Pacific (UN ESCAP) defined the green economy as:

an economy where prosperity can go hand-in-hand with ecological sustainability. A green economy invests in ecological resources and services, and sees that as an opportunity for profit, employment and economic growth rather than a cost and burden to the economy. Green growth is the process of greening [a] conventional economic system and a strategy to arrive at a green economy.¹⁰

In the Caribbean, a process led by the Caribbean Natural Resources Institute (CANARI), while not defining a green economy, indicated that a green economy should:

aim for long-term prosperity, rather than solely for growth, through equitable distribution of economic benefits and effective management of ecological resources. It is economically viable and resilient to both external and internal shocks; self-directed and not driven by external agendas or funding opportunities, and self-reliant by being based predominantly on domestic production and investment. A Caribbean green economy is pro-poor and generates decent jobs and working conditions that offer opportunities for self-advancement for local people (CANARI 2011).

The breadth of definitions at the regional level probably reflects that individual countries are still engaged in the process of formulating the concept of the green economy and identifying and discussing its implications. The countries reviewed in this book offered differing concepts of a green economy, and many of them espoused

'green' principles in their national development plans or sustainable development plans. For the purposes of this paper, 'green growth' is used to indicate the process of transforming to a green economy.

1.3.1 Small states perspective on green economy and green growth

The results of consultations that were held in all the countries indicate some common themes and applications, as well as a few unique perspectives. Several stakeholders in different countries indicated their concern that the green economy may become an additional trade barrier that could further marginalise small states and reduce their access to international markets. Another concern raised was whether green economic growth would address poverty reduction and the need for decent jobs.

Guyana's approach to defining the concept of the green economy focuses on improved well-being, reducing its carbon footprint and environmental stewardship, and this concept has been enshrined in the national Low Carbon Development Strategy. The green economy will in part be driven by payments to the government for carbon sequestration taking place within Guyanese forests. Funds from this will be used *inter alia* to diversify the country's energy mix and increase the penetration of information and communications technology (ICT) into communities.

When the concept is broken down among groups of stakeholders consulted in Guyana, it should be noted that only the private sector was concerned about waste management and a lack of indicators to measure green progress. Unions were concerned about poverty reduction and renewable energy, but no other factors. Constraints to green growth cited included limited human capital, lack of financing and an inadequate governance framework. In Guyana, other constraints identified were a lack of social and physical infrastructure and a lack of public awareness of a green economy.¹¹

In Mauritius, most of the stakeholders consulted agreed that achieving sustainable development was a major challenge and welcomed the government's initiatives in terms of green growth. Some, however, were not sure of the implications of green growth and were wary that the green economy could be used to further restrict access to foreign markets, a sentiment shared by some stakeholders in Grenada and Jamaica. Stakeholders consulted in Mauritius cautioned against undue haste in trying to implement green growth, and also felt there was not a very high demand for green products or services.¹²

According to the analysis from the Seychelles case study, Seychelles considers that it is on the path of green growth and this path is documented in its Sustainable Development Strategy (SSDS) for 2012–2020. This document addresses the greening of the economy, and was derived from extensive consultations with government and non-governmental organisations (NGOs); however, according to the Seychelles case study, there was limited participation from the business sector and community-based organisations.¹³

The concept of the green economy in Grenada was shaped by socioeconomic conditions, natural resource endowments, regional integration and SIDS international

negotiation positions leading up to Rio+20. The result of these consultations was that the green economy should improve the livelihoods of the Grenadian population, particularly rural communities, women and young people. The green economy must improve livelihoods and support holistically the pillars of sustainable development.¹⁴

Overall most of the consultations on the green economy for the countries in which case study analysis was undertaken were organised by governments. For some this was in response to the need to prepare for Rio+20, though for many of the countries green economy concepts were discussed in the context of national development plans or sustainable development plans. Across the countries studied, the participation of civil society, businesses and communities varied widely. In some countries, it was felt that consultations on the green economy with the private sector, community groups and civil society could have been more extensive.

1.4 Green growth and the implementation of the green economy

With the exception of Grenada, all the countries studied have green growth or the green economy addressed in their national development plans or within a sustainable development plan. Grenada seems to have identified the energy sector as critical to green growth, and is working to green that sector as a priority. Several of the constraints and roadblocks to green growth that were identified were also economic growth constraints, such as high levels of national debt, inequality, limited access to markets, low capacity for implementation of policies and strategies, and the need to increase human capital. Several of the countries studied had relatively low World Governance Indicators and education indicators (see Tables 1.3 and 1.5). This could imply that they may experience difficulty in implementing a transformation to the green economy, because levels of social capital are low. Such countries may experience shortages of qualified personnel to fill jobs or low human capacity in key agencies. A green economy is unlikely to materialise unless it results in improved benefits and quality of life for the poor.

Some common constraints to green growth as highlighted in the case studies are:

- lack of strong leadership and governance mechanisms;
- high price of green technology;
- low levels of education and training, leading to a lack of technical capacity;
- little political will to change the status quo and move to greening;
- small local market size, and isolation from larger markets which are far away;
- lack of suitable alternatives to current practices;
- depleted or damaged natural resources;
- the effect of natural hazards and climate change;
- poor local capacity to supply green goods and services;

- lack of funding to manage the environment or to support greening;
- unsuitable tax regimes and financial incentives; and
- unwillingness of business leaders, reluctant to change current practices.

In Samoa, green growth is seen to involve investment in natural capital, sustainable consumption and production, sustainable infrastructure, greening business and markets, and green taxes and budget reform. The enabling factors that can support green growth were identified as political will and a supportive legislative and policy framework. Samoa has a development strategy that espouses green principles. Constraints to green growth in Samoa were identified in the case study as the low availability of funding outside of official development assistance (ODA), the Global Environment Facility (GEF) and development loans. Technical capacity in the country is limited and not sufficient to implement the plans that have been made for transformation. There is also an urgent need for training in key areas. The requisite technology is expensive or unavailable in Samoa and, in particular, access to economical green technology is limited.

In Seychelles, the case study notes that the green economy is framed within the Seychelles Sustainable Development Strategy (SSDS 2012–2020). The document indicates investment in mainstreaming climate change adaptation, water and sanitation, fisheries, promoting renewable and alternative energy use and transport. Constraints identified in the Seychelles case study included internal bureaucratic difficulties and lack of appropriate tools and policies for mainstreaming (Government of Seychelles 2011). Also hampering progress were deficiencies in government policy, difficulties in accessing technology at reasonable cost, and insufficient technically qualified personnel to fully implement the strategy, financing and governance.

In the Mauritius study, concerns were raised about the increase in ecological footprint concomitant with an increase in HDI. Constraints to green growth included a lack of green products available locally, the higher cost of green products that are available, and the costs of certification and conforming to standards.

In the Grenada case study, energy was found to be the key focus for transforming to the green economy, because of its potential to support progress in the sectors that could lead the small state's economic and social transformation. By focusing on this important sector, the stakeholders consulted felt that this would help to mainstream the green economy, leverage funds and technology, involve key stakeholders, build capacity and resilience, and engender political will and leadership. By focusing on the energy sector, the government could also begin to establish the frameworks, education and awareness programmes and other mechanisms that underpin green growth. The major constraint identified was dependence on high-cost energy. Changing this is expensive and there are few viable alternatives; additionally, access to investment finance is limited. Other constraints included differing interpretations of the green economy, low levels of co-operation between national stakeholders and dependence on external donor funds for implementation.

In the Nauru study, paying for debt servicing, airline operation and the public service were identified as major costs inhibiting implementation of 'greening' development measures. It should be noted that most countries studied had to spend a large proportion of the government budget on debt service. Indeed this is an issue of concern to many small states.

In Jamaica, the case study analysis found that greening the economy is in the early stages, with ad hoc commitments to greening some tourism services, government procurement, some agricultural practices and developing renewable energy. The Vision 2030 National Development Plan contains commitments to green growth, but it is not the main focus of the plan. Investment in green technologies, such as wind and solar energy equipment and non-petroleum-fuelled transport, has been small.

Since the concept of the green economy is relatively new, it is not yet mainstreamed into the processes and policies of governments for the small states studied. In many cases, it may still be conceived as an environmental issue rather than a development issue or an economic one. This is unfortunate, since it often means that environmental issues are still not widely considered when economics is discussed. So, for example, the Government of Jamaica's vision for the energy sector is an 'efficient, diversified and environmentally sustainable energy sector providing affordable and accessible energy'.¹⁵ Reducing the cost of energy is important since, as the study points out, high-energy costs are discouraging investments and making production uncompetitive. While the government has promoted several energy efficiency projects, it is considering the use of cheaper fuel sources such as coal. The longer-term impacts of this change, which include locking the country into a high-pollution fuel source for many years, would have to be considered against the benefits of 'cleaner' options such as natural gas and increasing the use of renewables. High dependence on imported fuel sources is a common problem shared by small developing countries, which constrains economic growth of any kind.

The study on Jamaica referred to an 'implementation gap', describing the poor ability of government agencies to implement plans and enforce policies and regulations. Although laws are passed, enforcement may be lax. Strong leadership in the public and private sectors would advance the transformation process, but the study recognised that the Jamaican economy is still dependent on natural resource-based export industries and on imported energy, with debt servicing of more than 140 per cent of GDP, and this could constrain implementation. The study also noted that risk aversion of traditional businesses is another obstacle to be overcome. The economy will need more investments, technology transfers, technical know-how and market access from developed countries, while Jamaica may have to locate resources for funding and technical assistance from regional co-operation schemes and the diaspora.

Botswana is in a promising position to move towards a green economy; it has numerous natural resources and is in a good position in terms of its economic and social indicators. The case study sets out how the country has prioritised three sectors – agriculture, water and transport – for development. Botswana also has the opportunity to use mineral revenues strategically to support economic diversification

and transition to a green economy. The country should also seek to diversify its energy sources and increase the amount of renewables used.

The Botswana study indicates that appropriate actions at this time would be to develop and implement the relevant plans and strategies and create a series of incentives to support a transition to a green economy. Along with this, environmentally damaging subsidies could be removed. This could follow a strategic environmental assessment of national policies. Tracking progress towards a green economy would require a series of indicators and could benefit by determining and tracking methods for natural resource accounting. The study indicates that a National Green Economy Covenant, signed by government, the private sector and civil society could be the end result. To bolster limited institutional and human capacity, the country could exploit the use of ICT to increase productivity and international linkages. This would require developing partnerships between government and the private sector.

1.4.1 Governance

Promoting green growth in small states will require governments to take the lead in setting examples and helping to incentivise green behaviour. This will involve making decisions that may not be popular, as their benefit may not be seen in the short term. Where economic circumstances are challenging, politically expedient decisions do not usually support green solutions. Governments will require the trust of citizens, the confidence of the private sector and national buy-in to long-term sustainability goals if green growth is to take place. Additionally, green growth can be greatly facilitated if countries can attract foreign investment to their economies. The perception of levels of corruption, safety and the effectiveness of government, as well as the ease of doing business, may have marked effects on foreign investment from the private sector, as well as ODA. Several of the countries surveyed are not perceived well in terms of these critical indicators (Table 1.3).

Table 1.3 Percentile rankings for governance indicators for the countries in the study (higher numbers indicate a better rank)¹⁶

| Country name | Rule of law | Control of corruption | Political stability and absence of violence and terrorism | Government effectiveness |
|--------------|-------------|-----------------------|-----------------------------------------------------------|--------------------------|
| Barbados | 82.94 | 89.47 | 87.74 | 88.99 |
| Mauritius | 74.88 | 73.21 | 65.57 | 75.60 |
| Botswana | 67.77 | 79.90 | 78.30 | 67.46 |
| Samoa | 67.30 | 61.72 | 82.55 | 53.11 |
| Nauru | 63.51 | 58.37 | 99.06 | 33.49 |
| Grenada | 59.72 | 69.86 | 66.51 | 61.24 |
| Seychelles | 55.92 | 65.07 | 75.00 | 62.20 |
| Guyana | 39.34 | 33.97 | 28.30 | 50.72 |
| Jamaica | 37.44 | 44.98 | 32.08 | 62.68 |

Source: World governance indicators, available at: <http://databank.worldbank.org> (accessed 9 September 2012).

1.5 Potential options for policy analysis and action

Within the small states studied, the process of discussing and conceptualising the green economy and green growth was government-led, but included other sectors to varying degrees. This participatory approach was useful since it provided opportunities for key partners to buy in to the process in its early stages, and ensured greater involvement through an extended period. This could translate into support for initiatives that promote sustainable policies and actions. From these case studies, it is clear that there are some challenges and approaches that can provide a suitable framework for transforming to green economies.

1.5.1 Stakeholder involvement in policy development

Since stakeholder involvement in the early stages of policy conceptualisation may influence support for green growth initiatives, it is important to involve the key sectors of the economy from the onset. Similarly, strong efforts should be made to ensure that the private sector is involved as early as possible and opportunities for public–private partnerships (PPPs) should be identified early.

1.5.2 Economic diversification

Mining was prominent in four of the eight economies: Nauru, Jamaica, Botswana and Guyana. Although mining currently takes place in all, it is not at the level of the past and revenues are lower than before. The studies seem to indicate that since mining is not a sustainable source of income, it is beneficial to build strategic parts of the economy with the profits from mining and establish a diverse base that can support the economy when the mineral resources are exhausted or when prices drop. While small states should avoid spending mineral wealth on consumption, they should also ensure that the income from mining is enough to rehabilitate the mined-out lands that remain after mining is completed, as well as to remove chemical waste, old mining works and factories. If not, the government may be left looking for resources to meet the costs of clean-up and rehabilitation or may be left with unusable areas of land.

Given the acknowledged limits in capacity, the countries in the study could benefit from prioritising and focusing on greening their largest investments, energy plants, transport infrastructure and large buildings, since these will persist for long periods of time and create benefits if done well or create an energy, climate or finance deficit if they are done wrong.

1.5.3 Strategic planning

The study on Seychelles indicates that implementation of the SSDS can assist in transitioning to a green or blue economy, and areas of importance for the Government of Seychelles and its stakeholders include several areas that could be relevant to other small states. These are:

- maintaining a strong political commitment to a green economy;
- ensuring broad ownership of national strategies and plans (the transformation to the green economy should not be perceived as the purview of a sectoral ministry)

such as the ministry of environment [this factor was also noted in the Mauritius study]);

- formalising the mainstreaming of sustainable development policies and plans into national development strategies;
- allowing independent power producers (IPPs) to produce and sell electricity (mainly from solar photovoltaic) and investing in the infrastructure to allow IPPs to connect to the national grid;
- eliminating use of leaded fuel and introducing a tax on leaded gasoline to discourage its use;
- negotiating regional agreements and providing the private sector with incentives to invest in technology development and transfer;
- facilitating the private sector's engagement in the green economy by PPPs, especially for renewable energy and Clean Development Mechanism (CDM) projects;
- providing financial and other incentives for the private sector to contribute to the transition to a green economy; and
- seeking aid from the World Bank and GEF and exploring innovative financing instruments such as green bonds and debt-for-nature swaps.

The study noted that the Government of Seychelles deliberately aimed its tourism product at the high-end market in order to keep impacts low while generating income. This is a good practice for other small states to consider implementing.

Although Mauritius has a sustainable development plan, the case study argues that the government has not made the progress expected in implementing this and although green taxes have been enacted, the energy sector has become less green rather than more so. The study suggests that the reasons for this are that sustainable development and green growth have traditionally been viewed as environmental issues and not developmental ones; the Ministry of Finance in Mauritius is not deeply committed to the green growth strategy and the government lacks capacity to manage implementation of the plan.

The private sector, on the other hand, has supported the plan because it is good for business. Several private initiatives have been implemented, with or without government support. MEXA, an organisation of export-oriented businesses, runs a competition that rewards companies that account for their carbon emissions and try to reduce them. Textile industries have shifted to solar energy and are saving on fuel costs. Likewise, a private medical clinic in the north of the island has installed photovoltaic panels on its roof and plans to be self-sufficient in its energy requirements soon.

The case study on Jamaica sets out how food production could benefit from the application of green technology to the production of affordable and nutritious food products, and adapting to the negative impacts of climate change. This could be an opportunity for new investment. Also, producing organically grown food for the tourist industry could assist in greening tourism and provide increased income to farmers.

In Jamaica, greening the energy and food production sectors could benefit through a focus on building resilience to shocks from the international energy and food markets, as well as meteorological hazards. The shift in the relative burden of taxation and the relative benefits of subsidies will be crucial to redirecting investment flows.

Greening Jamaica's economy will entail more respect for the natural systems that protect the island, its economy and society, reducing harmful practices, such as disposing toxic and non-biodegradable waste in the atmosphere and water bodies, and reorienting settlement practices to create a more harmonious relationship with the natural environment and the changing climate. By doing this, the vulnerability of the economy to natural hazards and extreme weather events may be reduced.

Development plans and consultations concerning the green economy must be broadly based and include all sectors. Since green growth is about economic activity, the private sector will play the major role in whether there is any success in implementation and should be involved from the beginning. In Mauritius, members of the private sector have shown that 'going green' makes business sense.

Small states can also learn some lessons from the gender aspects of the Guyana study:

- women play a critical role in natural resource protection, a key element of the green economy; so the creation of decent job opportunities for women who interact daily with natural resources should be a priority for green growth;
- women's impacts and challenges due to a green economy are often the indirect effects of the impacts and challenges experienced by men at the household level;
- research on sustainable livelihood activities that will augment women's economic status should be a key element of any national policy on a green economy; and
- education and skills training are cornerstones for women's involvement in the process of transformation.

The key lessons from Grenada for small states considering transformation to a green economy are:

- the green economy should be rooted in national vision, socioeconomic priorities and national resources and lead by the highest levels of government, such as the prime minister;
- involvement of all national stakeholders from the conceptualisation stage can create national ownership, direct linkages to development and a focus on livelihoods and poverty eradication through targeted and practical sector-based on-the-ground interventions;
- if national capacity for implementation is limited, the green economy enabling institutional framework should be concentrated in a single sector, linked to other building blocks and sectors and mainstreamed throughout the economy; and
- as with Botswana, the need to determine sector-specific indicators of greenness for monitoring, evaluating and reporting purposes to create a feedback loop for policy adjustments was noted.

1.6 Main themes arising from the studies

In this section, the main themes are noted and possible ways to address them are indicated.

1.6.1 The need to finance green growth and changes to the economy

Most of the countries studied cited lack of finance as a major barrier to green growth. This included lack of financing for environmental management activities, as well as a lack of finance for greening other activities or sectors of the economy. While the importance of ODA to the economies of the countries studied varies, most of these countries are highly dependent on aid (Table 1.4) or highly indebted (Table 1.1). ODA is equal to a large proportion of GNI or imports in four of the countries. Debt-to-GDP ratios exceed 50 per cent in all the countries for which data were available, except Botswana.¹⁷ The challenge for small states, especially given their high levels of debt, is to use ODA to address the current problems of the existing economy (such as poverty alleviation), while promoting green growth.

Unfortunately many small states are no longer eligible for International Development Association (IDA) funding because of their high GNI *per capita*. In light of their extreme vulnerability and limited resilience, the Alliance of Small Island States (AOSIS) and other suitable groups could lobby for small states to be allowed to access World Bank financing in the 'blend' category until their HDI reaches 0.800, rather than using *per capita* GNI as a measure of economic well-being.

Since a great deal of infrastructure in small states may be financed by development banks, countries may wish to consider the possibility of re-tooling loans for building public infrastructure such as roads, hospitals or schools to help secure access to finance for climate change adaptation. This could involve separating the added requirements of adaptation to climate change from the remainder of the loan. For example, if a coastal road needs to be raised in order to avoid damage from rising sea levels, the added cost of this undertaking would be identified as a climate change adaptation requirement. Such aspects of development would have longer repayment periods and lower interest rates or would be financed by adaptation funds. The

Table 1.4 Net ODA received

| Country | Percentage of imports of goods and services | | | Percentage of GNI | | |
|------------|---------------------------------------------|-------|------|-------------------|-------|------|
| | 2008 | 2009 | 2010 | 2008 | 2009 | 2010 |
| Samoa | 10.83 | 24.28 | 37.7 | 7.47 | 15.27 | 25.5 |
| Guyana | 10.69 | 12.22 | 9.09 | 8.72 | 8.63 | 6.74 |
| Seychelles | 0.98 | 1.94 | 4.48 | 1.4 | 2.86 | 6.25 |
| Grenada | 6.5 | 10.98 | 7.74 | 4.23 | 6.74 | 4.62 |
| Mauritius | 1.58 | 2.81 | 1.96 | 1.13 | 1.76 | 1.27 |
| Botswana | 11.4 | 5.16 | 2.45 | 5.62 | 2.43 | 1.06 |
| Jamaica | 0.78 | 2.06 | 1.96 | 0.67 | 1.26 | 1.06 |

Source: <http://databank.worldbank.org> (accessed 9 September 2012).

lender would be able to count the concession as its contribution to climate change adaptation funds. Samoa was able to access 15 million US dollars of grant funding from the Pilot Program for Climate Resilience (PPCR)¹⁸ to climate-proof the main road from the airport to the capital city, but funds within this facility for small states are limited. In any case, mainstreaming climate change and other green economy issues into structural and other loans and grants could contribute greatly to countries that are short of funds to implement greening.

Small states may wish to re-examine their policies, tax and duty regimes to evaluate their effects on green growth. Several countries are developing ways to incentivise the private sector to become strong partners in a green economy. Mauritius has used taxation to influence the use of plastic bags and encourage the use of cars with lower capacity engines. Carrying out a Strategic Environmental Assessment (SEA) for key sectors of the economy could help to identify barriers to green growth and opportunities for income generation.

Similarly, countries could investigate the possibilities of using debt swaps to finance aspects of greening. Such swaps have been carried out to create funds for environmental management, but similar mechanisms could be used to benefit education or health activities. Jamaica has had a useful experience with debt-for-nature swaps, while the experience of the Green Fund of Trinidad and Tobago, which currently has assets of more than US\$300 million,¹⁹ also provides some useful lessons in how countries could finance green activities.

1.6.2 The need for human and social capital to be increased and managed by governments

The Botswana study noted that increased prosperity brought with it an erosion of traditional methods of coping with poverty, as well as increased consumerism. This highlights the need for policies that emphasise improved well-being and not just increased GDP, especially if increasing the size of the economy does not reduce inequality and improve the welfare of the poor. Small states may wish to consider the recommendations of the Stiglitz et al. report (2010), mentioned earlier in this paper, and measure well-being and reduce inequity.

All countries in the study indicated that capacity issues constrained green growth; this could either be the availability of staff to be assigned to greening activities by government or a shortage of technically trained persons to support technology transfer. Whether growth is green or not, economies grow faster with a well-educated workforce, so building human capital by education and training should be a cornerstone of any green growth strategy, particularly since education is the main way that people escape poverty. A point raised by the Guyana study is that requirements and performance in education vary with gender and a well-balanced strategy should recognise this. With this in mind, small states could seek to increase investment in education, particularly tertiary education, and set ambitious targets to increase the number of years of schooling and decrease the student–teacher ratio. For example, Barbados has set a target of having at least one university graduate per family. Additionally, ICT can be used to facilitate online teaching, improve access to

education and reduce costs to the student. Importantly though, a national strategy should also ensure that training is matched to national development plans.

In four of the countries studied, remittances are a significant contributor to the economy (Table 1.5). Studies in Jamaica have shown that the amount of money remitted increases with income level (Simmons et al. 2005) and education, so it is in a country's interest to improve education and training – even if the students migrate. Further, by training, especially in technology-related subjects and ICT, the potential for new green jobs is increased.

1.6.3 The need to diversify the economy and increase its effective size

Many of the case study countries are increasing the level of services in the economy, which is an advantage since it is often easier to green services than to green agriculture, mining or manufacturing. Further, the use of ICT in service industries may also be greater and more beneficial to these activities than in other sectors. Most of the countries studied have domestic economies too small to take advantage of economies of scale and are dependent on external economies for their survival. Traditionally, this took place via exporting agricultural crops, mining or more recently tourism. A feature of most small states is migration; it is suggested that governments in small states increase their understanding of migration factors and remittances and manage migration by training as many of their citizens to the highest level possible and facilitating the movement of their skilled citizens to work in foreign markets.

Most of the countries studied are members of a regional economic grouping. Small states should in their own interest support efforts to increase regional linkages, support the creation of free trade regions among islands and reduce barriers to the movement of highly skilled and well-trained persons.

1.6.4 The need to ensure the maintenance and management of natural capital

To attain sustainability, all small states – regardless of the extent of their natural resources – must make the care and management of their natural resources the foundation of their economies. Those with a coastline should improve efforts to manage their marine and coastal resources. Since the Exclusive Economic Zone (EEZ) of most SIDS exceeds by many times their land area, they should seek to manage these zones sustainably. This is difficult to achieve, because national capacity to manage fisheries over large areas is low. A recent study showed that small states with large EEZs often lack the ability to benefit from value-added processes associated with fishing, and that the increase in fishing fleets threatens the economic development and sustainability of the African, Caribbean and Pacific Group of States (ACP) countries (Gagern and van den Bergh 2012).

Regional organisations and commissions could be supported to address transboundary coastal and marine resource management and build capacity to manage marine and coastal resources. On the terrestrial side, an emphasis could be placed on ensuring the security of watersheds and protected areas. This can be facilitated by promoting

Table 1.5 Level of remittances and investment in education

| | Botswana | Grenada | Guyana | Jamaica | Mauritius | Nauru | Samoa | Seychelles | Very high HD |
|------------------------------------------|----------|---------|--------|---------|-----------|-------|-------|------------|--------------|
| Remittance inflows % of GDP ^a | 0.7 | 8.6 | 12.5 | 15.8 | 2.5 | NA | 25.1 | 1.6 | 0.3 |
| 1° Pupils per teacher | 25.6 | 17.1 | 25.2 | 27.7 | 21.6 | NA | 31.7 | 13.8 | 6-24 |
| Public expenditure on education % GDP | 10.3 | 7.4 | 8.1 | 5.1 | 5.7 | NA | 7 | 4 | 11.9 |
| Satisfaction | 3.6 | | 6.0 | 6.2 | | | | | 6.7 |

Notes:^a UNDP Human Development Report 2011.

Payment for Ecosystem Services schemes, an approach contained in the Guyanese Low Carbon Development Strategy. Such arrangements would be one way of ensuring that vital ecological services such as watershed management are protected, thus benefitting the poor.

More generally, small states could benefit from improvements in stewardship of the environment for construction projects, such as hotel developments, housing schemes and industrial parks. It will be difficult to achieve green growth without mainstreaming the stewardship of environmental resources.

1.6.5 The role of energy and energy cost in the economy

The economic sector that may be most important to a green economy is energy. Indeed, the Grenada study indicated that due to capacity constraints it may be best for that country to focus all its efforts to green the energy sector, since the knock-on effect would facilitate other sectors and building blocks of the economy. In all the small states studied, there is a high dependence on fuel imports, though the countries vary considerably in the potential for use of domestic sources of energy. It would be quite possible for Guyana to support all its economic growth with renewable sources of energy.

Small states could benefit from monitoring the proportion of foreign exchange earnings used to pay for fuel imports. They could set targets to increase the energy efficiency of the economy and to increase the amount of renewable energy sources in the economy. As decisions are made to diversify the energy mix, efficiency, reduction of emissions and pollution, and increasing the use of renewable energy, as well as cost, could be taken into account.

Allowing for net metering is a strategy that should be considered, as should allowing for IPPs to produce and sell electricity generated from renewable sources and investing in infrastructure to allow IPPs to connect to the national grid. Governments could remove import barriers to renewable energy devices and seek to incentivise the use of energy efficient devices and penalise wastage and inefficiency.

1.6.6 The need for strong leadership from government and the increased role of the private and not-for-profit sectors

In the small states studied the role of civil society and the private sector was important, but they were not always included in the conception of the green economy. This often led to low levels of engagement in implementation. In Mauritius, the private sector was perceived as playing an important role in green growth, while in Seychelles the private sector was not as involved as other sectors in designing the sustainable development strategy, nor was it as involved in implementation. The role of civil society in understanding and implementing the green economy was found to be important in Jamaica and Guyana.

In the countries studied, government spending varies from 26 per cent to 46 per cent of GDP and is thus a significant part of the economy. Therefore, if the government implemented a comprehensive green procurement programme, it could catalyse green purchasing.

Ensuring that climate change and disaster risk reduction are mainstreamed into national planning, creating resilient models for livelihoods and ensuring that key civil and commercial infrastructure is climate-proofed will probably support green growth. Examples of government taking the lead in energy efficiency included an initiative by the Jamaican government to install renewable energy appliances and increase energy efficiency in its hospitals and schools, and the school solar photovoltaic projects in Mauritius.

1.7 Recommendations

The following list of recommendations is collated from the studies carried out by the eight authors, as well as additional analysis. It does not represent a systematic step-by-step approach, but attempts to suggest ways in which some of the points from the studies could be addressed. While there are many commonalities among small states, the usefulness of the recommendations in whole or in part would depend on the national circumstances within a particular country.

- If capacity is a problem, prioritise and focus on a single sector.
- Address the human capacity problem (short to medium term):
 - increase tertiary training and education opportunities;
 - increase investment in primary and secondary education; and
 - decrease student–teacher ratios across the board.
- Share information and raise awareness of the concept (short term):
 - continue dialogues on green growth in the post-Rio context to solidify the vision, identify opportunities and constraints and ensure a broad participation of stakeholders, especially the private sector, labour and women’s groups.
- Address finance and debt (short to medium term):
 - examine existing sources and retool existing loans to take into account climate change adaptation requirements;
 - negotiate new loans with climate change adaptation in mind;
 - support payment for ecosystem service initiatives as appropriate, focusing on those services which support climate change adaptation – such as watershed protection and reducing coastal zone erosion;
- implement a green procurement policy for government and its agencies and companies;
- advocate for small states to continue to be allowed access to World Bank financing in the blend category until their HDI reaches 0.800, rather than using *per capita* GNI as a measure; and
- ensure that suitable rent is charged for the use of sensitive income-generating ecosystems, such as beaches and the coastal zone.

- Reduce dependence on high-carbon and imported sources of energy (medium to long term):
 - increase the use of public transport;
 - phase out the use of leaded gasoline;
 - ban importation of new vehicles that cannot use unleaded fuel;
 - adjust the tax regime so that, over time, leaded fuel becomes more expensive than unleaded;
 - adjust taxes to incentivise the development and use of renewable energy applications; and
 - as generating plants become old, seek to replace them with plants that use cleaner fuel, are more efficient and have less emissions.
- Implement Strategic Environmental Assessments of government policy (short to medium term).
- Maximise the green economy by an integrated focus on natural resources across land and sea (short to medium term).
- Lobby convention secretariats for simplified convention reporting for small states (medium term).
- Train government staff in the theory and practice of environmental–economic accounting, and assist them in implementing such accounting (medium term).
- Support the enhanced use of ICT for networking, international meetings, education and capacity building (short to medium term).

1.8 Conclusion

In all the small states studied, government-led consultations on the green economy took place mostly in the context of preparing for Rio+20. National plans contained language consistent with green growth, though in the case of Guyana's Low Carbon Development Strategy, green growth and the green economy is the centrepiece; in Seychelles, aspects of the green economy can be found in the constitution. Overall, however, the concept of a green economy has not yet matured, nor has it been mainstreamed into government practice or public thinking. This will require further consultations and public education, which should ensure that the national concerns about poverty alleviation, improved job prospects, better access to markets and enhanced well-being for men and women are addressed. It is unlikely that countries will transform to a green economy and reap the full benefits of green growth if this is not carried out.

All the countries studied indicated that the high cost of imported energy and a high dependence on imported energy were major factors constraining growth of any kind. Therefore, progress in greening the energy sector has the great advantage of benefiting

other sectors throughout the economy. Regardless of the priorities identified or the state of implementation of national policies and plans, the countries studied identified human capacity as a problem. This related to a shortage of technically trained individuals to carry out work such as environmental impact assessments, as well as low capacity in departments in charge of implementing greening. Faced with capacity issues, Grenada prioritised and decided to focus on a single sector that could provide leverage; this is an approach worthy of consideration.

The studies indicated that locating suitable and adequate financing for greening was a major constraint, even in those small states that had allocated government resources to green activities. Other points are contained within the list below:

- Most studies indicated that among stakeholders, explicit identification of ways in which the green economy can alleviate current poverty or inequity is lacking. Also for many persons it is unclear how green growth can improve current issues such as poor access to international markets and small domestic markets. This will limit the extent to which stakeholders will perceive greening the economy as a priority.
- To be successful, 'green growth' and the 'green economy' cannot be perceived as environmental issues, they will need to be perceived as economic issues and owned by the appropriate arms of government (e.g. the finance ministry and the department that deals with financial planning) and the private sector. Limited uptake and support will result if the green economy is seen to be a sectoral issue.
- The high dependence on imported oil and its high cost creates high-energy costs for most SIDS, which reduces the potential for economic growth. Diversifying energy sources and increasing energy efficiency, and increasing local or renewable sources even at a small scale, are important ways of improving economic prospects.
- Improving human capital through education and training is vital to take advantage of opportunities that green growth may offer. Increased education may help to address some of the gender, poverty and equity issues raised in each country. Even some of the countries with higher levels of education suffer from a shortage of technically trained persons who could work effectively in the green economy.
- The role of ICT in facilitating green growth was raised in several countries. ICT can help isolated or small producers reach a larger market, though transportation costs may reduce competitiveness for trade in goods. ICT can play a major role in increasing the availability of education to isolated communities.
- Initial cost seems to be a barrier to adopting technological solutions that can increase 'greenness'. Governments could consider ways to adjust taxes and work with the private sector to create incentives that can improve access to technology.
- It is very important to channel funds derived from the exploitation of non-renewable resources, such as mineral wealth into investments with lasting potential. It is also important for governments to plan what the economy could look like after mineral resources are reduced, and to educate and train their people appropriately.

- The private sector should be facilitated, encouraged and guided to go green; governments can show leadership and commitment by implementing green procurement and energy efficiency programmes. In most small states, this will have considerable impact since government is a significant purchaser of goods and services.

While most of the concerns and issues raised in these studies may have addressed national concerns, there are some points indicated in the studies and arising from an analysis of the cases that engage the international community and may be suitable areas for action. Indeed, international lobbying and support for the concerns of small states is vital if their issues are to be addressed. With respect to the green economy, areas in which the international community could lend their support are indicated below:

- **Support the innovative use of debt.** This could include debt reduction, debt swap programmes or reassigning debt repayments to the Climate Investment Funds, other climate adaptation funds, environmental trust funds, the Resilience Building Facility proposed in Mauritius in 2005, or to other programmes that can increase human capital, build resilient infrastructure and livelihoods, decrease vulnerabilities and increase the sustainability of small states.
- **Support regional organisations and commissions to address transboundary coastal and marine resource management.** It is particularly important to assist in the management of large marine ecosystems, to recognise that small states may need help to manage their EEZs sustainably and to promote equitable use of fisheries and other marine resources. This could be achieved through the support of existing conventions such as the UN Convention on the Law of the Sea (UNCLOS) or the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. Support to regional bodies such as the Secretariat of the Pacific Community (SPC),²⁰ the Western and Central Pacific Fisheries Commission (WCPFC),²¹ the Indian Ocean Commission (IOC), the Indian Ocean Tuna Commission (IOTC),²² the Guinea Current Commission (GCC) and the Caribbean Sea Commission (CSC) could benefit small states.
- **Support access to concessional financing for middle-income small states.** The reason for this would be to allow small states continued access to funds that will allow them to green the economy and address poverty and inequality. Additionally, support for financing to diversify energy sources or increase energy efficiency would aid the transformation. Because of their indebtedness, and vulnerability to climate change, weather and economic shocks, as well as other reasons noted above, it is suggested that small states should be allowed to access IDA and International Bank for Reconstruction and Development (IBRD) financing from the World Bank until their HDI reaches 0.800.
- **Increase the resources available to climate change adaptation funds.** Climate change adaptation has attracted less attention and funding than mitigation for a variety of reasons (Sachs and Someshwar 2012). However, for many small states

and for least-developed countries (LDCs) with low-lying coastal areas, adaptation to climate change will have to be a major developmental focus. Support under this item could involve increasing the amount of funding in the PPCR for the Pacific and Caribbean, and adding funding to support AIMS (Africa, Indian Ocean, Mediterranean and South China Sea) SIDS and other small states. Increasing the level of funding in the other Climate Investment Funds, as well as increasing the amounts available to each country, is an excellent way of helping small states carry out green activities (*ibid*).

The transformation of the economies of small states into green economies will likely be a complex process. Several economic and social problems mitigate economic growth and also green growth. The case studies in this book indicate, however, that despite a series of constraining factors, individual small states have made progress in transforming to a green economy and there are lessons and experiences of value. Progress remains to be made in ensuring that a broad cross-section of stakeholders understand and adopt a concept of the green economy that is relevant to their country.

There is room for governments to set the example by committing to green growth and setting examples by government practice in areas such as green procurement. Since governments cannot achieve green growth on their own, strategic partnerships with the private sector and civil society will prove useful in supporting implementation of the green economy.

A useful starting point may be for small states to exchange information on projects and programmes that have met with success. Given the leverage that can be obtained from working on the sector, good returns on investment and effort could be obtained by focusing on greening the energy sector by diversifying the fuel mix, increasing efficiency and increasing the amount of local and renewable energy used.

Notes

- 1 An expert group convened by the UN Department of Economic and Social Affairs (UN DESA) in 1997 concluded that SIDS were more vulnerable than other groups of developing countries (A/53/65-E/1998/5). Available at: www.un.org/documents/ecosoc/docs/1998/e1998-5.htm (accessed 18 February 2014).
- 2 For an in-depth examination of the reasons for SIDS' economic vulnerability see M Witter et al. (2002).
- 3 Taken from University of the West Indies (UWI) briefing note to the Prime Minister of Barbados, member of the UN High Level Panel on Sustainability.
- 4 See Chapter 9, Seychelles.
- 5 Taken from UWI briefing note to the Prime Minister of Barbados, member of the UN High Level Panel on Sustainability.
- 6 ECLAC figures for Hurricane Ivan on The Cayman Islands (200 per cent) and Organization of Eastern Caribbean States (OECS) figures for impact on Grenada (180 per cent).
- 7 Global Science Panel on Population and Environment 2002.
- 8 A Sen. See: <http://hdr.undp.org/en/humandev> (accessed 18 February 2014).
- 9 *Ibid*.
- 10 Green growth approach: experiences in mainstreaming disaster risk reduction and climate change adaptation. Note by the UN ESCAP Secretariat.
- 11 See Chapter 4, Guyana.
- 12 See Chapter 6, Mauritius.

- 13 See Chapter 9, Seychelles.
 14 See Chapter 3, Grenada.
 15 Government of Jamaica (2009), *Vision 2030 Jamaica National Development Plan*, p.175.
 16 World Bank database (accessed 25 August 2012).
 17 See: www.climateinvestmentfunds.org/cifnet/investment-plan/samoas-ppcr-strategic-program (accessed 9 December 2012).
 18 See: www.mphe.gov.tt/agenciesdivisions/gf.html (accessed 18 February 2014).
 19 See: www.spc.int
 20 See: www.wcpfc.int
 21 See: www.iotc.org/English/index.php
 22 Barbados is included for comparison.

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Chapter 2

The Political Economy of Transitioning to a Green Economy in Botswana

Centre for Applied Research

2.1 Introduction

Botswana, a land-locked country in the centre of southern Africa, is one of the 31 small states of the Commonwealth. It is a small country by population and economy standards; however, it is large in geographic size with a land mass of 582,000 km². There are three types of land tenure:

- tribal land (communal agricultural land and leasehold ranches);
- state land (mostly cities and protected areas); and
- freehold land (farms).

Tribal land accounts for 72 per cent of the country, state land for 25 per cent and freehold land for 3 per cent. The land use is shown in Figure 2.1. Three-quarters of the country is Kalahari sandveld, while most people live in the eastern hardveld. Most of the protected areas (PAs) are located in northern and western Botswana.

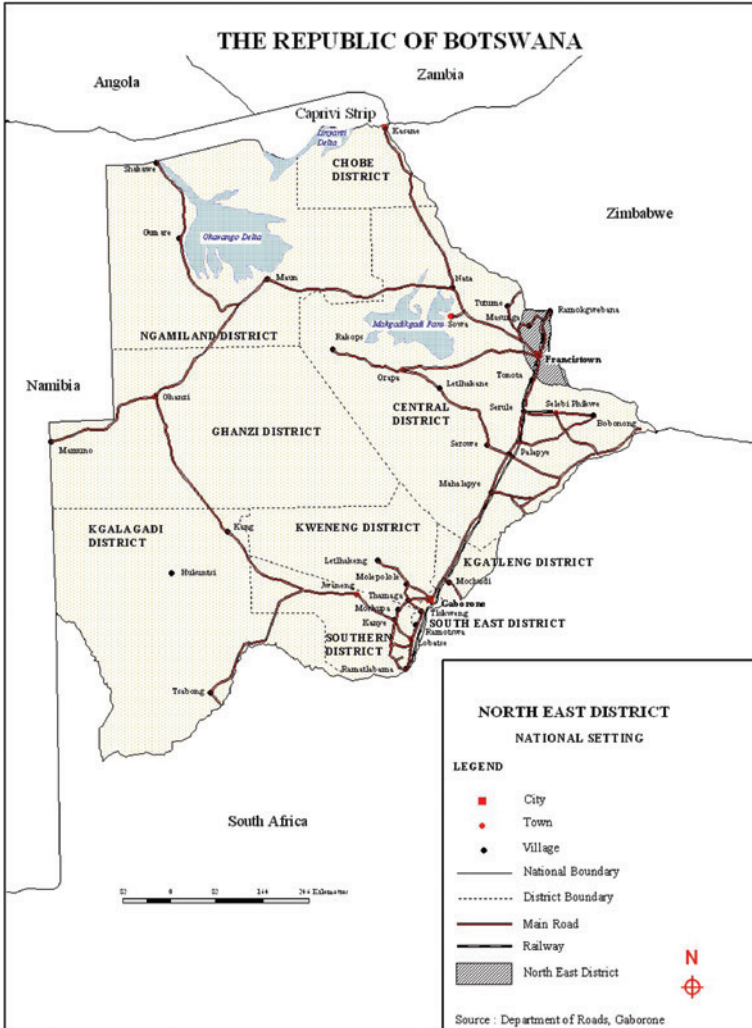
2.1.1 Botswana's human population and development

Botswana has a small population of just over 2 million people (2011; Statistics Botswana [SB] 2012). As a result, the country's population density is only 3.5 persons per km². The annual population growth has slowed down rapidly over the last few decades, because of declining fertility and the impact of HIV/AIDS. Annual population growth is currently estimated at 1.9 per cent compared with 2.4 per cent in 2001 and 3.5 per cent in 1991 (SB 2011a, b; 2012). The fertility rate (defined as births per woman) declined from four to three births per woman during the period from 1991 to 2001.

Other demographic characteristics include:

- Rapid urbanisation around the country's capital Gaborone, Francistown and in most district capitals. In 2001, 54.1 per cent of the population lived in urban areas and the population in and around Gaborone grew by 5.2 per cent per annum (SB 2011c).
- A very young population with a rapidly increasing labour force (around 710,000 in 2010), only part of which is absorbed in formal employment. However, as a result of the current demographic transition, the percentage of children and young people will decrease in future.
- Women are in the majority, constituting 51.6 per cent of the total population as of 2001.

Figure 2.1 Map of Botswana



Source: Centre for Applied Research (CAR) 2011.

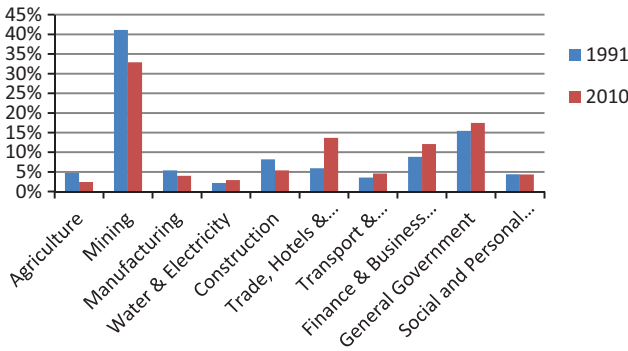
Human resources are essential for economic development and the transformation towards a green economy, as they assist the productive use of physical and natural capital (World Bank 2011a).

Botswana has an extremely open (high imports and export levels) economy dominated by the mining and public sectors. The economy is fragile, as it largely depends on diamond exploitation and revenues. Despite gloomy economic expectations at independence, the country has experienced a long period of economic growth, initially at fast rates but slowing down during the last decade (2.7 per cent per annum during 2009–2011). As a result, it has become a middle-income country (MIC) with a per capita income of 55,317 Botswana pula (BWP) in 2010 (or around US\$7,400).

Economic growth has been mostly driven by the mining sector, but since the 1990s the tourism sector has increasingly contributed to economic growth: 4.3 per cent of GDP and 4.2 per cent of formal employment (World Travel and Tourism Council [WTTC] 2007). By contrast crop and livestock production have hardly grown, despite government assistance and premium export opportunities to the European Union (EU) for its beef. Nonetheless, agriculture remains the foundation of the rural economy, and the sector’s poor performance has perpetuated rural poverty. The change in economic structure between 1991 and 2010 is shown in Figure 2.2.

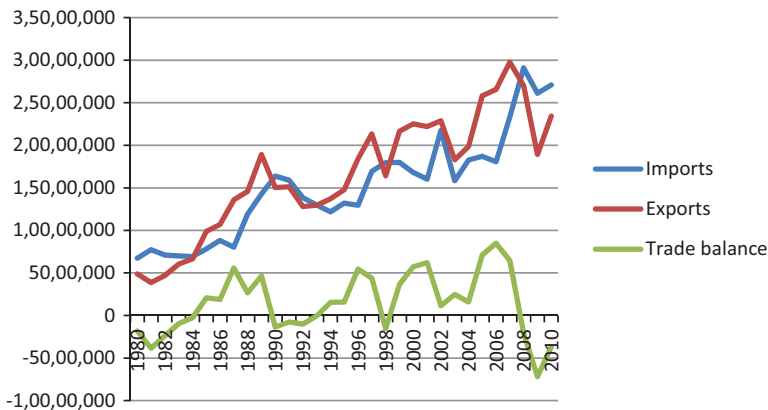
Botswana’s economy shrunk during the global economic recession in 2008–2010, because of a depressed diamond market (a severe dip in diamond exports since 2008; Figure 2.3). The government managed the difficult situation by drawing upon its foreign reserves and postponing development projects. Imports had overtaken exports by 2008, leading to a significant balance of payment deficit since 2008.

Figure 2.2 Sectoral contributions to GDP, 1991 and 2010 (%)



Source: Adapted from SB data.

Figure 2.3 Trends in imports and exports (constant 93/94 BWP)

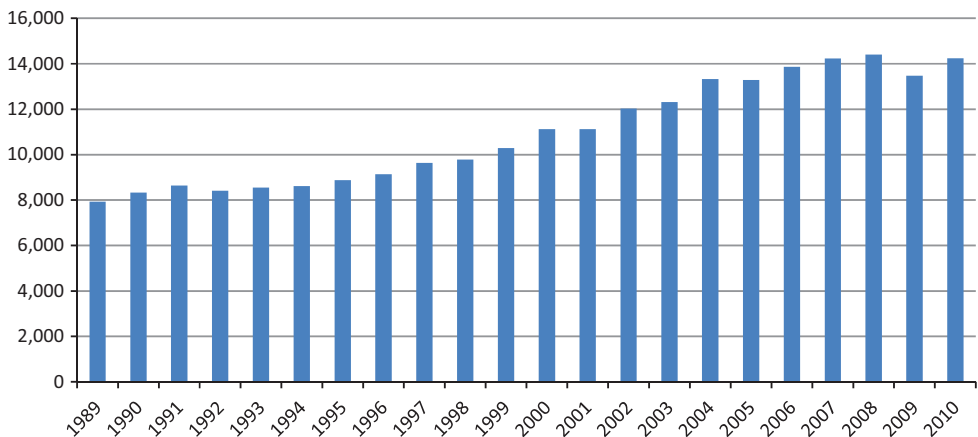


Source: Adapted from SB data.

According to the traditional development yardstick of per capita income, Botswana has developed rapidly and has reached MIC status (Figure 2.4). Per capita income (in real terms) has remained stable since 2008. The shortcomings of the per capita income indicator are well known. Other indicators provide better insights into human and sustainable development achievements. The country’s scores on most other indicators are positive, showing that Botswana is in a relatively good position to green its economy:

- The **Human Development Index (HDI)** is a broader measure of development than per capita income, as it includes health and educational aspects and also incorporates gender and inequality. Botswana’s HDI was 0.633 in 2011 (ranked 118 in the world; medium human development). Botswana’s HDI has improved over time (e.g. 0.518 in 1985), but the index temporarily dipped between 1995 (0.601) and 2005 (0.601), when the health impacts of the HIV/AIDS pandemic were felt and before the impacts of anti-retroviral (ARV) and other control measures became visible.
- The **Adjusted Net Savings Index (ANSI)** gives an indication of the sustainability of economic growth (World Bank 2011a, b), adjusting the traditional economic measure of net savings for changes in human capital (measured by educational expenditures as an addition to the NSI) and natural capital (resource depletion and pollution damage as deduction from the NSI). The World Bank (2011a, 187) estimates that Botswana has an ANSI of 37.2 (2008), compared with a NSI of 34.8 per cent.
- The **Ibrahim Index for Africa** scores countries on four aspects of good governance (safety and rule of law, participation and human rights, sustainable economic opportunities, and human development). In 2013 Botswana ranked second with a score of 77.6 (out of 100; see: www.moibrahimfoundation.org (accessed 18 February 2014)). The country performs best in the area of ‘safety

Figure 2.4 Trend in per capita income (constant 93/94 BWP prices)



Source: Based on SB data.

and rule of law' followed by 'participation and human rights'. The rural sector scores lowest (rank 17).

- A concern is the decline in ranking on the **Global Competitiveness Index** (from rank 76 to 80 in 2011–2012; source: World Economic Forum), indicating that the country has become less attractive for foreign direct investment.
- The *ecological footprint* is an indicator of environmental sustainability of country's development (see: www.footprintnetwork.org/en/index.php/GFN/page/footprint_basics_overview/) (accessed 18 February 2014). Botswana's footprint (2.84 global hectares or gha/person in the year 2008¹) is well below the ecological capacity (3.76 gha/person; see also World Wildlife Fund [WWF] 2012).

2.1.2 Development and environment challenges

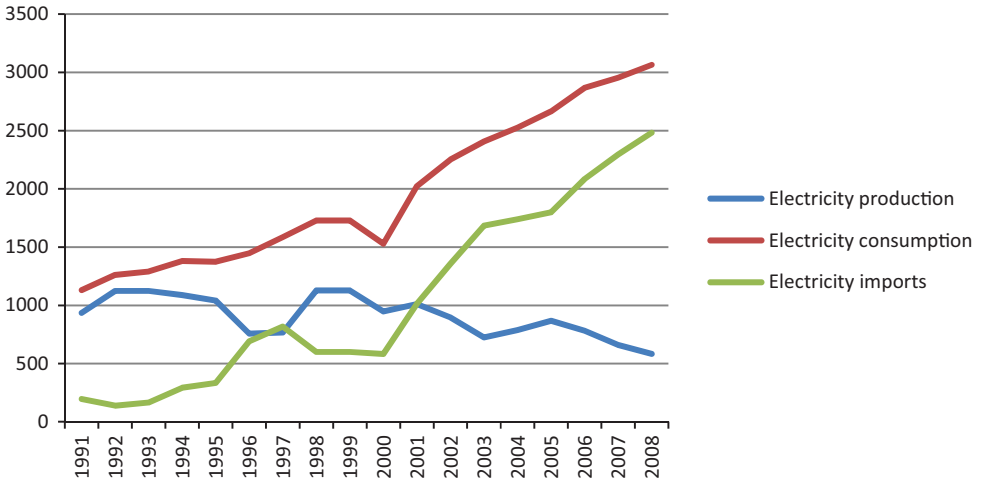
The main challenges for the economy are rapid economic diversification, the transition towards the post-diamond era, job creation, poverty reduction, agricultural revival and food security. In addition, the government's budget deficit needs to be reduced.

Development success has also raised broader development challenges. Dependency on government has grown significantly in time, reducing the development initiative and drive of the population. An additional challenge is the social adaptation to the rapid economic development that has occurred. Rapid urbanisation and growth have affected sociocultural fabrics of society and have caused adaptation problems for young and old. Consumerism and borrowing is extensive, extended family systems are eroding and traditional poverty alleviation practices are disappearing. Another challenge is posed by the fact that despite the increase in the country's wealth/capital base, productivity is not increasing. There seems to be a failure to use growing capital resources more efficiently. Finally, Botswana has a small and relatively weak civil society.

In terms of natural resources, pressure on water resources is evident. Current sustainable yield of water infrastructure is 163.6 Mm³ (well fields 96 Mm³/annum; dams 73.2 Mm³/annum) and dams are under construction with a sustainable yield of 72.7 Mm³, making a total sustainable yield of 251.3 Mm³.

Botswana further faces a challenge of productive land use (both commercial and communal). The challenge for a green economy is to encourage investment and productive use of land resources, while retaining their social security role and their natural potential carrying capacity. Energy consumption has risen rapidly. Electricity imports grew from 17 per cent of consumption in 1991 to 81 per cent in 2008. This strategy led to energy insecurity in recent years, when South Africa cut exports to Botswana² (Figure 2.5) due to power shortages in South Africa; solar power is under-utilised. Botswana's per capita CO₂ emissions increased to 2.5 tonnes per capita in 2008. Botswana has rich wildlife resources and capital that support the tourism sector, high levels of biodiversity and unique and diverse ecosystems such as the Okavango Delta and the Kalahari Desert. Four large animal species have increased in number since the early 1990s: elephant, buffalo, crocodile and hippo. Most other

Figure 2.5 Electricity production, imports and consumption (in MKwH)



Source: World Bank World Development and Public Finance Indicators.

species have decreased or have remained stable (Central Statistics Office [CSO] 2000, 2006, 2009).³ Wildlife densities are highest in national parks and game reserves, but significant numbers are also found outside protected areas (PAs), especially of roan (63.3 per cent are found outside parks), tsessebe and wildebeest (CSO 2009). Wildlife resources are an essential component of Botswana’s natural (renewable) capital and their conservation and use are important to grow a green economy. Botswana’s semi-arid conditions are associated with high summer temperatures, evaporation and high rainfall variability, especially in the lower rainfall areas. Rainfall is highly variable spatially, seasonally and annually, making the conditions difficult for rain-fed crop production. Droughts are endemic and common and occasionally floods occur. Climate change is expected to further increase variability, temperatures and the frequency of extreme events (World Bank 2010a, b). Comparative advantages of economic sectors are expected to change in (parts of) the country. Climate adaptation and mitigation are therefore critical components of a green economy.

Rangeland degradation has been a long-standing environmental concern, especially around villages and waterpoints. Bush encroachment is a process where the woody biomass increases at the expense of (perennial) grasses and the biomass is dominated by a few invading species, leading to a loss of biodiversity and natural beauty. The long-term environmental assessment of the viability of the livestock sector (CAR 2006) found that rangeland degradation affected 9.8 per cent of the country, and that degradation extends and contracts with rainfall fluctuations. The 10 per cent degraded area could be the ‘hard-core’ degraded area of otherwise resilient rangelands. Degradation is most common in communal areas and lowest in wildlife areas. Bush encroachment reduces livestock productivity and therefore control of bush encroachment is important for the revival of the agricultural sector and the pursuit of a green economy. Botswana could follow the example of Namibia, which has developed a charcoal industry and generates power from de-bushed rangelands (World Bank 2011b).

This section shows that Botswana has a wealth of diverse natural capital and assets, which are critical to key economic sectors such as agriculture, mining and tourism. Sustainable use and management of these resources is a vital part of the transformation to a green economy.

2.1.3 National development planning

The government has established a tradition of five-year National Development Plans (1–10) (NDPs) and associated District/Urban Development Plans (DDPs). The plans are developed in consultation with the private sector, communities and civil society, and they are ultimately approved by parliament. NDPs guide the annual government budget. NDPs and DDPs are half-way reviewed, and where necessary adjusted in consultation with the local population and society. Other consultative fora include the local village *kgotlas*, sectoral *pitsos* (e.g. tourism, education and water) and biannual high-level consultative meetings between government, the private sector and civil society. The overall development planning objectives have largely remained the same:

- rapid economic growth;
- social justice;
- sustained development; and
- economic independence.

The country's Long-term Vision 2016 has provided overall direction to the NDPs 8, 9 and 10. The vision has set ambitious development goals for 2016, largely overlapping with the Millennium Development Goals (MDGs). The second Botswana MDG status report (Government of Botswana [GoB] and UNDP 2010) points at successes in poverty reduction, the nutritional status of children, almost universal primary education, gender parity in primary and secondary schools, increased gender parity in senior management in the public and private sectors, various health improvements, and improved communication (especially mobile phones) and internet/computer use. However, poverty eradication, full employment and the intended increase in per capita income will be difficult to achieve.

While the planning system has facilitated orderly development planning, good governance and budgetary discipline, it has also entrenched government domination in development planning. A major positive change occurred with the introduction of thematic areas in the current NDP10. This was aimed at improved integration of government activities across line ministries. This process has been furthered by the establishment of four thematic groups that lead the mid-term review of NDP10: 'economic growth and employment', 'governance, safety and security', 'social upliftment' and 'sustainable environment'. The last thematic group has identified three national priorities:

- sustainable management and use of natural resources;
- managing the impacts of global warming and climate change; and
- pollution prevention and control.

2.2 Conceptualisation of the green economy concept in Botswana

In the run-up towards United Nations Conference on Sustainable Development (Rio+20), the international arena focused on the economic aspects of sustainable development, captured in ‘green economies’. This is a response to the dominant economic paradigm of economic growth, which fails to address irreversible social and environmental externalities of these economic activities. Poverty is still prevalent among more than 2.5 billion people in the world, while the natural wealth of the planet is being radically drawn down (UNEP 2011). This case study briefly introduces the concept of a green economy, discussing how Botswana has conceptualised this in practice and which challenges the country faces in transitioning.

2.2.1 The concept of a green economy

The concept of a green economy is driven by the need to change behaviour towards the environment and develop policies that are green, and being innovative in the development of technologies that are environmentally sustainable. A range of definitions has emerged, but all have common ground in emphasising poverty eradication and seeing a green economy as a means for sustainable development. According to UNEP (2010, 5), a green economy is ‘an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities’. This is an economy that has low carbon emissions, maintains its natural capital, is climate resilient and takes advantage of growth and job opportunities created by such characteristics (Commonwealth Secretariat 2012). The overarching goal of green growth is to establish incentives or institutions that increase well-being by (World Bank 2012):

- improving resource management so as to boost productivity;
- encouraging economic activity to take place where it is of best advantage to society;
- encouraging investments in renewable resources and associated economic sectors;
- use of technology and innovation to meet the above objectives; and
- recognising the full value of natural capital as a factor of production along with other goods and services.

Green growth is essentially driven by increased investments in sectors that enhance natural capital and reduce ecological scarcities and environmental risks. In addition to these investments, economic growth indicators, such as GDP, need to be complemented by natural resources accounting and valuation of ecological services. Green economy and poverty eradication formed part of the two specific themes of the Rio+20 Summit. The green economy is considered as an economy that values the environment and adopts sustainable pricing policies and regulatory changes so as to translate these values into market incentives. The transformation process towards

a green economy should be tailored to the national socioeconomic context and the nature of a country's natural resources capital (see previous section).

Botswana has expressed several concerns about the green economy transformation process. These include the need for financial and technical support for implementation (not a given during the current global economic challenges) and the risk of abuse of the concept to erect trade barriers. However, the World Bank (2012) concludes that worldwide the green economy is affordable and actually needs urgent implementation. While initial investments may be high, benefits will ultimately outweigh these costs. The emergence of green trade barriers by high-income countries needs to be avoided, and sufficient political commitment at the national and global levels is required to green the economy.

Moving to a green economy is challenging for small states, but it is possible with strong green policies, investments, technological innovation, enhanced participation of the private sector and commitment and support from decision-makers and politicians.

2.2.2 Botswana's steps towards a green economy

Since the 1992 UN Earth Summit in Rio, Botswana has taken several steps towards sustainable development. These include:

- NDPs and DDPs with dedicated environmental sustainability chapters;
- various natural resources management policies and legislation, including 1998's National Conservation Strategy and Action Plan; community-based natural resources management policy; the revised 2007 National Biodiversity Strategy and Action Plan; and the Environmental Impact Assessment Act of 2005 and 2012;
- establishment of the Ministry of Environment, Wildlife and Tourism (MEWT);
- ratification and implementation of multilateral and regional environmental agreements;
- a Strategy for Economic Diversification and Sustainable Growth (2008; currently being revised to encompass issues of environmental sustainability and green economy), as well as the 2010 Economic Diversification Drive (2010);
- poverty eradication strategies and policies for improved food security; and
- adoption of the 1996 Community Based Rural Development Strategy, a 2002 Revised Rural Development Policy and an integrated Local Economic Development framework.

The MEWT is preparing a Green Government Programme that specifically focuses on improving energy and other resource efficiency within government operations, and aims to develop sustainable procurement guidelines. Additionally, three priority sectors (energy, water and agriculture) for green growth were identified during the preparatory discussions for the Rio+20 Summit as focal themes for the transformation towards a green economy. The process of preparing the National

Strategy for Sustainable Development (NSSD) commenced with a comprehensive stakeholder consultation process. The purpose of the NSSD strategy is to provide the path towards a sustainable and green economy.

Botswana has also taken green economy initiatives at the international level. Botswana was one of the two African members on the Bureau of the Rio+20 Summit, which demonstrates the country's commitment to a green economy. The outcome was the Africa Rio+20 position paper, in addition to the Botswana Rio+20 position paper. In May 2012, Botswana encouraged other African countries to commit themselves to a green economy at the Africa Sustainability Summit held in Gaborone. In the resulting Gaborone Declaration, leaders from ten African countries adopted the concept of natural capital accounting and a green economy (See: www.gaboronedeclaration.com (accessed 18 February 2014)).

Although steps have been made towards sustainable development and a green economy, challenges remain, mostly associated with loss and degradation of natural capital and increased CO₂ emissions (see the introduction to this chapter). As a small state, the institutional capacity to transform to a green economy is limited and the current policy environment is fragmented. Interviews with resource persons revealed that the local understanding of a green economy is also limited and efforts are needed to improve awareness and knowledge about the green economy. Several green initiatives are discussed in greater detail in the next section.

2.3 Implementation of green economy relevant initiatives

Over time, the government has developed several practices and activities that are highly relevant for developing a green economy. The main ones are briefly reviewed below. In addition to these initiatives, Botswana is developing integrated ecosystem-specific management and development plans. Currently, plans have been developed for the Okavango Delta and the Makgadikgadi wetland. A similar plan will be developed for the Chobe area. Such integrated plans can be viewed as rural green economy initiatives for high-value ecosystems. Details of the Okavango Development and Management Plan and the Makgadikgadi Framework Management Plan can be found at: www.eis.gov.bw (accessed 18 February 2014).

2.3.1 Poverty-Environment Initiative (PEI)

Botswana is one of the ten African countries with a UN-funded Poverty-Environment Initiative (PEI) programme (2010–2015). Poverty and the environment are closely intertwined, and maintenance of the natural capital (e.g. agricultural soils and fuel wood) is essential to reduce poverty (Econsult and CAR 2008). However, rising living standards create new environmental challenges if not addressed in time (e.g. resource wastage). Another focus of the Botswana PEI programme is to mainstream environmental concerns into the development planning process. Both poverty reduction and environmental mainstreaming are important in the pursuit of a green economy.

The first phase of the PEI (2010–2012) focuses on the integration of equitable and sustainable development in national development planning, implementation and

monitoring (Leepile 2010). Phase 2 aims to consolidate the phase 1 results, mainstream poverty–environment linkages and provide measurable indicators and planning tools for sustainable development. The PEI is based in the Ministry of Finance and Development Planning (MFDP), which collaborates with other ministries, the Office of the President (OP), local authorities, civil society and the private sector.

To date, the PEI programme has identified the major environmental challenges to be addressed by PEI:

- intersectoral co-ordination to overcome the fragmented nature of policies and responsibilities;
- achieving greater participation by the private sector to overcome capacity constraints;
- provision of evidence and awareness raising about the role of the environment in delivering poverty reduction and economic growth; and
- better integration of poverty and environment issues in plans and policies.

The PEI programme has participated in capacity building towards integrating poverty and environment issues, as well as mainstreaming. A study was carried out about the contribution of sustainable natural resource management to economic growth, poverty eradication and achievement of NDP10 goals (Botswana Institute for Development and Policy Analysis [BIDPA] 2012), and currently a study is ongoing to determine the poverty and social impacts of the government's Integrated Support Programme for Arable Agricultural Development (ISPAAD).⁴ The BIDPA study reinforced the urgent need for diversification and sustainable utilisation of natural capital, as well as climate change adaptation and investments in renewable energy resources. In terms of environmental mainstreaming, the programme supports the integration of poverty–environment linkages in the ongoing mid-term review of NDP10, participates in the initial stages for the development of the NSSD and has organised a workshop⁵ on the green economy concept to sensitise stakeholders (see Botswana and green economy policy initiatives for more details). In the second phase, the programme will work with stakeholders to develop indicators for sustainable development and support the use of planning tools such as cost–benefit analysis (CBA) and multi-criteria analysis (MCA). PEI will also support further development of the natural capital accounting tool under the WAVES project.

The programme is important for greening Botswana's economy. It has adopted a participatory approach beyond government institutions. Poverty eradication and sustainable resource management are at the core of the PEI. The development of the NSSD and sustainable development indicators will be vital for a green economy. The results should become visible in the next series of NDP11 and DDP7s (2017–2022/3). Furthermore, PEI should generate empirical data and findings on the positive and negative linkages between poverty and environmental management. This would help the government to exploit win–win situations and make informed decisions about trade-offs. Neglect of environmental factors in poverty eradication policies, programmes and strategies may result in severe negative environmental effects and in policy failures.

There are two lessons to be learned from the programme to date, which may be useful to other small states. First, poverty reduction programmes in Botswana need to be amended to meet the green economy requirements, as they insufficiently integrate environmental concerns. There is need for an environment-inclusive poverty eradication strategy. Secondly, PEI is a project based in MFDP, with the risk that poverty–environment linkage mainstreaming will not be sustained en route to a green economy. The programme (and green economy) initiatives should be fully anchored and embedded across government and civil society at large.

2.3.2 Natural resource accounting

The Department of Environmental Affairs (DEA) developed natural resource accounts (NRAs) in the 1990s as part of a regional project that also included Namibia and South Africa. Accounts were prepared for two key resources (minerals and water) and for the livestock sector (DEA and CAR 2006 and 2007).⁶ While the accounts were updated and/or expanded several times,⁷ this was done through projects and not as part of the government's regular work programme. NRA is an approach that follows the United Nations' System of Environmental Economic Accounting (SEEA), which integrates environmental concerns into macroeconomic planning. It shows what happens to the natural capital of countries and what the economic benefits and productivity of resource uses are. It also offers the basis for sustainable development indicators such as the ANSI and resource productivity indicators (e.g. value added or employment per 1,000 m³ of water used). While NRA has been piloted for several decades, it gained new momentum in the Rio+20 Summit declaration.

Below, the example of Botswana's water accounts is discussed. *Botswana Water Accounts* cover freshwater resources and treated wastewater for the period 1990–2003. They include physical stock and use accounts (in m³) and accounts for the water supply costs and revenues. Two water-use efficiency indicators were calculated (jobs created per water used, value added per cubic meter of water), while the economic benefits of reuse and recycling of treated wastewater were assessed.

The water accounts led to major findings for greening the Botswana economy (DEA and CAR 2006). Although the stock of surface water has increased over time due to the construction of new dams, the surface water stock is highly variable due to rainfall fluctuations (DEA and CAR 2006). The stock of wastewater is growing fast (and is less variable than surface water), yet this resource is as yet hardly utilised. While agriculture is the largest water-using sector, it generates the lowest value added per cubic meter of water (Table 2.1). The strategic question arises as to how much water can be allocated to agriculture in future. There is need for formal water allocation mechanisms, and reuse of treated effluent should be encouraged. Finally, water reticulation losses are around 20–25 per cent and can be reduced. It also became clear that the government heavily subsidises the water sector, raising concerns about long-term sustainability and opportunity costs.

Botswana has started to update and expand its natural resource accounting activities over the period 2012–2015 through the WAVES partnership with the World Bank.

Table 2.1 Water productivity (value added per m³ by sector; 1993/94 BWP)

| User category | 1993 | 1998 | 2002 | 2003 |
|------------------------------------------|-------|-------|-------|-------|
| Agriculture | 6 | 6 | 5 | 4 |
| Mining | 274 | 257 | 257 | 260 |
| Manufacturing | 194 | 219 | 144 | 138 |
| Water + electricity | 190 | 357 | 942 | 654 |
| Construction | 2,294 | 4,890 | 2,395 | 2,468 |
| Trade | 1,116 | 1,800 | 1,543 | 1,445 |
| Hotels and restaurants | 276 | 373 | 334 | 321 |
| Transport + communication | 2,448 | 3,221 | 2,441 | 2,428 |
| Insurance, banking, business | 2,421 | 2,884 | 2,577 | 2,666 |
| Social and personal services | 382 | 494 | 1,247 | 1,282 |
| Government | 236 | 237 | 270 | 271 |
| Total national water productivity | 76 | 91 | 93 | 106 |

Source: DEA and CAR 2006

There is no guarantee that resource accounts will be better kept and used, but there are reasons for optimism:

- the accounts will be institutionalised at the onset rather than at the end and the host institution will develop capacity and expertise to maintain and use the accounts;
- high-level political commitment to NRA as shown by the Gaborone Declaration on Sustainability in Africa; and
- resource concerns are more pressing than before and the use of resource accounts offers valuable information for decision-makers.

The scoping study for WAVES-Botswana identified priority areas to enhance green growth in Botswana (CAR and Econsult 2012). The government decided to prioritise the updating and expansion of the water accounts. Other activities important for a green economy will be the development of sustainable development indicators, mineral and energy accounts, and ecosystem accounts and valuation (e.g. for Chobe PA). Capacity building and enhanced communication across selected sectors is planned to sustain resource accounting beyond the WAVES partnership between the World Bank and the government. The planned national forest monitoring system, mentioned during the interviews conducted for this study, could be used to develop forest accounts and community forest management models.

Lessons learned from resource accounting that are important for small states are:

- resource accounts provide vital information about a country's natural capital (stock and use) for a green economy and should therefore be developed by all countries;
- resource accounting needs to be properly institutionalised up-front, and it is vital that the host institution(s) is capable to carry out the NRA after the end of

the project (there is also need to build and retain human resources capacity in resource accounting); and

- policy-makers need to be engaged at the start to assess their needs and raise awareness. The choice and prioritisation of accounts should be determined by the country's conditions and priorities.

2.3.3 Botswana and green economy policy initiatives

The Botswana government, in partnership with Conservation International (CI), hosted the Summit for Sustainability in Africa in June 2012 (GoB and CI 2012). This summit brought together African Heads of State and ministers from ten countries,⁸ alongside world leaders from the public sector, private sector and civil society. The purpose was to identify the main sustainable development issues in Africa and to chart a path towards sustainable development. The summit produced the 'Gaborone Declaration',⁹ which contains principles and goals of sustainable development with natural capital at its core. The declaration urges countries to re-affirm their commitment to implement conventions and declarations that promote sustainable development, as an alternative to the 'business as usual' pattern of natural resources exploitation which has failed to promote sustained growth, environmental integrity and improved social capital. The key feature of the declaration is the fact that the value of natural capital must be fully accounted for and integrated into national and corporate planning and reporting. It was agreed that:

- the value of natural capital would be integrated into national accounting and business practices;
- social capital would be created and poverty would be reduced by promoting sustainable development;
- knowledge, data and capacity would be built for informed decision-making on sustainable development; and
- good communication and public education would be built.

Ten African countries have signed this declaration and are expected to implement the actions. Corporate leaders and leaders of UNEP and several donor agencies have signed up. This should create opportunities for partnerships, knowledge, technology and capacity sharing, as well as opportunities for green investments.

As one of the two African countries represented on the Bureau of Rio+20, Botswana played a special role in the summit's preparations and dialogues at the regional and continental levels. The country was active in the preparation of the Africa Consensus Statement for the summit, where Africa's progress towards sustainable development was discussed (United Nations Economic Commission for Africa 2011). Rio+20 focused on two themes: (1) building a green economy to achieve sustainable development and lift people out of poverty; and (2) improving international co-ordination for sustainable development. As part of Rio+20 preparations, Botswana developed a vision of a green economy through stakeholder consultations. The vision

is a people-oriented sustainable and inclusive development pathway which covers the following aspects:¹⁰

- improved competitiveness through diverse, productive and sustainable operations;
- well-networked stakeholders with improved information flows, more innovation and partnerships;
- empowered citizens, poor people in particular, with decent jobs and livelihoods;
- an enabling environment with incentives for a green economy;
- government operations are carried out in an exemplary, consistent, green and ethical manner;
- private sector-led green growth, with the private sector taking initiatives and transforming itself to become more efficient and inclusive;
- mobilisation of domestic investment and responsible foreign investment for green infrastructure, goods and services;
- mainstreaming of major issues such as environment, biodiversity, desertification and poverty eradication;
- strong, action-oriented leadership;
- improved economic, social and environmental resilience through more integrated, coherent and forward-looking planning;
- accountable stakeholders through transparent information on resources and a robust legal framework; and
- use of solid knowledge, scientific and cultural principles, including indigenous knowledge and the Botswana concept of *Botho* (which captures the values of 'humanness', respect, courtesy, integrity and dignity).

As indicated above, Botswana also seeks to mainstream natural resource accounting into development planning and to develop new sustainable development indicators. Furthermore, it wishes to promote sustainable production and consumption patterns. Both are important components of a green economy.

The results of the summit are presented in *The Future We Want* document (United Nations 2012) which commits countries to pay attention to climate change, develop green economy policies and develop policies for sustainable development. New public-private partnerships are encouraged to mobilise funding. However, countries did not make binding commitments, there are no clear targets or timelines and no new pledges were made. Despite the summit's disappointing results, the government has recommitted itself to developing a roadmap towards a green economy and sustainable development with agreed targets for each proposed activity. This roadmap needs to be integrated into the NDP10 mid-term review process, and particularly in the NDP11 framework.

Several lessons were learned that may be relevant to other small states:

- The natural capital concept, natural resource accounting and the NSSD can guide Botswana towards a sustainable pathway, which needs to be reflected in the (next) National Development Plan. Botswana needs to develop the roadmap of action items for the fulfilment of the Rio+20 declaration.
- Small states can successfully augment their influence through regional initiatives such as the Gaborone Declaration.
- Strategic partnerships with private sector and non-government agencies offer new opportunities for greening Botswana's economy. Private sector partnerships are particularly important for future green investments in technologies and human resources.
- Sustainable development and a green economy require prioritisation in the allocation of financial resources. As funding and technology-sharing commitments are limited in *The Future We Want*, small states such as Botswana need to identify and rely on their own public, domestic and international private resources for funding. In Botswana, the new National Environmental Fund should have a green economy window to accelerate green investments and activities.

2.3.4 Integrated water resources management and water demand management

As a semi-arid and water-scarce country, Botswana has developed National Water Master Plans (1991 and a review in 2006) to guide the provision of water in all cities, towns and villages (SMEC et al. 1991 and SMEC and EHES 2006). Prioritising the water supply to settlements and realising its capacity constraints, the government issues water-use rights to farmers and enterprises that operate outside settlements.¹¹ These constitute the self-providers, who actually use more water than the water service providers. In recognition of water scarcity, the government switched in the 1990s from food self-sufficiency to food security. As a result, the irrigation sector is small (1,800 hectares [ha]) and the country achieved huge water savings through food imports (water savings of 978 Mm³/annum; Mekonnen and Hoekstra 2011). The 1991 NWMP largely recommended expansion of water infrastructure (dams, well fields and water transfer schemes) and, as a result, water shortages were generally avoided; shortages only occurred during severe droughts and locally due to borehole breakdowns. The NWMP Review 2006 recommends a switch towards water demand management (WDM) and integrated water resources management (IWRM) for environmental, economic and social reasons. The options for expansion of water infrastructure are increasingly limited and costly, requiring costly long-distance water transfer schemes. This could make water unaffordable in future and/or require subsidies, which are likely to be unsustainable for government. Water from the Chobe Zambezi (1,000 km from the capital Gaborone) is considered the only remaining large-scale water supply option beyond 2030. Use of the Chobe Zambezi River is governed by the Southern African Development Community (SADC) Protocol on Shared Water Courses (2001), and requires approval and co-operation of other

riparian states. The NWMP Review concluded that IWRM and WDM should be government priorities, with a strong emphasis on increasing the efficiency of sectoral water use and on the hitherto neglected areas of allocative efficiency.

In response, the government has engaged in initiatives to promote and practice IWRM, including the water sector reforms (jointly carried out with the World Bank) and the preparation of the Global Environmental Facility-supported IWRM-Water Efficiency Plan (IWRM-WE). Ongoing institutional reforms have led to a better separation of water sector responsibilities, and to the integration of wastewater and freshwater management. They have resulted in a new water policy based on IWRM principles and are expected to lead to a new Water Act to replace the current 1968 one, as well as a water tariff policy. The Water Utilities Corporation (WUC) is now responsible for water supply services and wastewater management for all cities, towns and villages. The Department of Water Affairs has become responsible for water resources planning, including infrastructure development and water resources management. A water (and energy) regulator will be established to benchmark the performance of WUC and self-providers. A new independent Water Resources Board (WRB) will be established to oversee water allocations and general water resource management and planning. It is still too early to assess the results, but the reforms have the potential to allocate and use water resources more efficiently, including full reuse of treated wastewater (currently reuse is low at 10 per cent; the policy target is to reuse 96 per cent by 2030). For example, it is expected that WUC will establish a combined water charge without significant subsidies. However, the risk exists that IWRM and WDM are given insufficient attention during the current transition, in which WUC experiences pressure to deliver.

A national IWRM-WE plan was finalised in May 2013 (Department of Water Affairs Ministry of Minerals, Energy and Water Resources 2013). Herewith, government met its pledge made at the 2002 World Summit for Sustainable Development (WSSD) to prepare the IWRM-WE plan. The plan sets out a national strategy with a vision, objectives and strategic areas that must be addressed. Furthermore, the plan recommends a sequence of actions that should be carried out over a specified period of time so as to transform existing practices to sustainable ones. Apart from the ongoing water reforms, the following strategic areas have been prioritised: increasing water efficiency allocation, water supply and WDM, IWRM mainstreaming in development and land-use planning, establishment of an IWRM-enabling policy environment, implementation of a decentralised catchment area approach, management of shared water courses, increasing stakeholder participation in water resources management, capacity building in IWRM and WDM, and water pollution control and maintaining good water quality that meets ecological water requirements. Climate change, poverty, gender and HIV/AIDS have been identified as cross-cutting issues that need to be incorporated in all strategic areas. Some conclusions from the analysis for a green economy are:

- water reticulation losses (currently 20 to 25 per cent) must be reduced;
- water wastage, particularly common in schools, must be stopped;

- Botswana needs to develop a country-wide inventory of allocated water rights;
- successfully piloted water savings measures with a short pay-back period need to be scaled up;
- water allocation mechanisms need to be devised to maximise future economic growth and welfare; and
- as climate change is likely to increase rainfall variability and evaporation, safe yields from dams are expected to decline and more water needs to be stored; in this respect, transfer schemes and conjunctive use can increase safe yields.

In future, Botswana is expected to need shared water given the domestic water limitations. For this to happen, the country needs approval from other basin countries and needs to utilise domestic alternatives of comparable value first. WDM and IWRM implementations are therefore crucial; specifically, reuse and recycling of treated wastewater, rain/storm water harvesting and efficient water use and conservation in high water-using sectors such as agriculture.

Several lessons can be learned from greening the water sector in semi-arid small states such as Botswana:

- Successful pilot and demonstration projects need to be urgently scaled up to conserve water. They are often win-win cases with water and costs savings.
- Government is often least responsive to water conservation needs due to lack of incentives and bureaucratic mechanisms; in contrast, the mining sector often conserves water due to on-site resource constraints and may have valuable experience to share.
- Without water demand management, water scarcity can restrict economic growth and increase costs. The water conservation sector could become one of the economic diversification sectors, if it is developed now.

2.3.5 Community-based natural resource management

Community-based natural resource management (CBNRM)¹² is an approach to resource conservation and rural development that gives conditional resource-use rights to local communities to manage and benefit from the management and use of natural resources around them (DWNP and MEWT 2010). It was introduced to Botswana in the Chobe Enclave and has rapidly expanded over the years (see e.g. Arntzen et. al. 2003; Mbaiwa 2011). Most CBNRM projects have developed in wildlife-rich areas in northern and western Botswana. Over time, CBNRM has diversified to ecotourism and non-wildlife-based activities and resources (e.g. veld products). To date an estimated 135,000 people live in CBNRM areas across ten districts (Mbaiwa 2011); this is 6.5 per cent of the country's population. A total of 105 community-based organisations (CBOs) are registered, but less than half are operational. CBNRM is successful in resource-rich villages (usually close to protected areas), but it has had limited success or has even failed in villages with few resources (Mbaiwa and Stronza 2010). In Ngamiland and Chobe District,

wildlife-rich CBOs earn BWP2–4 million per annum and CBNRM has created economic benefits such as jobs/employment, funding for community projects and support for orphans and elderly people. The wages associated with CBNRM have contributed to poverty alleviation (Mbaiwa and Stronza 2010). In areas with fewer resources, earnings are low and insufficient to support livelihoods and community projects. In all CBNRM projects, CBNRM benefits are too little to become the sole source of livelihoods (Arntzen et al. 2003).

In 2007, the CBNRM policy was approved to provide an enabling environment for CBNRM operations. Communities may acquire resource rights after forming a community organisation (a representative, accountable and legal entity), developing an environmental and resource management plan and annual submission of financial accounts. Communities can acquire a wide range of resource user rights (e.g. veld products, wood resources, fish and wildlife). The policy stipulates that communities have to cede 65 per cent of the wildlife royalties to the National Environmental Fund.

Despite its failure in villages with a limited resource base, CBNRM has been successful elsewhere (DWNP and MEWT 2010; Mbaiwa 2011). The CBNRM programme has expanded over time to cover a significant part of the rural population in Botswana. In some villages, the impact of CBNRM on the income and welfare of individual households has been significant, as have the socioeconomic benefits for the wider communities (Mbaiwa 2011). CBNRM has contributed to rural economic diversification. However, only a few CBOs have distribution strategies that ensure that benefits trickle down to the household level. Where benefits have not been shared equitably, conflict has arisen within communities. Some CBOs provide elderly people with monthly allowances, build houses and provide water reticulation to communities. There is some evidence that poaching in CBNRM areas is lower than in other areas (Arntzen et al. 2003) and that biodiversity in Wildlife Management Areas (WMAs), where most CBNRM projects are located, is better than in communal agricultural areas (CAR 2006).

Impact assessment is difficult because there has been no baseline assessment and monitoring is inadequate. The general feeling is that Botswana's CBNRM projects have not fully exploited the potential of positive impacts on livelihoods and resource conservation. Livelihood improvements are limited and not evenly distributed, and people's perception towards wildlife remains largely negative. Communities need more support from government and civil society to develop the required technical, administrative and financial skills and to grow as a community. CBOs that have entered into partnerships with commercial tourism operators exist for a longer time and tend to perform better (Arntzen et al. 2003). Despite these challenges, the Botswana CBNRM programme has demonstrated its potential by giving economic value to natural resources, devolving power to local communities and establishing collective proprietorship by communities in resource management and tourism development (Mbaiwa 2011).

The lessons learned, relevant for a green economy, are:

- community trusts perform better when they have a Joint Venture Partner (JVP) who brings in expertise and investments;

- well-implemented CBNRM can alleviate poverty, improve livelihoods and change people's negative perceptions towards wildlife;
- more secure user resource-use rights could be a strong incentive to resource conservation and sustainable utilisation;
- CBNRM empowers communities, but they still need support to successfully operate CBNRM projects; and
- funds accrued from CBNRM projects need to trickle down to households, so that they can realise project benefits and develop a positive attitude towards wildlife and other natural resources.

2.3.6 Lessons from relevant initiatives

The initiatives discussed above are important for greening the economy, but they still face challenges that need to be addressed to ensure their success. The following lessons that may be relevant for other small states are drawn from across these initiatives:

- Projects and initiatives may be well designed, but have no impact without proper implementation. Project and programme implementation is a large challenge in Botswana (e.g. due to capacity constraints and inadequate monitoring and evaluation), and effective implementation needs to be fully incorporated in the design of projects and programmes.
- The green economy approach needs to be properly anchored in the national development planning process through the development of an NSSD, sustainable development indicators, an enabling environment and natural resource accounting. External projects and technical advice can work as catalysts, but cannot replace government commitment and efforts towards a green economy.
- The green economy process should be understood by all stakeholders. This is necessary to mobilise finances, facilitate implementation and to get participation by the private sector and civil society. Botswana's recently adopted thematic working group approach, with membership across economic sectors and including state and non-state actors, ensures intersectoral dialogues in development planning and implementation, with participation of non-government organisations.
- The formation of partnerships (private–public, private–community and public–community) and capacity building among all stakeholders are prerequisites for sustainable development and green economy initiatives. Government and other relevant stakeholders must therefore ensure that capacity needs assessments are undertaken, capacity is enhanced among decision-makers, managers, implementing agencies and communities at large, and that effective partnerships between different stakeholders are encouraged. Human capacity needs to be retained within implementing agencies.
- The success and ownership of sustainable development and green economy initiatives largely depend on government support and decision-making at the highest level. Political will and commitment are crucial for sustainable green growth.

2.4 Opportunities for greening Botswana's economy

Based on the first three sections, the opportunities for greening Botswana's economy will be reviewed here. Botswana's economy has grown and livelihoods have improved. This has resulted in significant poverty reduction. However, income inequality remains very high and access to land and water resources has become more skewed due to resource privatisation. Growth has been accompanied by a small 'hard core' rangeland degradation, bush encroachment, draw-downs of some aquifers, biodiversity losses and an expanding carbon footprint. The country is vulnerable to climate change and has yet to develop a climate variability adaptation strategy. Climate change will increase environmental hazards such as droughts. Botswana has successfully captured most of the economic rent from minerals and used these to build up other human, physical and financial capital assets. This includes the establishment of internet facilities in most villages and computer laboratories in most schools. Below, we discuss the major action areas for achieving a greener economy.

2.4.1 Renewable natural resource-based economic diversification

Economic diversification needs to be based on renewable resources such as wildlife, wilderness and useful veld products (e.g. fruits, vegetables and medicines). The (eco-) tourism and hunting sectors have driven diversification to date, but it is highly concentrated in the Okavango Delta and around the Chobe River. Diversification of tourism products and a more even distribution of tourism around the country would benefit rural development and reduce tourism pressure on the Delta and Chobe. The Botswana Tourism Organisation, among others, attempts to achieve this by organising adventure and cultural tourism throughout the country (e.g. cultural villages, the Kalahari Desert Off-Road Race for cars and motorbikes, and the 2012 Khawa Sanddune Race for motorbikes and quad bikes). Other opportunities for economic diversification based on natural resources include:

- Game ranching. Botswana's game ranching sector is small and has a significant development potential. Game ranching is well adapted to climate change and taps into local and international markets. Opportunities also exist in the development of game ranching and the venison market (domestic and for export) with different products (dried, fresh or frozen meat). Most game meat is low in cholesterol and popular in overseas and domestic markets.
- Use and processing of veld products with an economic development potential. These include the morama bean, grapple plant, mophane worm, Kalahari truffle and various teas, vegetables, fruits and medicines (e.g. hoodia to suppress appetite). These resources have been neglected to date.
- Production of charcoal or power from removal of excess bush, as is done in neighbouring Namibia (which exports charcoal to Europe).
- Agricultural diversification and production for niche markets. For example, livestock production is largely free ranging and a livestock tracer system exists to meet export requirements. Provided that rangeland management is improved,

there are opportunities to maintain and better exploit Botswana's sustainable livestock production practices for environmentally-friendly niche markets (e.g. free ranging beef).

- Establishment of solar power and water conservation industries. This will have environmental and economic benefits, but requires research, innovation and investments. There is a considerable regional market for solar power and water-efficient appliances.

2.4.2 Reducing natural resource wastages

Good opportunities exist to reduce resource wastage by reducing losses in water distribution networks, reuse and recycling of treated effluent and some solid waste (e.g. building rubble, cans, plastics, paper and bottles). Small-scale recycling projects have the potential to create jobs and reduce poverty. They can be win-win situations with environmental and economic benefits.

Resource wastage also results from inefficient resource allocation. Currently, large parts of communal land are under-utilised and water resources are allocated on a first-come, first-served basis. There is need to develop efficient and fair resource allocation mechanisms that contribute more to productivity, bearing in mind the need for social equity and sustainable resource use.

2.4.3 Maintaining renewable natural capital

In order to maintain natural capital, stock and use need to be documented and monitored. This is not yet the case, but gaps are expected to be filled by ongoing registrations of land and water-use rights and by the construction of natural resource accounts. Access to land and water needs to be documented to ascertain fair access to natural resources – to reduce poverty and uplift marginal groups.

Special efforts are needed to rehabilitate degraded rangelands and to prevent biodiversity losses. This can be done through improved implementation of the current CBNRM approach, which also has the potential to reduce poverty and uplift marginalised groups.

Past economic valuations of the Okavango Delta and the Makgadikgadi wetland have shown the high value of these ecosystems, and have provided impetus for the development of comprehensive resource management and development plans. Valuation exercises should be extended to all key ecosystems of the country, to show their importance for rural livelihoods and the national economy.

2.4.4 Enhancing the green economy policy environment

The government is planning initiatives towards establishing a supportive environment for the green economy. The planned NSSD, sustainable development indicators and resource accounting will become vital parts of such an environment. There is an urgent need to develop a climate change resilience and adaptation strategy that covers impacts, mitigation and adaptation measures for the entire country and for individual sectors.

Another area for further action is the review and reform of current (dis-)incentives for sustainable resource management and the green economy (economic, legal and consultative instruments). The government has provided subsidies for various sectors for years (e.g. agriculture and water). The results have been disappointing, and the same level of subsidies cannot be sustained by government in future. Subsidies with negative environmental impacts need to be phased out and incentives for sustainable resource use should be provided if these are to act in the public interest.

Continued consultations with stakeholders (beyond Rio+20) should lead to a *Green Economy Covenant* to which the public and private sectors, as well as civil society, are committed.

2.4.5 Green technology development

Botswana has well-established research and technology institutions that can prioritise green technology development. The institutions include the University of Botswana, Rural Industry Promotion Corporation (RIPCO), the Department of Agricultural Research and the Botswana Technology Centre (BOTEC). The Ministry of Science and Technology also has a research department that promotes research. In addition, the Innovation Hub aims to develop new technologies and innovation. However, past work has been ad hoc and a green technology fund could be established to develop a focused and comprehensive green technology drive. This should be a partnership between the public and the private sectors, and the fund should establish priorities for technology development. Priority areas would include solar power (for small-scale rural applications and large-scale applications), water conservation technologies (e.g. with conservation agriculture) and carbon emission-reduction technologies. An interesting example is the piloting of biological control methods (e.g. chilli peppers to reduce crop damage and use of birds of prey against crop damage by quelea birds). However, private sector participation should be enhanced to support this initiative, especially in the development of technology, retail and the wholesaling of solar power equipment to enhance its utilisation. There are opportunities for biogas production close to abattoirs, a pilot project with jatropha for biodiesel,¹³ and there is a need for the development of storage and processing technologies for agricultural produce and veld products.

2.4.6 Investing in green economy

Investments need to be made by the public and private sectors. The latter will only invest in a favourable policy environment. Green economy funding should increasingly come from the private sector (foreign and domestic). Investments in green economy activities have the potential to generate economic returns (e.g. water conservation) and in those cases, the government only needs to provide an enabling environment. Private sector funds would also be generated from user and pollution charges, which are expected to be deposited in the National Environmental Fund (NEF). The destination of NEF funds is still unclear, but the resources could be used to co-exist with wildlife, develop water conservation and solar power, and stimulate green technologies. Increasing investments in rural communal areas is a major

challenge for the green economy in terms of increasing production and reducing poverty. Some rural investments have been in the tourism sector, but investment in agriculture needs to increase.

2.4.7 Increasing productive use of water and land resources

Botswana needs to use its limited water and land resources more productively. The productivity of communal land can be significantly increased with investment and the introduction of new technologies. Subsistence agriculture is unattractive for young people, and the farming sector requires new, green technologies and investment. This will only happen with more secure land tenure and a more attractive investment climate. It is important that green agricultural modernisation is promoted, rather than adopting developed countries' modern agricultural practices.

The productivity of water needs to be considered after basic needs and ecological water requirements have been met. Mechanisms need to be established to prioritise water allocations based on criteria such as job creation, valued added, food security and poverty reduction. In addition, further water infrastructure development needs to focus on increasing the safe yields of the entire system through conjunctive use, transfer schemes etc. Finally, water demand management is essential to increase user efficiency. For example, eco-labelling could be introduced for water and energy conservation, organic production practices etc.

2.5 Institutional structure and capacity for greening the economy

Botswana has a strong and large public service, which has driven the good governance performance to date. By contrast, civil society is small and struggling, particularly after most international co-operating partners withdrew their programmes after Botswana attained MIC status. The country has been unable to date to establish adequate domestic support mechanisms for civil society. While the private sector has grown, it remains dependent on government as its largest client.

Key informant interviews showed the widespread perception that implementation of programmes, strategies and policies is the most serious institutional constraint. A range of policies and legislation exists, but implementation is often poor and sometimes even absent. Bureaucracy has increased, stifling innovation and dynamic development. This has contributed to the reduction in global competitiveness,¹⁴ making it more difficult to attract foreign direct investment. Clearly, maintaining and growing the country's capital base is a necessary but insufficient condition for future economic development. In the end, the productive and efficient use of capital matters. The government views its role as that of facilitator of development rather than implementer (e.g. NDP10; Government of Botswana 2009). Therefore, current government policies seek to encourage decentralisation and privatisation. The implementation of these policies has been slow, and in some cases the opposite happens (e.g. centralisation of healthcare and some educational facilities).

Botswana's small population poses human resource constraints and it is therefore critical that the limited available capacity is used productively and efficiently. Fortunately, the educational level and skills have greatly improved over time, offering good opportunities for greater productivity and efficiency. Such opportunities must be seized to transform into a green economy. To deal with capacity constraints, a greater role for the private sector, civil society and communities is required. A major policy caveat remains the absence of an umbrella Environmental Management Act (EMA),¹⁵ to outline the management requirements of the country's natural capital and ensure its proper conservation and use. The EMA should formalise environmental governance principles such as the user-pays principle, the polluter-pays principle and the precautionary principle. While a draft has existed for some time, it has not yet been finalised or approved.

The new thematic working groups (TWGs) charged with development planning offer good anchor points for a green economy. These groups need to be properly embedded across government structures, and in society at large. To achieve the former, good collaboration and co-ordination with existing ministries and so-called hubs (e.g. innovation, agriculture, diamonds, education) are required. To achieve the latter, the TWGs need to have representation from the private sector and civil society (e.g. NGOs, lobby groups, academia). The National Strategy Office (NSO) co-ordinates the work of the TWGs. It is too early to judge the results of the TWG approach. The government plans to develop a NSSD, which should form the policy umbrella for a green economy. With the TWGs and once the NSSD is in place, Botswana needs to rebrand the next NDP to a National *Sustainable* Development Plan.

Finally, greater participation by civil society and the private sector is needed to reduce the government wage bill and to develop and use the capacities of those sectors better. This should stimulate more innovative development and new private sector and community initiatives. The community-based rural development strategy and CBNRM are particularly important. Furthermore, there is need to stimulate research and development aimed at boosting green economic growth (see also section 2.4).

2.6 Concluding remarks

Botswana already seeks to transform towards a green economy and has several initiatives in place (section 2.3). It has adopted a thematic working group approach, which has good potential to move towards a green economy. One group deals with 'sustainable environment', with stated priorities of sustainable resource management and use, adaptation to climate change and pollution control. During Rio+20 preparations, three sectors were prioritised: agriculture, water and transport. From a green economy perspective, the destination of mineral revenues to support economic diversification and transition to a green economy needs to be prioritised as well. Furthermore, increasing resource-use efficiency is vital for the country's future; this includes reuse and recycling of solid waste and wastewater, but also requires efficient resource allocation mechanisms, especially for water and land. Finally, solar power and water conservation industries can be developed to contribute to economic diversification.

In terms of the enabling environment, plans for the NSSD and development of sustainable development indicators need to be implemented. The EMA needs to be finalised and approved and a Climate Change Mitigation and Adaptation Strategy needs to be developed (this is also in view of Botswana's increasing carbon footprint). Finally, a systematic review of incentives for a green economy needs to be conducted, covering economic, legislative and consultative incentives. The results could lead to a National Green Economy Covenant, signed by government, the private sector and civil society. Environmentally damaging subsidies need to be removed, as well as subsidies that government cannot afford in future. Incentives for green investment, technologies and production and consumption practices need to be considered.

As a small state, it is imperative that Botswana utilise its limited institutional and human resources to implement green economy activities efficiently, to monitor and evaluate progress and results, and to better exploit modern communication and technology opportunities. Efficient use of capacity requires developing partnerships and anchoring individual projects within existing institutions. Monitoring and evaluation requires indicators for sustainable development and a green economy, while natural resource accounts will provide additional information. Better exploitation of opportunities provided by the internet, computers and mobile networks, as well as research, is needed to increase productivity and international competitiveness.

Notes

- 1 'A gha is a productivity-weighted area used to report both the biocapacity of the Earth, and the demand on biocapacity (the ecological footprint). The global hectare is normalised to the area-weighted average productivity of biologically productive land and water in a given year. Because world bioproductivity varies slightly from year to year, the value of a gha may change slightly from year to year' (Global Footprint Network 2012). Source: WWF 2012, 148.
- 2 Imported electricity was cheaper and the local power plant had a limited capacity.
- 3 In recent years, no regular aerial wildlife counts have been carried out and therefore no data are available after 2007.
- 4 This is an agricultural input subsidy programme for small subsistence farmers, aimed at reviving the agricultural sector and reducing poverty.
- 5 In partnership with MEWT and the International Institute of Environment and Development (IIED).
- 6 The reports are available from: www.car.org.bw and www.envirobotswana.gov.bw accessed 18 February 2014
- 7 Previous NRA work established accounts, prepared technical notes for regular updating and policy notes to inform decision-makers about the main findings which could support the decision-making process.
- 8 Botswana, Gabon, Ghana, Liberia, Kenya, Mozambique, Namibia, Rwanda, South Africa and Tanzania.
- 9 Available at: www.gaboronedeclaration.com/ accessed 18 February 2014
- 10 Discussed and agreed on at the 2011 stakeholder workshop on green economy. This was an inclusive process that involved participation of stakeholders from various organisations.
- 11 Government owns all water resources.
- 12 CBNRM was first introduced in Zimbabwe under the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) programme. It has spread to most southern and eastern African countries since then.

- 13 Given the low food production, priority should be given to food crops at the moment.
- 14 The decrease in global competitiveness is also due to capacity constraints, work attitudes and management.
- 15 The EIA legislation protects the environment from adverse impacts of projects, but does not guarantee a holistic environmental management approach as the EMA should provide.

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Chapter 3

The Political Economy of Transitioning to a Green Economy in Grenada

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3.1 Introduction

This case study is framed from the backdrop that the concept of the green economy has received considerable attention globally, and has been one of the two key themes of the June 2012 United Nations Conference on Sustainable Development (Rio+20).

The study sets out to identify Grenada's conceptualisation of the green economy, the influence of various actors and partners, and to identify how the concept has been implemented and translated into concrete policy interventions. This study focuses on the water, energy, tourism and transport sectors as the building blocks for a green economy, and analyses a range of factors that have played a role in Grenada's conceptualisation and implementation of a green economy.

3.2 Contextual considerations

The current global financial, economic, social and environmental crises have provided the impetus to determine new concepts and formulations to constitute drivers for economic growth and development. The concept of a green economy has emerged and been debated to the point where it became a major factor in the international negotiations of Rio+20.

At the start of the Rio+20 conference, the UN Secretary-General Ban Ki-Moon referred to the draft outcome text and remarked that the old model for economic development and social advancement is broken. He stated 'Rio+20 has given us a unique chance to set it right, to create a new model, to set a new course that truly balances the imperatives of robust growth and economic development with the social and environmental dimensions of sustainable prosperity and human well-being' (UN 2012a). The President of the Conference, Brazilian President Dilma Rousseff, also made reference to the need to develop new models for growth, employment and economy recovery when she stated that 'development models have exhausted the ability to respond to contemporary challenges' (ibid).

The green economy model was therefore seen as a response to these global challenges. In this regard, one of the two major themes of the conference was 'A Green Economy in the Context of Sustainable Development and Poverty Eradication'. In the intensive and protracted negotiation process in the lead up to the conference, the governments could not agree on a definition of a green economy, the underlying principles, nor the modalities and means of its implementation. Further, the key divergent issues were

the impact on nature, the financialisation of nature, corporate capture, the impact on trade, and the role of the private sector and markets.

Agreement on the final outcome document was achieved after a last ditch effort by the Brazilian government in the final negotiation session, and only after delicate compromises were made by the negotiating governments.

The conference thus reaffirmed in the outcome document, *The Future We Want*, that there are different approaches, visions, models and tools available to each country, in accordance with its national circumstances, priorities, strategies and plans to achieve sustainable development (UN 2012b: paras 56 and 59).

General agreement was reached that:

- The green economy in the context of sustainable development and poverty eradication is one of the important tools available for achieving sustainable development, and that it could provide options for policy-making but should not be a rigid set of rules (para 56).
- Policies for the green economy in the context of sustainable development and poverty eradication should be guided by and in accordance with all the Rio Principles, Agenda 21 and the Johannesburg Plan of Implementation (Para 57).
- Green economy policies must include inter alia:
 - consistency with international law and respect for national sovereignty over national resources;
 - support from an enabling environment with a public sector lead and participation by all relevant stakeholders;
 - promotion of holistic, sustained and inclusive economic growth and the fostering of innovation;
 - measures to strengthen international co-operation, including the provision of financial resources, capacity building and technology transfer for developing countries, contributing to closing the technology gap;
 - such policies must not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade;
 - enhance the welfare of indigenous peoples and vulnerable groups, including dimensions of gender and inequalities and the promotion of sustainable production and consumption patterns (para 58); and
 - that developing countries must be provided with the capacity and means of implementation if they choose to implement green economy policies. There were general references in the text on capacity building, and the various elements on the means of implementation, including technology transfer and finance. General references were included on the role of the private sector and markets and the need for involvement of stakeholders, partnerships, networking and the sharing of experiences to implement green economy policies (paras 59–74).

The outcome of the Rio+20 negotiations on the green economy reflects the global attitude towards the concept. The outcome highlighted the mistrust of some governments on the motives of the proponents of the concept of the green economy. The tone of the agreement reached was couched in general terms, which leaves much scope for differing interpretations. The outcome document is replete with language borrowed from previous international processes and does not provide any significant and new commitments to implement a green economy development framework. The new model for development, as called for by the UN Secretary-General and the President of Brazil, was not advanced to any level of significance.

The agreement reaffirmed that the concept of the green economy, while desirable to be pursued, should be based upon, and conditioned by, the existing and previously agreed principles of sustainable development. The green economy is not a new concept, nor a new development framework, but one of many approaches, visions or constructs to achieve sustainable development (UN 2012b). It was clear, however, that the debate on the green economy was not over, and that the precepts underlying the green economy will be the subject of future global discussions – as governments seek to implement green economy policies to reduce the stress on their economies caused by the global crises, and to take advantage of and capitalise on growth and development opportunities.

3.3 The concept of the green economy in the small state of Grenada

The conceptualisation of the green economy and the influence of the various actors and partners in Grenada have been viewed through the lenses of Grenada's socioeconomic conditions, national resource endowments, regional integration activities and international negotiations as a small island developing state (SIDS).

The concept of the green economy was introduced to national stakeholders in 2009 by the officials of the Ministry of Finance and Planning and the Ministry of the Environment engaged in development co-operation activities.

3.3.1 Regional dialogue on the green economy

A key starting point for the regional focus on the green economy was a regional dialogue project facilitated by the Caribbean Natural Resource Institute (CANARI) and executed between December 2009 and February 2012 'to elicit ideas from a wide cross section of Caribbean stakeholders on what green economy means in the Caribbean context' (CANARI 2012).¹ The Caribbean perspective on the green economy evolved over the period, but by the end of the regional dialogue project the conclusion was that the dialogue resulted in the development of a 'broad but as yet incomplete picture of what a Caribbean green economy could look like and aim to achieve' (ibid). Thus national-level activities were necessary to advance the concept as initially articulated during the dialogue.

The dialogue concluded that the term 'green economy' describes 'a form of development that addresses in a holistic way the multiple economic and environmental challenges

confronting the world' (ibid). Further that 'A green economy in the Caribbean context aims for long-term prosperity through equitable distribution of economic benefits and effective management of ecological resources; it is economically viable and resilient, self-directed, self-reliant and pro-poor' (ibid).

The green economy was also the subject of enquiry at the regional Caribbean Community (CARICOM)² level, which along with the dialogue project influenced Grenada's conceptualisation process. The CARICOM officials concluded that given that the multifaceted vulnerabilities faced by SIDS were not adequately considered in international negotiations, the green economy must be consistent with national priorities, sustainable development priorities and socioeconomic conditions. They agreed that considerations should be sectoral in nature to facilitate focused and practical on-the-ground activities, and that the green economy should not become a market-driven concept or be used as green protectionism. They advised that national dialogue and processes should condition the Caribbean region's contribution to the global debate.³

The key messages from the regional initiatives provided the platform for discussions at the national level on conceptualisation and implementation of the green economy in Grenada.

3.3.2 The Grenadian economy

The Grenadian economy can best be described as a fairly diversified economy dominated by the services sector, which currently constitutes about 80 per cent of the gross domestic product (Ministry of Finance [MOF] 2012). The recent global crises, along with weather-related events and crises in the insurance and banking sectors, have had a significantly negative impact on the economy. The economy went into a deep recession in 2009 and 2010, with negative annual growth rates of 5.6 per cent and 2.0 per cent respectively. The economy achieved a modestly positive growth rate of 1.4 per cent in 2011; 0.7 per cent in 2012; and for 2013 a 3 per cent growth rate was projected (MOF 2011 and MOF 2013).

The Grenadian economy continues to face major challenges, including rising debt and debt servicing, stubbornly high unemployment rates and debt-to-GDP ratios, rising food and fuel prices, high food and fuel import bills, reduced foreign direct investments and remittances, challenges in the insurance and banking sectors, deteriorating physical infrastructure and reduced capacity to address socioeconomic and infrastructure decline (Eastern Caribbean Central Bank [ECCB] 2012). The national responses proposed to address these issues were to engage in activities to maintain fiscal discipline and macroeconomic stability, as well as to promote growth and to strengthen the national implementation capacity (MOF 2012). In this regard, the Government of Grenada (the government) has identified five transformational sectors to re-energise the economy, and they constitute the sectors with the greatest potential to contribute to the economic transformation of the country.

The identified sectors are as follows:

- tourism and hospitality;
- health, wellness and education;

- sustainable (green) energy;
- agribusiness; and
- information and communications technology (MOF 2012).

Economic growth and development, enabled through these five sectors, is seen as necessary to provide the budgetary flexibility to invest in green economy initiatives, while at the same time investments in green economy activities are necessary to enhance economic growth and development.

3.3.3 Social sector

With a population of approximately 105,000, a life expectancy of 76 years, an education index of 0.779 and a gross national income per capita in purchasing power parity (PPP) terms of 6,982, Grenada has a Human Development Index (HDI) of 748 and ranks 67 out of 187 countries evaluated in 2011 (UNDP 2012). The per capita GDP/PPP in 2011 was estimated at US\$14,100 (World Bank 2012). The latest Country Poverty Assessment Survey, which was completed in 2008, indicated that 37.7 per cent of the population were living below the poverty line. A further 14.6 per cent were classified as vulnerable, meaning that this group is at great risk of falling below the poverty line. The level of indigence was estimated at 2.4 per cent, indicating the percentage of the population that are consuming below the minimum accepted level of nutrition (Government of Grenada [GoG] 2008). Therefore, more than half of the population in the period leading up to 2008 was deemed to be at serious risk. It is generally agreed that the poverty situation in Grenada has not improved since the last survey.

The survey identified the following factors giving rise to the poverty levels:

- limited income arising from poor job opportunities;
- few safety nets;
- poor physical infrastructure, especially in rural communities;
- insufficient social infrastructure in rural communities;
- lack of organised groups at the community level; and
- inadequate human resources (GoG 2008).

The survey also identified several conditions and problems affecting the poor, including:

- inability to purchase the basic necessities of life;
- lack of access to basic social amenities like clear water, quality housing, health assistance and education;
- high unemployment, low wages and heavy dependence on agriculture;
- lack of credit from financial institutions; and
- heavy dependence on remittances and government hand-outs (note that remittances were estimated to be in the order of 25 per cent of GDP in 2010).

The national response includes the commissioning of several macroeconomic and sectoral strategies to address those concerns. The Growth and Poverty Reduction Strategy, for example, identified a series of measures to address the national poverty condition (GoG, 2011a). In addition, the Non State Actors Panel⁴ prepared an Alternative Growth and Poverty Reduction Strategy, which took a slightly different perspective by focusing on the psychology of poverty, valuation of assets of the poor and on-the-ground, solution-oriented outcomes (Non State Actors Panel 2012).

Social conditions in Grenada have influenced the national approach to the green economy. The green economy was seen as a means to alleviate the plight of the poor, through practical community-based activities to enhance livelihoods. Investments in the health, wellness and education sector were deemed necessary for economic and social transformation in Grenada.

3.3.4 Environmental issues

The impacts of climate change, loss of biodiversity and land degradation are viewed as the most important environmental issues facing Grenada and constitute the greatest threats to the economic well-being and livelihood of the population. The impacts of recent hurricanes and droughts are evident throughout the country. In 2004, Category 3 Hurricane Ivan brought damage to the country equivalent to more than 200 per cent of the GDP. One year later, Hurricane Emily, a Category 1 hurricane, struck and again set back the economy.⁵ Grenada experienced its most severe drought in 2009–2010. The rainfall deficit in 2009 and 2010 was estimated at 50 per cent and 80 per cent respectively (Ministry of Agriculture [MOA] 2009). Grenada's environmental profile remains very fragile and vulnerable to external shocks.

In response, Grenada has embarked on several strategic and sector-based initiatives to enhance the national capacity and resilience to cope with these events and phenomena. The initiatives include the National Biodiversity Strategy and Action Plan, the National Capacity Self-Assessment, the National Climate Change Policy, the Pilot Program on Climate Resilience, the Sustainable Land Management Policy, the National Hazard Mitigation Policy and the National Environmental Policy and Action Plan. It was envisaged that Grenada's approach to the green economy would be consistent with the general tenets of these environment policy documents.

3.4 Green economy conceptualisation and policy

The foregoing brief on the economic, social and environmental capital and attendant realities, as well as the key messages emanating from the regional activities on the subject, provided the basis for and influenced the conceptualisation of the green economy at the national level. National-level consultations from 2011 leading up to the Rio+20 conference involving government officials, quasi-government officials, representatives of civil society organisations, academia and regional institutions were convened on the concept, thus providing broad-based participation to determine Grenada's interventions at the international negotiations. The NGO community, in particular through the Inter Agency Group of Development Organisations⁶ and the Non State Actors Panel, was instrumental in crafting the final outcome.

Grenada's leadership role at the international environmental governance level was also a major factor. During the 2007–2011 period, Grenada was the Chair of the Alliance of Small Island States (AOSIS) and co-ordinated the work of the alliance at the United Nations Framework Convention on Climate Change (UN FCCC) negotiations.

Grenada and AOSIS had a strong voice in the UN FCCC negotiations. Further, Grenada also held leadership positions on the Convention on Biological Diversity, the Global Island Partnership (GLISPA), the Montreal Protocol and the International Union for Conservation of Nature (IUCN) Council. Grenada was highly active in the preparatory process towards Rio+20. In a direct way the national conceptualisation of the green economy influenced and was influenced by Grenada's role in the Rio process. At a meeting of the Grenada Sustainable Development Council,⁷ Grenada's chief negotiator at the Rio+20 negotiations process while calling for greater national involvement stated, 'It is not enough to simply accept what others will decide for us in the future we want' (Sustainable Development Council [SDC] 2012).

From the national-level consultations, the participants concluded that starting from Grenada's resource endowments, the current national socioeconomic conditions and with Grenada's determination 'to enhance, improve and consolidate existing initiatives, strategies and plans which integrate the three pillars of sustainable development which will eventually lead to poverty eradication', that the specific strategies for the green economy will be determined (GoG 2012b).

The interviewees reiterated that the green economy stance adopted must be sensitive and adaptive to local practice, knowledge, culture and ecology.

Grenada's conceptualisation of the green economy was to be sector-based and linked directly to the enhancement of economic and social well-being and the livelihoods of the Grenadian people, particularly the rural community, women, youth and the poor.

The key focus areas identified for the green economy interventions were as follows:

- Policy development: Phasing out harmful subsidies, reforming policies and incentives, strengthening market infrastructure, introducing new market-based mechanisms, redirecting public investments, zoning and land-use/tenure policies and greening public procurement.
- Energy: Renewable energy and energy efficiency, waste-to-energy planning, sustainable transport, energy efficiency standards for building, appliances, lighting and vehicles, independent power regulation and fiscal incentives.
- Tourism: Transitioning to ecotourism, community health, geo-, heritage and agri-tourism.
- Agriculture: Climate-smart agriculture, aqua and hydroponics, sustainable fisheries, agroforestry, green house production, composting, sustainable irrigation and rainwater harvesting.
- Integrated water and coastal resource management: Water-demand management and efficient water use, rainwater harvesting and water sector reform.

- Biodiversity conservation and restoration: Forest and mangrove restoration, establishment of protected areas, ecosystem valuation studies, revision of the National Biodiversity Strategy and Action Plan.
- Private sector development: Policy reform and incentives, financing and investment initiatives, skills building and innovation, research and indigenous product development.
- Institutional strengthening of civil society: Community mapping and documentation, revival and strengthening of cultural practices and local knowledge, community agriculture, community ecotourism and skills building.
- Public awareness and education: Sustained public awareness and education programme targeting rural communities, children and youths (GoG 2012b).

During the interviews conducted for this study, it was revealed that limits to growth were recognised by the stakeholders and that while the green economy should enhance growth, there cannot be only continuous increases in GDP. It was recognised that increases in the quality of life, poverty eradication and a more equitable distribution of wealth and income were important elements of the green economy conceptualisation. Recalling absorptive capacity and carrying capacity limitations on the national level, the call therefore was for more sustainable national-level production and consumption as the key factors in the green economy.

The predominant opinion was that the green economy must be conceptualised as a subject of sustainable development, where sustainable development must involve the social, economic and environmental dimensions in a holistic and integrated manner. The green economy must not disturb the balance of the pillars of sustainable development. It was quite noticeable that the mistrust of the intent of the green economy, as expressed by some governments in the Rio+20 process, was a factor in the national consideration as there were lingering concerns on interpretation and implementation modalities. In this regard, the community-based organisation (CBO)/NGO responses were highly focused on social development, poverty eradication and livelihood issues.

In his national address on Earth Day, the Grenadian prime minister referred to the green economy and stated, 'A Green Economy is driven by growth and investment that reduce the harmful carbon emissions and pollution, promote energy and resource efficiency and most importantly prevent further loss of our flora, fauna and marine life' (Ministry of the Environment [MOE] 2012).

These sentiments were repeated in his address to the Rio+20 conference when he said, 'Given Grenada's national and resource endowments and our social and cultural ethos, we are already practitioners of sustainable development and will continue with that level of resolve and commitments'. He outlined, 'We accept that our tools will include a green and a blue economy based on various national approaches. Our driver within the three pillars of sustainable development must include institutional reform and strong means of implementation' – Prime Minister's address at Rio+20, available at: www.grenadabroadcast.com/news/13801-rio-20-conference (accessed 18 February 2014).

3.5 Implementation of the green economy

In Grenada, the sectoral approach in line with the identified five economy-wide transformative sectors was used to implement the green economy. The energy sector, through its links with the other sectors, was deemed to be the major driver for green economy implementation. The cost of energy is a key variable in the tourism and hospitality sector, as well as in the agriculture and agribusiness sector. The viability and economic transformation potential of these two sectors hinge directly on developments in the energy sector, especially the cost of energy. The potential economic gains of greening the energy sector was also seen as critical for developing the transformational potential of the health, wellness and education focus. With respect to information and communications technology (ICT), consistent with pronouncements of the International Telecommunications Union (ITU), this sector was seen as a catalyst and enabler of development. ICT can accelerate the transition to a green economy through facilitating smarter and more efficient economic growth, social development and environmental protection in the spirit of sustainable development. With more than 100 per cent cellular penetration in Grenada, mobile applications based on broadband connectivity were seen to offer the appropriate platform to host an array of applications and services in health, education, government, commerce, disaster management etc., to build national capacity and resilience and to accelerate progress towards the green economy (ITU 2012).

The next section of this chapter will focus on green economy implementation through four building blocks: the energy, tourism, water and transport sectors. For each sector, this case study will briefly examine the status and trends, policy and legislation, institutional factors, benefits, challenges and constraints and indicators of greenness.⁸

3.5.1 Energy

Status and trends

The end game of implementation of the green economy in Grenada is to achieve sustainable livelihoods, especially among the rural poor, youth and women. About 8 per cent of the population do not have access to electricity and use charcoal and wood for cooking, and kerosene and candles for lighting (MOF 2012).

The power sector was privatised in the early 1990s and is based almost entirely on diesel-fired generation from fossil fuels imports (99 per cent).

The price of electricity faced by the Grenadian consumer is approximately US\$.40 per kWh, which is among the highest rates in the world. High-energy costs constitutes a binding constraint to achieving sustainable development through its negative impact on the viability of the economic transformational sectors. Oil imports constitute 10 per cent of GDP and are 2.5 times greater than the country's annual export earnings (MOF 2012).

This is against the economic backdrop of a deep and prolonged recession, with limited fiscal flexibility given the high debt, high unemployment and low growth.

Policy and legislation

In response to the status and trends in the energy sector, the Government of Grenada elaborated a National Energy Policy in November 2011 following a process of national consultation involving all stakeholders. The energy policy was approved by the cabinet in March 2012. The policy calls for greenhouse gas reductions of at least 20 per cent below ‘business as usual’ by 2020. This is part of a wider vision of the government, dubbed Grenada Vision 2030, which has the ambitious target of greening the energy sector, particularly power generation and transport, to 100 per cent by 2030 in line with Grenada’s commitment to a low-carbon development pathway. The specific activities envisaged under Grenada’s low-carbon development pathway towards Grenada Vision 2030 are as follows:

- construction of 20-MW geothermal plant by 2014;
- construction of an additional 20-MW geothermal plant by 2018;
- construction of 2.5-MW wind turbine by 2013;
- construction of 1–3-MW waste-to-energy plant by 2016;
- establish fuel efficiency standards by 2015;
- achieve 10 per cent electricity generation by wind and solar by 2015;
- achieve 20 per cent market penetration with hybrid and electric vehicles by 2020; and
- achieve a minimum of 20 per cent renewable energy in electric generation and transport by 2020 (Energy Division 2012 and GoG 2011b).

To facilitate the vision, work has already started on four bills to be promulgated in the national parliament. Significant advances have already been made on the following:

- Energy Efficiency Bill;
- Revised Electricity Supply Act;
- Geothermal Resource Development Bill; and the
- Revised Offshore Petroleum Bill (MOF 2012).

To achieve the national low-carbon development targets, the government is focused on building national capacity and seeking investment flows and technologies for renewable energy applications in geothermal, wind, solar and ocean thermal energy conversion (OTEC). In addition, the energy policy calls for a complementary focus on energy efficiency and appropriate technologies to be deployed in the short to medium term to reduce the demand for and consumption of fossil fuels. The programme has the following elements to facilitate green economy implementation:

- fiscal incentives to encourage renewable energy and energy efficiency measures;
- low interest loans to private sector renewable energy and energy efficiency initiatives;

- tariff reforms, including special feed-in power tariffs; and
- energy efficiency standards determination (MOF 2012).

Grenada has also committed to a sub-regional energy initiative within the context of the Organization of Eastern Caribbean States (OECS) Economic Union Treaty, partnering with the World Bank to establish an Eastern Caribbean Energy Regulatory Authority – aimed at effecting appropriate regulations in the sector and to benefit from economies of scale through harmonised and co-ordinated approaches. This development is expected to have a positive impact on the implementation of the green economy.

Institutional factors

The implementation of the green economy requires the establishment of the appropriate national legal, regulatory and institutional frameworks. The energy policy addresses the institutional factors required for greening the energy sector. Given the energy sector's pivotal role in green economy implementation, a National Sustainable Energy Office and a Centre for Renewable Energy and Energy Efficiency are to be established for the management of the National Energy Strategy and Action Plan flowing out of the National Energy Policy. In addition, the office and centre will be responsible for enhancing the national capacity and resilience of the sector, and for seeking the capital investments – estimated at US\$150 million – required to roll out the renewable energy plan. The office and centre will be responsible for determining, co-ordinating and managing the private sector engagements and public interface, strategic alliances, technologies, human resources, research and development, public education and awareness and the efforts at mainstreaming the national vision throughout the other sectors of the economy. Waste management, for example, is identified as a priority case and work has already started on a programme for conversion of waste to energy. Plans are also being developed to build a 'green' parliament building to replace the old parliament building, which was destroyed by hurricanes. A pilot project on building a green economy in Carriacou and Petit Martinique, as a microcosm to demonstrate the requirements for a green economy in Grenada, has been commissioned (GoG 2012d). The government is actively seeking donor support to implement the energy policy and green economy policies.

Benefits, challenges and constraints

Grenada's energy sector transformation from fossil fuels to renewable energy technologies is expected to bring macroeconomic benefits to the country, by changing the energy mix to a greater reliance on domestic renewable resources rather than the imported fossil fuels.

The linkages between access to energy and social development are well demonstrated in the literature reviewed. The Grenadian officials interviewed on this issue were quite passionate and had great expectations that once the policy and associated strategy and plan were implemented, then the well-being of the most vulnerable – in particular, rural communities, women and youth – will be enhanced.

The major challenges and constraints identified relate to simplified and expedited access to finances for investments and appropriate technologies. It was also pointed out that government has limited fiscal space given its mounting debt burden, high unemployment and slow growth. The issue of national absorptive capacity, in particular human capacity at the individual and the institutional levels, was flagged as a major area of concern. It was pointed out that there was no budgetary flexibility to engage the necessary human resources; at the same time, optimal use has not been made of existing capacity, as a result of inadequate collaboration and co-operation mechanisms and evidence of ‘turfism’. It was generally agreed, however, that the reforms in greening the energy sector were principal for determining Grenada’s low-carbon development pathway. The energy sector was seen as the fulcrum for green economy implementation.

Indicators of greenness

The suggested indicators of greenness in the energy sector include the following:

- greenhouse gas emissions per kilowatt of energy produced (grid efficiency factor);
- amount of energy used per unit of GDP produced (energy efficiency factor);⁹
- number of small power producers;
- increase in energy produced by renewable energy applications; and
- percentage reduction in fossil fuel import bill.

3.5.2 Tourism

Status and trends

The tourism sector has been identified as a key economic transformation sector in Grenada, but, while critical for economic and social development, tourism activities are primary sources of greenhouse gas emissions and environmental degradation. Green economy policies in tourism are therefore seen as necessary to balance the seemingly competing objectives. The tourism sector is recognised as the single largest source of foreign exchange earnings, income and employment generation, and an important contributor to general economic activity and social development. In 2010, the sector contributed 6.1 per cent to gross domestic product (MOF 2011). The predominant tourism activities take place in the marine and coastal zones, with potential impacts on the fragile coastal ecosystems. In this regard, mention was made by interviewees of the ‘blue economy’ to ensure that green economy considerations must take into account marine and coastal as well as terrestrial activities.

In 2011, the total number of visitors to the country was 455,363, with a fairly flat trajectory for the last five years. Seventy-four per cent of tourism arrivals are cruise ship passengers, while 24 per cent are stay-over visitors averaging 8.5 days per visitor (Grenada Board of Tourism [GBT] 2011). The principal activities reflect the

marketing slogan of ‘Sun, Sea, Sand and Spices in Goodness Gracious Grenada’, thus requiring a high-quality tourism infrastructure and services and demands on the scarce resources of land, ecosystem, food, water and energy.

The national outlook of expansion of the tourism sector therefore requires careful management for implementation of the green economy.

Policy and legislation

In line with the green economy theme, stakeholders interviewed for this case study indicated that tourism activities should respond in balance with the three dimensions of sustainable development. In response to the pressures exerted on the sector by the global recession and financial crises, coupled with high prices for food and energy, the drive to greening the sector is actually led by the private sector. On Earth Day 2012, the Grenada Hotel and Tourism Association, an umbrella organisation of tourism entrepreneurs, pledged to engage in activities to transition the sector to be the first zero-carbon hotel sector in the Caribbean through a carbon-free future and energy cost reduction strategy. The initiative is dubbed the ‘2012 Earth Day Declaration’ (SDC 2012).

The key elements of the initiative are as follows:

- energy efficiency and renewable energy;
- energy demand management;
- lobbying for power tariff reforms; and
- support to the establishment of a regional energy regulatory body (see: www.gogrenada.gd).

The Grenadian government has endorsed and pledged its support to the private sector initiative as part of its overall vision for a low-carbon development pathway. Using the Master Plan for Tourism Development,¹⁰ the government has developed the Strategic Plan for Tourism Development (‘the Strategic Plan’), which calls for significant expansion of the sector by way of increased room stock, tourist arrivals, length of stay and receipts, and direct employment. The action plan provides for greater product and infrastructure development and enhancement, product diversification, marketing, investment, finance, incentives, capacity building and quality, as well as for institutional reforms (GBT 2012). With direct reference to the green economy, the national effort focuses on an integrated approach to ecotourism, community-based health, heritage, geo- and agri-tourism (GoG 2012b and GBT 2012).

There is no specific reference to the green economy in the Strategic Plan for Tourism Development, but some elements of the plan are consistent with the concept while others have the potential to block green economy implementation.

Several interviewees, while appreciative of the national effort in greening tourism, were apprehensive as to whether the announced zero-carbon target for the hotel sector could be achieved.

Institutional factors

The Strategic Plan calls for legislative changes to the structure of the Grenada Board of Tourism, by creating a fully autonomous authority to manage tourism development in the country. The issues of marketing and product development were seen by the interviewees to be the key occupations of this new entity.

The issue of product diversification was captured, including the need to expand the ecotourism product. There seems to be a disconnect in terms of the focus on the green economy in the tourism sector among the Grenada Board of Tourism, the Government of Grenada and the tourism entrepreneurs.¹¹

The pursuit of alternative forms of tourism towards a green economy, as called for by the government, should be included in the mandate of the proposed new entity to manage the tourism product. Even so, clarity is required on the manner in which ecotourism is to be developed. Ecotourism must be developed as an environmentally and ecologically sustainable activity, to stimulate economic and social development in line with the agreed green economy foundations. Appropriate regulation and management for tourism expansion and development were deemed necessary for green economy implementation.

Benefits, challenges and constraints

A major benefit of the green economy focus is the imperative for the government, its agencies and the private sector to work together to develop the tourism sector. Given the importance of the sector to the economy and livelihoods, strategic alliances must be developed. The major challenge to the green economy in the tourism sector is to ensure that there is consistency in the activities undertaken by the major stakeholders, and that short-term economic perspectives do not overshadow sustainable consumption and production decisions. The sector is beset by low occupancy levels, combined with high-energy and financing costs. The green economy therefore presents an opportunity to address these challenges, but at the same time these challenges affect the implementation of the green economy as the sector has limited flexibility to invest in greening activities. The financing of the sector, the investments to be undertaken and the fiscal incentives granted must be linked to green economy concerns. Given the segmented nature of the sector, there is a sense that the level of co-operation required to achieve the green economy target in tourism would not be present in the Grenada case.

Indicators of greenness

The suggested indicators of greenness in the tourism sector include the following:

- number of renewable energy and energy efficiency initiatives;
- number of hotel properties endorsing the zero-carbon initiative;
- savings on energy bills attributed to reduced demand for fossil fuel energy; and
- progress towards the zero-carbon target.

3.5.3 Water

Status and trends

Grenada's national water resource supply has been pressured by growth in the tourism sector and economic development in the country as a whole. Given the changing nature of the economy, from a dominance of rain-fed agriculture to services, the urbanisation of the economy, with growing population and increasing average water use per person and housing development, the demand for water has escalated (GoG 2011c).

Natural water sources are surface water from rivers and springs, groundwater resources, natural lakes and rainwater harvesting. Several attempts at establishing desalination plants have been unsuccessful.¹²

While development exerts pressure on the water supply, water is key for further development. During the interviews, it was pointed out that water availability is negatively impacted by climate change and associated extreme weather events.

In 2009–2010, Grenada experienced its severest drought in recorded history. This was followed by above-average rainfall in the dry season in 2011 and 2012 (GoG 2012c). Given the projected demands for water, based on housing development, tourism development and the changing agricultural landscape with the unpredictability of future water supply, the green economy framework calls for concerted national efforts at water management.¹³

Policy and legislation

The key policy and legislation response to the green economy concept in the water sector is the focus on integrated water resources management and efficient water use.

The dominant view of national water experts is that water must be seen as a resource in the holistic sense, not just as a product for final consumption. A lifecycle approach must be the cornerstone of the national water policy to be consistent with the green economy conceptualisation. Prior to the popularisation of the concept of the green economy, a national water policy was approved by the cabinet (GoG 2011c). The policy calls for promoting efficient and sustainable use of water, promoting substitution of potable water, rainwater harvesting and water demand management. The major element of the national water policy is the implementation of water resources reform and modernisation of water resource management.

Institutional factors

The relevant institutional issues in the water policy call for the separation of functions in water management based on water cycle considerations, from water production and catchment to final sales. The policy also calls for an independent water regulatory authority. In the current environment, the water utility, a quasi-government organisation, the National Water and Sewerage Authority (NAWASA) is responsible for water management in the country. The new strategic plan for NAWASA elaborated in line with the new water policy sees NAWASA concentrated

in distribution and sales of potable water, with separate agencies set up for water resource supply and regulatory issues.

There is a public perception that water is a 'free good', meaning that it should be freely available in unlimited supply at very low cost to everyone for their use. A low value is placed on water conservation generally. According to the experts, a public education and awareness programme on the value of water is necessary, and the public at large must return to traditional practices of water conservation. Special mention was made of rainwater harvesting in Carriacou as a best practice case. Training in water use management can be invaluable for water demand management.

Benefits, challenges and constraints

Since water is the main ingredient for development and critical for the viability of the tourism, agriculture, health and education sectors, earmarked sectors to transform the Grenadian economy, then water management must be a national priority. Green economy implementation provides an opportunity to refocus development priorities on water. During the interview process, a water expert remarked, 'in future we cannot live without the green economy, hence we must think green in everything we do – starting from water management'.

A major challenge is to overcome the perception that water is free and freely available, and to instil water conservation consciousness in the population. It is recognised that the national water infrastructure is archaic and needs upgrading. The infusion of appropriate technologies including information and communications technologies into the water sector is highly recommended. The availability of financing for water infrastructure development is a major challenge, as the necessary financing is not readily available. To that extent, green economy implementation can be a useful opportunity to leverage funds for greening the water sector.

Indicators of greenness

The suggested indicators of greenness in the water sector include the following:

- number of renewable energy applications in the water supply cycle;
- percentage improvements in irrigation efficiency;
- percentage increase of rainwater harvesting for potable water use to substitute for treated water;
- percentage of homes with rainwater harvesting capability; and
- percentage increase in water distribution efficiency.

3.5.4 Transportation

Status and trends

The transportation sector, which is highly dependent on imported gas and diesel fuel, is the single largest consumer of energy and hence the largest emitter of greenhouse gases in the country. In 2012, approximately 50 per cent of the total energy consumed

in Grenada was by the transportation sector. The power sector accounted for 40 per cent of the energy consumed (GoG 2011b).

There are approximately 30,000 vehicles in the country, the most dominant of which are gasoline-powered vehicles. There are no ethanol blends or hybrids, natural gas or electric powered vehicles (ibid). Inter-island travel is also in the mix, as there are ferry services between the islands.

Despite the recession, the number of registered vehicles increased by an average of 5 per cent between 2006 and 2011 as a consequence of the importation of cheaper used vehicles (GoG 2012a). Used-vehicle importation, coupled with an ageing vehicle stock, contributes to greater fuel consumption and greenhouse gas emissions. This trend is expected to continue in the future (ibid). There is no publicly owned transportation system in Grenada.

Policy and legislation

It is significant to note that reform of the transport sector was not an area of focus in Grenada's preparatory process to Rio+20, given its contribution to greenhouse gas emissions. Nevertheless, there is a stated policy of 20 per cent of energy used in the sector to originate from renewable energy sources by 2020. There is no regulation on fuel efficiency or vehicle emissions control. It was also revealed during the interviews that national transportation activities are co-ordinated by the Ministry of Communication, Works, Physical Development, Public Utilities & ICT; while energy issues are co-ordinated by the Ministry of Finance, Planning, Economy, Energy & Cooperatives, and that there is little co-ordination between the two ministries on this key issue.

The importation of used vehicles beyond five years and with higher power ratings attracts higher import taxes. The government is currently considering proposals on the potential for electric vehicles and renewable energy-operated ferries that could impact a green economy transition.

Institutional factors

The most important factor to note is the implementation of the public education and awareness programme by the Ministry of Energy. The transportation module of the programme includes fuel-efficient driving tips and procurement guidelines.

The government had indicated that a public transportation board will be established to regulate the sector, but the mandate does not include energy efficiency or energy conservation. The transportation board provides an opportunity to improve interagency collaboration and co-operation, in particular the nexus between transportation and energy.

Benefits, challenges and constraints

Reversing the reliance on fossil fuels for transport has the potential to benefit the green economy through fiscal savings, but therein lays the greatest challenges because of the entrenched nature of fossil fuel and inertia to change in the sector. This thrust

would require the active participation of the private sector, in particular the vehicle dealers. The availability of finance and technology to drive the transition remain the key issues.

Indicators of greenness

The suggested indicators of greenness in the transport sector include the following:

- emissions per unit travel;
- number of hybrid/electric vehicles sold per year;
- number of alternative fuel vehicles sold per year;
- number of cars per capita/number of buses per capita; and
- average age of vehicle stock.

3.6 Conclusion

The conceptualisation of the green economy in Grenada has been shaped by national socioeconomic conditions, national resource endowments, regional integration activities and the international negotiation positions of SIDS in the negotiations leading up to Rio+20. National-level consultations, taking key messages from the above considerations and involving all major national stakeholders, determined that the concept of the green economy should relate directly to an improvement in livelihoods for the Grenadian population, particularly rural communities, youth and women. The interviewees viewed 'green economy' as just a colourful term if it does not improve livelihoods and respond in a holistic and balanced manner to the three pillars of sustainable development.

Green economy implementation was viewed through sectoral analysis, with energy, tourism, water and transportation as the building blocks. The energy sector was deemed key to implementing the green economy, given its linkages to the other building blocks and to the other sectors identified to lead Grenada's economic and social transformation. Limited fiscal flexibility, due to poor macroeconomic performance and the negative impact of global crises, revealed that for Grenada the prospects for successful implementation of green economy policies should focus primarily on the energy sector as the identified key sector. This can then be used to mainstream the green economy, to leverage funds and technology, to involve all key stakeholders, to build capacity and resilience and to engender political will and leadership. Through the energy sector, the government can establish the legislative, administrative and institutional framework, a public awareness and education programme, monitoring, evaluating and reporting mechanisms, and the means and resources for green economy implementation and to address the blockages encountered.

The major blockages to green economy conceptualisation and implementation in Grenada stemmed from macroeconomic concerns, including dependence on high-cost energy inputs. The entrenched nature of fossil fuel use in the economy, coupled

with limited access to finance for investments and technologies, meant that there was inertia to change. There was evidence of inconsistencies in the interpretation of the national green economy vision, low levels of co-operation and collaboration, and even ‘turfism’ among major national stakeholders at the sectoral level. Dependence on external donor resources to drive implementation was also noted as a major hurdle.

Thus the key lessons gleaned from the Grenada case study are that the green economy should be rooted in a national vision, socioeconomic priorities and national resource base, and should be catalysed by leadership at the highest levels of government. Involvement of all national stakeholders from the conceptualisation stage provided national ownership, direct linkages to development and a focus on livelihoods and poverty eradication through targeted and practical sector-based, on-the-ground interventions. The study highlighted that – given the limits to national capacity – the green economy-enabling institutional framework should be concentrated in a single sector linked to other building blocks and sectors, and mainstreamed throughout the economy. It was also deemed necessary to determine sectoral indicators of greenness for monitoring, evaluating and reporting purposes, to create a feedback loop for policy adjustments.

The Grenadian case study also calls for greening decision-making itself, and hence reiterated the call for behavioural and attitudinal changes to think green in everything we do. Making a bold declaration at Rio+20, the Grenadian prime minister highlighted, as an example of the national effort, the construction of the first green parliament building in the Americas. This paper concludes with the final words of the prime minister at the Rio+20 conference: ‘For the future we want, for the future we need, visionary and action-oriented leadership is a fundamental requirement. We motivate our people to pursue the path to sustainable development, and we commit to achieving the goals of Rio+20, acting at the national level and in collaboration with our global partners’ (GoG 2012e).

The concept of the green economy must be a part of the future we need. As stated by Achim Steiner, Executive Director of UNEP, at the close of the Rio+20 Summit: ‘Green economy offers a key pathway towards a sustainable twenty-first century’.

Notes

- 1 The regional dialogue project was entitled ‘Caribbean Regional Dialogue as Part of the Green Economy Coalition of National Dialogues’. The aim of the dialogue was to facilitate the emergence of the Caribbean’s unique development pathway, and to inform international understanding and action on the green economy.
- 2 The Caribbean Community (CARICOM) established by treaty in 1973 is an organisation of 15 Caribbean states with the objectives to improve standards of living and work; the full employment of labour and other factors of production; accelerated, co-ordinated and sustained economic development and convergence; expansion of trade and economic relations with third states; enhanced levels of international competitiveness; organisation for increased production and productivity; achievement of greater level of economic leverage; effectiveness of member states in dealing with third states, groups of states and entities of any description; and the enhanced co-ordination of member states’ foreign and foreign economic policies and enhanced functional co-operation. See: www.caricom.org.

- 3 Synopsis of the interview conducted with Grenada's participants at the CARICOM meeting and a presentation made by the co-ordinator at the meeting of the Grenada Sustainable Development Council.
- 4 The Non State Actors (Advisory) Panel was established in 2009 by a Memorandum of Understanding between the Government of Grenada and the European Union. The panel seeks to promote dialogue and collaboration between the state and non-state actors on matters of national development. The members of the panel represent a wide range of sectors and interests.
- 5 Grenada has largely recovered from the ravages of the hurricanes. More than 90 per cent of the built infrastructure has been fixed. The major areas of concern following hurricane damage are the tropical forest, wildlife and the coastal mangroves.
- 6 The Inter Agency Group of Development Organisations, an umbrella group consisting of eight NGOs, functions as a collective voice for NGOs on national matters.
- 7 The Grenada Sustainable Development Council (SDC) was established in 1996 pursuant to Agenda 21. The council comprises representatives of the public sector, NGOs, private sector organisations, the trade union movement, academia, development organisations and other interest groups. The council meets on a monthly basis to consider matters of national significance and to advise policy-makers accordingly.
- 8 During the interviews it was pointed out that green economy implementation would require a robust set of indicators for monitoring, evaluating and reporting on the progress made at the sectoral level, which would be required for feedback and policy and implementation adjustments.
- 9 The UN Secretary-General has set a global target of doubling the rate of improvement in energy efficiency by 2030.
- 10 The Master Plan for Tourism Development was elaborated in 1996 and constitutes the most important and comprehensive document on the tourism sector.
- 11 It was revealed, for example, that the marketing strategy of the Grenada Board of Tourism focuses on tourism expansion, but not necessarily green expansion, while the entrepreneurs faced with high-energy costs have a lofty green target. The fiscal incentives structure for product and tourism infrastructure development does not have consideration for greening the sector, but the government endorses the zero-carbon initiative.
- 12 The respondents indicated that the failure of the desalination plants was due to a range of factors, including management failure, mechanical failure, improper planning, absence of local buy-in, hurricane damage, political considerations, and the absence of viability analyses and social and environmental impact assessments.
- 13 During the rainy season, the average water production was estimated at 31,800 m³/day. During the dry season the average water production drops to 20,700 m³/day. The annual demand is estimated at 31,877 m³/day (the National Water and Sewerage Authority [NAWASA] 2006; data taken from study done by Plan Group on Financial and Economic Study of Water and Waste Water Sector in Grenada). Another study indicated that water production in the rainy season was 54,600 m³/day and 31,800 m³/day in the dry season, while water demand in the rainy season is 45,500 m³/day and 54,600 m³ in the dry season (ECLAC 2011).

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Chapter 4

The Political Economy of Transitioning to a Green Economy in Guyana

Dr Paulette Bynoe

4.1 Setting the context

4.1.1 Introducing Guyana

Guyana, a small¹ state with a stable population of approximately 756,000, is located in the north-eastern corner of the South American continent between 1°10' and 8°35' north and 56°20' and 61°23' west of the equator (Figure 4.1). Guyana's coastline, which is inhabited by approximately 90 per cent of the population, lies at 1.4 metres below mean high-tide level, and is particularly vulnerable to flooding, erosion and salinisation.

One of Guyana's most valued natural assets is its forests: the national forest cover is approximately 85 per cent, with estimated forest land between 18.416 million hectares and 18.695 million hectares; approximately 12 per cent is designated as protected areas. Significant acreages have also been allocated to Amerindian communities. Guyana's forests are estimated to contain more than 5 Gt CO₂ in above-ground biomass.

The past three decades show that Guyana's economy remained highly dependent on the production and export of a few primary commodities:² sugar, gold, rice, timber and bauxite; however, the country's gross domestic product (GDP) is now more heavily weighted in an expanding services sector – combined services averaged more than 60 per cent of GDP in 2010. Per capita GDP has risen from US\$1,694 in 2006 to US\$2,501.7 in 2010.

In the area of social development, some progress has been made over the last few years: extreme poverty decreased from 28.7 per cent in 1993 to 18.6 per cent in 2006; unemployment fell from 11.7 per cent in 1992 to 10.7 per cent in 2006. Direct efforts have been made to reduce the unemployment problem, particularly among women and youth: the female unemployment rate decreased from 18.1 per cent in 1992 to 13.9 per cent in 2006, while the percentage of youth who constitute the labour force increased from 8.7 per cent to 15.8 per cent over the same time period (UNDP 2011).

In 2011, Guyana's Human Development Index (HDI³) was 0.633⁴ with a ranking of 117 out of 187 countries. The country's HDI fell slightly below the small island developing state (SIDS) average of 0.640. According to the UNDP Caribbean Human Development Report (2012, 21) Guyana has shown 'remarkable improvement in both the component variables and the overall HDI performance'.

Figure 4.1 Map of Guyana

Source: <http://geography.about.com/od/findmaps/ig/Country-Maps/Guyana-Map.htm> (accessed 18 February 2014)

4.1.2 Climate change impacts and Guyana's response

Climate change is a major global threat⁵ that has temporal and spatial implications. According to the Guyana Second National Communication to the United Nations Framework Convention on Climate Change (UN FCCC) Secretariat (2012):

In recent years, there have been many extreme weather events that have resulted in high levels of flooding especially along the coast and in some inland areas. In Guyana, it is projected that by the end of this century, temperatures can increase

by up to 4°C and weather patterns will become more extreme. Sea level is projected to rise at a rate of 1 cm/year, about 40 cm–60 cm by the end of the 21st century. Such rise in sea level will inundate wetlands and lowlands; accelerate coastal erosion; exacerbate coastal flooding; threaten or destroy coastal structures; raise water tables and increase the salinity of rivers and aquifers.⁶

The country's vulnerability is increased further because of the following factors: the majority of the population reside on the low-lying coastal plain; and the main agricultural lands and all major administrative, economic, and service and infrastructure facilities are located on the coast (EPA, 2000).

Guyana's Second National Communication further notes that the cost of total adaptation to climate change is estimated at approximately US\$1 billion, and that to protect the coast from the Atlantic Ocean the government needs to fortify 360 kilometres of sea defences at a cost of US\$4.4–6.4 million per kilometre. Importantly, these costs must be borne by Guyana despite the fact that Guyana is a 'Net (carbon) Sink' country.⁷

Ostensibly, any global response to climate change requires multiple approaches by regions and countries, depending mostly on their natural capital endowment and their social, economic, political, cultural and technological circumstances, and most importantly, political will and good leadership⁸ (Bynoe, De Souza and Agard 2011).

4.1.3 Purpose of this case study

Concern about global climate change and sustainable development has led current international discourse on green growth and the green economy; yet little attention has been paid to the peculiarities of several small states. This case study is intended to provide an analysis on how Guyana has conceptualised and implemented its pathway to a green economy. The case study also gives special attention to gender issues in the conceptualisation and implementation of a green economy in a small state.

4.2 Green economy: a national perspective

4.2.1 Stakeholders' perspectives on a green economy

Responses on the definition of a green economy⁹ in the Guyanese context, as provided by stakeholders, revealed a range of different perspectives. The varying interpretations have congruence (whether implicit or explicit) with respect to the potential implications of a green economy for improved human well-being, reduced carbon footprint and minimisation of environmental risks and sustainable utilisation of natural resources.

Stakeholders interviewed for this case study variously described a green economy as:

- An economy that is heavily dependent on its natural resources, but ensures that they are used in a sustainable manner and provides livelihoods for people of the country.
- One in which there is reduced deforestation, increased organic production, reforestation and efficient energy utilisation.

- One that would result in the improvement of human well-being, while reducing environmental impacts and risks significantly.
- One that results in improved human well-being, that is improved social equity, while significantly reducing environmental risks and ecological scarcities.
- One whose growth in income and employment is 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.
- One in which the standard of living in all aspects is improved and environmental pressures and risks are reduced.
- An economy that promotes economic and social development, while at the same time reducing the risks to the environment. It has its basis in sustainable development models and practices, and includes much of the natural ecological capital of a country.
- One that is built on the themes: reduction in carbon emissions and damage to the environment, reduction in the use of resources, and poverty reduction. It focuses on environmental sustainability and includes all groups.
- One that is hyper-conservationist and utilises as many of its natural resources as possible in a responsible manner, and is able to realise growth and dynamism for all its environments and all its peoples.
- One in which there are economic activities with the least discharge of greenhouse gases. A green economy is repositioning to where we were in the past.
- One that aims at preserving the environment. It means carrying out economic activities without much damage to the environment. In a green economy, people use resources in ways which maintain a healthy environment while at the same time they still live well.

In addition, stakeholders identified key elements of a green economy in a Guyanese context. Table 4.1 provides details of key elements, as listed by stakeholders.

Information displayed in Table 4.1 indicates that two elements were common to all stakeholder groups consulted: ‘a shift to more renewable energy resources’; and social and human development. Given Guyana’s HDI ranking, the focus on development needs is hardly surprising. Most stakeholders also felt that elements of sustainable use of natural resources (particularly forests) and green investment policies – supported by an enabling policy and legislative environment – are critical to Guyana’s transformations to a green economy. Interestingly, only the private sector has identified waste minimisation as a key element, using the three ‘Rs’ (reduce, recycle and reuse), all of which are necessary to reduce an industry’s carbon footprint. Importantly, the seven elements listed in Table 4.1 are interconnected in a green economy.

4.2.2 The Guyana Low Carbon Development Strategy¹⁰

Guyana launched the world’s first national-scale model for a low-carbon economy – the Low Carbon Development Strategy (LCDS)¹¹ – in May 2010. The LCDS seeks

Table 4.1 Stakeholders’ perspectives on elements of a green economy in a Guyanese context

| Key elements | Sustainable use of resources, in particular forests | Human/social development (poverty reduction/ social equity) | A shift to more renewable energy sources | Green investment policies, plus legislation and monitoring and enforcement capability | Reduction of carbon emissions and/or environmental risks | Waste management | Culture of environmental awareness and education |
|--------------------------------|-----------------------------------------------------|-------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------|------------------|--------------------------------------------------|
| Category of stakeholder | | | | | | | |
| Government | • | • | • | • | • | | • |
| Women | • | • | • | | | | |
| Academia | • | • | • | • | • | | |
| NGO | | • | • | | | | |
| Workers’ unions | | • | • | | | | |
| Indigenous peoples | • | • | • | • | | | • |
| Private sector | | • | • | • | • | • | • |

Source: Stakeholders’ responses.

to provide an innovative approach on how to stimulate the creation of a low-deforestation, low-carbon and climate-resilient economy. It is a strategic sustainable development policy initiative that sets out the nation's development trajectory to achieve a green economy by encouraging a production and consumption shift in vital sectors (i.e. forestry, agriculture, mining, energy) of the economy.

Specifically, the LCDS sets out the national conditions under which Guyana would pursue a green growth trajectory¹² as it: (i) puts its rainforest under long-term protection once the right economic incentives are created, and (ii) uses the payments received¹³ for ecosystem and climate services to re-orient the country's economy to a low-carbon, environmentally sound trajectory. The overall goal of the LCDS is to provide 'the world [with] a working example of how immediate action can stimulate the creation of a low deforestation, low-carbon, climate-resilient economy' (Government of Guyana, 2010 version¹⁴). The LCDS aims at:

- Investing in strategic low-carbon economic infrastructure, improved access to arable, non-forested land (through significant investment in drainage and irrigation, roads, etc.) and improved fibre optic bandwidth to facilitate the development of low-carbon business activities.
- Nurturing investment in high-potential low-carbon sectors. For example, the Government of Guyana is seeking new investment in processing activities that would facilitate greater production of higher-value wood products that meet international standards for export and simultaneously bring new capabilities in waste minimisation and recovery, as well as market linkages to enhance export value of processed products.
- Reformation of existing forest-dependent sectors, including forestry and mining through legislation, action plans, enhancement of technical capacity in organisations such as the Guyana Forestry Commission (GFC) and the Guyana Geology and Mines Commission (GGMC), increased monitoring and enforcement, plus the creation of alternative sustainable livelihood opportunities.
- Expanding access to services, and creating new economic opportunities for Amerindian communities.
- Improving services to the broader Guyana citizenry, including improving and expanding job prospects, promoting private sector entrepreneurship and improving social services with a particular focus on health and education.

4.2.3 Supporting national policy, strategy and legislative and organisational frameworks¹⁵

There are several policy and legislative initiatives that support Guyana's LCDS in transforming the country into a green economy, which transcend environmental protection and reducing risks to embrace a more holistic perspective that gives relevance to human and social development, among other things. Table 4.2 provides a synopsis of the key policy documents which reasonably suggest that Guyana has been conceptualising its transition to a green economy for more than a decade.

Table 4.2 Key policy documents in support of a green economy

| National Strategies/ Action Plan | Year | Decision-making function |
|--------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Integrated Coastal Zone Management Action Plan | 2000 | Provides an overarching planning framework for the sustainable use of coastal resources, as well as strengthening of institutions. |
| National Development Strategy 2001–2010 (Government of Guyana 2001b) | 2001 | Provides a framework for national planning and captures a number of cross-sectoral issues such as environment, forestry, agriculture, mining, tourism and fisheries, among others. |
| Guyana Climate Change Action Plan | 2001 | Provides a reference point for national programmes to help mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change. |
| National Climate Change and Adaption Policy and Implementation Plan (Government of Guyana 2001a) | 2001 | Provides a very useful point of reference in the process of identifying key issues of Guyana's Coastal Plains with regards to potential climate change impacts, capacity building and the institutional and legislative framework. Further, it informs the types of interventions that are necessary at the sectoral level to ensure that Guyana's response to the threat of climate change is planned. |
| National Poverty Reduction Strategy (Government of Guyana 2005) | 2001– 2005 | Provides the most strategic planning framework at the highest level of national planning with the principal objectives being: (i) to attain the highest rates of economic growth that are possible; (ii) to eliminate poverty in Guyana; (iii) to achieve geographical unity; (iv) to attain an equitable geographical distribution of economic activity; and (v) to diversify the economy. |
| National Environmental Action Plan | 2001– 2005 | Provides the framework for integrating cross-sectoral environmental concerns into the wider context of Guyana's economic and social programme. |
| National Protected Area Strategy | 2003 | Provides the framework for establishing an integrated national system of protected areas. |
| National Land Use Plan (Draft) | 2005 | Provides the framework for co-ordination among the land uses, as well as facilitates integration of land use and the preparation of a National Land Use Plan. |

(continued)

Table 4.2 Key policy documents in support of a green economy (continued)

| National Strategies/ Action Plan | Year | Decision-making function |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fisheries Management Plan | 2006 | Sets out guiding principles, goals, legal and institutional framework for the conservation and sustainable development of Guyana's fisheries resources. |
| National Biosafety Framework | 2007 | Provides the framework for controlling and monitoring genetically modified organisms (GMOs) and living modified organisms (LMOs), while preventing adverse effects on the conservation and sustainable use of biological diversity in Guyana. |
| National Biodiversity Action Plan (NBAP) II | 2007– 2011 | Provides a general planning process for biodiversity use and conservation and within the same framework of NBAP I, plus emphasises more stakeholder involvement. |
| Guyana's National Policy on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation | 2008 | Articulates a national policy on access and benefit-sharing that is consistent with other national policies and regulations, and with international treaties to which Guyana is a contracting party. |
| National Capacity Self-Assessment (NCSA) Guyana Implementation of Action Plan | 2009 | Incorporates priority work of the multilateral environmental agreements (MEAs) into annual work programmes of the focal point agencies: the Environmental Protection Agency, National Climate Unit and Guyana Lands and Surveys Commission. |
| National Agriculture Sector Climate Change Adaptation Strategy | 2009– 2018 | Promotes approaches to more effectively reduce the risks posed by climate change and position the agricultural sector to adapt through technical innovation and diversification to increase its competitiveness and sustainability by 2018. |
| National Forest Policy Statement | 1997; 2011 | Places emphasis on forest management and its importance to national development. |
| Second National Communication (SNC) to the UN FCCC | 2012 | To aid in capacity building and institutional strengthening with regards to climate change mitigation and adaptation in response to the UN FCCC. |

Guyana has made significant progress in terms of developing legislation as a 'command and control' mechanism (that supplements others such as incentives and public awareness and education) for promoting effective environmental management and protection and the sustainable use of Guyana's natural resources. Chief among national legislation are: the Environment Protection Act (1996) and accompanying regulations,

including the Species Protection Regulations (1999); Hazardous Wastes Management Regulations (2000); Noise Management Regulations (2000); Air Quality Regulations (2000); Water Quality Regulations (2000); Authorisation Regulations (2000); the Guyana Revised Constitution (2003); the Wildlife Conservation and Management Regulations (2008); the Amerindian Act (2006); the Mining Amendment Regulations (2005); the Guyana Forestry Commission Act (2007); the Forest Bill (2009); and the Protected Areas Act (2011), among others. Moreover, a number of guidelines have been prepared for 'Reviewing and Conducting Environmental Impact Assessments', mining, sand-blasting, water-sampling and for conducting biodiversity research, among others, while Codes of Practice have been prepared for specific sector activities, including mining and forestry. It must be noted, however, that full enforcement of legislation has been a challenge due to institutional capacity constraints, such as limited human and financial resources.

Importantly, Guyana's National Development Strategy marks tourism as a sector that can contribute to the sustainable development of Guyana by earning foreign exchange and providing job opportunities, while conserving the natural environment and the multifaceted culture of the country. The strategy identifies several initiatives to be undertaken. Already, the Government of Guyana has taken a number of actions to give effect to this strategy, including the establishment of the Guyana Tourism Authority and the Guyana Office for Investment (GOINVEST) to provide the institutional framework for implementation, in addition to the development of standards for design and appearance in accordance with international norms, and assessment of training needs.¹⁶

A number of agencies/institutions exist in Guyana to address issues of a green economy (see Table 4.3). These decision-making and implementation institutions have strengthened the national governance framework for sustainable development. In fact, the Ministry of Natural Resources and the Environment (MoNRE), which was established in 2011, was cited most frequently by stakeholders as the national initiative to transform Guyana to a green economy.

It is noteworthy to recall some perspectives stakeholders shared on the recent creation of the MoNRE during the process of preparing Guyana's Rio+20 Report in April 2012. Stakeholders considered this development highly positive and strategic for the future of Guyana's natural resources.

The perspectives set out by stakeholders included:

- 'This ministry is a strategic move from the government. This means that there will be more focus on the natural resources and by extension on sustainable development; we can help to better co-ordinate activities of the country towards sustainable development. It's good that it covers mining, forestry etc. And now that the associated agencies are now under natural resources, protected areas or other projects can be well underway. So now that we have this ministry, integrated planning can be achieved.'
- 'Before the establishment of this ministry, certain aspects of resource management were not targeted directly, since there was little monitoring and evaluation as

Table 4.3 List of key organisations (in government engaged in the green economy transformation)

| Year | Organisation | Primary function |
|------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1996 | Environmental Protection Agency (EPA) | To oversee the effective management, conservation, protection and improvement of the environment, and to take the necessary measures to ensure the prevention and control of pollution, assessment of the impact of economic development on the environment and the sustainable use of natural resources. |
| 1998 | Guyana Energy Agency (GEA) | To advise and to make recommendations regarding any measures necessary to secure the efficient management of energy and the source of energy in the public interest and to develop and encourage the development and utilisation of sources of energy other than sources presently in use, among other things. |
| 2002 | Guyana Tourism Authority (GTA) | To establish and maintain an effective organisational structure that ensures efficient management of tourism; to develop tourism as a major industry that contributes to the national economy; to provide fiscal and other incentives to attract local and foreign tourists, among other things. |
| 2007 | Guyana Forestry Commission (re-established/restructured) | Responsible for advising the subject minister on issues relating to forest policy, forestry laws and regulations, as well as for the administration and management of all state forest land. |
| 2009 | Office of Climate Change (OCC) ^a | To support work on climate adaptation, mitigation and forest conservation. |
| 2011 | Ministry of Natural Resources and the Environment (MoNRE) | Overall responsibilities for forestry, mining, environmental management, wildlife, protected areas, land-use planning and co-ordination, and climate change. |

Note:^a The Office of Climate Change (OCC) is the entity with overall responsibility for consultations on Guyana's LCDS and works closely with the REDD Secretariat. It co-ordinates the government's engagement with international forestry programmes.

resources were utilised. With the establishment of the new ministry, we can measure to see whether or not there has been progress towards sustainability.⁷

- 'This ministry is a good move since the various national environmental agencies would not be scattered here and there. Since they are all under one umbrella, they will be able to have synergies and information-sharing so as to understand in the wider perspective what is happening as it relates to environmental issues.'

- ‘The whole idea of the new ministry is for integrated planning and decision-making. It could be an institution that can lead all the various sectors and try to co-ordinate policy and decision-making. This ministry has to ensure that planning in each subsector results in achieving a balance.’
- ‘The new ministry brings a more a focused approach to this area of natural resources and the environment, since it is concentrated in one person who would be able to guide policy, develop plans and work strenuously with international organisations and funding agencies to ensure we have a very sustainable approach to managing our natural resources, such as plants and animals, gold and diamond mining, oil etc., by first integrating the different responsibilities of each line agency to ensure that existing overlaps in institutional mandates and operational mandates are removed.’

Guyana has also established various functioning committees at a more strategic policy decision-making level to formulate and review and promote synergy among the above mentioned policies, strategies and action plans, as well as to respond to emerging trends and issues related to natural resource management and sustainable development. The principal committees discussed below:

- *Guyana Parliamentary Sector Committee on Natural Resources* comprises representatives of government and the opposition, and has responsibility for monitoring and oversight of line ministries and agencies involved in environment and natural resource management.
- *Cabinet Sub Committee on Natural Resources and Environment*, chaired by the Head of the Presidential Secretariat, deals with specific issues related to policy regarding the utilisation and management of natural resources.
- *Natural Resources and Environment Advisory Committee (NREAC)*, chaired by the prime minister, comprises heads of agencies and institutions in environmental and natural resource management, provides technical guidance to cabinet on environment and natural resource policy, and serves as a co-ordinating mechanism among sector institutions. NREAC also provides guidance and information to the Parliamentary Sector Committee on Natural Resources and comprises three important subcommittees responsible for co-ordinating work related to the following multilateral environmental agreements (MEAs): the United Nations Convention on Biological Diversity (UNCBD); United Nations Framework Convention on Climate Change (UN FCCC); and the United Nations Convention to Combat Desertification (UNCCD).¹⁷
- *National Land Use Committee* is a co-ordinating mechanism for managing conflicts among natural resource uses. This committee comprises the Commissioner of Lands and Surveys, the Commissioner of Guyana Geology and Mines, the Commissioner of Forestry, the Guyana Environmental Protection Agency’s (EPA) executive director, and the Office of the President’s land use advisor.

More recently, a Multi-Stakeholder Steering Group for the implementation of the LCDS and the Protected Areas Commission Board of Directors have been

established. The former – which is chaired by His Excellency, the President of Guyana – aims to oversee the consultation and awareness process and implementation of Guyana’s LCDS, and comprises representatives from the government, indigenous NGOs, the private sector, labour, forestry, mining, youth and women’s organisations, academia, NGOs and civil society. The latter is tasked with establishing, managing, maintaining, promoting and expanding the National Protected Areas System, ensuring that it is sustainable, and serves as an effective tool for improving the well-being of the Guyanese populace.

In addition, Guyana’s accession to the MEAs provides opportunities for its transformation to a green economy. Following a capacity self-assessment (EPA, 2007), the Government of Guyana identified and strengthened focal point agencies to implement measures¹⁸ under each convention: the Ministry of Agriculture was identified in 2007 as the operational focal point agency for the UN FCCC and this decision provided the basis for the work of the National Climate Unit; the Guyana Lands and Surveys Commission was given responsibility for the UNCCD as the focal point agency in 2004; and the EPA took operational responsibility for the UNCBD, through its Natural Resources Management Division.

4.3 Guyana's transformation to a green economy: implementation activities, challenges and opportunities

4.3.1 Implementation activities from a sectoral perspective

The following sections outline some major activities that have been undertaken in key sectors that have contributed to and will collectively contribute over time to Guyana’s transformation to a green economy. The sectors analysed include: forestry and land use; energy; agriculture; and information and communications technology (ICT).

4.3.2 Forestry and land use

Since Guyana’s LCDS is premised on avoided deforestation, considerable attention and resources have been given to the forestry sector to ensure implementation of activities. Some highlights are summarised below:

- The REDD Secretariat was established to determine the forest payments earned by Guyana every year and over time, and to implement monitoring, reporting and verification (MRV) in accordance with international guidelines for estimating and reporting carbon emissions and removals. Already the Guyana Forestry Commission (GFC) has begun developing a national Monitoring, Reporting and Verification System (MRVS) to support REDD+ implementation in Guyana.¹⁹ A roadmap and draft terms of reference for developing capacities for a national MRVS (‘the Road Map’) have also been developed. The Road Map outlines Guyana’s MRVS, which focuses on seven specific areas as a framework towards the development of a MRVS.²⁰
- The REDD+ Governance Development Plan – the Joint Concept Note, which accompanies the MoU between the Government of Guyana and the Kingdom

of Norway – has been completed. This document outlines the basis for the continued development of a transparent, rules-based, inclusive forest governance, accountability and enforcement system.

- Guyana REDD+ Investment Fund (GRIF) was established in November 2009 as a mechanism for managing funds pledged by Norway and from other donors/investors. Independent verification for the second tranche of payment (US\$70 million) has also been completed.²¹
- Guyana's Readiness Preparation Proposal (RPP)²² has been prepared for the Forest Carbon Partnership Facility. The RPP provides details on the way forest carbon stocks will be managed to achieve carbon neutrality over time.
- Exploration of Payments for Ecosystem Services (PES), through funding from the International Tropical Timber Organisation (ITTO): Guyana has begun preliminary work on the establishment of a national baseline of environmental services in Guyana and examination of ways in which a monitoring system for ecosystem services can be integrated into the national MRVS.
- A Small Grants Component of the Guyana Protected Areas System (GPAS) project has been implemented, funded under Kreditanstalt für Wiederaufbau (KfW, meaning the 'Reconstruction Credit Institute'). The project seeks to improve forest conservation and monitoring through the improvement of facilities and provision of equipment for the Moraballi Forest Reserve.
- The GFC is supporting 62 community forest associations and working closely with national and local government and civil society stakeholders in the process of implementation of the country's National Forest Plan (2011) and Forest Policy Statement (2011).

In addition, the Iwokrama International Centre for Rain Forest Conservation and Development ('the Centre') – an autonomous, non-profit institution, established by the Government of Guyana and the Commonwealth Secretariat in 1996 – aims to promote conservation and the sustainable and equitable use of tropical rainforests in a manner that leads to lasting ecological, economic and social benefits to the people of Guyana and to the world in general, by undertaking research, training and the development and dissemination of technologies.

The Centre manages the nearly 1-million acre (371,000 hectares) Iwokrama Forest in central Guyana. The Iwokrama Forest represents 1.7 per cent of Guyana's total land area, which is currently the largest designated protected area in Guyana. In order to ensure efficient management, the Iwokrama Forest is divided into two areas, namely the Sustainable Utilisation Area (458,778 acres/185,661 hectares) and the Wilderness Preserve, comprising a total area of 458,951 acres/185,731 hectares. The thematic programmes that inform the Centre's activities are: sustainable forest management; conservation and utilisation of biodiversity; and sustainable human development. Over the years, the Centre has established partnerships with local communities and the private sector. These partnerships combine traditional knowledge, science and business to develop 'green', socially responsible and sustainable forest products

and services, like low-impact timber harvesting, ecotourism, training forest rangers and guides, and harvesting aquarium fish.²³

4.3.3 Energy

The Second National Communication (Government of Guyana 2012a) states that ‘Guyana is highly dependent on fossil fuel imports’²⁴ to meet its energy needs. Fuel demand per capita in Guyana has been fairly stable, fluctuating between 5 barrels/year in 1998 and 4.2 barrels/year in 2006, but total energy demand per capita in Guyana can reasonably be expected to increase with economic growth and development. However, Guyana’s vast natural resource base provides the country with significant options for the development of renewable energy. To this end, the following initiatives have been taken in the energy sector:

- Preparation of priority projects including the Hinterland Electrification Programme, which has been integrated with the distribution of solar panels to hinterland communities.
- Retro-fitting existing power plants with energy efficient technologies, and switching to more efficient fuel use by means of the Guyana Power and Light (GPL) *Development and Expansion Programme 2009–2013*. This programme aims to improve voltage regulation; reduce outages due to trips and planned maintenance activities; improve management when restoring service; and increase capacity to meet growing demand (US\$13.91 million).
- Implementation of demand-side management strategies, such as pricing and subsidisation of new technologies via installation of a Supervisory Control and Data Acquisition (SCADA) system in a modern central control centre (US\$5.538 million) and construction of a fibre optic network between Skeldon and Edinburgh, and a new central control centre with SCADA capability (US\$5.38 million).
- Replacing existing oil-fired plants with new natural gas-fired stations and renewable energy²⁵ – such as capacity building and demonstration projects for electrification of hinterland and unserved areas, and utilising renewable energy: for example, commencement of infrastructural works for the Amaila Falls Hydropower Project.²⁶
- Awareness raising by Guyana’s Energy Agency through the distribution of flyers on lighting, appliances and building design.
- Designing more energy-efficient stoves for several hinterland communities that utilise firewood as the main cooking fuel. The design of the stove has been modified to use 50 per cent less fuel-wood than the traditional local firesides.
- A shift to less carbon-emitting fuels²⁷ and in the longer term to hybrid vehicles through the production of biodiesel on a commercial basis. It is hoped to foster the adaptation of biodiesel and feedstock technologies, so that by 2020 the country will derive 65 per cent of its diesel demand from agricultural feedstock. To this

end, the Institute of Applied Science and Technology (IAST) has undertaken several initiatives, including:

- (a) construction of pilot demonstration facilities for ethanol and biodiesel;
- (b) development of standards and testing capabilities for controlling the quality of biofuels;
- (c) promoting investment in biofuels; and
- (d) provision of technical due diligence for proposals to develop biofuels.²⁸

This development of biofuels is expected to have a significant positive impact on the transportation sector. At another level, the Ministry of Public Works has been involved in a research programme to upgrade and modify the existing hybrid system (which uses both utility and solar powers). Through this initiative, seven of the traffic signal systems will utilise solar energy as the primary source of power, and utility energy (Guyana Power and Light [GPL]) as a secondary source.

4.3.4 Agriculture²⁹

In the agriculture sector, the following key initiatives have been taken:

- reduction of methane (CH₄) and nitrous oxide emissions from rice production;
- water management by retaining water used for tillage to grow rice crops;
- research on alternatives to rice-husk burning (e.g. use of gasification plants to convert husks into high-quality, combustible fuel for power generation);
- integrated crop management involving environmentally-friendly practices, sensible use of pesticides, bio-pesticide application and seed treatments;
- developing and introducing new varieties with tolerance to delayed harvesting, saline conditions, increased flooding and pests;
- the installation of biogas collection and combustion systems to reduce emissions from animal waste;
- establishment of the Skeldon Sugar Modernisation Project (SSMP), which involves the addition of a more efficient co-generation plant³⁰ consisting of a combined heat and power (CHP) cycle to allow for the simultaneous production of electrical power for on-site use in the sugar factory, and the sale of excess power to the Berbice regional grid.

4.3.5 Social sectors

A number of relevant social initiatives are also being undertaken, including:

- Establishment of an Amerindian Development Fund (ADF) that aims to provide grants for low-carbon energy and economic or social investments in Amerindian villages. The ADF seeks to advance economic development for all of Guyana through sustainable use of natural resources.

- Increased financial investments have been made in the area of health infrastructure to provide greater access to healthcare to a wider cross-section of the population.
- Improved access to potable water and improved water quality throughout Guyana (e.g. 88 per cent of households in Guyana with access to potable water supply).
- Acquisition of house lots for housing purpose has been made available to all citizens of Guyana at a subsidised rate.
- Enhanced public environmental awareness and increased capacity through training programmes for targeted social groups.
- Incorporation of climate change education in the formal curricula from nursery to university levels.
- Research and pilot studies on alternative sustainable livelihood options for forest-dependent people and miners.

4.3.6 Information and communications technology

A total of 90,000 laptops will be distributed to families in Guyana (through the One Laptop per Family Initiative), as information and communications technology (ICT) is considered a significant enabling factor in improving Guyana's competitiveness and its social and economic growth. The Government of Guyana posits that access to ICT and knowledge is vital to tackle economic underdevelopment and inspire development. As such, the national development strategy recommends the appropriate investment and swift adaptation of ICT for social and economic development.

4.3.7 Gaps and challenges

Stakeholders identified several gaps in and challenges to the transformation to a green economy in Guyana. These are set out in Table 4.4.

Table 4.4 indicates that there was consensus among stakeholders that limited human capital³¹ (to facilitate knowledge transfer, skills training and education) and lack of adequate financing and an inadequate governance framework are key gaps/challenges to Guyana's transformation to a green economy. Other gaps/challenges identified by more than 70 per cent of the stakeholders interviewed were limited physical and social infrastructure. Lack of public awareness and knowledge of a green economy was also identified by the majority of stakeholders interviewed. This, however, does not negate other challenges – such as lack of alternative sustainable livelihoods or the private sector's reluctance to embrace a new form of business. The private sector also mentioned the absence of indicators to measure progress made on the green economy. These indicators can be informed by the elements of the green economy in a Guyanese context and may include: indicators on the state of Guyana's physical and biological environment, quality of life of its people, levels of green investment, and number of persons trained in skills for green economy transformation.

Table 4.4 Stakeholders' perspectives on gaps and challenges

| Gaps and challenges | LK ^a | IC | LPCI | IFIG | AAAT | SLA | RPS | LPA |
|--------------------------------|-----------------|----|------|------|------|-----|-----|-----|
| Category of stakeholder | | | | | | | | |
| Government | • | • | • | • | | • | • | • |
| Women | • | • | • | • | | | | • |
| Academia | • | • | | • | | | | • |
| NGO | • | | | • | | | | |
| Workers' unions | • | • | • | • | | | | |
| Indigenous peoples | • | • | | • | | • | | • |
| Private sector | • | • | • | • | | | • | • |

Notes:

^aMarketing skills, information technology, building technology, geology, recycling engineering, computer/ICT skills, construction, forestry and natural resource management, renewable energy management, green economics, psychology and anthropology plus agriculturalists, biochemists, geologists, industrial engineers as well improved technologists.

LK=limited knowledge transfer/technical expertise/human resources

IC=institutional capacity for monitoring and enforcement capabilities

LPCI=limited physical and social infrastructure, including accessible markets

IFIG=inadequate financing and inadequate governance framework

AAAT = appropriate, affordable and accessible technology

SLA=sustainable livelihood alternatives to ensure poverty eradication

RPS=reluctance of the private sector to embrace new forms of doing business

LPA=relatively low public awareness and education of/on green economy and incorrect public attitudes

In addition to the challenges/gaps identified by stakeholders, Guyana's transformation to a green economy is also constrained by the limited implementation of existing policies and programmes. This is because of limited financial, technical and human resources, as well as limited public investment in science, research and technology, or the development of targets and indicators to monitor and evaluate the success of implementation of all policies aimed at transforming Guyana to a green economy.

4.3.8 Opportunities

The process of the transformation of Guyana to a green economy offers a number of opportunities, and these should not be overshadowed by the gaps/challenges that have been identified. Stakeholders have identified the following opportunities:

- investment in new courses geared at providing the skills required for a green economy at secondary and tertiary institutions, education and behaviour change;
- investments in/development of information and communications technology;
- investments in processing of products, especially the use of bamboo and the processing of wool for the clothing industry;
- organic farming, aquaculture and ecotourism;
- provision of consultancy services for technical skills;

- hydropower and other renewable energy investments: development of a natural gas industry, solar energy and windpower;
- alternatives to the use of mercury in the small- and medium-scale mining sector; waste-to-energy systems;
- research and innovation to provide information to support decisions and/or investigate opportunities for the green economy in Guyana;
- alternative technology for housing construction: energy-efficient building through retro-fitting relies on roofers, insulators and building inspectors; and
- partnerships with international bilateral agencies (for example, the Government of Norway for carbon trading and environmental services market) and stronger South-to-South co-operation.

4.4 Gender and the green economy, with specific reference to the Mainstay/Whyaka community in Guyana

The preceding sections of this paper discuss national initiatives taken by the Government of Guyana to transfer the economy to a green economy, based on the LCDS. This section will give particular attention to the issue of gender, and the gender implications of a green economy in Guyana, focusing on the Mainstay/Whyaka Indigenous Community.

4.4.1 The impact of global climate change on gender³²

The Women's Major Group (part of civil society), at the 14th Meeting of the United Nations Commission on Sustainable Development (UNCSD 2006) noted that climate change is gendered and that women are vulnerable – not because they are 'naturally weaker', but because they face different conditions of vulnerability than men. In fact, women often live in conditions of social exclusion, such as cultural limitations to mobilise outside their immediate environment; have less access to information to early warning systems in times of disasters, and to forecasts of climate variability; and have difficulties in participating in training processes. Impacts include loss of livelihoods related to agriculture, which is climate dependent, food insecurity, loss of access to potable water supply, increased burden due to migration of men in search of jobs, and increased poverty due to loss of income.

The Women's Environment and Development Organisation (WEDO), the Heinrich Boll Foundation (HBF) and the Council of Women World Leaders (CWWL) organised a high-level roundtable entitled 'How a Changing Climate Impacts Women' on 21 September 2007 at the Permanent Mission of Germany to the United Nations. Major agreements were: (i) that gender equality was a critical component of responses to climate change locally, nationally and internationally, therefore gender equality should be integrated in all aspects of climate change planning and decision-making; and (ii) that national and global policies should incorporate the gender aspects of climate change, guided by the many global agreements on gender mainstreaming and human rights treaties.

4.4.2 Local women in a green economy

The green economy has important implications for women, given that social equity is a key element and the fact that women are engaged at all levels of the economy by virtue of their roles as providers of food, water, healthcare and additional income from business activities, as land managers, as well as their other roles.

Stakeholders in Guyana expressed the view that a green economy offers opportunities to both men and women, and that there is no discrimination in respect of gender and access to employment opportunities. However, a number of factors will determine the actual role of women in the green economy: (i) sustainable job opportunities for women would be expected in the areas of agricultural expansion, particularly in indigenous communities, and areas of financial and business services where green positions are likely to be created; and (ii) an increase in the ratio of girls to boys or women to men graduating from the University of Guyana, although women are usually more involved in jobs that are less labour-intensive. Direct opportunities can be explored in the areas of recycling, ecotourism and agro-tourism, culinary skills, engineering, intensive and organic agriculture, manufacturing and processing industries, the ICT industry, forest management, honey production and aquaculture.

4.4.3 Positive measures taken by women to adapt to a green economy: the Mainstay/Whyaka community experience

Mainstay/Whyaka is a 13 square mile Amerindian community comprising approximately 120 households (predominately Arawak). The community is located in Region 2 on the Essequibo coast.

The social survey targeted 46 households (38 per cent of the Mainstay/Whyaka community), and consisted of 16 focused questions that aimed at examining the understanding and perspectives of local indigenous men and women on a green economy and the perceived or actual impacts of Guyana's LCDS.

4.4.4 Demographic and social profile of respondents

Of the respondents, 23.9 per cent were male and 76.1 per cent were female. The mean age of the respondent at the time of the survey was 40.9 years, with a standard deviation of 17.9 years; 82.2 per cent of the respondents had a least a primary school level of education. The data indicates that a higher percentage of women (45.7 per cent) than men (27.3 per cent) surveyed had acquired a secondary education; also that 9.1 per cent of male respondents had acquired tertiary education (i.e. they had attended teachers' training college or university) compared with 14.3 per cent of female respondents.

4.4.5 Gender and income-generating activities

Figure 4.2 (a, b) shows the employment status of men and women in the community: all male respondents are either self-employed or employed by others, whereas 34.8 per cent of the women are unemployed.

Figure 4.2 (a) Employment status of fathers (b) employment status of mothers



Source: Survey data.

While at least 30 per cent of the men in the community were employed in the mining community, women are engaged in income-generating activities more aligned to a green economy via the LCDS. For example, the Mainstay Organic Pineapple Processing Facility, a US\$30 million facility commissioned in 2005 which processes organically grown pineapple and exports mainly to France, employs more than 60 persons (mostly women) in the community. The pineapple factory only operates twice a year. Seasonality of local crops is a critical factor impacting on the viability of income-generating activities.³³ This is the reason why diversity of livelihood activities is a hallmark for any sustainable development programme that aims to enhance the quality of life and social well-being of rural/hinterland indigenous communities in Guyana.

Justifiably, the community has also put forward proposals to diversify from pineapples – which are becoming harder to grow because of local climate change – to other fruits and vegetables that can easily be grown on one plot of land, without resorting to ‘slash and burn’ agriculture. Currently, there is an established Farmers Association comprising 18 women and four men.

In May 2011, the community launched its Chicken Farm Project, which aims to provide livelihood opportunities,³⁴ particularly for women. This project commenced with 15 women, but currently only four women are active due to decreased production. Production is influenced by the lack of reliable domestic markets, coupled with transportation costs, poor physical infrastructure and distance, which hinder women’s access to markets in the city.

In 2005, the Village *Toshao*/captain (a woman) helped launch the Mainstay/Whyaka Women’s Development Group, which established an aquaculture farm, worked to establish the village as an ecotourism destination, and also to establish honey production. Another local project, a 20-acre heritage park, aims to showcase local herbal plants and their medicinal values.

All aforementioned initiatives are considered key to women’s economic and social development in the context of the local community. Deforestation, resulting from small-scale agriculture and logging, can pose problems in light of the LCDS and the

opportunity for Amerindians to opt in to payments for ecosystem services initiatives at a lower level/scale. Both women and men of the community Mainstay/Whyaka are exploring new agriculture. Other economic options for women in the community are provided by ecotourism.

4.4.6 Other benefits of a green economy at the local level

The female respondents identified some of the benefits of a green economy in the context of their community as:

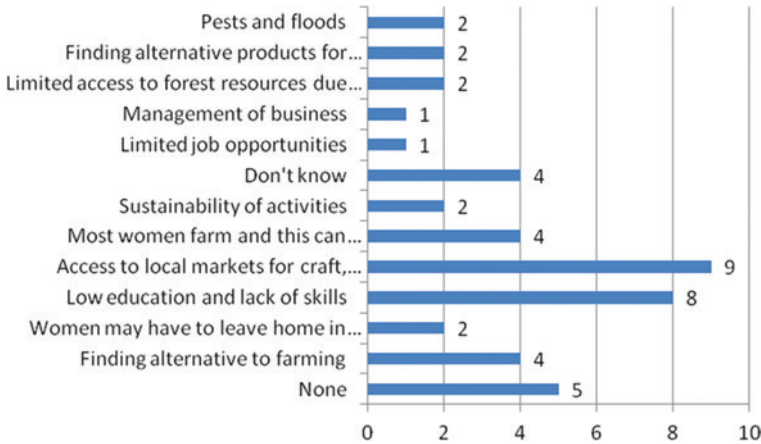
- enhanced environmental awareness;
- reduced logging and protection of forests;
- a healthy environment for present and future generations;
- that standing forests can bring payments which can be used to develop the national and local economy;
- sustainable livelihood options (e.g. the pineapple processing facility and ecotourism);
- a less polluted environment and clean air;
- alternative sources of energy (e.g. use of solar panels);³⁵ and
- protection of water resources.

A few respondents (less than 10 per cent of respondents, both male and female) expressed the view that there are no benefits of a green economy, since the LCDS jeopardises traditional community livelihood systems and men are forced to migrate in search of employment due to restrictions placed on logging (traditionally practiced by men as an income-generating activity). Seventy-seven per cent of Amerindians are classed as poor, and they remain the poorest group of citizens in Guyana.³⁶

4.4.7 Challenges identified by women

The women of the Mainstay/Whyaka community identified several challenges that they currently face in the transformation of their local economy to a green economy. Figure 4.3. provides details. The survey data presented suggests that the main challenges to women are limited markets for crafts, sewing etc., followed by low education and skills training (e.g. organic farming is knowledge intensive) and finding sustainable alternatives³⁷ to farming to generate income when men leave a community in search of employment in the mining areas. An interesting response is that most women farm, and this can destroy the forest which is the basis of Guyana's LCDS.

The survey also found that more than 30 per cent of the respondents surveyed could not adequately define a green economy: this suggests lack of awareness and understanding of the concept. Interestingly, 93.5 per cent of the respondents were nevertheless aware of the LCDS.

Figure 4.3 Challenges faced by women

Source: Survey data.

4.5 Conclusion and recommendations

4.5.1 Conclusion

Guyana's transformation to a green economy is informed mainly by its LCDS, given the country's natural endowment of vast, virgin tropical forests. Since a green economy transcends forest protection and reduced carbon emissions, Guyana continues to seek payments for its standing forests to finance several national initiatives related to sustainable energy, alternative livelihoods and ICT, among others.

Undoubtedly, the successful transformation of Guyana to a green economy requires, above all, an enabling environment characterised by an informed public that will support such an initiative, plus policies and legislation that will promote sustainable economic growth in all sectors, research and development, knowledge transfer, public participation, capacity building and sustainable livelihood options. This necessitates a comprehensive and sustained public education programme on the green economy, national consultations to facilitate an exchange of views, and harmonisation of existing policies informed by a national vision of the green economy. The LCDS has provided a sound foundation upon which other initiatives can be built; however, in view of the current focus on the green economy, it would be most useful to the Government of Guyana to develop a National Green Economy Policy and Strategy Paper, which clearly articulates the vision and strategic goals and actions that will link the various sectoral initiatives already taken.

With regard to gender and the green economy in the context of Guyana, the women of Mainstay/Whyaka community have already demonstrated their willingness to embrace new income-generating opportunities that are aligned to the LCDS. The challenge for Guyana is, to a large extent, to reduce the dependence on income-generating activities that jeopardise standing forests (the basis of the LCDS). For the majority of women in the community, there is an expressed concern about the future

of their subsistence agricultural activities that assure food security and provide much-needed incomes for families. The absence of local markets, the low level of formal education and lack of skills, as well as limited job opportunities, have been the most significant setbacks to women's full participation in the process of transformation of their community to a green economy.

Moreover, many women were unfamiliar with the concept of the green economy, since no comprehensive community education programme has yet been launched. This underscores the importance of creating an enabling institutional framework as a prerequisite for transforming the national or local economy to a green economy. Many of the families rely on incomes provided by men who are employed in the mining industry, which represents the biggest threat to the realisation of Guyana's LCDS. Therefore, the impact of the green economy on women must also be analysed from the perspective of the men. To this end, the search for and provision of sustainable livelihood alternatives has been the primary concern of the community, and more specifically the women.

4.5.2 General recommendations

Recommendations for Guyana's total transformation to a green economy may be grouped into nine key categories, as outlined below.

Political will and commitment

- Guyana's policy-makers can further strengthen the political will and commitment to the country's transformation to a green economy, using the LCDS as the point of reference. This strategy has offered a valuable platform for Guyana's ongoing efforts to promote national and international awareness of its systematic approach to transforming to a green economy.

Policy

- There is an urgent need to review a number of policies (energy, poverty reduction etc.) to ensure consistency in the strategic objective of each being aligned to Guyana's vision of a green economy (to be outlined in a National Green Economy Policy and Strategy Paper, as suggested by the author of this paper) and to synchronise the same. Synchronisation may require re-structuring of policies, for example, the energy policy should help facilitate a shift in terms of how Guyana will be less dependent on fossil fuels to meet its energy demands. Parliament needs to first draft a green economy strategy that will articulate the national conceptualisation of, and implementation plan for, a green economy.

Awareness, education and training

- developing new public education programmes to create and enhance citizens' understanding of the various initiatives and policies necessary to promote the green economy;³⁸
- involving children, who are innovative and can be drivers of the green economy and catalysts for behavioural change (e.g. via environmental clubs and youth groups), so that they can be aware of the green economy;

- adopting a 'green economy' programme in schools to ensure a universal basic understanding of what the green economy is, with the starting point being waste management based on the three 'Rs' (reduce, reuse, recycle) and waste prevention, and incorporating indigenous knowledge and practices;
- developing and implementing new training programmes (particularly science, environmental studies, economics and engineering) at the University of Guyana to meet the new skills demand and maximise employment opportunities offered by the green economy;
- introducing professional courses to facilitate re-training and capacity building for officials employed by institutions with responsibility for green policy initiatives;
- employing non-formal education techniques to promote awareness of green economy issues at all levels, to try to change attitudes and behaviours; and
- developing community programmes using traditional methods to educate both men and women.

Finance, fiscal measures and technical support

- providing financial and technical support and offering incentives to the private sector (e.g. by facilitating access to loans with lower interest rates for green investments/initiatives; zero-rated taxes and concessions for importation of equipment for green initiatives; and tax breaks for companies switching to alternative, greener sources of energy);
- making small loans available for persons with an interest in business ventures that promote a green economy; and
- encouraging the private sector to utilise liquidity to invest in the green economy.

Governance

- local government becoming active, e.g. through every neighbourhood Democratic Council or Regional Democratic Council taking responsibility for their community;
- drafting new legislation that promotes a green economy, especially in the energy sector (where progress is seen as a necessary precondition for the transformation to a green economy);
- strengthening the enforcement capacity of institutions (the Guyana Geology and Mines Commission [GGMC], GFC and EPA) with mandate for environmental protection and natural resource management;
- strengthening the existing institutional framework, with emphasis on environmental governance; and
- promoting and facilitating strategic planning at the national level.³⁹

Advocacy

- Advocating for international finance to incentivise green investments; and greater international support (both financial and technical) through bilateral

and multilateral agreements to finance green initiatives (e.g. the Climate Change Adaptation Fund [2013–2020], which is based on the Copenhagen Accord). Once funds (already committed and future commitments) are dispensed to the relevant countries, including Guyana, the country invests in projects that support a ‘no regret’ policy aimed at transforming the economy to a green economy.

Public consultation and participation

- The government needs to consult with all stakeholders and let them know how they will benefit. There is need for more dialogue, advocacy and debates on the green economy.

Alternative livelihoods

- One recommendation is to provide alternative employment opportunities (i.e. those that are less damaging to the environment and its resources, but are economically viable) for forest-dependent peoples, as well as miners. This must be done systematically, to ensure that the intervention is not a ‘quick fix’. The Amerindian Development Fund that was recently launched can facilitate such a process.

Research and data sharing

- developing targets and metrics for a green economy for Guyana that will allow for monitoring and evaluation of the country’s performance over time;
- generating data and information through monitoring of set targets by involving the University of Guyana; and
- establishing a data-sharing platform for transformation of Guyana to a green economy; this will assist agencies and ministries to formulate policies and work programmes that are evidence-based.

4.5.3 Specific recommendations for the Mainstay/Whyaka community to transform to a green economy

Based on this case study, the following measures may support the transformation to a green economy in the Mainstay/Whyaka community:

- create training programmes and workshops, to build skills in craft-making and sewing as alternative livelihood;⁴⁰
- invest in other income-generation projects that will provide income-generating opportunities for women;
- implement a better governance and financial accountability programme for community projects;
- develop a local tourism market in the community, in part to avoid over-dependence on the neighbouring Mainstay Resort, which is privately owned;

- invest in youth⁴¹ to enhance their skills, as the current attrition rate for school attendance is relatively high in the community;
- engage women in a reforestation programme;
- educate women on the green economy and how they can become more involved; and
- empower women so that they can teach the younger generation to live in ways that help protect the environment.

4.5.4 Concluding statement

The Mainstay/Whyaka community aspect of the case study clearly demonstrates that women are key agents of the process of a national transformation to a green economy. In the Guyanese context, in which forest protection is a key element of its LCDS (the current principal green economy policy document), women have been at the forefront of finding sustainable livelihood alternatives to achieve such a goal. Armed with the relevant education and job-related skills, plus the creation of an enabling institutional framework, the contribution of Guyanese women can be significantly enhanced. In the Guyanese context, most of hurdles can be overcome with the implementation of programmes under the LCDS which, as mentioned earlier, seeks inter alia to improve 'services to the broader Guyana citizenry, including improving and expanding job prospects, promoting private sector entrepreneurship, and improving social services with a particular focus on health and education' (Government of Guyana 2010). The Amerindian Development Fund will help achieve this objective in indigenous communities, including Mainstay/Whyaka.

Small states can learn some lessons from the Guyana experience and a gender analysis of the green economy:

- women have played and will continue to play a critical role in natural resource protection, which is a key element of the green economy;
- the search for, and creation of, decent job opportunities for women who interact daily with natural resources must be treated as a priority for transforming a country to a green economy;
- impacts on and challenges to women of a green economy are, to some extent, the indirect effects of the impacts and challenges experienced by men at the household level;
- a space or platform for women and girls to provide perspectives on the green economy and their perceived risks is valuable to understand the opportunities and constraints for transformation;
- education and skills training are cornerstones for women's involvement in the process of transformation; and

- research on sustainable livelihood activities that will augment women's economic status should be a key element of any national policy on the green economy.

Notes

- 1 Guyana has an area of 214,969 square kilometres (83,000 square miles), about the size of Great Britain.
- 2 Agriculture is the most important sector of the Guyanese economy, accounting for around 25 per cent of the national GDP in 2009, according to the Guyana Bureau of Statistics.
- 3 HDI is a composite measure of human development: health, education and income.
- 4 In 2007, the HDI was 0.619.
- 5 Global temperatures have risen by 0.7°C over the last century. The economic costs of climate change impacts have been estimated at between 5 and 20 per cent of global GDP, and could be considerably higher. See Eliasch Review (2008).
- 6 For more details see: www.lcds.gov.gy/images/stories/Documents/Min%20of%20Agri_SNC_Aug%20%2807%29.pdf (accessed 18 February 2014).
- 7 For the major greenhouse gas (GHG) gases, namely CO₂, CH₄ and N₂O, these are also presented as CO₂e. SO₂ emissions are insignificantly small.
- 8 Guyana became a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) on 13 June 1992 and attained ratification on 29 August 1994.
- 9 UNEP (2011) provides a commonly cited definition of a green economy as one that is low carbon, resource efficient and socially inclusive. Such an economy results in improved human well-being and social equity (through public and private investments), while significantly reducing environmental risks and ecological scarcities. Importantly, the development path of a green economy must maintain, enhance and, where necessary, rebuild natural capital as a critical economic asset and as a source of public benefits, especially for the poor whose livelihoods and security depend on nature.
- 10 Information contained in this subsection is taken from the Guyana Rio+20 Report, prepared and submitted by Dr Paulette Bynoe in April 2012 (Government of Guyana 2012b).
- 11 Guyana is also one of the first 14 countries to be formally approved as a participant in the World Bank's Forest Carbon Partnership Facility (FCPF), looking at ways of Reducing Emissions from Deforestation and Forest Degradation (REDD).
- 12 Guyana's former President, His Excellency Bharrat Jagdeo, made a political commitment to deploy the country's forests to tackle global warming in exchange for 'development aid' and 'technical assistance needed to make the change to a green economy'. Thus, Guyana has charted an economically rational deforestation path that involves reducing forest cover by approximately 4.3 per cent (approximately 630,000 ha) per annum over the course of 25 years, and leaving intact as protected areas the 10 per cent of Guyana's forests with the highest conservation value.
- 13 Currently, the Government of Guyana and the Government of Norway have a Memorandum of Understanding (MoU) under which the latter will pay Guyana US\$250 million for its forests over a five-year period. Additional financing is being sought to sustain Guyana's forest in the long term. See: www.lcds.gov.gy/images/stories/Documents/MOU.pdf (accessed 18 February 2014).
- 14 See: www.lcds.gov.gy/images/stories/Documents/Low%20Carbon%20Development%20Strategy%20-%20May%202010.pdf (accessed 18 February 2014).
- 15 This subsection is informed by research conducted for the preparation of the report (by the author of this case study) to the UN on Rio+20 in June 2012 (Government of Guyana 2012b).
- 16 See: www.competitiveness.org.gy/initiative/ncs-action-plan/sectors/tourism (accessed 18 February 2014).
- 17 These committees are the National Biodiversity Advisory Committee (NBAC), the National Climate Committee (NCC) and the National Steering Committee for the UNCCD.
- 18 Activities taken to meet obligations are outlined in national reports submitted to the individual secretariats for the United Nations Framework Convention on Climate Change (UNFCCC); the United Nations Convention on Biological Diversity (UNCBD); and the United Nations Framework Convention to Combat Desertification (UNCCD).

- 19 REDD – or Reducing Emissions from Deforestation and Forest Degradation – is an international initiative being established under the UN FCCC, under which countries will receive payments in return for maintaining intact forest and avoiding the greenhouse gas emissions associated with loss or degradation of forested areas. REDD+ also envisages the inclusion sustainable forest management and conservation and enhancement of forest carbon stocks under a REDD accounting system.
- 20 This will allow for prudent management of forests specifically for carbon conservation, including via introduction of stricter controls on harvesting, deforestation, fires and pest outbreaks.
- 21 Negotiations are underway for the third tranche payment.
- 22 Forest Carbon Partnership Facility (FCPF) (April 2010), Readiness Preparation Proposal (RPP) Guyana, available at: www.forestry.gov.gy/Downloads/Readiness_Preparation_Proposal_April_2010_Revised.pdf (accessed 18 February 2014).
- 23 See www.iwokrama.org (accessed 18 February 2014).
- 24 Fuel imports in 2008 cost approximately 35 per cent of GDP.
- 25 To date, no target has been set for the amount of hydroelectricity in the energy mix.
- 26 The Amaila Hydropower Project is a planned hydroelectric project (with approximately 165 MW of capacity) to be located in western Guyana. The project includes a new 270-km transmission line and new substations near Georgetown (Guyana's capital). The project is expected to generate reliable, affordable and clean energy for the people of Guyana for decades to come, will reduce greenhouse gas emissions from existing generation, and will improve electric power reliability which is essential for Guyana's continued future development. See: www.sdn.org.gy/gea/downloads.php for details (accessed August 2012).
- 27 The importation of leaded gasoline has been banned in Guyana since January 1999.
- 28 See: www.iast.gov.gy/departments.html (accessed 18 February 2014).
- 29 Information taken from Guyana's SNC document, as no response to the interview schedule was received from the Ministry of Agriculture.
- 30 The bagasse produced after the extraction of sucrose from the sugar cane will be used as fuel in the boilers to generate superheated steam to initiate the co-generation process.
- 31 Stakeholders complained about the limited programmes offered by the University of Guyana in response to new opportunities for curriculum reform in view of the tenets of the green economy.
- 32 Source: Bynoe, Vuki and Vunisea (2011).
- 33 The Guyana Organic Pineapple Project looks to increase the production by farmers in the lake communities, so as to achieve full capacity utilisation of the processing facility and maintain the export market. The project seeks to reduce the fallow period for harvested fields, assist with composting and irrigation, form a farmer's co-operative, ensure farmers maintain the annual organic certification of their pineapples, and help the farmers' group expand to new business opportunities. The Guyana Organic Pineapple Project was funded by USAID and implemented by Partners of the Americas as part of the Farmer to Farmer Program. See www.partners.net/partners/FTF_News_9-08_Article_1.asp?SnID=2 (accessed 18 February 2014).
- 34 The women would rear 250 chickens per batch.
- 35 The community received 45 solar panels for single-parent families. The aim is to help households become less dependent on fossil fuels.
- 36 See: www.undp.org.gy/web/index.php?option=com_content&view=article&id=54&Itemid=97 (accessed 18 February 2014).
- 37 The women observed that due to the lack of markets/demand, many of their local initiatives are not economically viable.
- 38 Since the consultations on the LCDS ended, little has been done in this regard and many people are unaware of what really is meant by the green economy and the responsibilities that are required.
- 39 This has been started through the Ministry of Natural Resources and the Environment and the UNDP.
- 40 The LCDS notes the need for significant investments in human capital and social services to equip the population to participate in the new economy, as well as establishing a balance between using forest payments to enhance the opportunities for those who live in the forest and recognising the rights of other Guyanese citizens.
- 41 The youth in the community are not interested in farming, since they see gold mining as a lucrative alternative.

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Chapter 5

The Political Economy of Transitioning to a Green Economy in Jamaica

Dr Michael Witter

5.1 Introduction

The United Nations Environment Programme (UNEP)'s comprehensive report on the green economy in 2011 began with the observation that, 'The last two years have seen the idea of a "green economy" float out of its specialist moorings in environmental economics and into the mainstream of policy discourse' (UNEP 2011, 14). The explanation for the emergence of the idea seemed to be both the rejection of the dominant economic paradigm, with its crises and market failures in the opening decade of the new millennium, and the positive possibilities of 'a new economic paradigm – one in which material wealth is not delivered perforce at the expense of growing environmental risks, ecological scarcities and social disparities' (ibid, 14). At Rio+20 in 2012, the concept took centre stage as both a reaffirmation of the commitment to sustainable development and a step forward to build resilience in a world of economic uncertainties and accelerating climate change.

This chapter addresses the 'conceptualisation' and 'implementation' of the green economy in Jamaica, and considers the following factors: technology transfer; private sector engagement; fiscal measures, including subsidies and taxation; research and development; policy reforms; political will and leadership; financing; institutional strengthening and public administration reform; strategic alliances; and governance and legal frameworks. In addition, commentary is provided on efforts to join-up planning decisions across environment, finance, planning, trade and other ministries and departments, and on institutional and human resources and efforts which have been made to strengthen capacities and to identify emerging needs.

5.2 The greening of the economy

5.2.1 Profile of the Jamaican economy

Jamaica is an island and small state¹ of approximately 11,000 square kilometres in the Western Caribbean, with a current population of 2.8 million people, and well over 1 million people in the diaspora (i.e. the UK, the USA and Canada) who would identify themselves as Jamaicans.

The Jamaican economy has historically been oriented towards exports based on natural resources. Between 1700 and World War II, the economy was almost exclusively based on exports of agricultural semi-processed and primary products, mainly sugar and bananas. In the 1950s, the national product grew rapidly at

an average of 8.6 per cent per annum, and became more differentiated with the development of bauxite mining, manufacturing, construction, wholesale and retail trades, tourism and a public sector. The mining of bauxite and its processing into alumina became the leading export industry by the end of the decade. At the end of the 1950s, tourism expanded rapidly as a result of redirecting the flow of American tourists from revolutionary Cuba. Both of these new sectors were again based on natural resources. The bauxite mineral deposits were dug out of the soil in the hills of central Jamaica, and the hotels on the north coast of the island offered holiday-makers sun, sand and sea. Both were high-energy consumers, with the mining sector accounting for almost half of the national consumption of imported petroleum in some years.

While manufacturing was originally intended for export, it ended up supplying the domestic market and, in the 1960s and 1970s, the regional market that was created from the free trade agreement, CARIFTA. Government incentives stimulated investment in capital-intensive, import-dependent production of consumer goods. In the era of cheap energy, little attention was paid to the energy intensity of the production processes, especially because of the rapid growth of the domestic market for both basic consumption goods and luxury items for high-income households.

The construction sector too was based on the cement manufactured from limestone and other materials excavated from quarries and rivers. In this sense, it was based on natural resources that were transformed into cement using energy-intensive processes. Again, the viability of this industry assumed cheap energy supplies. Demand for middle-class housing, hotels and physical infrastructure drove the rapid expansion of the construction sector in the 1950s and 1960s. The supply of housing and hotels was also dependent on imported building materials and construction equipment. The buildings were increasingly designed to meet the preference for electricity-driven appliances.

In recent years, the per capita energy consumption in Jamaica seems to have peaked and has begun to decline, as seen in Table 5.1.

By the end of the 1960s, the growth rate of the economy had slowed, and since then averaged less than 1 per cent per year up to 2010. Gross Domestic Product (GDP) per capita has remained fairly constant in these years, with a population growth rate also just below 1 per cent per annum. In 2011, the United Nations Development Programme (UNDP) estimated Jamaica's Gross National Income (GNI) per capita

Table 5.1 Energy consumption per capita

| Year | Energy consumption per capita (BOE ^a) |
|------|---------------------------------------------------|
| 2004 | 9.2 |
| 2005 | 10.56 |
| 2006 | 11.2 |
| 2007 | 10.3 |
| 2008 | 9.8 |

Note: ^a Barrels of oil equivalent

Source: Energy Economics and Planning Unit, Ministry of Energy and Mining 2009.

tobe \$6,487 in USD Purchasing Power Parity (PPP) (2005). Also in 2011, Jamaica's Human Development Index (HDI) was 0.727, marginally below the average for Latin America and the Caribbean of 0.731, and placing it 79th among 187 countries.

Today the economy is primarily a service economy, with 75 per cent of the GDP contributed by service industries and with the main foreign exchange earner being tourism. Both sugar and bananas have lost preferential access to their traditional European Union (EU) markets in the age of liberalisation of the global economy. In addition, with the frequency of hurricane damage increasing in recent years, it was decided to abandon the exports of bananas completely. The bauxite/alumina industry all but shut down in 2008, when international demand plummeted in the global crisis that was precipitated by the financial crisis of that year. The current owners of the mines and processing facilities have demanded access to cheaper energy as the price for restarting the industry. This is one of the major drivers for the urgent transformation of the energy supply that has become a high priority for the Jamaican government.

The importance of the natural resource base to the economy historically

The natural resource-based export sector has caused great damage to the environment. Forests were cleared, and the habitats they supported were destroyed, to establish the sugar industry in the seventeenth to the nineteenth centuries. After emancipation, ex-slaves captured lands in the hills and mountains to get away from the plantations and to establish their own means of survival. Cultivating steep hillsides has accelerated natural soil erosion, all the more when the forest cover is removed to create space for planting. In the twentieth century, banana plantations were established on the plains together with sugar and coffee in commercial plantations in the Blue Mountains. Some of the chemical applications to control weeds and pests on the plantations have run off from rain into the rivers and transferred to the inshore, especially the main harbour in Kingston. In other cases, chemicals have soaked through the soil into underground aquifers. This is particularly true of the acidic waste from the processing of bauxite ore, which is deposited in lakes of red mud. Some of this waste seeps through the porous limestone of the island into the aquifers. The discharge of airborne pollutants into the atmosphere eventually returns as acid rain to damage housing, and can cause respiratory problems for people in the areas where bauxite processing takes place.

What waste from agriculture and mining have done for the terrestrial forests, tourism has done for the marine forests and the reefs, which created and protected the beaches that attracted the visitors in the first instance. There is also an annual loss of millions of tons of topsoil from erosion that ends up causing siltation of the inshore, with severe consequences for the reefs and aquatic life that they support.

It is estimated that about a third of the pollution in Kingston Harbour originates in septic pits for houses built on the Liguanea plains and improper waste disposal in the gullies (National Environment and Planning Agency [NEPA] 1998). A massive landfill at Riverton in Kingston is the official destination for solid waste. Periodic fires generate pollutants in the air, which cause respiratory illnesses in the environs.

It has long been recognised that there has to be high priority on solid-waste management. The first plan for solid-waste management was drafted in 1975, and since then its recommendations have been revised (Ministry of Local Government, Youth and Community Development 2000) and implemented, but slowly. Current thinking is to maximise the energy potential of the solid waste collected, especially in the Kingston Metropolitan Area (KMA).

Not only has the economy been built around environmentally unfriendly activities, but historical social and economic inequalities have persisted throughout the centuries to the present day. As a result, poverty is endemic, generously underestimated at 20 per cent of the population in 2011, with the majority of poor households located in rural communities. It is well known that poor communities generate negative pressure on the environment from 'slash-and-burn' agricultural activities, improper waste disposal for want of facilities, and settlement on fragile lands that are vulnerable to natural hazards.

As in other countries, traditional approaches to economic development tend to see trade-offs between promoting economic activities to generate employment and income, and protecting the environment. In the case of Jamaica, there are the additional challenges of servicing the mounting national debt, which in 2013 stood at over 140 per cent of GDP, and ensuring macroeconomic stability so as to provide a basis for economic growth. As a consequence, governments have made servicing the debt and combatting poverty and related deprivations higher priorities than protecting the environment. Indeed, the description of the economy above sought to highlight the endemic pattern of unfriendliness to the environment and the persistence of poverty.

The case for the green economy should address what UNEP calls the myth that there is an 'inescapable trade-off between environmental sustainability and economic progress' (UNEP 2011, 16) and engage with both the protection of the environment and the pressing problems of servicing the debt and abolishing poverty simultaneously. The challenge is to identify and tap 'the opportunities for investment, growth and jobs' (ibid, 16).

5.2.2 Introduction of the concept of greening in development advocacy and public policy in Jamaica

Several years before the concept of the green economy appeared in official policy documents of the Government of Jamaica (GoJ), the concept of greening aspects of the economy was used by environmental projects and by civil society advocates for sustainable development. The context was the implementation of Agenda 21 from the Earth Summit in Rio de Janeiro, Brazil, in 1992. The GoJ's commitment to sustainable development led to the formulation of policies, the enactment of laws and the promulgation of regulations on waste management, energy, environmental management, tourism and other aspects of the economy that would later be regarded as essential to the definition of the green economy for Jamaica.

Perhaps the most significant of the pioneering environmental projects was the Environmental Action Programme (ENACT) project, 'a joint project of the

Governments of Canada and Jamaica that was funded by the Canadian International Development Agency (CIDA) in 1994 to build capacity of the GoJ, private sector and civil society to identify and address environmental problems in a sustainable manner' (NEPA 2005). In 2005, the project was extended for two years, and one of the principal focal areas was the 'greening of Government and the Private Sector' (ibid). The idea was to use government procurement to nudge the private sector to move towards environmentally-friendly goods and services. Greening was defined as measures that conserve water and energy, reduce solid waste, improve vehicle management and encourage the purchase of environmentally-sensitive products and services (GoJ 2001).

The Coastal Water Improvement Project (CWIP) (1998–2003) was funded by the United States Agency for International Development (USAID) to build capacity in the public and private sectors for the management of coastal resources. Its focus was on community-based environmental management systems for coastal resources. One of the components of this project was the promotion of environmental management systems (EMS), especially market-based ones, in both government and the private sector. CWIP developed a national environmental management systems policy and strategy and submitted a draft to the cabinet in 2001, targeting the greening of GoJ operations and improving environmental performance of the private sector while enhancing economic competitiveness. 'Greening' was defined as 'adoption of measures to conserve the natural environment' (Planning Institute of Jamaica [PIOJ] 2001, chapter 18, 18.1; USAID 2005). In addition, CWIP sought to encourage consumers to purchase energy-efficient products (NEPA 1999, 23). Indeed, it provided a comprehensive list of products that qualified as energy efficient. A demand-management project set up by the local electricity monopoly, the Jamaica Public Service Co. (JPS) was another example of these efforts.

Another important project was the Environmental Audits for Sustainable Development (EAST) project (1997). It proposed:

- the greening of the curriculum of the Runaway Bay HEART Hotel and Training Institute;²
- encouraging environmental monitoring systems for energy and water use, wastewater, solid-waste generation and use of chemicals; and
- encouraging hotels to seek certification under the Green Globe Programme.³

The Jamaica National Environmental Action Plan (JANEAP) 1999–2002 (NEPA 1999) reported that six hotels had received Green Globe certification for their sound environmental management practices (ibid, 20). By 2001, the annual Economic and Social Survey of Jamaica (ESSJ) reported that ten hotels had earned the certification.

Also noteworthy was the initiation in 2002 of the pilot phase of the Blue Flag Voluntary Certification Programme, which sought to encourage 'sustainable coastal zone management among tourist attractions' (PIOJ 2002, 18.2).

In 2000, ENACT prepared a Local Sustainable Development Planning Framework to integrate local sustainable development planning into national plans. The following

year, ENACT's *Handbook on Environmental Management Systems* (2001) for the training of public sector workers began with a discussion on the greening of business that noted that:

- manufacturing processes have become greener, more efficient, less energy-intensive, using and producing fewer environmentally-unfriendly chemicals and materials;
- products are being more scrutinised, e.g. no CFCs etc.; and
- waste is growing as an issue, with controls on what can be disposed of becoming tighter, and the actual cost of disposal growing dramatically as landfills become fewer.

The handbook promoted 'green consumerism' as the movement for buyers to 'seek out environmentally sound products', and provided a long list of different types of products that qualify. It explained 'green procurement' with examples of commonly procured chemicals that have potential health and/or environmental risks. It explained that the greening of government projects essentially sought to enhance the government's environmental stewardship, and to incorporate environmental considerations in public policy-making and strategic planning in the private sector (ENACT 2001a). One of the products of this project was the Strategic Environmental Assessment (SEA) that was prepared for the cabinet to guide the 'integration of environmental issues into the formulation of policies, plans and programmes' (ENACT and Cabinet Office 2001, 6).

The Master Plan for Sustainable Tourism Development (MPSTD) 2005 recognised the importance of the environment to tourism and, in turn, the impact of tourism activities on the environment. It highlighted the importance of energy and water conservation and waste management, all of which later became points of emphasis for the green economy (Commonwealth Secretariat 2005).

In 2008, the Ministry of Tourism hosted a seminar under the theme, 'Climate Change and the Bottom-line....a strategic Business Outlook for Jamaica's Tourism Sector'. Presentations focused on the challenges of a carbon-neutral industry, and pointed in the direction of the greening of the industry (Orrain 2008).

This brief review of the most important environmental projects of the immediate post-Rio (1992) years and the strategic thinking on the tourist industry has summarised the introduction of the concept of greening with regard to government procurement, consumer demand, energy, waste management, water and tourism.

Conceptualisation of the green economy in Jamaica

The concept of the green economy first appeared in public policy in 'Vision 2030', Jamaica's current long-term development plan, published in 2009. The concept is referred to in several places as a major objective of the plan, but with little elaboration of what a green economy will mean for Jamaica.

A survey of policy leaders in finance, development and environment-related portfolios of the Cabinet of the GoJ, and of leading business persons concluded that

they were not very familiar with the concept, and accordingly there was no consensus on what a green economy in Jamaica would look like.⁴ Two consultations on the green economy, which were convened to prepare for the June 2012 United Nations Conference on Sustainable Development (Rio+20), supported the survey results on the level of knowledge of leaders in the public and private sectors and the absence of a national consensus on the green economy. When agriculture stakeholders were consulted, there was a general sense that the green economy concept was related to sustainable development in its attention to holistic development, environmentally-friendly economic processes of production and consumption, and socioeconomic equity (Rhiney 2012). At the same time, there was a widely shared scepticism that the term was just a new name for sustainable development, which was the current (2012) buzzword in the international community. Participants in this consultation agreed that there was no official government position on what the green economy was, though there were elements within the leadership that seemed to have a position on the green economy.

In a second consultation drawn from a wider cross-section of stakeholders, it was agreed that Jamaica needed to develop its own definition of the green economy⁵ that was relevant to national circumstances, and which should take account of the definitions being used internationally that have been inspired by the United Nations Environment Programme's (UNEP) definition, and regionally by the dialogue initiated and conducted on the green economy by the Caribbean Natural Resources Institute (CANARI 2011).

Both consultations and the complementary elite interviews agreed that there is as yet no clear, generally accepted definition of what a green economy means for Jamaica. Some of the versions that have been offered in the consultations to prepare for Rio+20 were:

- 'an economy that is environmentally-friendly, sensitive to the need to conserve natural resources, minimises pollution and emissions that damage the environment in the production process, and produces products and services, the existence and consumption of which do not harm the environment' (Rhiney 2012, citing Martin Khor);
- the UNEP definition: 'an economy that results in improved human well-being and social equity, while reducing environmental risks and ecological scarcities';
- the CANARI definition (CANARI 2012) that sees the green economy as an approach to development and as an economy that 'is pro-poor and generates decent jobs and working conditions that offer opportunities for self-advancement for local people'.

5.3 Strategies for a green economy

Vision 2030 posited national outcome 12 to be 'Internationally Competitive Industry Structures', and proposed the green economy as one of several strategies to achieve it (PIOJ 2009a, xvii). The plan saw eco-efficiency as the integration of environmental

and economic approaches, in order to enhance international competitiveness, and move the economy closer to a green economy. 'By basing new jobs and industries on sustainable use of natural resources and unique environmental assets (for example, by developing renewable energy sources, promoting organic agriculture or exploring the genetic potential of our endemic species), Vision 2030 Jamaica will help to build a green economy' (ibid, 199). In addition, 'the rules for government, business, investors, and consumers will have to be rewritten to ensure that environmental considerations become integral factors in economic decision-making' (ibid, 235).

There are several places in the main body of the plan and in the energy sector plan (PIOJ 2009a, 12, 25, 56) where the commitment to investing in the creation of a green economy is repeated. Outcome 7.1 of the energy sector plan is the same as the 'national outcome' of the national development plan, namely 'Internationally competitive industries and firms that apply eco-efficiency and contribute to the creation of a green economy'.

The tourism sector plan also makes several references (PIOJ 2009c, 24, 25, 31, 36, 42) to the activities and attractions of the industry going green and the advantages of green certification for hotels (e.g. Green Globe certification), but does not go as far as to advocate a green economy.

The main document and the sector plans of Vision 2030 do not go beyond commitments to transition to a green economy. For the statement on 'new rules' for government, business, investors and consumers cited above, there was no clear definition of what the green economy will mean for Jamaica.

At Rio+20, Jamaican Prime Minister Portia Simpson-Miller added her 'support for the initiatives toward a green economy' while raising the question as to 'whether the green economy will bring the poor into the centre of economic growth and development and improve the lives of our citizens.'⁶ She cautioned against the potential for the green economy to introduce environmental 'benchmarks and standards that can impose new conditionalities and barriers to trade.'⁷ Her primary concern was the possible negative impact on employment and rural communities for small, vulnerable, lower and middle-income countries like Jamaica. These concerns appear in many international discussions (UNCTAD 2010, 34; CANARI and UWI 2011, 3, citing Ling and Iyer 2010) on the green economy.

In the interviews and consultations to prepare the GoJ for Rio+20 and for this study, a common theme was the concern that the green economy does not present a trade-off between the campaign against poverty and protection of the environment. It is well known that many poor communities that have been established on steep hillsides, on the banks of rivers and gullies, on the coasts and other kinds of marginal lands impact negatively on the environment through their economic activities and their waste disposal. At another level, Jamaica's export industries have traditionally been the main drivers of the economy, and at the same time are some of the most environmentally unfriendly. Disrupting these communities and industries for environmental reasons will have direct negative economic repercussions in the form of lost employment and incomes, together with the multiplier effect on other industries.

Of the three dimensions of sustainable development, more attention has been paid to building the economic base and addressing social inequities than protecting the environment since Jamaica's Independence in 1962. A common theme in the consultations was that the green economy in Jamaica should extend the efforts to achieve sustainable development. One respondent articulated it as follows: '[The] specific form that it must take for Jamaica must use the three pillars of sustainable development to redress the historic social inequities, build the economic base to generate the employment and incomes to support the standard of living described in Vision 2030, and enhance the resilience of the economy and the society to shocks from the global economy and natural hazards'⁸

The Comprehensive Sustainability Assessment Policy tool (CSAP) for incorporating sustainable development into the policy-making process, which has been adopted by the cabinet of the GoJ, requires that poverty and other possible social impacts be explicitly considered at the very outset.

The CSAP outlines a set of questions that covers all aspects of sustainable development (economic, social and sociocultural, environmental, and governance) against which policies, programmes and projects are measured. The process is set out in a tabular form which allows for the various areas/factors under consideration to be worked out methodically and a score for each section generated in order to use empirical evidence to weigh the benefit of the proposed policy.⁹

All policy proposals must go through the CSAP process on the way to review by the cabinet.

Another view that emerged from the consultations was that economic policy had to focus not only on inclusive economic growth, but to build resilience in the economy that will enable it to cope with external shocks from the international economy and natural hazards. With attempts to mainstream climate change in public policy now underway, there is more urgency to enhance attention to the environmental dimension of sustainable development. In this view, the green economy as a strategy will advance efforts to pursue sustainable development.

The challenge is now to redouble the efforts at building the economic base, consolidating and extending the gains in addressing social inequity, and enhancing the efforts to protect the environment. The National Development Plan committed the GoJ to sector-specific strategies to underpin the overall goal of achieving a green economy.

5.3.1 Energy sector

The vision for the energy sector is to create: 'A modern, efficient, diversified and environmentally sustainable energy sector providing affordable and accessible energy supplies with long-term energy security and supported by informed public behaviour on energy issues and an appropriate policy, regulatory and institutional framework' (PIOJ 2009a, 12). The immediate emphasis is on diversifying sources of energy supply with an emphasis on renewable sources. This is quite urgent, because petroleum accounts for about a third of the import bill and the high cost of petroleum

is discouraging re-investment in the country's primary export industry, the bauxite/alumina industry.

Further, the resulting high cost of electricity generated from imported petroleum is discouraging investment in other sectors of the economy, and makes existing production uncompetitive. Lower energy costs will facilitate the expansion of small businesses and microenterprises in particular, and reduce the utility costs of households. Increased employment and reduced household costs will benefit poor households, and are therefore consistent with the government's anti-poverty strategy. Protection of the environment from greenhouse gas emissions is aligned to the economic imperative of international competitiveness, and to a lesser extent the alleviation of poverty.

Environmental considerations that have been reinforced by the recognition of the need for mitigation of, and adaptation to, climate change support the drive for the diversification of energy sources, but they are second in importance to the search for cheaper energy. Early indications are that the emergent strategic perspective of the GoJ is to use a mix of sources and that coal is likely to be cheaper than liquefied natural gas (LNG) in the face of rising global demand for LNG. The precise mix is still to be determined from long-run cost estimates and environmental considerations.

Some indicators for the 'greening' of the sector are:

- the energy intensity of the economy as measured by barrels of energy per US\$ million of GDP at the national and sectoral levels;
- household energy consumption and/or energy consumption per capita;
- percentage of the national energy supply that comes from renewables and waste; and
- the efficiency of energy conversion into electricity.

5.3.2 Transport sector

Vision 2030 commits to sustainable transport explicitly which:

involves moving people, goods and information in ways that reduce the impact on the environment, the economy, and society, and may include: using more energy-efficient transport modes; improving transport choices; using cleaner fuels and technologies; using information and communications technologies and enlightened urban and regional planning to reduce or replace physical travel; and developing sustainable transport policies (PIOJ 2009b: 12)

Land transport accounts for 20 per cent of petroleum consumption, and is therefore a critical element for energy plans and policies as well. Efficient, safe and reliable public transport is an imperative for the green economy, since it is more energy efficient than mass transit via private motor car. The challenge for the authorities is to establish special lanes for buses, to encourage car-pooling, to designate urban areas for bicycles and pedestrian traffic, and to restore the railway for urban-rural movement of people and goods.

With regard to marine transport, sustainability requires addressing the ‘environmental impacts of marine transport, including ship-borne waste, dumping, oil and exhaust pollution, potential introduction of aquatic invasive species through ship ballast water, and impact on coastal ecosystems from port facilities and shipping activities’ (ibid, 19).

Some indicators for the ‘greening’ of the transport sector are:

- the gasoline consumption per passenger mile in public transport;
- the average rated kilometre per gallon of private passenger vehicles;
- the share of biofuels in total fuel consumption by the land transport sector; and
- indicators of the management of waste discharged by marine vessels, such as frequency, type of waste, location, cost of clean-up, and fines levied and collected.

5.3.3 Tourism sector

Tourism is by far the largest earner of foreign exchange at approximately US\$2 billion per annum from about two million stop-over visitors and one million cruise ship passengers. There are around 30,000 hotel and villa rooms and many attractions, generally located on the coast.

The vision statement for tourism in the sector plan is: ‘An inclusive, world-class, distinctly Jamaican Tourism Sector that is a major contributor to socioeconomic and cultural development, with a well-educated, highly skilled and motivated workforce at all levels within a safe, secure and sustainably managed environment’ (PIOJ 2009c: 48). Tourism was the first sector that adopted greening as a strategy, ultimately for marketing. As noted above, the sector has adopted strategies to obtain Green Globe certification and other environmentally relevant recognition.

Some indicators for the ‘greening’ of the industry are:

- the number of rooms, and the percentage of total accommodation capacity, in Green Globe certified hotels;
- electricity consumption per room;
- water consumption per room;
- waste management through recycling and disposal schemes; and
- indicators of green procurement, such as percentage of total value of procurement in compliance with guidelines, by ministry and agency, and by type of goods.

5.4 Transformation to a green economy

5.4.1 Constraints to the transformation process

Some of the principal constraints on the process of transformation to a green economy are listed below:

- *Historical dependency on the exploitation of natural resources in environmentally unfriendly ways.* It is difficult to foresee how the struggling mining and

agricultural export industries can be re-engineered in even the medium term to reverse their environmentally unfriendly practices. Even the tourism industry will have challenges that will require significant investments to reduce energy consumption and desist from activities that bring pressure on coastal resources, waste disposal being perhaps the most significant. For all sectors, public policy will have to consider shifting the incentive structure that remains after the current round of tax reforms to encourage investment in green technologies.

- *Petroleum dependency.* With 90 per cent of energy supplies based on petroleum, and all of it imported, the diversification of energy sources with an emphasis on renewables is imperative but difficult. The government is expected to decide on switching to a mix of alternative sources that include LNG, coal and renewables.
- *Socioeconomic inequalities.* The rich are potentially powerful enough to resist changes to their energy-intensive consumption patterns, though as 'green' becomes more fashionable this potential is less likely to be actualised. The poor, on the other hand, are so preoccupied with survival issues that long-term considerations for the environment are difficult for them to address. This is another reason why poverty eradication, or at least alleviation, must be essential to a green economy strategy for Jamaica. The middle class is small, and also clinging to its standard of living. Costly adjustments to its standard of living will be instinctively resisted, unless there is a successful education programme on the long-term benefits of a green economy.
- *Government preoccupation with short-run survival issues, particularly repayment of the national debt.* The transformation process is necessarily long term. With governments elected for five years, there is an inherent tendency to postpone addressing long-term development issues that is all the more difficult in the context of a highly partisan political tradition that resists consensus over development strategies.
- *Slow mainstreaming of environmental and climate change policy.* Progress in mainstreaming the environmental dimension of sustainable development strategies has been slow. Such policies address cross-cutting issues, and in the Westminster system of sectoral portfolio ministerial responsibilities, such issues tend to fall between ministerial responsibilities.

5.4.2 Drivers for the transformation process

Some of the external and internal drivers of the transformation process are identified and discussed briefly below. The external drivers continue to be dominant, but the internal drivers in the form of advocacy have been growing in importance.

- *International pressures/stimuli.* Policy action by the Jamaican government on many environmental policies and on sustainable development as a whole has been stimulated by international agreements to which Jamaica acceded. Whereas

environmental conditions have been included in some bilateral agreements, such as the Economic Partnership Agreement and an agreement with the Canadian government (CIDA), there is as yet no stipulation of commitment to the green economy in any international loan and/or aid agreement.¹⁰ The current international consensus that is building around the green economy will be an important driver for corresponding policy in Jamaica.

- *Cultural preferences for natural foods in sections of the population.* The culture of Rastafari¹¹ has had a profound influence on dietary preferences for organically grown fresh foods in both rural and urban Jamaica since the 1970s. Some of these preferences coincide with the practices of the Seventh Day Adventists, which is one of Jamaica's fastest growing Christian denominations.
- *Advocacy by environmental NGOs (ENGOs).* Jamaica has a small but active group of ENGOs that are advocates for the green economy. Some of their voices have acquired national recognition and respect, and can no longer be ignored by policy-makers.
- *Advocacy for sustainable development.* Since the Earth Summit in 1992, there have been several civil society organisations¹² that have kept the pressure on the Government of Jamaica to honour its commitments to sustainable development in general, and to the various multilateral environmental agreements. In addition, there are government bodies charged with furthering various aspects of sustainable development, such as the Sustainable Development Unit of the Planning Institute of Jamaica, the National Environment and Planning Agency, and in recent years the assignment of the environment as an explicit ministerial portfolio. The most recent extension has been to add 'climate change' to the portfolio of the ministry¹³ with responsibility for the environment.
- *Anti-poverty programmes.* In the early 1990s, the government implemented a National Poverty Eradication Programme that sought to bring coherence to a disparate set of projects to fight against poverty. One legacy of that programme was the establishment of the Programme of Advancement through Health and Education (PATH), a conditional cash transfer programme that now constitutes the core of the social safety net.
- *Advocacy for adaptation to climate change.* Advocacy has been initiated by scientists and their students in the Climate Studies Group of the Department of Physics at the University of the West Indies (UWI), individual scholars in the Faculty of Social Sciences, the Centre for Sustainable Development at UWI, as well as by various ENGOs. Some of the research and the outreach based on this work have been funded by the Caribbean Community Climate Change Centre (CCCCC) and the Environmental Foundation of Jamaica (EFJ).
- *Official commitments to transform the economy into a green economy.* The repeated commitments in Vision 2030 are highlighted above. There is a national consensus that includes the two main political parties, but goes beyond them, around this long-term plan.

5.4.3 Policies and actions to implement the commitment to transform the economy

Responsibility to implement the policies to transform the Jamaican economy into a green economy has been assigned to the following organs of government and private sector bodies:

- Ministry of Industry and Commerce;
- National Environment and Planning Agency (NEPA);
- Jamaica Bureau of Standards;
- Jamaica Institute of Environmental Professionals; and
- private sector companies.

Below is listed an annotated sample of policies that will facilitate, or are consistent with, the transformation to a green economy:

- Green procurement policy: this is a set of guidelines for purchasing environmentally-sensitive products 'and services, [that] make good economic and environmental sense' (GoJ 2001). The guidelines recognise the importance of government procurement to sustainable development and provide examples of products and services that meet the standards of the policy, and the criteria that procurement officers must use in their decision-making.
- Training of government staff in Strategic Environmental Assessment (SEA) and Natural Resource Valuation, which are integral to Environmental Impact Assessments.
- Energy policy targeting 20 per cent of national energy supply to come from renewable resources by 2030. Renewables now account for about 10 per cent of the energy supply. These are primarily wind, solar, hydro, biofuels and co-generation.
- Development of air quality control regulations.
- Revision and update of the building code in 2009 to include green buildings and climate change considerations.
- Establishment of a planting programme on private lands in forestry.
- National water policy that includes the application of the 'polluter pays' principle to the management of water resources.
- Projects to boost sustainable agriculture, protect and conserve biodiversity and to engage more renewable energy sources.
- Public consultations have become integral to the policy-making process.
- Design and implementation of a tool, the Comprehensive Sustainability Assessment Policy tool (CSAP), for incorporating sustainable development into the policy-making process.

- Poverty eradication policies: apart from macroeconomic strategies to promote economic growth, and social safety net programmes based on the PATH programme, Jamaica's governments have funded special employment programmes, the current one being the Jamaica Emergency Employment Programme. In addition, governments have partnered with private sector and civil society organisations to support small and microenterprises with training and concessionary financing.
- Revision of land management policies (the Land Administration and Management Programme).
- Revision of trade policy to incorporate issues such as disaster risk reduction and climate change adaptation.
- Preparation of short-, medium- and long-term national and local development plans using integrated planning methodologies designed for sustainable development. The annual budget is Jamaica's short-term plan. There is also a rolling three-year Medium Term Social and Economic Policy Framework, and an annually revised three-year macroeconomic plan, which frames the annual budget. In theory, all of these should be aligned with one another within the long-term plan, Vision 2030. In addition, there are ongoing initiatives to prepare parish plans under the Local Sustainable Development Plans, which also ought to be aligned to the national plans. There remains much to be done to ensure optimal coherence among the plans. The pressures around the annual budget and its associated medium-term macroeconomic plan have tended to override the requirements of the other plans.

5.4.4 Priorities in a strategy for implementation

It bears repeating that the environmental dimension of sustainable development has been the last of the three dimensions to be prioritised in the public policy agenda. For several decades, Jamaica's governments have focused on stimulating economic growth, and hoped that some of the benefits would accrue to the poor. Yet the economy has only been able to achieve an average growth rate of less than 1 per cent per annum for the past 40 years, and the decline in poverty during the 1990s and early 2000s is generally attributed to the decline in the rate of inflation and the growth of remittances.

Since the mid-1970s, governments have eschewed income redistribution policies to redress historic inequalities. These inequalities were exacerbated by the structural adjustment programmes of the 1980s, the liberalisation of the economy in the 1990s, and the rapid growth of financial services after the liberalisation of financial markets in 1991. On the advice of the international financial institutions, governments have opted to offer targeted assistance to poor households rather than generalised subsidies on basic goods (e.g. staple foods) and services (e.g. water and electricity). Towards this end, the government has tracked the incidence and prevalence of poverty, and conducted poverty mapping to be able to identify the vulnerable households. This information has been used to identify households to receive benefits of the conditional cash transfer programme, PATH.

The GoJ recognises the need for an appropriate balance between command and market instruments for stimulating environmentally-friendly behaviour. It is noted above that already in 2001 there were proposals for environmental management systems that sought to utilise fully market incentives, especially because of the process of rapid liberalisation of the Jamaican economy that began in the 1980s and accelerated in the 1990s. Essentially these are price signals that favour allocation of investments in green technologies (e.g. solar water heating, windpower), and discourage petroleum-intensive consumption (e.g. 'gas-guzzling' vehicles). The government has been developing taxes and subsidies to shift relative prices especially to favour the use of renewable energy sources. There will still be the need for laws and regulations to complement market instruments in areas where competitive markets are not sufficiently developed, such as electricity and water.

Recycling campaigns will build awareness among households, which account for a large share of the waste. Several privately-operated recycling processes, such as deposits for glass bottles, collection of PET¹⁴ bottles and the collection of scrap metal, are well established. As in many countries, there is informal recycling by way of people prospecting for reusable materials in garbage containers and landfills. So far little progress has been made with the separation of recyclates from the rest of household and commercial garbage.

An important modality for implementation is public-private sector partnerships. Two important partnerships have been forged to manage the Montego Bay Marine Park with an NGO of the same name, and the Blue and John Crow Mountains with the Jamaica Conservation Development Trust. The government has explored co-management arrangements for protected areas with other NGOs. The Forestry Department is partnering with several local forest management committees to manage forest reserves.

The Business Council on the Environment was launched in 2001, but is currently dormant. However, the umbrella organisation for the business community, the Private Sector Organization of Jamaica, participates actively in national consultations and other fora on sustainable development and matters of relevance to the transformation to a green economy. The most recent example is the national consultation organised by the Government of Jamaica to prepare for Rio+20, in which attention was focused on the green economy, especially with respect to energy and agriculture.

The priority sectors in the transformation to the green economy are energy and tourism, both of which are being driven by the economic imperatives of reducing the country's spending of foreign exchange on the one hand, and increasing its earnings of foreign exchange on the other. The priority assigned to the energy sector implicitly includes the bauxite and alumina industry, which is the largest consumer of energy, and the transport sector, particularly ground transport, which consumes about 20 per cent¹⁵ of the national energy supply. It also impacts the water sector since the topography of Jamaica requires that water be pumped uphill to many communities. As a result, the National Water Commission, which is the main supplier of water for domestic and commercial use, is one of the largest consumers of electricity.

There is increasing attention to organic agriculture because of the potential niche export market for organically grown food products, and because of the advocacy of a farmer-led NGO, the Jamaica Organic Agriculture Movement.

5.5 Conclusions

The Jamaican economy has been in transition from a natural resource-based production system to one led by sectors of the service industries that now contribute about 75 per cent of GDP. Tourism is the leading foreign exchange earner, and its competitiveness depends on how rapidly, extensively and deeply it can 'green' its activities. The service orientation will facilitate the transformation to a green economy in so far as there will be fewer practices, such as chemical applications, that are unfriendly to the natural environment; the energy intensity of production will decline; and information and communications technologies will be more easily applied to production.

Progress toward the green economy is still in the early stages, built on ad hoc commitments to the greening of some tourism services, government procurement, some agricultural practices, and to the development of renewable energy supplies. There is now an official commitment in the long-term plan, Vision 2030, to move towards a green economy, though it still is not the dominant thrust of the plan. Most important, investment in activities that use green technologies, such as wind and solar energy equipment and non-petroleum fuelled transport, is still marginal.

The GoJ sees reducing the cost of energy as the single most important economic challenge. It is critical to reducing the national import bill and enhancing the international competitiveness of the economy's export industries. This is probably a common problem shared by small developing countries that are dependent on imported petroleum. Indeed, it is arguable that even those that are endowed with petroleum would be wise to diversify their sources of energy, because their endowments of this non-renewable resource are limited and they have to share the responsibility of reducing the discharge of greenhouse gases into the atmosphere.

In an analogous fashion, the production of food, as energy for people, will benefit from the application of green technologies to the production of affordable and nutritious food products, especially with the potentially negative impact of climate change on productivity threatening traditional food supplies. Supplying organically grown food to the tourist industry will be yet another way of greening that industry.

The application of green technologies to existing industries and to the establishment of new green industries will offer opportunities for profitable investment. For Jamaica, the greening of the energy sector and the food production system will build resilience to shocks from the international energy and food markets. The government's programmes to encourage investment to drive economic growth, generate employment opportunities and increase incomes need only a shift in focus to facilitate more investment in green industries using green technologies. The shift in the relative burden of taxation and the relative benefits of subsidies will be crucial

to redirecting investment flows. The risk aversion of the traditional business classes is another obstacle to be overcome.

The strategy for the green economy will entail more respect for the natural protective systems of the island, its economy and society, such as reefs and wetlands, fewer harmful practices, such as toxic and non-biodegradable waste disposal in the atmosphere and the water bodies, and a reorientation of settlement practices for a more harmonious relationship with the natural environment and the changing climate. In this way, the vulnerability of the economy to natural hazards and extreme weather events can be reduced.

The green economy promises to be more resilient to external shocks from the international energy and food markets, and from natural hazards and extreme weather events. As such it suggests itself in particular to SIDS under the Mauritius Strategy for the further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States.

As in other spheres of development, there is an often cited ‘implementation gap’ that refers to the failure of government agencies to implement plans and enforce policies and regulations, for which the government is often criticised, especially by advocates for sustainable development. Laws are passed and regulations are promulgated in various spheres, but enforcement is often lax and too often apparently non-existent. Committed and steadfast leadership in both the public and the private sectors will undoubtedly advance the transformation process. However, there are concrete and tangible objective constraints given by Jamaica’s history that circumscribe what can be achieved in the short run. The Jamaican economy is still dependent on natural resource-based export industries, and on imported energy, and inescapably committed to servicing a debt of around 140 per cent of GDP.

Jamaica as a small state will have to tap into resources for funding and technical assistance from regional co-operation schemes, as well as the extensive diaspora that stretches across three major developed countries, the USA, the UK and Canada. However, the economy will need much more in the way of investment, technologies, technical know-how and market access from the developed countries that have made repeated promises to earmark resource transfers to support the transformation process in developing countries.

Notes

- 1 Actually, the country of Jamaica consists of about 69 islands, but only the main island is settled and inhabited on a regular basis.
- 2 See: USAID, Jamaica: Environmental Audits for Sustainable Development (EAST) Project, http://pdf.usaid.gov/pdf_docs/PDACH399.pdf (accessed 18 February 2014).
- 3 ‘Green Globe is the global travel and tourism industries’ certification program for sustainable tourism. Green Globe Members save energy and water resources, reduce operational costs, positively contribute to local communities and their environment and meet the high expectations of green leisure and business travelers’. See: <http://greenglobe.com> (accessed 18 February 2014).
- 4 The survey was reported in the response to a questionnaire, ‘The Green Economy in the context of Sustainable Development and Poverty Eradication’, which was sent to countries by the UNCSA as part of the preparation for Rio+20.

- 5 This was the conclusion of the Commonwealth Secretariat 2012: 7.
- 6 Statement by the Most Honourable Portia Simpson Miller, Prime Minister of Jamaica to the United Nations Conference on Sustainable Development, 21 June 2012, Rio de Janeiro, Brazil.
- 7 This caution was echoed in paragraph 58 (h) of the Outcome document of Rio+20, *The Future We Want* (United Nations, 2012).
- 8 Spokesperson for the Minister of Science, Technology, Energy and Mining.
- 9 The Comprehensive Sustainability Assessment Tool (CSAP), available at: www.cabinet.gov.jm/current_initiatives/comprehensive_sustainability_assessment_tool_csap (accessed 18 February 2014).
- 10 Conversation with a senior government official in the Sustainable Development Unit of the PIOJ.
- 11 The Rastafari can be thought of as a cultural movement that has been strongly influenced by an Afro-centric interpretation of Judeo-Christian theological and quasi-religious beliefs and practices.
- 12 These include, for example, the Association of Development Agencies, PANOS, Jamaica Conservation Development Trust, Jamaicans United for Sustainable Development, Friedrich Ebert Stiftung and Kingston Restoration Company.
- 13 The ministry is formally called the Ministry of Water, Land, Environment and Climate Change.
- 14 PET is the acronym for polyethylene terephthalate.
- 15 It was estimated that ground transport consumed 21 per cent of the total energy supply in 2006.

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Chapter 6

The Political Economy of Transitioning to a Green Economy in Mauritius

Dr Vasantt K Jogoo

6.1 Introduction

Sustainable development is now firmly established as the dominant development paradigm around the world. The growing general scientific consensus on the effects of heavy industrialisation and economic growth on global warming, in particular, is reinforcing the notion that ‘business as usual’ is no longer sustainable. Climate models predict changes in sea levels and severity of storms, and the patterns of rainfall, among others. Such changes will have greater impact on developing countries, and more particularly on small island developing states (SIDS), because of their inherent vulnerability. There is also the realisation that sustainable development is not just an environmental issue: the dire economic, developmental and societal consequences of issues like climate change and environmental degradation puts the economic planners and financial managers at the centre of the debate. As a consequence, low-carbon growth as an alternative to ‘business as usual’ is fast becoming the preferred model for major economies in both developed and developing countries. Its relevance lies in the fact that one of the objectives of low-carbon growth of the green economy is to manage risks posed by global warming and climate change, and to take advantage of the opportunities that they offer in terms of new technology development and greater efficiency in industrial processes. It has now been clearly demonstrated that sustainable development makes economic sense, as more jobs are created and the externalities that traditional models of development generate are limited. Furthermore, it helps create new and decent jobs in new sectors.

The green economy was also given significant impetus through its identification as one of two key themes for the Rio+20 UN Conference on Sustainable Development in June 2012. Governments around the world acknowledge that building green economies and green growth in the context of sustainable development can provide resilience to external shocks, reduce environmental risks, and protect and enhance the natural resource base of the economy, particularly in the context of small states. However, the current international discourse on green growth and the green economy has paid insufficient attention to the challenges of small states. Yet, several small states have begun conceptualising their pathways to a green economy, with different conceptualisations and approaches emerging. This chapter reviews the practical policy processes implemented in Mauritius to promote a green economy, and examines some of the benefits and challenges thereof.

6.2 Mauritius: human and natural capital

The small state of Mauritius is located in the south-west region of the Indian Ocean at a latitude of about 20° south of the Equator and a longitude of about 60° east of Greenwich (Figure 6.1). It consists of the main island of Mauritius and its dependencies, Rodrigues (560 km east-north-east), Agalega (930 km to the north), St Brandon (400 km to the north) and Tromelin (480 km to the north-west and jointly administered by France). Mauritius covers a total land area of 720 square miles, and is almost entirely of volcanic origin, except for stretches of beaches, coral reefs and small patches of alluvium at the mouths of rivers. Pear-shaped, mountainous with its highest peak standing at 2,711 feet above sea level, Mauritius emerged from the ocean floor some 5 million years ago. Volcanic activity over thousands of years has given rise to varied types of soil. The varied relief has resulted in several distinct climatic regimes, with the prevailing south-east trade winds depositing moisture in the form of rainfall over the central and highest part of the island. A significant feature of Mauritian climatology, however, is the occurrence of tropical cyclones during the summer months.

The isolation and remoteness of the island, the fact that it was never a part of an older land mass, its distinct microclimates and the recent permanent settlement by humans mean that a unique flora and fauna have developed. Almost 300 endemic species have been identified, of which the most famous was the Dodo, a large flightless bird now extinct. Permanent human settlement started in the fifteenth century and, ever since, the environment has come under severe threat as its few precious resources (such as ebony) have been exploited indiscriminately.

The 2011 Population Census put the Mauritian population at 1.3 million, with a low annual growth of 0.4 per cent over the past ten years. Coupled with an increased average life span, the shape of population pyramid now shows a narrowing at the base

Figure 6.1 Mauritius in the Indian Ocean



Source: <http://mauritiusattractions.com/mauritius-location-map-i-66.html> (accessed 18 February 2014).

and widening at the middle and at the top. Thirteen per cent of the population was aged above 60 years in 2011 compared with 9 per cent in 2000, while the child population aged under 15 years declined from 25 per cent to 20 per cent over the same period. The population density of Mauritius is 604 persons per square kilometre, which ranks the country the sixth most densely populated in the world. The population density in towns (3,000 persons per square kilometre), however, is 7.5 times the density in villages (400 persons per square kilometre) (Statistics Mauritius, 2011).

In terms of education, the level has improved in the past decade but remains quite modest in general. Thirty-one per cent of persons aged 16 and over have completed secondary schooling, up from 21 per cent in 2000, and 4.9 per cent have a tertiary qualification compared with 2.3 per cent ten years ago.

6.3 Development trends

Owing to the inherent constraints of economies of small states, and in particular SIDS, and a lack of natural resources,¹ Mauritius has had to adopt an outward-looking strategy and to constantly innovate to stay afloat. Its economy is, thus, very much export-oriented, with sugar and textiles constituting the main exports, particularly to the USA and the EU. The growth strategies put in place by successive governments since independence in 1968 have proved to be fairly successful. In fact, Mauritius has developed from a low-income, agricultural-based economy to a middle-income diversified economy with growing industrial, financial and tourist sectors. For most of that period, annual growth has been in the order of 5–6 per cent. This has resulted in more equitable income distribution, increased life expectancy, lowered infant mortality and a much-improved infrastructure across the nation.

Essentially a mono-crop economy based on sugar since the first French permanent settlements, an export-oriented industrialisation process started in the early 1970s. The establishment of the Export Processing Zone scheme was designed to encourage the setting up of labour-intensive, export-oriented manufacturing enterprises to address the growing problem of unemployment prevailing at that time. Such a strategy was made possible by preferential access to the European markets under the Lomé Convention that Mauritius was benefitting from, and by inflows of foreign investment from Hong Kong, France, the UK and Germany. Along the way, the package of investment incentives for manufacturing and support services sectors were enhanced and extended to promote technology-driven and higher value-added activities.

Once the manufacturing sector was firmly established, attention became focused on developing the tourism sector as a significant economic pillar, with its great potential to increase foreign exchange earnings in the country and generate meaningful employment. A range of investment incentives were provided to boost the development of the tourism sector in terms of fiscal incentives and financial support for hotel development and management services. By the early 1990s, the Mauritian economy was therefore powered by three main economic sectors, namely sugar, textile products and tourism, and dependency on agriculture reduced. To allow the economy to embark on higher levels of development, however, new areas

of growth had to be explored, while continuing to consolidate and modernise the traditional economic sectors. The services sector, in particular financial services, thus became another major area for further economic development, with particular focus on banking and insurance. The Banking Act was amended in 1988 to enable offshore banking to be carried out, followed by the establishment of a stock exchange in 1989, through the enactment of the Stock Exchange Act 1988. The domestic financial sector was liberalised in 1991, with the abolition of exchange control in 1994. Such measures helped reorient macroeconomic policy, while creating a financially sound and efficient domestic financial system. Through comprehensive legislation, various fiscal incentives were put in place to attract international investors to take advantage of the offshore facilities in Mauritius. Trade-related activities were likewise given a boost with the establishment of a Freeport in 1992, designed to position the island as a financial, business and trading hub in the Indian Ocean region.

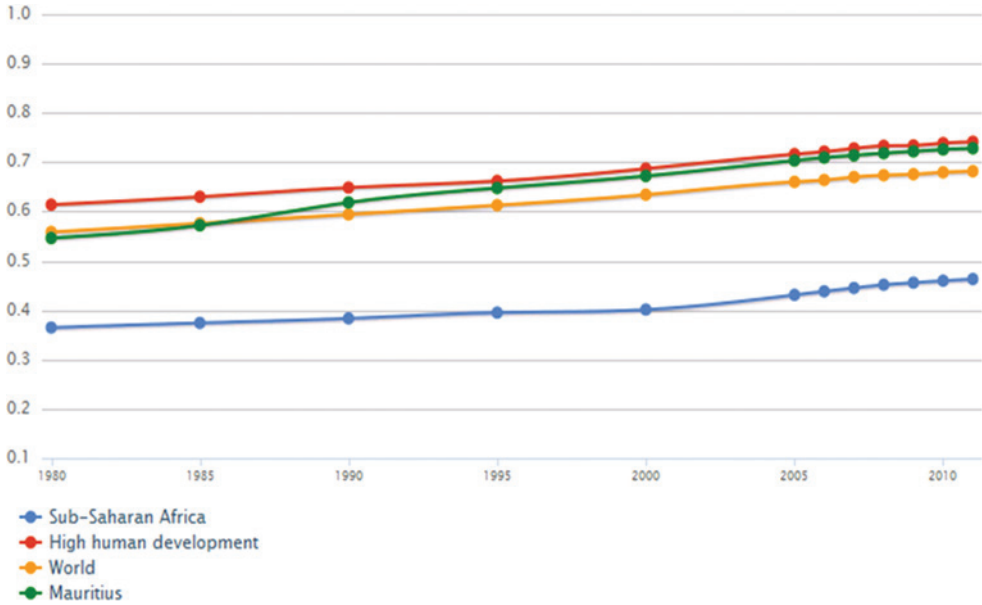
The sound economic policies put in place since independence by succeeding governments have resulted in a diversified economy in which sugar cane, which formed the basis of the island's mono-crop economy, now accounts for only 15 per cent of export earnings. The textile and apparel industry is now strong, boosted by the African Growth and Opportunity Act (AGOA), while Mauritius' thriving financial services sector has been able to attract 32,000 offshore entities that mainly service India. Prudent banking policies have no doubt helped mitigate some of the worst negative effects of the 2008–09 global financial crises, but some of the effects are being felt. Growth is continually being revised downwards. Tourist arrivals, for example, decreased by about 0.5 per cent while revenues also fell by 0.4 per cent in 2012.

Mauritius, nevertheless, has had a long history of successfully adjusting to changing circumstances and creating opportunities out of constraints. Its remarkable economic success over the years is widely recognised as one of the fastest growing in sub-Saharan Africa, so much so that the World Bank now classifies Mauritius as an upper-middle-income economy. In fact, Mauritius has continued to improve its Human Development Index (HDI), which in 2013 reached 0.737 (world ranking: 80) compared with 0.546 in 1980 and 0.672 in 2000 (data published by UNDP) (see Figure 6.2).

Unfortunately the rapid pace of development has had some dire consequences on the country's natural resource base which, in a small-state context, is very limited. The challenge of meeting human demands within the global ecological limits has been illustrated by mapping the HDI and ecological footprint in Figure 6.3. The figure shows that Mauritius (represented by a star) has a relatively bigger ecological footprint than countries with a similar HDI. In fact, in 2007 (Carbon Footprint Network 2010), with an HDI of 0.714, Mauritius had a total ecological footprint of 4.2 global hectares per person.

The increasing land area being built upon is also cause for concern. Latest available data on land use show that 25 per cent of the land area (46,500 hectares) comprises built-up areas. Sugar cane plantations occupied 39 per cent (72,000 hectares) of the total land area of the Island of Mauritius in 2005, while forest, scrub and grazing

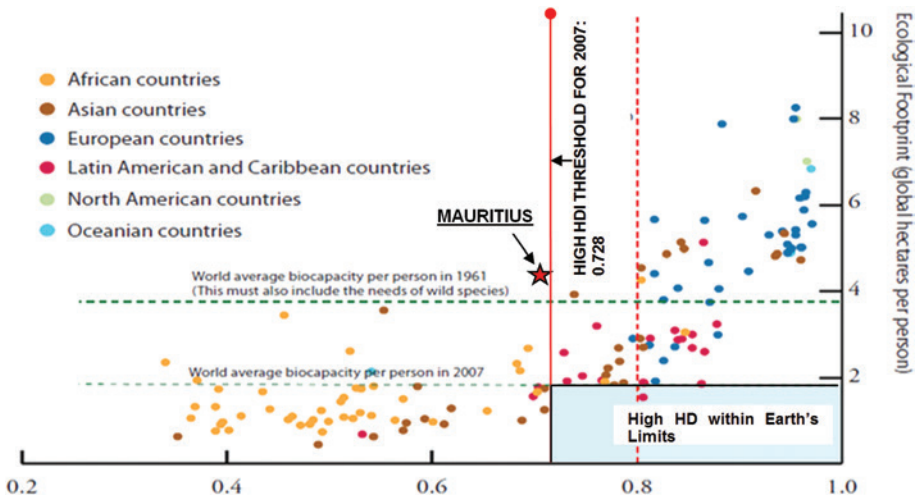
Figure 6.2 Human Development Index: trends 1980 to 2010



Source: Data available at <http://hdr.undp.org/en/data> (accessed August 2012).

land occupied 25 per cent (47,200 hectares). From 2010 to 2011, the effective area under sugar cane and tea cultivation decreased by 3.8 per cent (from 62,100 to 59,724 hectares) and 6.7 per cent (from 698 to 651 hectares) respectively, while that under tobacco cultivation increased by 4.2 per cent from 213 to 222 hectares. During the period 1995–2005, the land occupied by sugar cane, tea plantations and forestry decreased, mainly due to the increase in built-up areas. Forest areas, which are vital

Figure 6.3 Human Development Index and ecological footprint



for the protection of the ecosystem, have been declining: from 47,159 hectares in 2010 to 47,140 hectares in 2011.

For future sustainability, Mauritius should strive towards the bottom right hand corner of Figure 6.3. The achievement of a high development index has been at the expense of its natural resource base. Now the country will have to drastically reduce its carbon footprint to ensure that it preserves its best agricultural lands (to ensure food security) and the regenerative capacity of its natural ecosystems. To be able to achieve this, a green economy development path is essential to ensure that more is achieved with less.

6.4 Green economy: the view from stakeholders and business leaders

The stakeholders interviewed for this study provided valuable insights into their specific interests in relation to global and national efforts to deal with sustainable development, as well as the government's attempts to steer the country towards a green economy path. Overall, the respondents:

- considered sustainable development a major challenge the country has to face;
- were well aware that the development path followed so far has had significant impacts on the environment and quality of life in general;
- overwhelmingly welcomed government initiatives to address the issues;
- were not very aware of the implications of a green economy;
- agreed that at present there is not much demand for, nor supply of, green products and services;
- cautioned against any haste in implementing green economic models; at least they considered public participation in any decision relating to shifts in development paradigms to be essential;
- hoped that there would be a level playing field and that the green economy would not be used to deny access of local exports to overseas markets;
- agreed that initial investment costs in clean technology would be higher, but generally agreed that operating and maintenance costs could offset those extra costs; and
- felt that the local capacity to supply green goods may be hampered by lack of skills, and factors such as refusal by insurance companies to insure installations like wind turbines/farms.

Such reactions are not surprising given that there is no international or national consensus on the meaning of a 'green economy'. The concept is still considered far too fuzzy for any meaningful implementation. For the purposes of this study, UNEP's working definition of a green economy will be retained: '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 and ecological scarcities' (UNEP 2011). Some stakeholders argued that this is nothing new and that the principles of sustainable development as defined at the UN Conference on Sustainable Development held in Rio de Janeiro, Brazil, in 1992, laid the basis for green growth.

6.5 The national response to the sustainable development challenge

The economic transformation of Mauritius since independence is nothing short of a miracle. However, the overemphasis on financial and economic viability of investments has had dire consequences for the natural resource base. Economic growth translates, and increased economic activities in turn generate social and environmental costs and benefits. While economic growth has resulted in more equitable income distribution, a better quality of life, higher life expectancy and vastly improved infrastructure, the costs to the environment cannot be underestimated. The 'pollute now, clean later' principle underlying the neoclassical growth model has resulted in loss of agricultural land, increasing levels of pollution of freshwater resources and the coastal zone, loss of biodiversity, uncontrolled speculation on land (thus pricing a large number of families out of the land market) and declining quality of air. These problems have been exacerbated by emerging global issues like climate change, the effects of which are already being felt by way of decreasing mean annual rainfall and reduced freshwater supplies.

It has to be recognised, however, that the government has been conscious of the need to balance economic objectives with social and environmental imperatives. There have been numerous achievements in terms of awareness creation, capacity building, reinforcement of legislative and regulatory frameworks, and integration of environmental concerns into national economic development strategies. Despite all these efforts, environmental degradation and social problems have continued to worsen. With global and national resources fast depleting, there is a need to improve efficiency of production systems, use less energy and natural resources and produce more. A green economic development strategy is being promoted as the way forward. The challenge is to devise a transition strategy that improves the lives of all citizens by providing them with essential energy and other services that do not disrupt the climate system, degrade the environment or create conflict over resources, while producing enough wealth to continue investing in improved infrastructure and job creation.

6.5.1 The MID policy and action plan

The transition strategy was announced by the Government of Mauritius in 2008. It was articulated around a long-term vision for the sustainable development called the Maurice Ile Durable (MID)² – Sustainable Mauritius – project. The strategy was meant to depart from the fragmented and sectoral approach adopted so far, while at the same time dealing with sustainable development. It aims to bring together the different development strategies and work towards a common goal, by transforming

the behaviour of the population and the way they do business, work and live. Since then the vision, which is to make Mauritius a model of sustainability particularly for small states, has been driving a number of policies and initiatives aimed at sustainable development. Located within the Prime Minister's Office, the MID Commission has conducted a number of stakeholder consultations. It was agreed that the National MID Strategy would frame sustainable development and green economic growth in the context of five 'Es': energy, environment, equity, employment and education. In April 2011, the Ministry of Environment and Sustainable Development (MOESD) produced the MID Green Paper, which constituted the foundation of the MID policy development process and a milestone for stimulating discussion on the MID concept in the public arena.

Following the publication of the Green Paper, extensive consultations were held to further refine the MID concept in line with the agreed policy formation process, which required it to be highly participative. Consultation has brought benefits of local and regional knowledge, experience and expertise, has raised awareness and gathered support for the process. It is hoped that the extensive public participation will eventually help the adoption and implementation of MID policy measures. The MID concept has now entered into a new phase with the launch (in June 2013) of a National Policy and Action Plan for Maurice Ile Durable, to provide for clear guiding principles and mechanisms aimed at achieving sustainability. A firm of consultants was given the task of preparing the 10-year MID Policy and Strategy, setting realistic and costed activities and projects; undertaking a review of the institutional and legislative framework for sustainable development; and developing indicators to monitor and make recommendations for the implementation of the MID Policy, Strategy and Action Plan.

The policy and strategy are intended to reflect:

- the current situation in Mauritius, including the institutional framework, progress in implementing MID, and the political and regulatory context;
- the MID vision for each of the five 'Es' (energy, environment, equity, employment and education);
- the outputs of the MID consultations and working groups, including those recommendations from the working groups that may be considered as proposed policies;
- previous work on the current project, including meetings with ministries and other stakeholders, and attendance at stakeholder workshops; and
- the practicability of policy proposals, so that policies are workable and appropriate for the current situation of the Republic of Mauritius.

6.5.2 Sustaining green Mauritius

To sustain the MID vision and send the proper signal to the population in general, and the business community in particular, the December 2009 Budget Speech

was entitled 'Shaping Recovery, Consolidating Social Progress, Sustaining Green Mauritius' and it resolved to:

- accelerate the pace of progress on the road to a Sustainable Island (MID);
- focus on high-tech, low-carbon, renewable energy and green quality living; and
- entwine its agenda for investment in public infrastructure, so that such investment enriches the country's environment.

A number of measures, with significant innovative and transforming potential, were also announced. Among these were:

- a massive 15 billion Mauritian rupees (MRs/MUR) investment in road infrastructure that would add 360 km of roads to the network, while upgrading and widening sizeable sections of the existing network;
- 10.6 billion MUR for a new airport terminal;
- 2.9 billion MUR for a new runway and new taxiway;
- 3.5 billion MUR for the strengthening and expansion of the container terminal at the seaport;
- 2 billion MUR to raise power generating capacity;
- development of a framework to support science, technology and innovation (STI), and establishment of a fund to finance market-oriented research projects and support creativity;
- promotion of use of solar water heaters;
- installation of wind turbines on a pilot basis;
- a landfill gas-to-energy project;
- composting of municipal waste;
- development of a National Grid Code that will allow the purchase of electricity from small independent power producers;
- adoption of an Energy Efficiency Bill;
- a subsidy of 32 million MUR to replace incandescent lamps with 2 million energy saving lamps;
- setting up of an Energy Efficiency Management Office;
- investment in research and development (R&D) in green buildings; and
- 10 billion MUR investment in the water sector.

6.5.3 The Maurice Ile Durable (MID) Fund

Conscious that the MID Policy and Action Plan formulation would be a lengthy process, and in line with the budget provisions, in 2008 the government set up a

fund called the MID Fund administered by an inter-ministerial committee. As a specialised fund provided for by the Finance and Audit Act, it aimed at financing projects, schemes or programmes:

- for the conservation of local natural resources with a view to achieving sustainable development;
- for mitigation against, adaptation to and increase in resilience to climate change;
- for the promotion of sustainable consumption and production, including efficient use of resources, cleaner production, sustainable public service practices and an increase in the use of sustainable products;
- to explore and harness potential sources of renewable energy and to reduce dependency on imported fossil fuels;
- to foster research, development and innovation with a view to promoting sustainable development;
- for the promotion of energy conservation and energy efficiency;
- to encourage the production of energy from renewable energy sources on a small scale by any individual, household, business or group and for the sale of any surplus to the national grid;
- for sustainable transportation which promotes environment-friendly and low emitting, fuel-efficient motor vehicles, including buses under the Bus Modernisation Programme;
- to encourage and promote sustainable waste management through waste reduction, reuse and recycling;
- to educate people and raise awareness on sustainable development;
- to encourage efficient and responsible use of water resources; and
- programmes which are incidental to or conducive to the attainment of any of the above objectives.

A selection of projects that the MID Fund has financed, or plans to finance, are set out in Table 6.1.

6.5.4 The blue economy

As part of its continued economic diversification programme, and in line with its MID Vision and green economic development drive, the Government of Mauritius decided to give fresh impetus to its Land-Based Oceanic Project, which was launched in 2006. It was felt that such an industry could well grow into one of the major pillars of the Mauritian economy. This was largely a result of the global efforts to regulate the Exclusive Economic Zone (EEZ) and exploitation of the seabed in international waters, and the realisation that the EEZ of Mauritius was 1,000 times the size of its land area. In fact, the EEZ covers an area of 2.3 million km², which includes the 396,000 km² of continental shelf extension that it co-manages with Seychelles.

Table 6.1 Activities financed under MID Fund (MIDF)

| SN | Items | Sponsor | Funding | Status | Outcomes/Benefits |
|----|---------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Solar Water Heater Phase 2 Scheme | MIDF Initiative | Project value: MRs250 m ^a Rs 19 m disbursed | Being implemented. As at date, some 13,000 applications processed. | Some 24,000 households will have reduced gas and electricity charges at end of project. Benefits environment and resource use. |
| 2. | BEC School Photo Voltaic Project | Catholic Education Board (BEC) Initiative | Project value: MRs 17.5 m No disbursement yet | Being implemented. 42 schools (primary, secondary and technical) will be fitted with photo voltaic system. | Savings on electricity, notably on weekends and school holidays, sold to CEB. BEC commits not to seek grants from government for electricity bills after Year 8 following PV system installation. |
| 3. | Ministry of Education School Photo Voltaic (PV) Project | MIDF/Ministry of Education (MoE) Initiative | Project value: MRs15 m No disbursement yet | Being implemented. 10 primary and secondary schools involved. | Reduced electricity charges for the schools. Based on this pilot project, MoE proposes to extend to other government schools. |
| 4. | Poster and PowerPoint Presentation Competition, PV System in School | MIDF Initiative | Project value: MRs176,000 No disbursement yet | Being implemented. All secondary schools involved. | Will arouse interest and enthusiasm of students in participating in design of information on PV systems targeted at school population and school communities. |

(continued)

Table 6.1 Activities financed under MID Fund (MIDF) (continued)

| SN | Items | Sponsor | Funding | Status | Outcomes/Benefits |
|----|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5. | National Empowerment Foundation Housing Units to be fitted with Solar Water Heater (SWHs) | National Empowerment Foundation Initiative | Project value: MRs 590,000 No disbursement yet | Approved for implementation. 59 National Empowerment Foundation houses being built at Gros Cailloux to be fitted with SWHs. | The households will benefit from reduced gas and electricity expenses. Specifically targeted at low-income group. |
| 6. | Training SWH Technicians | MIDF/Mauritius Institute for Training and Development (MITD) Initiative | No MIDF funding | Being implemented. Joint MIDF/MITD initiative for training in: (i) manufacture, (ii) installation of solar water heaters. | Country and workers benefit from improved skills. Will generate SWH manufacturing potentials. Households benefit from enhanced installations and maintenance practices. |
| 7. | Household Composting Scheme | MIDF Initiative | Project value: MRs 10 m No disbursement yet | Self funded by trainees. Being implemented. To mobilise and encourage household composting. Approved household composter from local manufacturer to form part of a subsidised grant scheme. Concurrently, NGOs will undertake public education awareness programmes and workshops on composting. | Will lead to reduced household waste and hence multiplier effect on waste management at country level. Households will thus apply organic compost, leading to reduced chemical fertiliser use. |
| 8. | Household Rain Water Harvesting Scheme | MIDF Initiative | Project value: MRs 16 m No disbursement yet | Approved for implementation. Scheme to be run similar to Household Composting Scheme. Project under preparation. | More optimum use of natural resources. Reduced pressure on Central Water Authority and water management. |

Note: ^a m, million; Rs, Mauritian Rupees; exchange rate, 30 rupees to the US\$ (approximation based on average rates for 2012–2013).

At present there is no clear-cut strategy regarding the land-based oceanic industry, but the results of surveys carried out by Texaco (USA) in 1974, by a Canadian firm in 1997 (for oil) and by India (bathymetry and polymetallic nodules in 1987) have rekindled interest in the vast potential that this newly discovered 'blue economy' option could represent for Mauritius.

The following potential growth poles of the 'blue' economy have been identified:³

- *Energy production*: from waves and by exploiting the cold water circulating at a depth of 1,000 metres between Mauritius and Hawaii (the Conveyor Belt).
- *Algae production*: algae production has been carried out by the Mauritius Research Council in conjunction with the Ministry of Fisheries on an experimental basis and its potential recognised. The global algae industry is valued at US\$6 billion and services the pharmaceutical, food and agricultural sectors.
- *Water supply*: Mauritius is a water-stressed country and seawater can be desalinated to make up for the freshwater deficit that the country experiences occasionally.
- *Fossil fuels*: surveys carried out in the 1970s confirmed the presence of oil deposits in the EEZ, but more in-depth explorations are needed to determine whether they are economically viable deposits.
- *Bottled water*: the bottled water industry is fast growing, with around 90 billion litres are sold annually around the world. Mauritius has known reserves of deep sea mineral water, which is in high demand.
- *Thalassotherapy*: this can add to the multitude of services that the tourism industry already offers.
- *Polymetallic nodules*: surveys have confirmed significant deposits of polymetallic nodules in and around the EEZ. These nodules are rich in manganese, copper, nickel and cobalt.
- *Air conditioning*: seawater air conditioning can be a cost-effective way to provide air conditioning to the hotel industry in particular. So far, experiments have not been encouraging, but there is still much hope in its potential.

6.5.5 Energy

As in any country, energy is critical to the continued development of Mauritius. Despite numerous well-intentioned policy announcements, fossil fuel remains the dominant source of primary energy used to generate electricity in the country. In 2010, coal was the primary energy source in Mauritius (28.9 per cent), while diesel accounted for 14.9 per cent of energy and fuel oil 16.2 per cent. The share of bagasse (the residual pulp from sugar cane processing and renewable) has now dwindled to 15.7 per cent. This is inconsistent with low-carbon growth, which has been identified as a key component of the green economy concept, but economic realities are such that fossil fuels continue to play a significant role in energy production. The marginal cost of a unit of electricity (kWh) produced from coal is MRs2.30 compared with

MRs 5.30 from heavy fuel (Kasenally 2012). In comparison, energy produced from wind costs about MRs7 per kWh.

Fossil fuels thus constitute the primary fuel source for the transportation and manufacturing sectors. Energy, hence fossil fuels, is also the primary source of CO₂ emissions, accounting for around 60 per cent of emissions (3,639 tonnes in 2010). Dependency on imported fossil fuels was 83.1 per cent in 2010, and it is hoped that such dependency will be significantly reduced. For now, it seems that future economic growth is very much based on a steady and increased supply of cheap oil. Since 2004, oil prices have regularly risen, reaching US\$40 per barrel in May 2004, US\$147 in August 2008, and then collapsing to US\$30 in late 2008 and again increasing to reach an average for 2012 (from January to June) of US\$106 (Institute of Environmental and Legal Studies 2012) It has been noted that, surprisingly enough, this sharp increase in oil prices has had little visible effect on the economy to date, and no one seems to know how high oil prices can climb before impacts are noticeable. Because this state of affairs is not sustainable, energy supply and demand management are at the heart of the MID concept and are key motivators for change. The current energy challenge in Mauritius is to provide reliable, affordable energy while shifting energy supply towards more localised renewable sources.

The present energy policies intend to address both supply and demand requirements through:

- further diversifying energy supplies;
- improving the efficiency of energy use;
- addressing environmental and climate changes; and
- modernising the country's energy infrastructure.

The government adopted a Long Term Energy Strategy (2009–2025) in 2008. The strategy aims to:

- reduce the country's vulnerability to imported fossil fuels and their volatile prices;
- promote economic growth and job creation;
- democratise energy supply, with a more transparent and fair regulatory environment;
- secure affordable energy to consumers;
- ensure the financial sustainability of the electricity utility; and
- promote long-term sustainable development in line with the concept of 'Maurice Ile Durable'.

As part of the Long-Term Energy Strategy, a Grid Code for connecting electricity produced by small independent power producers (producing less than 50 kW to the grid of the Central Electricity Board [CEB]) has been developed and implemented. The code contains feed-in tariffs for electricity sold, so as to encourage small power producers to produce electricity from renewable energy sources for their own

consumption and to sell any excess to the CEB. It also constitutes a large incentive to the market, as suppliers have been complaining about the costs of energy produced by wind and sun, which are so high that they discourage potential buyers. The strategy also provides for a significant increase in the share of renewable sources from 17.5 per cent to 35 per cent, introduction of energy efficiency measures (like energy labelling), modification of building codes to reduce energy consumption, and regular energy audits in industry.

6.5.6 Sustainable consumption and production

Independent of the MID Policy and Action Plan formulation, government the developed a National Programme on Sustainable Consumption and Production (SCP) as a ten-year framework programme on sustainable consumption and production patterns, with support from the UN and other agencies ('the SCP Programme'). The SCP Programme comprised a National Programme for Sustainable Consumption and Production for Mauritius; the implementation of instruments for sustainable consumption and awareness-raising programmes/campaigns on SCP (in areas such as water conservation, energy efficiency, waste minimisation and recycling); and policies and/or infrastructure to support citizens' choices for responsible consumption of products and services (including consumer information tools). Overall, the SCP Programme is a mix of 44 capacity-building, educational surveys, standards development and research components to be implemented by various ministries and organisations. Of particular interest is the fact that the SCP laid emphasis on sustainable public procurement, with a view to:

- Promote good practice internationally through capacity building and the promotion of the use of sustainability criteria in public tender documents.
- Engage public authorities and businesses in emerging and developing economies to curb polluting emissions, and face the international environmental challenges such as climate change, chemicals, hazardous waste etc. At the same time, it will increase the competitiveness of these businesses in international markets, where issues such as climate change and resource depletion are already addressed in public procurement policies (Japan, EU, USA, Canada).
- Provide expert assistance for governments wishing to develop an SCP policy; to raise awareness of all stakeholders in the procurement process (e.g. government purchasers, policy-makers) and convince them of the need to serve as a role model by buying goods and services needed for their day-to-day activities in a sustainable way; by taking into account economic, social and environmental aspects; and to raise interest in sustainability issues through concrete actions.
- Address the increasing gap in safety, resource efficiency and environmental standards between products sold on European and on developing world markets. Sustainable public procurement has to be seen as a tool to boost internal markets for sustainable products and services, so as to avoid the increasing demand from Europe or other more environmentally conscious markets creating a sort of market niche for export of 'greener goods' to developed countries.

The green economy means producing more with less, and SCP aims to promote an energy- and resource-efficient economy by changing production and consumption habits. The SCP Programme, if properly implemented, will help maximise businesses' potential to transform environmental challenges into economic opportunities and provide a better deal for consumers. The challenge is to improve the overall environmental performance of products throughout their lifecycle, to boost the demand for better products and production technologies, and to help consumers in making informed choices.

6.5.7 Financing green growth

Mauritius has been recognised as a pioneer in the use of green taxes (Parry 2011) for addressing externalities generated by economic activities, like poor air quality, road congestion and greenhouse gas emissions. The country has introduced a form of carbon taxation, while motor fuel taxes are substantial; the vehicle ownership taxation system has been revamped to encourage use of lower-capacity engines; the use of plastic bags has been discouraged through tax policy; and road pricing mechanisms are being explored as a way to deal with traffic congestion.

At present, 29.4 per cent of the cost of a litre of unleaded fuel is made up of the following taxes, levies and contributions:

- excise duty;
- Maurice Ile Durable Levy;
- contribution to Road Development Authority;
- contribution to Rodrigues Transportation and Storage; and
- contribution to subsidies on liquefied petroleum gas, rice and flour.

The MID Levy is in fact a tax on fossil fuels established in 2008, and the aim was to use the proceeds to finance clean energy projects. From 2011 the levy was raised to MRs0.30 per kilogram of coal, per kilogram of LPG and per litre for petroleum products. The levy helped raise MRs239 million in 2008 (0.5 per cent of total tax revenue), and it is estimated that MRs577 million was collected in 2011.

Additionally, an Environmental Protection Fee (EPF) helped bring in MRs159 million in 2008, the year in which it was promulgated. The objective of the EPF is to raise funds for the promotion of local environmental initiatives aimed at preventing and reducing pollution. The revenue collected is being credited to the government's Consolidated Fund.

The base for application of the EPF has been extended, through the above new regulations made under the Environmental Protection Act, to include inter alia mobile phones (MRs50 per unit), batteries for vehicles (MRs50 per unit) and pneumatic tyres (MRs50 per unit), and is applicable to:

- hotels, guesthouses and tourist residences, irrespective of the number of rooms;
- stone-crushing plants and manufacture or processing of aggregates, concrete blocks, pre-cast units;

- importers of mobile phones;
- importers of batteries for motor vehicles; and
- importers of pneumatic tyres for all vehicles.

What has been noted, however, is that not all monies collected go towards the promotion of green growth *per se*. For 2012, for example, only MRs318 million has been allocated to MID-related projects, the rest lost in the national coffers (the Consolidated Fund).

6.6 Challenges facing green economy

6.6.1 Availability of green products locally

The range of goods that are certified green, sustainable or energy efficient is shown in Appendix 6.1 (for locally produced) and Appendix 6.2 (for imports). The range and number of suppliers continues to increase. The presence of such goods in the media, billboards and exhibitions cannot go unnoticed. There is the risk of ‘greenwashing’ products as a commercial strategy, so that these lists merely reflect what is being advertised. A fairly exhaustive listing from local business directories shows that the actual number of companies offering sustainable products and services could be around 150.

In general, businesses argue that there is either not much demand for such products from consumers or the higher costs involved will render them vulnerable to competition. Government policy is also partly responsible for lack of interest: the import of R22-based⁴ air conditioning (A/C) units is a case in point. Developing countries are under no obligation to ban the import of such units, and their import is tolerated despite strong national commitment to sustainable development. Those companies willing to import more efficient appliances will be at a disadvantage vis-à-vis less scrupulous competitors. Many sustainable products are also being developed and sold at no extra cost: household detergents and paints are examples.

The few companies who have ventured into green products have done so either at the instigation of their overseas customers, or because of the personal convictions of the owners and top management. Export-oriented businesses have to ensure that their products meet stringent environmental standards in order to be able to enter some markets (like the EU). They are therefore compelled to use products that are certified and produced according to acceptable standards. There is also a breed of business leaders who are convinced that sustainable production is the way forward, and they have voluntarily set high standards for their products. In the case of one paint manufacturer, for example, the standards even exceed those set by the EU. In fact, the EU 2010 Volatile Organic Compound (VOC) limit is 30 g/litre, but the paints produced by the company have a lower content of VOCs.

6.6.2 The cost factor

Costs of green products are generally higher by about 15 per cent on average, but in some cases it can reach 90 per cent. Forest Stewardship Council (FSC)-certified paper

is 10–15 per cent higher in cost, while A/C units using eco-friendly refrigerants and energy efficiency rating labels are 20–40 per cent more expensive. Degradable plastic is 15 per cent higher in cost. Prices increase three-fold for solar A/C units. The ‘greener’ paints are, on the other hand, at par in terms of cost with ‘normal’ paints. There is a feeling that once the market becomes more competitive, prices will go down, as has been the case in other parts of the world. In the construction industry, the recent timid experience with green buildings has shown that simple design changes and soft technology can achieve good results without additional costs to the builder. Gold star-rated building (the highest rating a green building can get according to US Green Building Council), however, can increase building costs by about 6 per cent according to estimates by a Leadership in Energy and Environmental Design (LEED) consultant. The only major building claiming to be fully ‘green’ in design (BREEAM certified) has been completed recently, but the author understands that unit cost was four times higher (particularly for energy-saving devices) than normal construction. The country of origin can also influence the cost; for example, paper sourced from South Africa is 15–20 per cent more expensive than from Indonesia, and it becomes 30–50 per cent more expensive if imported from Europe. However, these costs do not take into account whole-life cost savings. In fact, the premium that green products carry can be effectively offset if whole-life costing is taken into consideration, given lower operating and disposal costs. The Central Electricity Board carried out evaluations based on lifecycle assessment and costing (LCA), and has now started purchasing some equipment like printers that conform to sustainability criteria despite higher initial costs.

6.6.3 Availability of sustainable goods and services in the international market

In terms of ability and capacity to supply the goods and services required to sustain green growth, the suppliers do not foresee any major problem. Many manufacturing concerns are licensed to produce goods by international leaders who have invested significantly in the development of green products. Ecolab, for example, is a world leader in the provision of cleaning, food safety and health protection products and services, and has licensing agreements with a local manufacturer. Most production units have spare productive capacity (one paint manufacturer can treble its production, for example, as it is currently operating a single, eight-hour shift), hence any increase in demand can be satisfied almost immediately.

When certain goods are not available through local production, they can be easily imported given the extremely business-friendly environment in Mauritius. Mauritius is 17th in World Bank’s Ease of Doing Business rankings (up from 49th four years ago). It also ranks high on the Mo Ibrahim Index of African Governance, the World Competitiveness Report and the Africa Competitiveness Report. Efforts are continuing to modernise the investment climate and the licensing system. The objective is not only to attract foreign investment, but also to promote local entrepreneurship. Furthermore, Mauritius operates a relatively streamlined trade regime, and a number of customs tariff reform measures introduced in recent years have rationalised the tariff structure making

import of most goods easy. The solar water heater programme initiated in 2008 by government illustrates well how quickly a demand gap can be filled. In less than one year, 29,000 solar water heaters were sold and the number of importers jumped to 45 across the island.

Barring cost, the availability of green products and technologies on the world market is not construed as a problem. In fact, the global market for green products and services is growing. Environmental and socioeconomic factors are changing the competitive landscape for corporations. Sustainable product and service design is becoming a new point of leverage for brands wishing to retain their competitive advantage in the coming years. In this regard, some enterprises, policy-makers and civil society players have already started to understand green products and services as a framework for driving growth, increasing shareholder value, heightening stakeholder satisfaction and protecting and enhancing environmental and socioeconomic standards. Initially, there were fears that sustainability requirements would backfire and discourage a transition to innovative and green products because of cost implications. Experience from the European market has demonstrated that sustainability objectives can in fact drive innovation and lower costs significantly enough to compete successfully with traditional goods. Since the European Ecolabel was established in 1992, the number of companies receiving the label has increased year after year. Furthermore, green product networks (GPNs) are being established in many parts of the world (e.g. Japan, Korea) and these are actively promoting and cataloguing sustainable goods. Mauritius can, therefore, broaden its local supply chain in green goods.

6.6.4 Ability to deliver to an international market

There is strong evidence that a green economy can provide a much-needed competitive edge to exports, particularly within the region. In fact, green products such as paint, chemicals and degradable plastic are in steady demand and are being exported in increasing quantities. Some companies are already present in the East African Region. Regional integration is a core objective of the government's strategy and a number of developments augur well for greater integration with countries forming part of the Common Market for Eastern and Southern Africa (COMESA), Southern African Development Community (SADC) and the Indian Ocean Commission (IOC). Trade with COMESA, for example, is growing and it ranks eighth for Mauritian exports. It has great potential with a population of 430 million, and as a block imports US\$152 billion worth of goods while exporting US\$157 billion. The export of high-end sustainable products can only benefit from such integration, as demand grows with the development of tourism and agricultural products, among others. Special sugars, which are Fairtrade-certified, are selling at a premium in Europe, and the export of organic foods may also get a boost with the large-scale production of organic fertilisers through composting. Mauritius is already well established as an export-led economy, and the private sector, with the support of government agencies like Enterprise Mauritius, can quickly seize the opportunities likely to be generated by the demand for sustainable products.

6.6.5 Instruments and tools to certify and verify sustainability of products

Implementing a green economic model implies the ability to develop sustainability standards and specifications. These can, however, be costly, even for EU countries, as experience has shown. Hence, there is a tendency to rely on established eco-labels during the transition phase. These eco-labels help define specifications for a wide range of products and services. To obtain a label, a product must meet certain criteria, which are rigorously assessed. Labelling is, therefore, an increasingly popular mechanism for differentiating products on the basis of their production or origin characteristics. Consumers make choices on the basis of these labels, and many are willing to pay a price premium in order to benefit from the higher specifications of the product. The presence of a very small number of labelled products in Mauritius is quite obvious. It must be pointed out that certain products have, for many years, been required to obtain the MAURICERT certification from the Mauritius Standards Bureau (MSB). However, these labels are single-issue certifications, meant to ensure compliance with specific technical standards (plastic pipes, paints etc.). Sustainability labels (whether single- or multi-issue) are new to the market, but are becoming more visible alongside traditional products.

Labelled products are, on the whole, more expensive than 'normal' ones. Air conditioning units, for example, running on R-410A gas⁵ are 15–20 per cent more expensive than conventional models. Some certifications do not have any impact on the selling price though. Management system certifications, for example, do not carry additional costs, because the system becomes more efficient and some even have cost-saving measures.

6.6.6 Conformity assessment infrastructure

For a successful green economy, there is a need to put in place a proper conformity assessment infrastructure. In Mauritius, a fairly modern conformity assessment infrastructure: MAURITAS for accreditation, Mauritius Standards Bureau for standards and metrology, and quality assurance by bodies in both the public and private sectors are all well established.

MAURITAS

The Mauritius Accreditation Service (MAURITAS) was established under the Mauritius Accreditation Service Act 1998 to provide a national unified service for the accreditation of testing and calibration laboratories, certification and inspection bodies. At present, it operates two accreditation programmes, namely laboratory accreditation and certification body accreditation against the international standard ISO/IEC 17025. It also accredits certification bodies against the international standard ISO/IEC 17021 'Conformity assessment – Requirements for bodies providing audit and Certification of management systems'. The certification body accreditation programme currently covers: quality management system; environmental management system; hazard analysis; and critical control point system. The laboratory accreditation

programme covers numerous fields, such as acoustical, biological, chemical, electrical, occupational, food and environmental, and standards for construction materials. It has so far accredited eight laboratories, including two for the Mauritius Standards Bureau (MSB), and the Mauritius Sugar Industry Research Institute. In total there are 60 laboratories in Mauritius, and MAURITAS plans to accredit at least 45 of these. Its work is, however, hampered by lack of funding.

Mauritius Standards Bureau

The Mauritius Standards Bureau was established in 1975, and is now governed by the Mauritius Standards Bureau Act 1993, giving it greater flexibility and autonomy. It is housed in a modern, purpose-built headquarters with state-of-art laboratories and equipment. MSB is expected to help turn Mauritius into a quality manufacturing and service centre and focuses on metrology, standards, testing and quality assurance (MSTQ). Its role is to formulate national standards and technical codes of practice, operate a certification of marking scheme for products and processes (MAURICERT) and a national quality system certification scheme for the registration of firms according to ISO 9000, and a national food safety management system certification scheme for the food sector. In terms of standards, the MSB has set up nine MSB standards committees, namely building and construction; chemicals; electrical engineering; food and agriculture; mechanical engineering; metrology; information technology; quality management systems; and textiles, paper and footwear. Its certification marking scheme (MAURICERT) covers certification of products and processes. It also operates the national quality system certification scheme (ISO 9000 Registration) and a national standard for assessment of an organisation's food safety management system, using as a basis the World Health Organization/Food and Agriculture Organization (WHO/FAO) *Codex Alimentarius* HACCP principles and other recognised standards and guidelines. Of note is the capability of MSB to carry out extensive tests, relating to a large variety of products.

However, the most important initiative coming from the MSB is the proposed development of a Mauritian eco-label, called 'Environment Friendly Label (EFL)'. The aim of the label is to provide the general public with information on the environmental impact of consumer goods and services. This label takes into account the main environmental impact of products and services to be certified, and is compatible with internal market principles. It will be established on the basis of scientific information and through stakeholder consultation. Assessment of products will be based not only on CO₂ footprint, but also on environmental and quality criteria.

It should be noted that the MSB, like MAURITAS, suffers from lack of funding in some areas, despite its impressive capabilities in assessing sustainability criteria. In particular, stakeholders indicated that energy efficiency testing, overhaul of laboratory equipment and training of MSB personnel needs to be assured, with greater funding commitments.

Independent certification bodies

AJA Registrars, SGS (Société Générale de Surveillance) and Bureau Veritas are all internationally recognised companies providing industry with independent

inspection, verification, testing and certification services; they have offices in Mauritius and these services are delivered at the local level. They operate across a diverse range of industrial and commercial sectors, and rely on an international network of offices and laboratories to undertake testing and certification for public and customised schemes. SGS is the local representative of Blue Sign (textile) and ECOCERT labels. It is also the only laboratory in Mauritius accredited by the EU to certify seafood processes. Bureau Veritas also specialises in the field of social responsibility (QHSE-SR).

6.6.7 Role of small and medium-sized enterprises

A green economic model should also provide opportunities to small and medium-sized enterprises (SMEs), which constitute a significant source of employment. They are fortunately also being encouraged to adopt cleaner and environment-friendly technologies. Through the 2008/2009 Budget, the Mauritian government set up the Manufacturing Adjustment and SME Development Fund (MASMED) to sharpen the competitiveness of domestic-oriented industry and SMEs adversely affected by the reduction in import tariffs. Under the MASMED, the Small Enterprise and Handicraft Development Authority (SEHDA) is implementing a Technology Diffusion Scheme. This scheme provides support in the form of 75 per cent cost sharing grants up to a limit of 500,000 Mauritian rupees to support SMEs in the acquisition of environmentally-friendly technologies for improving productivity, quality and processes. Beneficiary SMEs are mainly from the garment manufacturing, jewellery, agri-processing and printing sectors.

6.6.8 The private sector's role in the green economy

The private sector is positioning itself to face the sustainable development challenge, and perceives the huge public investments in construction as an opportunity to introduce green concepts. Apart from significant investments in renewable energy (from sugarcane by-products), there are a few other individual initiatives that could help in transforming consumption patterns. A major wind farm project in the south, in line with the government's vision to reduce reliance on fossil fuels and improve energy efficiency in buildings, is being actively pursued. This is a result of a partnership between Omnicane, a leading sugar producer, and Aerowatts Mauritius Ltd. The project involves the erection of 22 wind turbines, capable of producing 1 MW of electricity each. Eco-building conferences, co-hosted by associations of architects or engineers and event management companies, are now a regular feature. These conferences are intended to inspire and motivate change within the sector and educate professionals about the 'practices, trends, policies and technologies that can and should be used as eco-building interventions'. They also have the opportunity of reviewing some of the world's most celebrated eco-building projects. It is estimated that buildings and the manufacturing of building materials accounts for 50 per cent of all energy consumed worldwide. Buildings also consume 40 per cent of all potable water, and building waste accounts for 40 per cent of waste on landfill sites. Hence, with better design and specifications, buildings can yield huge gains in terms of sustainability.

While awareness of sustainable development issues is high among businesses and organisations, few seek environmental management system (EMS; ISO 14001 series or equivalent) certification. Certification for quality is considered more important and more relevant for business development than EMS. Furthermore, EMS is much more expensive to develop and monitor. In 2008, 266 companies had been ISO 9001 certified (quality standard) compared with 13 for ISO 14000. Three of the companies with an EMS are from the same group (Food and Allied Industries Ltd). Three are in the hospitality sector, two each in textiles, IT and food, and one each in electronics, sugar, plastic manufacture and cement. It is worth noting that none in the construction industry has opted for certification, despite the fact that large high-risk/high-spend projects are involved.

Solid Waste Recycling Co. (SWRC) is a good example, which demonstrates the ability of the private sector to initiate and implement sustainable projects, even in the absence of government support. Situated in La Chaumière, the station treats about 100,000 tons of waste annually to produce about 30,000 tons of compost, using a process developed in India by Excel Industries (India) Ltd. Using Bioculum micro-organisms, the composting process is environmentally-friendly, generating no methane or other pollutants. Furthermore, 400 tons of waste will not have to be transferred daily to the Mare Chicose Landfill site, thereby saving on transport and fuel costs. The compost produced, rich in organic matter and ideal for organic farming, will be sold to farmers in 5-, 25- and 50-kg bags at a price that is estimated to be roughly 30 per cent of that of chemical fertilisers. Overall, the production of compost will be an effective way of dealing with the solid-waste problem, and at the same time offering opportunities for organic farming to develop.

6.6.9 Awards to encourage carbon footprint reduction

The Mauritius Export Association (MEXA) has developed an innovative way to encourage its members to reduce their carbon footprint. Founded in 1976, MEXA is the sole private association in Mauritius representing export companies, and its membership reflects a full representation of the export sector in terms of products, companies and total exports. As it aims to promote and defend the interests of the export community of Mauritius at the national, regional and international levels, it promotes the greening of its members' production and marketing systems. For the past two years, MEXA has organised a 'Blue Carbon Award' designed to recognise the effort and commitment of organisations that have used carbon footprint monitoring to reduce costs and increase efficiencies. Participants are encouraged to provide an accurate footprint measurement, including all required emission sources, demonstrate an absolute reduction of the footprint or equivalent efficiency improvement, and demonstrate good carbon management and standards. In the 2012 edition, the award recognised one company that has achieved zero-carbon status. That company, AKHANN Ltd., is a privately held, Mauritius-based website development company, committed to building state-of-the-art web applications for its customers. It has judiciously located itself close to its employees to reduce travel time, incorporated energy-efficient measures and has undertaken tree plantation to offset any carbon emissions it emits.

6.7 Conclusion

Mauritius has made tremendous progress since becoming an independent sovereign country in 1968. It has reached upper-middle-income country status and has developed a mature and diversified economy. However, such success has been achieved at the expense of the country's natural resource base and environment in general. Many issues have reached a critical stage, and these have been exacerbated by emerging global problems like climate change. Its development still relies on imported fossil fuels and its land resources are fast disappearing under concrete.

Conscious of the vulnerabilities inherent to a small state, the government has taken steps to ensure that development achieved so far remains sustainable. It has made significant progress in establishing and strengthening the institutional framework necessary for achieving sustainable development. Since 2008, it has taken a fresh look at its development paradigm and has resolved to embrace a 'green growth' strategy in order to achieve more with less. It launched a MID initiative, revamped legislation pertaining to energy efficiency and the construction industry, and introduced a series of pioneering green taxes to address externalities generated by economic activities.

However, even with these efforts, thus far there appears to be limited impact in terms of behavioural change or the way business is conducted, despite the fact that green taxes are bringing in substantial revenues to government. Electricity generation is relying more heavily on coal, while the share of bagasse (a locally available renewable energy source) is dwindling. Car ownership is on the rise, as is travel to work time.

There are a number of explanations to explain this state of affairs:

- First and foremost is the fact that sustainable development and green growth are still viewed as 'environmental' issues and not developmental ones. These functions are located within the Ministry of Environment and Sustainable Development. In 2008, the government did recognise the need to put sustainable development at the centre of the development agenda, and thus placed the head of the MID initiative at the Prime Minister's Office – with a view to leveraging the necessary support from all ministries.
- The second reason for the slow pace of progress is that the Ministry of Finance does not appear to be thoroughly involved in, or convinced by, the green growth strategy. Despite being recognised as a pioneer in terms of green tax introduction as far back as 2008, its participation in the national effort to forge a sustainable development agenda is fairly meek. The revenues accruing from green taxes are welcome, but are not fully and fairly allocated to initiatives and projects that are designed to promote green growth. In fact, the Ministry of Finance has its own 'Economic and Social Transformation Programme'. There is potential for overlap between the MID and the Economic and Social Transformation Programme.
- The third important factor is lack of capacity. The MID commission based at the Prime Minister's Office is small, while the Ministry of Environment is inadequately staffed. Going forward, it will be important for the government to ensure that

there is a sufficiently resourced and enabled champion to drive green growth at the government level in a meaningful way. Theoretically, there is a wide range of legislation and initiatives meant to drive the MID engine, but unfortunately these are fragmented, lack coherence and suffer from poor co-ordination. Going forward, there needs to be a centralised authority that can pull all these together into a coherent framework that can serve as a guide to decision-making and green growth strategy formulation.

The private sector, on the other hand, has been fairly opportunistic. It has embraced the MID initiative for various reasons: it's good to be green, it saves money and it sells products; the export markets love it. Yet for whatever reason they choose to adopt a green stance, it is gratifying to note that a number of private initiatives have been implemented, with or without government support. MEXA, the apex organisation regrouping export-oriented businesses, runs an award competition designed to reward those companies that account for their carbon emissions and make an effort to reduce them. Textile industries have shifted to solar energy and are saving on fuel costs. Likewise, a private medical clinic in the north of the island has installed photovoltaic panels on its roof and plans to soon be self-sufficient in its energy requirements.

Mauritius has thus accumulated rich experience in its quest for sustainable development. New avenues, like the vast EEZ, augur well for the future of the island, and the private sector has shown that 'going green' makes economic sense. What the country now needs is total commitment at the highest levels, handing over the mandate of sustainable development to the Ministry of Finance, and ensuring that the proper resource endowments are in place and located most appropriately.

Notes

- 1 The realisation that Mauritius has an Exclusive Economic Zone which is 1,000 times its land size has led to recognition that the country does have a potentially large endowment of marine-based natural resources (see section 6.5.5 Energy).
- 2 More information on the MID initiative is available on its website: www.gov.mu/portal/sites/mid/aboutMID.htm (accessed 18 February 2014).
- 3 Based on an article that appeared in Business Magazine, Issue No. 1044, 22–28 August 2012, Port Louis.
- 4 R-22 or HCFC-22 is a common refrigerant that is currently being phased out worldwide due to its high potential to exacerbate ozone-depletion and its role in global warming.
- 5 R-410A is a new generation refrigerant used in air conditioning systems. It contains only fluorine and does not contribute to ozone depletion, while contributing to higher system efficiencies.

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Appendix 6.1 Locally manufactured green products

| Name of firm and address | Products | Remarks |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Plastic, Solitude (LE) | 1.1.1.1.1.1.1 Boards, bins, egg trays | Uses recycled paper and plastics, mixed with wood and plastics. |
| Plaspak, Quatre Bornes (LE) | 1.1.1.1.1.2 Biodegradable plastic | This facility opened in 2010, with an investment of MUR 70 million. Having difficulties finding a market. Opened in 2010. Recycles 3600 tons of paper annually. |
| Etchelle Papers Ltd (SME) | 1.1.1.1.2.1.1 Recycled paper products | |
| Luo Fu De Enterprises, La Tour Koenig (LE) | 1.1.1.1.2.1.2 Paper napkins, toilet paper | Food from organically grown vegetables and fruits; exports to Europe as well. Procures from individual farmers, who claim revenue is 20 per cent higher from such farming. Phosphate-free products, with reduced packaging. |
| Conserverie Sarjua Plaine Lauzun (S) | 1.1.1.1.2.1.3 Organic food products | |
| Soap and Allied Industries Ltd, Trianon (LE) | 1.1.1.1.2.1.4 Washing powder | Since the ban imposed on plastic bags, Ecology Bags' business has picked up. Sells 3 million bags to KFC chain, for example. Made from recycled paper. These products are manufactured from rice husks and recycled plastic, and looks and feels like wood. |
| Ecology Bags Ltd, Sebastopol (SME) | 1.1.1.1.2.1.5 Craft paper bags | |
| Eco-Deck, Plaine Magnien (SME) | 1.1.1.1.2.1.6 Outdoor furniture, railings, decking, screening, shingles, fencing etc. | Proposes to produce 10 million litres for local use and 15 million litres for export; use of ethanol in E10 formulated fuel has been positive, but government's go-ahead not acquired. |
| Omicane and Alcodis, St Aubin(S) | 1.1.1.1.2.1.7 Ethanol | |
| Belle Vue, Deep River Beau Champ and FUEL Sugar Estates (LE) | 1.1.1.1.2.1.8 Special sugars | Sugar cane growers grouped in co-operatives, product Fairtrade certified and sells overseas with a premium. |

(continued)

Appendix 6.1 Locally manufactured green products (continued)

| Name of firm and address | Products | Remarks |
|--------------------------------------|----------------|----------------------------------------------------------------------------------------|
| SOFAP, Coromandel (LE) | 1.1.1.1.2.1.9 | ISO-14001 certified company, produces wide range of paints with low VOC and low odour. |
| Mauvillac Group, Pailles (LE) | 1.1.1.1.2.1.10 | Produces under own label 'Go-Green', low VOC and low-odour paints. |
| Polytol Paints, Riche Terre (LE) | 1.1.1.1.2.1.11 | MS3-certified products, with low VOC. |
| Samlo Steel, Midlands (LE) | 1.1.1.1.2.1.12 | Produced from scrap metal at its smelting plant. |
| Solid Waste Recycling Co. Ltd, | 1.1.1.1.2.1.13 | Organic waste is composted. Plant opened in 2010. |
| La Chaumiere (SME) | 1.1.1.1.2.1.14 | ISO 9001-certified, serves hotels, supermarkets, industries etc. |
| Green Ltd. (SME) | 1.1.1.1.2.1.15 | All three constituent companies are ISO 14001 certified. |
| Food and Allied Industries Ltd. (LE) | 1.1.1.1.2.1.16 | Produces biodiesel. |
| Ecofuel Ltd. (SME) | 1.1.1.1.2.1.17 | ISO 9000 certified, can provide eco-friendly services. |
| AlphaCleaning Ltd. (S) | 1.1.1.1.2.1.17 | ISO 9000 certified, can provide eco-friendly services. |

Appendix 6.2 Imported green products

| Name of firm | Products | Remarks |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Touchwood, Quatre Bornes | Wood flooring, Wood products | Products are from FSC-certified wood. Non-toxic treatment of wood, does not contain copper, chromium or arsenic (Green Guard process). Sourced from FSC-certified forests. |
| Li Tung Sang, Port Louis BASF/Mauvilla, Pailles ECOSIS Ltd., Quatre Bornes | Wood products Construction chemicals Green roof systems; Natural swimming pools | These pools, designed by BioNOVA, have two parts: the swimming area, and the natural filtration area planted with nature and marsh plants. |
| Rey & Lenferna, Port Louis Green Zone, Curepipe Solar Light | Solar water heaters, heat pumps PV modules, solar street lights, renewable energy systems | Heat pumps designed to be more energy efficient. Many other companies are also adding renewable energy systems in their range of products. |
| Manser Saxon, Riche Terre Rey & Lenferna, Port Louis AC/DC, Curepipe LKLK Electrical Espace Maison | Lighting control Nano-technologically treated sanitary ware Wind energy systems | Energy saving system. Uses less cleaning products. |
| Ventilo Energy, Curepipe Cyber-Rite Energy, Calebasses AC/DC, Curepipe Sotratch, Beau Bassin Durable Solar Industries Mtius | Solar cooker | Sotratch's wind turbine differs from the others in terms of design: it is laid out on a horizontal axis. |
| Tornado, Riche Terre ClimaPro, Phoenix | Air conditioning units | Sold at 16500 MUR, payback is expected in five years if used everyday. Refrigerant used is R-410A, though partial phase-out of R-22 refrigerant does not begin until 2013, with complete ban in 2040. These units are 15 per cent more expensive than R-22 units. |

(continued)

Appendix 6.2 Imported green products (continued)

| Name of firm | Products | Remarks |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Secure Works, Pailles | Solar air conditioners | An A+ rating allows 25 per cent energy consumption. Other energy efficiency rating labels also on market. |
| 361, Port Louis | White goods with energy rating labels | Improved solar reflection, solar controlled polymer glazing (allowing cooler interiors), pigments for plastic and coatings, light stabilisers, etc., available from this ISO certified company. |
| Home2Office | Solar heat management | Prius III |
| BASF represented by Mauvillac, Pailles | Hybrid electric car | Company has launched its Leading Environmentally Friendly Affordable Family (LEAF) model. Car manufactured by Nissan. but far too expensive for average buyer |
| Toyota Mauritius ABC Mauritius | Electric car | Started operations in 2003, now has four outlets. However, clientele is mainly South Africans now residing in Mauritius and European tourists. |
| Axios Health Shop | 1.1.1.1.2.1.18 Organic foods (flour, pasta, cooking oil, dried fruits, biscuits, wine, powdered milk (soja) and cereals | Sourced from ISO 14001 and FSC certified companies. |
| Ramtoola Papers, Port Louis MWT Paper Processing Ltd. | 1.1.1.1.2.1.19 Paper products | |

Chapter 7

The Political Economy of Transitioning to a Green Economy in Nauru

Dr Graham Baines

7.1 Introduction

Ideally a 'green economy' in the 'blue world' of Nauru's surrounding ocean would be one that delivers equitable improvement in living standards without eroding environmental assets. Since Nauru's land assets have already largely been eroded, its future depends on re-establishing a basic environment through a rehabilitation-focused 'greening' of the land coupled with a careful management of its marine resources.

7.2 Small island developing state

7.2.1 Nauru as a mountain

Forty-two kilometres south of the Equator, Nauru is the emergent tip of a basalt seamount rising over 4,300 metres from the ocean floor. This seamount was at one time topped by a 500-metre-thick coral formation that has since been raised through tectonic activity to its present elevation.

The island is 6 km in length and 4 km across with a circumference of 18 km, and is surrounded by a shallow, intertidal fringing reef between 100 and 300 metres wide. From a narrow coastal belt of between 200 and 500 metres width, the terrain rises to an interior plateau averaging 25–50 metres elevation. This plateau is a sparsely vegetated landscape dominated by the pits and pinnacles remaining from opencast phosphate mining.

Nauru's size and location – a tiny island embedded within an Exclusive Economic Zone (EEZ) of 32,000 square km – is suggestive of a 'blue economy'. While there are high hopes that seabed mineral exploitation may in future become an economic mainstay, in reality Nauru has a land-focused economy with a degraded land base itself in need of 'greening'.

As climate change takes hold and sea levels rise (UNDP–Global Environment Facility–Secretariat of the Pacific Regional Environment Programme [GEF-SPREP] 2011), the narrow coastal belt on which most people live is being reduced by wave action. There is a need to find alternative locations for housing, infrastructure and agriculture and to establish a secure supply of water uncontaminated by sewage wastes and seawater. Nauru's future lies in its mined, yet-to-be-rehabilitated interior.

Nauru is a small island developing state (SIDS). With most of its natural capital having been depleted prior to independence, being so isolated and with such a small population and persistent diseconomies of scale, Nauru's viability as an independent state has always been a challenge. The difficulty of 'greening' the economy of Nauru is clearly evident in its overall Environmental Vulnerability Index (EVI),¹ which is reported as being at the end of the scale, 7 – 'extremely vulnerable'. Of 235 countries for which an EVI has been calculated, Nauru is listed as the fifth most vulnerable (UNEP-Pacific Islands Applied GeoScience Commission [SOPAC] 2005). Not only are there natural environmental factors of isolation and climate to overcome, but also those that arise from the way in which its environment has been exploited, combined with a continuing heavy dependence on the outside world for everything from energy to food.

7.2.2 Nauru's economy

The Government of Nauru is candid about its situation. Its Aid Management Policy (Government of Nauru n.d.), in describing the development challenge the nation faces, refers to 'an enormous debt burden' and, apart from residual phosphate mining, lists the only significant other sources of national income as distant water fishing licence fees from non-Nauruan vessels and donor budget support.

The Republic of Nauru was for a time relatively self-sufficient, with little or no reliance on external assistance. This was made possible through revenue received from the mining of rock phosphate, which since the early 1900s was the single key activity driving the economy of Nauru. In fact in the 1970s and 1980s, Nauru had the highest per capita income – making it the richest country in the Asia Pacific region.

However from 1990 onwards, with a decrease in phosphate mining, Nauru started to face serious financial and economic problems. High government expenditure financed by offshore borrowings, coupled with poor investment decisions and corrupt practices, resulted in widening fiscal deficits and led to unsustainable levels of public debt. Weak economic and financial management changed Nauru from being a wealthy nation to one that is heavily indebted and for some years was, in the words of Nauru's Aid Management Policy, 'on the verge of collapse'. With phosphate mining minimised and a weak business sector, the government had limited options to generate economic activity.

Beginning with the 2004/05 and 2005/06 budgets, the government announced a range of economic and financial reforms to restructure the economy and reverse the current situation. With limited recovery options, external assistance continues to be a critical source to help rejuvenate and eventually 'green' the Nauruan economy.

The 2009/10 budget was the first for many years that was balanced, with a projected income of 57.8 million Australian dollars (AUD/A\$ – the currency of Nauru) matched by expenditure of A\$57.75 million. This balance was achievable only because development partners were prepared to inject A\$30 million into the budget (Government of Nauru 2011). The Nauru government has assessed Nauru's total debt

at A\$869 million, or 20 times the current GDP (Australian Department of Foreign Affairs and Trade 2012). This corresponds to a per capita national debt burden of approximately A\$8,700.

7.2.3 Nauru's development background

With extremely high debt levels, and with domestic revenue making up only around 40 per cent of the national budget, Nauru relies heavily on donor contributions to fund basic services for the community. While Nauru has had some success in reducing its debt burden in recent years, revenue options remain limited to fisheries and phosphate mining. Both industries are vulnerable to external influences such as currency fluctuations, global economic trends, market variations and adverse weather conditions (*ibid*).

Nauru's population is of the order of 10,000, and it is said to be the third smallest of the world's states. It has been the subject of numerous studies and reports, most of which conclude that the development challenges are so demanding that the National Sustainable Development Strategy, a 20-year development initiative, will require substantial, concerted support from development partners and others in the international community for many years to come. Nauru has gone from being one of the wealthiest countries in the world per capita, to the point where its last remaining investment assets had to be placed into receivership or sold to pay creditors. Political instability has not helped. In the 44 years since independence, more than 20 governments have been elected.

Over the period 2001–2008, Nauru derived substantial additional income in a way that could never have been anticipated – by hosting 'boat refugees' intercepted in the Indian Ocean while seeking to illegally enter Australia. In August 2012, the Australian government announced a plan to reopen the Nauru facility to hold so-called 'boat people' while their claims for refugee status in Australia are processed. This will mean an unexpected boost for Nauru's economy, though not as before in specific upfront payments.² More likely will be a Nauruan contribution towards its partnership with Australia, coupled with a boost for the local economy through provision of services to the refugee-holding facility.

The partnership with Australia brings large and continuing benefits in development assistance. In 2012–13, Australia indicated it would provide approximately A\$31.6 million in aid to Nauru, with the bilateral country programme accounting for about A\$23.7 million of this (prior to the refugee announcement that assistance was projected for 2012–2013 to be about A\$24 million; or A\$2,400 per head of population, as compared with total assistance from all other development partners of about A\$11 million (Australian Department of Foreign Affairs and Trade 2012).

7.2.4 Nauru as a small state

Nauru is built on a limited source of natural capital: phosphate deposits that are now almost exhausted. Nauru's future was compromised prior to independence by extraction of most of this resource during the colonial period. However, through

international legal action against the primary beneficiaries of the extracted phosphate, substantial financial compensation has been received – providing capital that could be used for rehabilitating mined lands and building the economy.

The challenge has been to convert the financial returns from phosphate into a viable future – not an easy matter for a very small island distant from the main cross-Pacific traffic and, having a very small population, beset by serious diseconomies of scale.

A Nauru Phosphate Royalties Trust was established as a sovereign wealth fund, invested largely in real estate in a number of countries with a view to providing a reliable national income (Le Borgne and Medas 2007). The fund was, for a time, successful, reaching a value of a billion Australian dollars at its peak. However, mismanagement led to its collapse, liquidation of its assets and the bankruptcy of the country. A similarly tiny Pacific island neighbour state, Tuvalu, had also established such a trust fund. In its case provision was made for management under a board of directors and an advisory board to which each donor to the fund appointed a member, professional fund management and international external auditors (*ibid.*). Tuvalu's fund has continued to operate successfully for 25 years.

Yet Nauru scored a second chance. Australia, the main beneficiary of the phosphate taken earlier from the island, in 1993 settled a case that Nauru had taken to the International Court of Justice with a compensation fund that over a 20-year period would be invested in rehabilitation. This was to be a 'greening' of the mined area of the island's plateau – of the order of 80 per cent of the total land area of Nauru, an area that is referred to locally as 'Topside'. The Nauru Compact of Settlement (NACOS) ended litigation by Nauru against Australia. As part of the settlement, Australia paid Nauru A\$57 million in cash and agreed to provide A\$50 million over a period of 20 years (paid in annual instalments of A\$2.5 million indexed at 1993 values, e.g. \$3.9 million in 2011–12). The projects to be undertaken with this money are governed by a Rehabilitation and Development Cooperation Agreement (RADCA) (Australian Department of Foreign Affairs and Trade 2012). Payments by Australia into the rehabilitation fund were completed in 2013. The expectation is that the agreement will remain in force and that these funds will continue to be earmarked for rehabilitation (*ibid.*), though it is also possible that these funds might be diverted to budget support.

In 1994, a joint Nauru–Australia team studied options for rehabilitation and prepared a rehabilitation plan, now commonly referred to in Nauru as 'the land use plan'.³ Rehabilitation is highlighted in Nauru's National Sustainable Development Strategy (NSDS) as one of five long-term goals (Government of Nauru 2009c). Yet this prominence is subsequently lost where it is not listed as one of the 'Major Priorities', but rather at a lower level of significance as part of the mining and quarrying sector.

7.2.5 Nauru's approach to 'greening'

Recent governments have expressed a determination to seize the chance to recover, rehabilitate and forge a path towards a sustainable future – a particularly difficult task

bearing in mind Nauru's total dependence on imported fuel, its high level of food imports, and a population suffering high levels of lifestyle disease, a legacy of the days of financial plenty when a steady stream of phosphate income led its people to cease cultivating and fishing (Rubinstein and Zimmet 1993).

Key actions needed to maximise use of renewable energy sources, grow more food and boost health through improved nutrition are now encompassed by government policies presented in the 20-year National Sustainable Development Strategy formulated in 2005, and substantially revised in 2009:

The Nauru NSDS 2005–2025 represents a roadmap to the reforms and strategies to be implemented in order to achieve a future where individual, community, business and Government partnerships contribute to a sustainable quality of life for all Nauruans. This visionary 20-year development plan addresses the disadvantages of the Nauruan people, who are experiencing low income levels, insufficient subsistence food production, poor health and educational services, and other deprivations associated with life on a fragile, degraded atoll environment (Republic of Nauru-Secretariat of the Pacific Community [SPC] 2007).

The current international discourse on 'green growth' and the 'green economy' has paid little attention to the particular challenges faced by small states such as Nauru, where diseconomies of scale frustrate economic and social development, and in the case of this SIDS, much of the natural capital with which it was endowed was depleted prior to independence. Nauru nevertheless has now conceptualised a development pathway that, if followed, could take it towards a green economy.

Nauru's Sustainable Development Strategy encompasses five long-term goals:

- a. stable, trustworthy, fiscally responsible government;
- b. provision of enhanced social, infrastructure and utilities services;
- c. development of an economy based on multiple sources of revenue;
- d. rehabilitation of mined out lands for livelihood sustainability; and
- e. development of domestic food production.

7.3 Keys to a green future

7.3.1 A more diversified economy

A more diverse range of business opportunities could obviously improve Nauru's economic resilience. Such diversification is, however, constrained by the extremely small local market and, for exports, by isolation and high transport costs.

Tourism has been proposed as one possibility. There is no question that Nauru has features of interest to tourists, and one NSDS goal is to 'promote development of small-scale sustainable ecotourism'. However, the miniscule number of visitors currently is made up of those who simply 'collect' countries or are seeking 'somewhere nobody

else has been' – an impression supported by internet blogs where the topic of Nauru tourism is sometimes raised.

Until Nauru has developed a capacity for handling tourists, and has eased its visa entry procedures, diversification of its economy would seem to rely on small enterprises – including those that might be labelled 'cottage industries' to produce products such as handicrafts for niche markets. The plant from which 'noni juice' is extracted grows wild in Pacific island countries and has been heavily promoted as an export opportunity. Since production of this crop was initiated a market has proved elusive and, in any case, other Pacific island countries are able to produce a cheaper product.

Labour is available for developing local enterprises. Estimates show that 22.7 per cent of the working age population in Nauru is unemployed (Nauru Bureau of Statistics 2007). Some of these, however, are not seeking work due to home duties, being in education, due to age or simply because they do not wish to work.

A local grouping of over 50 interested individuals has recently formed a Nauru Private Business Sector Organisation to lobby for assistance. Many of its members are women keen to establish small, home-based businesses. The organisation is frustrated by lack of formal recognition by government, which a spokesperson for the group described as 'not private sector-friendly'. He cited, among other things, a refusal to waive import duties on modest equipment needed for simple, small-scale business start-up. The spokesperson was also critical of donor efforts through government, such as a Commonwealth Secretariat initiative in 2008 to fund within government a Business Advisory Centre that:

...did not come near us. What we need is microfinance. ...We have ideas for small businesses and can make do with local materials, but we do need seed money to start. We go to Government and they say there's nothing for this.

7.3.2 A sound legal framework

It has long been recognised that Nauru's legal framework is inadequate to facilitate green economy activity, manage natural resources sustainably or regulate harmful forms of production and consumption. Several bills have been drafted in recent years with the intention of addressing this gap, but these are yet to gain parliamentary approval. Conspicuous among delayed legislation is a draft environmental management bill.

Living marine resources are managed under the Fisheries Act 1977, which is focused on oceanic tuna and foreign fishing. There is as yet no legislation to regulate inshore fisheries (except to licence fishing vessels). In this case, however, it appears the lack of legislation is not particularly troubling as officers of the Nauru Fisheries and Marine Resources Authority are working closely in support of developing community-based fisheries management groups, and are consciously accumulating experience and information that is to be used to inform the drafting of new fisheries legislation that directly targets Nauru's needs rather than introducing legislation modelled on other countries' circumstances (M Depaune, personal communication).

A major impediment to rational development in Nauru is the absence of legal authority under which the government could guide and regulate land use. This is considered further below.

7.3.3 A healthy and literate community

Incidence of diabetes that is amongst the highest in the world (more than 20 per cent of the adult population) means that the Nauruan life expectancy is one of the shortest in the region (49 years for males; 57 years for females) (Government of Nauru 2005, 69). Health is a major issue for Nauru. Causes include low nutrition standards due to a lack of locally produced fresh fruit and vegetables, low participation rates in sport and physical activity and high-risk lifestyle choices. Eighty per cent of females and 77 per cent of males in the 15–49 age group are overweight or obese (Nauru Bureau of Statistics 2007).

These chronic health problems not only compromise the capacity of the public to contribute to Nauru's development and the 'greening' of its economy, but also impose an otherwise avoidable extra cost on government to provide for health and medical services to treat the symptoms of lifestyle-related illnesses, including the high costs associated with the overseas treatment of some patients. The drain on the national budget is considerable, even allowing for the fact that development partners are contributing more than half the cost of the health and medical services budget.

Improved nutrition through the growth and consumption of locally grown food crops could do much to address this problem, but as indicated elsewhere in this case study (see 7.3.6) efforts to promote local cropping are being stymied by lack of water, highly contested land rights and, sadly, an apparent lack of interest.

Constraints on human capital for development arise from the fact that for such a small population, a full range of educational opportunities cannot be provided. An innovation that has served Nauru well for the past 40 years is its USP Centre (a satellite venue of the University of the South Pacific, based in Suva, Fiji). Here a limited range of tertiary-level courses is available through distance education, though relatively few Nauruans reach this level. Despite a high literacy figure of 95 per cent quoted for the general population in the NSDS, with only 68 per cent of those enrolled in schools regularly attending classes, literacy and numeracy outcomes are well below benchmarked standards. While literacy levels in schools are said to have improving marginally, numeracy levels remain a major challenge. Nonetheless, the donor-financed recent refurbishment of the secondary school is proving a boost to education, and this includes Nauru's first-ever trade training school.

7.3.4 A truly integrated approach to development

Nauru and other Pacific island small states have yet to achieve anything near integrated development and this may continue for some time to be a major constraint on achieving truly green development and an associated green economy. This quotation sums up the situation:

Previous attempt to coordinate sector activities in Government agencies have experienced loss of initial enthusiasm, disputes over responsibilities, a traditional

reluctance to share knowledge, and a lack of clear definitions of responsibilities and terms of reference. Instead, project-specific steering committees have been formed, but these lack continuity and strategic direction and are driven by the goals of the proponents (generally aid donors) rather than by national priorities. (Government of Nauru, 2007: 37).

Sectoral barriers to holistic development planning are as strong in a small state like Nauru as they are in large countries. It is to be hoped that this case study, by providing a 'big picture' view of Nauru's prospects for, and constraints on, an eventual 'greening' of its economy may help draw attention to the imperative of an integrated approach to development.

7.3.5 Water is crucial

The most vital of Nauru's ecosystem services is the water provided through rainfall that percolates into natural groundwater reservoirs. Since there is very little natural runoff from this porous island, there is a priority need to maintain the conditions that will maximise water retention in natural underground reservoirs. This is done by maximising the inflow of water to underground lenses, while also reducing evaporative loss at the surface. Unfortunately past mining has not helped in this regard, and recent mining extension down to the 20-metre contour is likely to have further compromised groundwater through destruction of much of the last fragment of natural forest cover that provides this valuable ecosystem service. Under depleted forest there will still be percolation of water, but its quality and its quantity will be reduced.

Nauru's restricted and unreliable water sources have been the subject of several donor-supported studies, coupled with training and provision of monitoring equipment. The problem is well known and means of addressing it are understood and have been worked out in detail (Government of Nauru 2007). Yet the problem persists. One reason is that it has not proved possible for the government to regulate extraction of groundwater through bores to minimise the risk of seawater contamination. This is because of the zealous determination of landholders to exert authority over resources that are traditionally and legally are theirs (Republic of Nauru Lands Act 1976). The quality of this groundwater is further compromised by contaminating effluent from sewage cesspits and septic tank overflow on private land (Thaman and Hassall 1996), over which there is no planning control.

The use of roofing for rainfall interception is constrained by a disinterest in keeping guttering in good condition to accommodate water flow into storage tanks. Though donors have been conspicuously involved in this area, there is as yet little indication that their examples through pilot projects are being followed.

7.3.6 Land secured and productive

All land in Nauru is registered and legally secure, based on a version of Nauruan customary tenure as interpreted by German colonists in the late-nineteenth century. Unlike the principles of English law used in most Pacific island nations, Prussian legal concepts applied at that time mean that resources within the land are deemed to be owned by those who own the surface (MacSporran 1995).

The land of individuals is certainly secure but, ironically, this begets a problem. Land tenure is a critical consideration in implementing the rehabilitation programme and for any development in the public interest. Nauru land is registered as some 630 irregular sized and shaped pieces of land, some less than a metre wide and only a few square metres in area. The land problem is further aggravated by a joint ownership system where many individuals hold 'a share' in a piece of land which may be, as in one case, as little as a 1/1,008 interest. A consensus has to be achieved among owners before any development of land can proceed (Food and Agriculture Organization [FAO] n.d.).

With a growing population and worsening fragmentation of land ownership as new generations emerge, attempts to use land for building or agriculture often result in disputes between owners of a land portion as to which member of a group owning a piece of land should have the use of it or derive rent from it. Similar issues arise in relation to water rights. Groundwater is owned by the owners of the land upon whose land the opening to a well is located. The water recovered from that well belongs to the landowner, who can allow others access to the well as thought fit. The fact that the water might percolate from below the land of another owner is not relevant, even if known. The main consideration is access. As a result, any attempt to manage and regulate the use of the underground water in order to ensure a reliable water supply is subject to apparently intractable disputes.

The area of land potentially available for agricultural purposes is small. Availability and sustainability are constrained by plot size, soil type, proximity to housing and other alternate uses. Any form of agriculture, even household food gardens, needs supplementary water during drought periods, so food cropping is further constrained as a result of the conflicts over water rights.

Land is often polluted; it is relatively infertile and has poor water holding capacity. Irrigation, if available, is rudimentary and relies on a potentially brackish underground water resource or a poorly maintained roof rainwater collection system. The use of fertilisers and composting is not common and soils are of high alkalinity, high phosphorus, low iron, potassium, manganese, copper, molybdenum and zinc. Given resources, there is no technical reason why these potential problems could not be rectified. However, there is insufficient land, even in the most optimistic scenario, to provide all but a supplement to Nauru's food requirements (FAO n.d.).

Even so, household food gardens could make a significant contribution to public health and, through improved health and import substitution, the economy. Yet sadly the current Nauruan lifestyle, developed over an extended period of wealth brought about by phosphate exports, is now largely divorced from the land. The will to till the soil and husband crops and animals has largely disappeared.⁴ Various attempts at encouraging communities to establish fruit trees round their households have come to nothing. The difficulty and expense of finding water for fruit trees during drought is a disincentive, but Agriculture Department officers also report a reluctance to engage. 'We gave out free fruit trees for householders', reported a Nauruan agriculture officer, 'I noticed one enthusiastic woman took as many as she could carry. Passing by her house some months later, I saw that these trees were still in their polybags, dead at her doorstep'.

Land is secure, yes, but it cannot be said to be productive. A comprehensive review of the current land tenure system recently commissioned by government in search of practical recommendations on action to address the numerous problems has produced a report. The findings have not been released.

7.3.7 Mined 'Topside' liveable and productive

Rehabilitation of 'Topside', the mined plateau area of the island, is of central importance to Nauru's future, but is yet to be fully acknowledged in practice.

The basic concept for rehabilitation of the mined area is that the fossil coral pinnacles that remain after phosphate ore is removed from around them are first knocked over, some removed, some crushed into various grades of gravel, the land surface smoothed and topsoil that was stockpiled in the later years of mining spread, with compost and mulch added, to initiate a soil-forming process for 124 hectares selected for agriculture and agroforestry. A comprehensive Land Use Plan prepared in 1994 provides for the creation of this arable land and for levelled land for other uses including housing, an alternative airfield site, a surface water reservoir and conservation areas. Conservation measures are proposed to protect areas where rainwater percolates to groundwater lenses and also where the last fragments of Nauru's natural biodiversity remain.

The coral pinnacles removed in the course of rehabilitation do have some potential economic value. There have been exports of crushed pinnacle rock for use as aggregate in the neighbouring low-lying atoll SIDS, Marshall Islands. Trial sectioning of pinnacle rock has revealed an attractive natural pattern and finish that could perhaps service a niche market for decorative floor tiles, a prospect that is being explored.

A basic principle of the approach to rehabilitation is that it be carried out in parallel with residual mining; i.e. as coral pinnacles are removed, residual phosphate is recovered. So long as there is mining activity there is cash flow and the equipment and personnel required for rehabilitation are on-site. This approach also provides for a proportion of phosphate-export income to be made available to complement the otherwise limited funding for rehabilitation.

As of mid-2012 – 18 years after the rehabilitation plan was approved by the Government of Nauru – coral pinnacles had been removed in a few small areas and several hectares had been levelled, topsoil added to a 1-hectare portion and a range of crops and ornamentals planted to test the effectiveness of this approach to soil regeneration. From personal observations (July 2012) the result is not encouraging, which raises questions as to the extent to which research or guidance has been used to underpin this effort. The Secretariat of the Pacific Community (SPC), a major regional technical assistance organisation, has provided training and materials for a plant nursery. The plants are ready (in fact, over-mature), but the soil in which to plant them is not.

It could be that the simple approach outlined in the 1994 Land Use Plan – direct planting into an artificially created soil profile of gravel topped with topsoil and a sprinkling of compost – is not as effective as expected. Perhaps nature must be imitated through a plant community succession, involving a sequence of plantings

of species chosen with regard to their capacity to bring about a gradual increase in soil organic matter and nutrients before planting fruit and nut trees and other food crops.

In the course of interviews conducted in August 2012, Nauru Rehabilitation Corporation officers were insistent that a recent neglect of mined area rehabilitation was temporary and that primary phosphate mining in future would be slowed so that rehabilitation could be resumed. Days later it became apparent that this view was not universal, as revealed by this news item: ‘The minister of the company responsible for phosphate exports in Nauru says ... “there is still room for us to expand maybe even further and achieve higher results”’.⁵

7.3.8 Resources of the sea used sustainably

Nauru’s marine resources can be categorised as the living marine resources of the island’s fringing reef, associated inshore pelagics, oceanic tuna schools and the unknown prospect of seabed minerals. The ocean around Nauru is very deep, but there are points at which seamounts emerge from the seabed – though these do not come near to the sea surface. Six such underwater features have been detected within Nauru’s EEZ. These have not yet been examined, but such oceanic features elsewhere are associated with concentrations of fish stocks. Experience elsewhere leads to the conclusion that seamounts are vulnerable ecosystems and need legal protection from potentially disruptive activities that could arise from commercial fisheries or mining interests. Though pelagic fish abound in Nauruan waters, Nauru has as yet been unable to establish a fishing industry of its own.

The narrow fringing coral reef of Nauru, some of which has been degraded by foreshore development, nutrient enrichment from sewage wastes and habitat destruction in pursuit of marine foods (Thaman and Hassall 1996), provides a limited base for local food supply, though any contribution is valuable. In recent years there has been a resurgence of activity among Nauruan fishers, and community-based fisheries management areas are now being established, long after the demise of traditional arrangements for management (M Depaune, personal communication). This is a positive trend that is contributing to the much-needed improvement in local diets, and with a measure of import-substitution benefit.

Improvements in fisheries management, and the capacity of Nauruan personnel to effect this, have been achieved with donor financial and technical support. Inshore, fisheries authorities have also established the beginnings of national infrastructure for food security, by installing fish aggregation devices (FADs) offshore of the fringing reef to help fishers target groupings of fish.

Beyond the reef and the pelagic resources available not too far offshore, there are tuna schools to which distant water fishing nations have access through a system of licensing co-ordinated through a Pacific islands regional body, the Forum Fisheries Agency (FFA). Fishing licenses issued to China, Japan, South Korea, Taiwan and the USA are an important source of revenue. The licence fees have recently been increased, and yet still it is perceived that these distant water fishing nations are not

making fair payments. Strong fishing lobbies in these countries have been effective in restraining their governments from paying more. The fact that illegal fishing is carried out by some vessels flagged in those countries heightens Nauruan concern that, again, they are being deprived of just returns for their exports.

There is no local processing of these tuna catches, as it is not practicable for large purse seiner fishing vessels to offload or to tranship using the limited port facilities of an island that has only small boat harbours.

One Nauruan initiative to secure a marine resource base for potential future economic exploitation is of interest to other small states. Under the terms of the United Nations Convention on the Law of the Sea (UNCLOS), Nauru has applied to the International Seabed Authority for the right to explore an area of international seabed in the Pacific. It has, for this purpose, established a state-owned enterprise, Nauru Ocean Resources Incorporated (NORI), which has an agreement with a foreign company that has seabed mineral exploration expertise and experience. The results of exploration, yet to be commenced, are obviously awaited with keen interest as, if proved commercially viable, this is envisaged as the export income substitute for phosphate mining as it nears its end.

7.3.9 Maximum use of local energy sources

Nauru imports all its energy in the form of petroleum – a major expense and impediment to economic development in general, and a serious constraint on efforts to green the economy.

Nauru's per capita carbon dioxide emissions amount to an extremely high figure (for Pacific SIDS) of 14.2 tonnes per capita (UNDP 2011). This is partly due to the fact that kiln drying of phosphate ore prior to export requires high inputs of heating energy. Domestic energy use levels are also high (at 900 kWh per month, which is the highest of all Pacific island countries), and until recently little had been done to encourage conservative use of energy. 'Greening' the economy obviously requires marked improvements in energy efficiency and maximum use of renewable sources.

This is recognised in Nauru's National Energy Policy Framework (Government of Nauru 2009a), which sets an ambitious goal of 50 per cent energy from renewable sources by 2015. Electricity meters have been installed and prices increased, and usage is already reducing. Problems to be faced in implementing the energy policy are listed in the NEPF as: poor management and governance; inadequate allocation of human and material resources; and lack of an institutional regulatory framework for efficient management of the energy sector.

Development partners have been encouraging a switch to renewable sources of energy. A total of 770 kW of solar grid-connected power as a demonstration has been provided by one donor, while solar-powered pumps have been installed at some wells by another and solar powered streetlights by a third. Yet little of this demonstration technology is maintained (personal observation, July 2012).

7.3.10 Successful adaptation to climate change

Coping with climate change and the additional costs that this will incur adds to Nauru's challenges and further frustrates its progress towards a green economy. Over the course of the twenty-first century, surface and seawater temperatures around Nauru are projected to increase, as is the island's rainfall (UNDP-GEF-SPREP 2011). This increase in rainfall is good news, as is an expectation that the incidence of drought will decrease. Should these trends continue then this should ease the shortage of water for people and for crops, a major constraint to life and development on Nauru.

However, heat stress and its consequences for health services will worsen, and there is no comfort in the projection that sea levels will continue to rise at 5 mm a year (ibid). The rising sea level means that the current coastal erosion problem will worsen, and even more saltwater will penetrate the already brackish groundwater lenses that are so essential to life on the island. Also discouraging is a continuing trend towards greater ocean acidification, with an aragonite saturation state of 3.4–3.5 expected in less than 20 years. The significance of this figure lies in it being the cut-off threshold for active growth of corals and shells. The corals of Nauru's limited narrow fringing reef, already degraded, are the key to an ecological food web that sustains inshore fishing harvests that contribute significantly to local food security. The prospect of a reef without the living coral needed to sustain the fish, octopus and shellfish populations is very troubling.

Fortunately, a study that attempted to gauge the impact of seawater temperature increase on the presence of tuna in Nauruan waters has concluded that up to the year 2100, a moderate increase in tuna is likely. Only in the worst case scenario (of three) is a negative impact identified, and the prospect of this is rated as 'very low' (Bell et al. 2011).

As climate change takes hold and sea levels rise, the narrow coastal belt on which most people live is being reduced by erosive wave action. Alternative locations for housing, infrastructure and agriculture are needed, as well as a secure supply of water uncontaminated by wastes and seawater. This gives urgency to action to establish Nauru's future in its mined and yet-to-be-rehabilitated interior.

Nauru is kept informed of climate change trends and projections through an Australia-based scientific analysis and prediction programme for the whole Pacific island region. Nauruans are trained to monitor climate change and are developing skills to advise on climate change adaptation measures, with assistance through a donor-funded Pacific Adaptation to Climate Change Programme implemented through the Secretariat of the Pacific Regional Environment Programme (SPREP).

7.3.11 Regulation of land use

The fact that government has little control over the nature and scale of development on private land is evident in Nauru's sprawling and inefficient mix of residential and commercial activities and its infrastructure. Such unplanned development has added greatly to development costs in other countries, and has also worsened public health problems. Though Nauru has 146 separate legislative acts, a conspicuous absentee

from that listing is a planning control act that broadly defines development and considers its impacts on the 'total' environment: social, economic and biophysical.

The objectives of such an act would be to provide for the fair, orderly, economic and sustainable use, development and management of land, including the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity. While acknowledging land ownership and rights, such an act could be designed to enable land use and development planning and policy to be integrated with environmental, social, economic, conservation and resource management policies at the national, district and site-specific levels. Such an act would also provide for the protection of public utilities and other assets, and enable their orderly provision and co-ordination for the benefit of the community and to balance the present and future interests of all Nauruans. A planning control act could also accommodate appropriate references to climate change and climate change adaptation.

A key hindrance to effective implementation of such an item of legislation would be land tenure and the individualistic interpretation of its provisions by landholders.

7.3.12 Removing a burden of waste

Nauru has inherited a range of industrial and residential buildings constructed during the days of the British Phosphate Commission (BPC). This might once have been viewed as a bonus. The fact that these were built with asbestos roofing and, for some industrial applications, asbestos insulation was installed, means that they are now a health hazard – worsened by a general disinterest in maintenance of the integrity of that roofing. Broken asbestos sheeting is widespread in Nauru. Not only does it add to health hazards, but it also poses a costly problem of waste disposal that has the potential to further detract from Nauru's progress towards a green economy.

Asbestos is not the only poisonous legacy of phosphate mining; so too are cadmium-rich 'slimes' arising from phosphate ore processing. Additionally, there is a widespread problem on the coastal belt of human waste contamination of groundwater through improperly sited sewage cesspits and septic tanks – another legacy of the absence of land use regulation in the public interest.

7.3.13 Technology for 'greening'

Donors have provided appropriate technology, coupled with basic maintenance skills, but a fuller transfer of that technology has yet to take place. It is unlikely that an internal or external market of sufficient scale will materialise to make local manufacture of technology a practical option, but maintenance skills could be enhanced. An element of formal technical training has recently been added to the local education system. In addition, projects with an element of technology transfer could make provision for capacity building in this area.

In the matter of information and communications technology (ICT), Nauru may be among few nations to have completely discarded its landline communications system in favour of mobile phone technology. This brings savings in infrastructure

maintenance costs, while opening new opportunities for local and international dialogue and data exchange.

This also opens opportunities for video conferencing as a substitute for time- and cash-expensive carbon dioxide polluting regional travel, in which Nauruan government officers are also obliged to service the consultation and reporting needs of various regional organisations and their regional programmes.

There have been interesting moves to use modern technology to develop a more favourable business environment on Nauru, in the form of a Mobile Money Service designed for cashless transactions. There is a potential for the facility to be extended to businesses for offshore transactions and to government for transactions such as payroll.

The SPC is making available ICT support through its Pacific ICT Outreach Programme (PICTO).

7.4 Support through regional co-operation and development partners

Nauru receives considerable support from development partners and also benefits from Pacific regional organisations that operate under the umbrella of the Council of Regional Organisations in the Pacific (CROP), which serves 27 small island states and territories, mostly south of the Equator. These island countries have many problems in common, and exchange information and experiences through forums organised by regional bodies and programmes funded mostly by development partners. In addition, Nauru is one of seven countries eligible to access a Pacific Islands Forum Smaller Island States Development Fund, which supports short-term development initiatives.

Nauru is well serviced by regional organisations. As a member of these organisations, the island has a say in their leadership and the setting of their priorities. Action on matters such as climate change adaptation and disaster risk management has been introduced in this way, and shared regional management of deep sea tuna resources through the Forum Fisheries Agency stands out as an excellent example of how effective regional co-operation can be in overcoming the negotiating weakness of SIDS.

Nauru is one of 15 Pacific states of the African, Caribbean and Pacific Group of States (ACP) grouping of the European Union, from which it is in a position to draw support directly, or through EU-funded programmes implemented by the SPC. One relevant example is the Deep Sea Mining Project, which is to produce a regional legislative and regulatory framework for deep sea mineral exploration and exploitation that, since Nauru is pursuing the possibility of engaging in seabed mining, addresses one of its pressing needs.

There cannot be said to be a shortage of development partner assistance for Nauruan efforts to 'green' its economy. Yet there is a downside to all this opportunity. It is not easy for a small state to prioritise, absorb and monitor all that is on offer. These tasks are made more difficult by the fact that each development partner not only has its own criteria for project selection and design, but some also have a particular political agenda in mind.

Despite the ground-breaking Paris Declaration, on which the Pacific Aid Effectiveness Principles have been modelled (Secretariat of the Pacific Forum 2007), the effectiveness of aid remains such an issue as to warrant regional ‘talkfests’ of its own. These add even more to the time–cost burden that small states face in sending representatives to these meetings.

7.5 The Nauru experience – conclusion and recommendations

7.5.1 Nauru's situation in summary

Nauru’s circumstances are a reflection of the planet at large – a battle against resource depletion, ecosystem breakdown and accelerating climate change. Despite this, Nauru’s development strategy embraces, on paper, an approach that is consistent with the idea of an ultimate ‘greening’ of its economy. This is coupled with an ambitious plan to rehabilitate its mined lands for agriculture, infrastructure and housing. Yet increased coastal erosion from sea level rises is prompting attempts to fight it at high cost, with physical structures that provide short-term artificial protection for infrastructure on Nauru’s narrow coastal belt. This ‘buys time’ and appears to delay the need to relocate inland, although the long-term cost can be expected to be much greater.

A short-term focus on maximising income from phosphate mining is understandable. However, a recent extension of mining has further degraded forests and biodiversity. This will have added to the complex uncertainties about the quality and permanence of the groundwater supplies so vital in this streamless island. The longer-term vision of a rehabilitated and resettled island interior safe from coastal erosion is the ‘green’ vision, but one that is increasingly difficult to achieve.

More encouraging are the efforts being put into tackling unsustainable energy use and introducing fiscal measures to engineer a shift from extravagant use of electricity by reducing subsidies on imported fossil fuels, metering electricity use and increasing its price.

Nauru has some of the policy and plan ‘tools’ for ‘greening’ its economy, and it has come a long way in addressing the dismal situation described in the Republic of Nauru – European Commission Joint Annual Report 2004–2005. Yet continued pressure to survive economically while also struggling to pay off a huge debt burden mean the greater long-term vision has been obscured.

These words eloquently express the situation:

Sustainable development has undoubtedly suffered from a failure of political will. It is difficult to argue against the principle of sustainable development, but there are few incentives to put it into practice when our policies, politics and institutions disproportionately reward the short term. In other words, the policy dividend is long-term, often intergenerational, but the political challenge is often immediate (UN Secretary-General’s High-level Panel on Global Sustainability 2012: 13).

7.5.2 Issues in the 'greening' of Nauru's economy

The government has made no secret that the failure of Nauru's sovereign wealth fund lay in maladministration (Government of Nauru n.d.). In the absence of such a fund, Nauru now struggles to face the many challenges to 'build self-sufficiency through local food production, water security and renewable energy' – as boldly expressed in section 5.1 of its *National Assessment Report on Implementation of the Mauritius Strategy* (Government of Nauru 2009b). It is a long way yet from a green economy.

One lesson to be learned is that even if perceived to be a slight on sovereignty and national pride, small states would best secure their futures and foster development partner confidence by emulating the example of another Commonwealth small state, Tuvalu, and place the administration of a *trust fund* in independent, reputable and professional hands.

One aspect of governance that hinders efforts towards a green economy is that, just as with large states, in Nauru the co-operative, shared approach needed for the truly *integrated development* that characterises a green economy is hindered by the sectoral segmentation on which its administration is based.

So long as there is a heavy dependence on imported energy, Nauru has limited options to reduce its greenhouse gas emissions. This is recognised and some moves to reduce this energy cost burden are underway. The proposed uptake of solar energy, if seriously pursued and sustained, could greatly ease the situation.

There are so many basic problems to be addressed in terms of water, sanitation and waste management, and the tapping of renewable energy sources that technological innovation and transfer stands out as an element of vital importance for 'greening'. Development partners have introduced new demonstration technology, though this effort has lacked focus, and there is limited technical capacity in Nauru that could benefit from further training.

There is an irony in respect of land management, in that Nauru is the one Pacific island small state that has a land registration system based on customary land tenure, and so has secured its indigenous people's traditional land rights. However, this has come at the cost of land-use planning regulation needed in the public interest. This lack of planning control stands out as a serious impediment to the 'greening' of Nauru's economy.

Public engagement in the 'greening' process is hindered by the absence of a well-organised and government-supported private sector that – if better organised and given consistent support by government – could engage primarily at the 'cottage industry' level, which seems suited to Nauru's circumstances.

Debt servicing, the necessity to operate its own international airline, and public service costs make for an unusually serious financial burden that will continue to be a brake on implementation of 'greening' measures. Since the government is the major employer, it is difficult to see how the cost of its public service can be reduced – another diseconomy of scale arising in a small economy where public administration requires the same range of sectors and specialties as does a large state.

Its development partners have provided Nauru with extensive advice, guidance and capacity building. This has done something to strengthen capacity, much to identify and rationalise needs, and to demonstrate technology appropriate to Nauru's circumstances. However, uptake of some of this assistance is slower than anticipated. There is an unrecognised downside to development partner support in that it is an enormous burden for the tiny public service of a small state such as Nauru to prepare reports for the multiplicity of conventions which large states have pressed it to join, while Nauruans are also required to report on projects and programmes to several development partners in differing formats. This is but one example of an opportunity for shared services, which regional organisations might provide and that would make it possible for government staff to concentrate on priorities at home and so improve prospects for Nauru and other Pacific SIDS to achieve the level of green development to which they aspire.⁶

Regional agency and development partner support also comes at a high cost of time that officials spend away from their tasks at home while attending meetings in other countries. The differing agendas of development partners and weaknesses in co-ordination and rationalisation of their efforts can also distract from rational progress towards 'greening'.

7.5.3 Prospects for a 'blue' future

Now that the concept of the green economy has gained traction, some island SIDS are beginning to view their futures in terms of a 'blue economy' – one in which marine resources figure prominently. From a blue economy perspective Nauru is no longer perceived simply as a rock isolated by ocean, but as one encompassed by an ocean that is an economic mainstay – currently in terms of tuna fishing licences, perhaps in future also including seabed mining.

There is growing support for this new attitude to the ocean and its resources. At the 2012 annual meeting of the Pacific Islands Forum a new regional programme was launched titled 'Large Ocean Island States: The Pacific Challenge'. This follows on from the Global Partnership for Oceans, and a programme focused on the health of the ocean: the Pacific Oceanscape Framework.

Notes

- 1 The EVI refers to the extent to which the natural environment is prone to damage and degradation. Values range from EVI = 1 (low) to EVI = 7 (extreme vulnerability) for any of the 54 indicators used to establish the overall EVI.
- 2 According to Nauru's Minister of Foreign Affairs, as reported in *The Australian*, 18 August 2012.
- 3 The author was a member of the rehabilitation study team.
- 4 There is, however, an encouraging trend in Nauruans resuming the fishing at which, in pre-mining days, they excelled.
- 5 Radio New Zealand online 2 August 2012, available at: www.rnzi.com/pages/news.php?op=read&id=70005 (accessed 18 February 2014).
- 6 An example suited to the Pacific island region would be for the Secretariat of the Pacific Environmental Programme to undertake some of the reporting to biodiversity and environmental convention secretariats on behalf of its small state members.

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Chapter 8

The Political Economy of Transitioning to a Green Economy in Samoa

Toeolesulusulu Cedric PS Schuster

8.1 Drivers of transformation to a green economy

Samoa's economy was predominantly driven by the export of agricultural products during the German colonisation period from the 1880s, through the New Zealand occupation between 1914 and 1961, to the early stages of Samoa's independence up until the 1990s. Since the 1990s, agricultural exports have declined and they now only account for less than 10 per cent of the country's gross domestic product (GDP). The decline in agricultural exports was driven by several factors, including changing export markets, legislative amendments that made it harder to maintain large plantations, the devastating cyclones that besieged the country in 1990 and 1991, and the taro blight of 1993. As the contribution of the agricultural sector decreased, other new industries started to take off, such as the fishing, tourism, manufacturing and tertiary service industries. Additionally, with increasing Samoan emigrant populations residing in American Samoa, New Zealand, Australia, USA and other parts of the world, the remittances contribution to the national economy now fluctuates around 24–25 per cent of GDP (Ministry of Finance [MoF] 2011a).

Since the mid-1990s, as Samoa recovered from a bad patch in its national economy during the late 1970s to early 1980s, its development partners and global development banks, such as the Asian Development Bank and the World Bank, were willing to finance the infrastructural development needs of the country. This provided a major boost to the local economy, with new money circulating within the country despite a low export market. The shifts in the export-earning and income sources available in the country in the late 1990s still reflect the main contributors to the economy.

Without resource-extractive industries such as mining or large commercial logging operations, Samoa has never really suffered extreme damage to its natural resources or environment compared with other countries. Nevertheless, the small size of the country and its fragile and limited natural resource base meant that some of the economic development activities stressed the environment; so that when the cyclones hit the country, the already fragile environments took a hard knock. As a result of the cyclones and the taro blight on the agricultural sector, the Samoan government at the time promoted diversification to other industries and taking the path of sustainable development.

At the same time, the global-level Earth Summit in Rio de Janeiro, Brazil, in 1992 put the spotlight on sustainable development as a new paradigm for economic development. The resulting multilateral environmental agreements such as the UN

Framework Convention on Climate Change (UN FCCC), the UN Convention on Biological Diversity, the UN Convention on Combating Desertification (UNCCD) and the establishment of the Global Environment Fund (GEF), all of which Samoa ratified early on, provided the international framework and financing capacity that enabled Samoa to fully engage and address some of the environmental issues at the national and international levels.

Furthermore, the impact of the global economic crisis, especially on the main imports of Samoa such as oil, provided impetus for the government to seek renewable energy sources that would reduce its high dependence on imported oil, and improve energy efficiency.

These national and international factors were the main drivers that shaped the transformation of Samoa's economy into a green economy.

Since 1992, the Samoan government has slowly but effectively put in place appropriate measures to improve environmental management, conserve biodiversity and sustainably utilise its limited natural resources. The Government of Samoa has worked diligently to address sustainable development through a green economy by implementing policies and to encourage green industry growth, while being vocal internationally on issues such as climate change where small, and in particular, developing states such as Samoa are bearing the brunt of the pollution caused by larger developed nations.

Although progress is small and incremental, what can be seen over the last 20 years is a country committed to sustainable development. There is still a lot that can be done and much of it is now either being implemented or is planned for implementation through the Samoa Development Strategy 2012–2016.

The main constraints or stumbling blocks for Samoa's transformation into a green economy at the national level include availability of adequate financing, either from the national budgetary allocations or international financing institutions and development partners; availability of appropriate technical capacity to fully realise the plans and policies; availability of appropriate green technology at affordable prices; and market accessibility. Despite these constraints, the Government of Samoa perseveres.

8.2 Samoa – the small state

8.2.1 Country description

Samoa consists of four main inhabited islands (Upolu, Savaii, Manono and Apolima) and six smaller uninhabited islands. The country lies between 13° south to 14° south and 170° west to 173° west and has a total land area of approximately 2,934 km², with an Exclusive Economic Zone of 120,000 km².

From the 2011 census, Samoa's population is 187,820. More than half of the country's resident population live on Upolu, with just under 20 per cent of the population residing in the capital Apia and its surrounding urban area. The annual population growth rate between 2001 and 2011 was 0.63 per cent. Since independence in 1962, significant levels of emigration to New Zealand, Australia and the USA have slowed

the overall rate of population growth. The net migration rate estimated for Samoa is 1.6 per cent per annum (Samoa Bureau of Statistics, 2011).

8.2.2 Physical environment

Samoa has a rugged and mountainous topography. On Upolu, the central mountain range runs along the length of the island, with some peaks rising more than 1,000 m above sea level. The bigger island of Savaii, with a total land area of more than 1,800 km², has central volcanic peaks reaching more than 1,860 m.

More than 170,000 ha are categorised as forest areas. Around 46 per cent of Upolu and 69 per cent of Savaii's total land area is covered by forest. The biggest portion of Upolu's forest area is made up of open forest and secondary forest, which clearly shows the high degree of forest depletion on the island. Savaii's mid- to upland forest makes up for the largest portion of the total forest area, more than open forest and secondary forest combined.

Samoa's climate is characterised by high rainfall and humidity, near-uniform temperatures throughout the year, winds dominated by the south-easterly trade winds and the occurrence of tropical cyclones during the southern-hemisphere summer.

Samoa has two seasons, marked by significant differences in rainfall. The annual rainfall is about 3,000 mm (varying from 2,500 mm in the north-west parts of the main islands to over 6,000 mm in the highlands of Savaii), and about 75 per cent of the precipitation occurs between November and February. There are commonly tropical cyclones during Samoa's wet season, particularly between December and February. Samoa is also vulnerable to anomalously long dry spells that coincide with the El Niño Southern Oscillation (ENSO). Temperatures are generally uniform throughout the year, with a slight seasonal variation.

8.2.3 Economy

The economy of Samoa has historically been dependent on agriculture and fishing, and, more recently on development aid and remittances from Samoans working overseas. The agriculture and fisheries sectors combined employ two-thirds of the labour force and contribute 90 per cent of exports.

Socioeconomic parameters place Samoa on the medium level worldwide in terms of human development. Per capita income is slightly more than US\$2,000, and the government spends 4.1 per cent of GDP on health while spending 4.5 per cent on education. Based on the 2008 Household Income Expenditure Survey (HIES), around 26.5 per cent of the population live below the Basic Needs Poverty Line compared with 15.6 per cent in 1997.

Samoa is a small economy, with a GDP of around US\$537 million in 2009. Samoa's economy has traditionally depended on development aid, family remittances from overseas, agriculture and fishing. Samoa is one of the highest recipients of remittances in the world, totally over US\$150 million in 2011 or a quarter of GDP.

Only around 12 per cent of Samoa's total population is engaged in formal paid employment. Two-thirds of Samoa's potential labour force is absorbed by subsistence village agriculture, a dominant sector in the Samoan economy. The agriculture sector contributed 11.5 per cent of GDP in 2010, down from 20 per cent in 1998. The fisheries subsector contributed around 6 per cent of GDP in 2009 and 2010, slightly down from an average of 8 per cent in 1998 and 1999. The industrial sector (including utilities and construction) contributed 26.6 per cent of GDP in 2010. The contribution of the services sector to GDP rose from 56 per cent in 1998 to around 62 per cent of GDP in 2010, of which tourism accounted for 25 per cent of GDP. The manufacturing sector, which processes mainly agricultural products, contributed around 8.5 per cent in 2010, down from 14.5 per cent in 1998. Samoa has a Foreign Trade Zone, where one factory makes automobile electrical harnesses for an assembly plant in Australia, employing around 900 workers in 2011, down from nearly 3,000 in 2008.

The overall economy has major imbalances in two areas. One imbalance is in foreign trade. Total imports form about 50 per cent of GDP, whereas exports are only slightly over 25 per cent and, therefore, the ratio of imports to exports is high. Agricultural products make up about 90 per cent of exports, with relatively low value-added. Any redress in the merchandise trade deficit originates from remittances, exports of services (e.g. tourism) and foreign aid. Private sector growth is constrained by a narrow resource base, limited infrastructure, geographic isolation, dependence on fuel imports, a lack of skilled labour and a small domestic market.

Samoa's main primary industries are agriculture and fisheries. Secondary sectors include manufacturing, construction, electricity and water. Tertiary sectors include hospitality (hotels and restaurants) transport, communication, finance and business services.

Agriculture has traditionally provided the bulk of Samoa's commodity exports, including coconut oil, coconut cream, bananas, taro, kava and fish. Exports are subject to a number of constraining factors such as price stability, high transport costs, lack of overseas markets and harsh weather conditions. However, tourism has taken a prominent role in Samoa's economy.

Fisheries are critical both for commercial purposes and the sustenance of the populace. According to the 2005 agricultural survey, a total of 5,060 households harvest fish, with 77 per cent consuming all that they catch while 23 per cent sell their surplus at market.

Since 1994, tourism earnings have been the largest source of foreign exchange. Between 2009/10 and 2010/2011, the number of tourists visiting Samoa increased from 128,205 to 129,081. Visitor numbers are currently growing at an annual rate of 0.7 per cent. The earnings from tourism activities have grown significantly from 297.6 million Samoan dollars or tala (T) in 2010 to T306.3 million in 2011.

8.2.4 Environment and resources

Samoa's biological environment reflects a rich natural heritage of high species diversity and endemism. It is estimated that Samoa supports 775 native vascular plant species,

of which approximately 30 per cent of the angiosperms are endemic. There are about 280 genera of native angiosperms (more than any other archipelago in Polynesia). In addition, there are about 250 introduced plant species and 47 threatened plants. Samoa's fauna consists of 21 butterfly species, 11 species of reptiles, 43 resident bird species, eight of which are endemic, and three flying fox species (Government of Samoa, 2001).

The ecological vulnerability inherent in its smallness, isolation and limited genetic variability is exacerbated by the ever-present threat of natural events such as cyclones, tsunami and droughts, along with alien invasive species.

8.2.5 Infrastructure

Samoa's energy consumption in 2010 was estimated at around 123.49 kilotonnes of oil equivalent (kTOE); this was an increase of 4.6 per cent from 2009. Approximately 33.3 per cent was met by biomass (firewood), while 63.8 per cent was met by petroleum products, with the remaining balance from hydropower, coconut biofuel and other minor renewables. The total renewable energy consumption was estimated at 41.11 kTOE, with the residential sector accounting for 90 per cent of the total biomass consumption (36.81 kTOE) (MoF 2010).

Samoa depends upon imported petroleum products for much of its energy needs. Unleaded petrol is widely used for terrestrial and marine transport, and automotive diesel is used for electricity generation and heavy machinery. Since 2001, diesel has supplied about half of Samoa's electricity. About 95 per cent of Samoa has access to electricity. The government's objective is to change Samoa's reliance on fossil fuels to renewable energy. The Samoan government has endorsed the Samoa Energy Policy, which is intended to encourage the use of renewable energy sources like solar, wind, coconut oil and energy from waste.

8.3 Green economy concept

While there is no single definition, the term 'green economy' refers to a low-carbon, resource-efficient economy that is socially inclusive (UNEP 2011). More broadly, it has been described as an economy that 'results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities' (ibid). Importantly, the green economy is not meant to displace the sustainable development paradigm, but offers a more effective and invigorated framework for achieving this. It revisits and re-emphasises four core elements, notably the precautionary principle, the conservation of biological diversity and ecological integrity, the principles of intra-generational and inter-generational equity, and the internalisation of environmental costs, including the 'polluter pays' principle.¹

Green growth is basically a practical means to achieving the transition to a green economy and sustainable development. It allows 'green' to drive growth and investment, rather than to be its casualty or cost. It has the capacity to produce sustainable growth and profits. At the same time, green growth can directly help to improve livelihoods by creating (green) jobs, enhancing energy and food security, and generally steering

economic activity away from short-sighted plunder of natural capital, on which the livelihoods of both present and future generations ultimately depend.

8.4 Pathways for transformation into a green economy

In 2011, the Pacific region, including Samoa, identified as part of its preparation for the UN Conference on Sustainable Development (Rio+20) the following five modalities and pathways for greening the economy.

1. Investment in natural capital

The green economy places a value on biodiversity capital and ecosystem goods and services, recognising these things as an important source of sustenance, incomes and general well-being, and worthy of investment (UNEP 2011). Investment in natural capital promises many benefits. It has the capacity to create (green) jobs, enhance food security, reduce poverty and generally promotes more sustainable and equitable livelihoods and growth.

2. Sustainable consumption and production

The green growth approach, based on sustainable production and consumption, means less waste and environmentally degrading practices, and more eco-efficient use of scarce resources like water, energy and natural (land and marine-based) capital. This approach is more conducive to creating satisfying and sustainable livelihoods for both present and future generations, greater social equity and less poverty. It also offers new economic opportunities through greener but globally competitive economic activities like organic agriculture, based on traditional resource management and farming practices whose exports target high-value niche markets (Secretariat of the Pacific Community 2008). Ecotourism also provides opportunities for eco-efficient growth (Earth Systems 2010).

Green production and consumption also sit easily alongside cultural (subsistence) approaches to land and marine resource use, in particular the obligation of communal ownership, sharing, self-reliance, and traditional farming and fishing methods.

3. Sustainable infrastructure

Sustainable infrastructure as another pillar of green growth is a system for delivering housing, transport, energy, water and waste and sanitation services without over-using resources and in a way that minimises environmental harm.

4. Greening business and markets

The shift towards a green economy offers new business opportunities: growth based on the production and use of green goods and services, the creation of green jobs and the use of green energy. Opportunities for green jobs will arise in sectors like energy, agriculture/forestry, waste management and tourism. A green economy approach demands that the price of environmental externalities are internalised. This should provide a more accurate picture of the true value and cost of an industry, and in turn be a better guide to development decision-making.

5. Green taxes and budget reform

Green tax and budget reform (GTBR) is a critical tool of green growth. Fundamentally, it seeks to redress past failures of the traditional growth paradigm to take account of all ecological/resource risks and costs. Green growth requires a transformation in the taxation system to internalise the ecological price into the market price. In this way, taxes and subsidies can be used to send a price signal to consumers that more correctly reflects the real cost of production. Importantly, the main purpose of GTBR is increased resource efficiency and environmental protection, not more revenue. However, the benefits also include (green) job creation and higher demand for eco-efficient products and services.² GTBR is not new. Principle 16 of the Rio Declaration called for the internalisation of environmental costs and the use of economic instruments that recognise the ‘polluter pays’ concept.

8.5 Transformation of Samoa's economy into a green economy

The transformation of Samoa into a green economy is driven by a combination of factors. These include political commitment from the Government of Samoa, along with national circumstances such as natural disasters, a shift in the macroeconomic policy framework and a changing market. Additionally, the global emphasis on sustainable development – driven largely by the availability of international financing mechanisms and greening of lending policies by international financial institutions – has married the goals at the national and global levels to advance Samoa's progress.

Of special note in the transformation process is the increase of technical capacity within the region and in-country, facilitating continual progress, and the global availability of green technology to support implementation of national policies and plans.

8.5.1 Political will

Foremost in addressing national development is commitment and political will at the highest level of government. Therefore, to embark on a major shift in development approach such as the transformation to a green economy there must first be the *political will*. In Samoa, this has been a factor over the past 20 years, since the Rio de Janeiro Earth Summit in 1992. Throughout this period, the Samoan government and parliament have passed relevant legislation that supports sound environmental management and strengthens the environment sector, both in the public and private sectors. The green economy also requires government commitment in the provision of financial and technical capacity, as well as in international engagement.

Government commitment can further be seen in the prime minister's and cabinet speeches at the United Nations General Assembly (UNGA) and associated UN fora and at other international fora, including the Commonwealth Heads of Government Meeting (CHOGM), the Pacific Islands Forum Leaders Dialogue and regional ministerial meetings, where they have consistently urged the regional and the global community for measures to combat climate change and environmental degradation, and to promote green development such as sustainable energy use and sustainable fisheries management.

Within the public sector, political will from government is noted with its commitment to establish the Ministry of Natural Resources and Environment as one of the largest government ministries, along with substantial financing from both the national budgetary allocation and international aid. Perhaps the biggest commitment comes in the elevation of the environment sector to be a key priority, and mainstreaming it into other priority sectors in the Samoa Development Strategy 2012–2016.

8.5.2 Legislative frameworks

Samoa has continuously reviewed and updated its legislation to support sustainable development and a green economy. The following are some examples of the numerous laws passed in Samoa supporting sustainable development and the transformation into a green economy:

- Lands and Environment Act 1995: to support the conservation of biodiversity, promote adaptation and mitigation measures for climate change; ensure protection of watershed areas; and combat desertification.
- Planning and Urban Management Authority (PUMA) Act 2007: to support the conduct of environmental impact assessments for major developments, as well as establishing codes of environmental practices and development of sustainable management plans for urban areas.
- Tourism Bill 2012: to promote sound environmental practices for tourism and the hotel industry.
- Water Resources Act: to promote conservation and sustainable use of water resources, and access to safe drinking water.

With numerous laws passed, the greatest difficulty one finds is to ensure effective implementation, of which the Samoan situation is no exception. Based on the consultations and assessment of the body of work done over the years, it is clear that the commitment for implementation is certainly high. The challenges identified are related to lack of funding and human resources, both in terms of technical capacity and actual staff. Other difficulties are mostly related to a lack of knowledge on the part of the public about the laws, and others trying to circumvent the proper procedures.

8.5.3 Samoa development strategies

The preceding annual Samoa Economic Strategies (from 1998–2001) and Samoa Development Strategies (2002–2012) (Box 8.1) have all recognised the environment as an integral component of national development, but used have the environment more as a cross-sectoral issue which has resulted in it having limited visibility. The 2012–2016 Samoa Development Strategy made a very strong commitment to the area of the environment, with not only its being one of the priority sectors; it has also been mainstreamed into other priority areas such as the economic sector and infrastructure sector. The overarching goals of the environment as a priority area are for the transformation to a green economy and promotion of green growth.

Box 8.1 Strategy for the development of Samoa, 2012–2016

Vision: Improved quality of life for all

Theme: Boosting productivity for sustainable development

Priority Area 1: Economic Sector

- Key Outcome 1: Macroeconomic Stability
- Key Outcome 2: Reinvigorate Agriculture
- Key Outcome 3: Revitalise Exports
- Key Outcome 4: Sustainable Tourism
- Key Outcome 5: Enabling Environment For Business Development

Priority Area 2: Social Policies

- Key Outcome 6: A Healthy Samoa
- Key Outcome 7: Improved Focus On Access To Education, Training And Learning Outcomes
- Key Outcome 8: Social Cohesion

Priority Area 3: Infrastructure Sector

- Key Outcome 9: Sustainable Access To Safe Drinking Water And Basic Sanitation
- Key Outcome 10: Efficient, Safe And Sustainable Transport System And Networks
- Key Outcome 11: Universal Access To Reliable And Affordable ICT Services
- Key Outcome 12: Sustainability Energy Supply

Priority Area 4: Environment Sector

- Key Outcome 13: Environment Sustainability
- Key Outcome 14: Climate And Disaster Resilience

Within the current SDS, a strong emphasis is placed on the mainstreaming of the environment into the economic sector, the social policy sector and the infrastructure sector. The current objectives flow from the previous SDS, but with more direct and strong emphasis on greening the economy under the objectives of sustainable tourism, sustainable agriculture, business development, sustainable access to drinking water and basic sanitation, an efficient, safe and sustainable transport system and networks, sustainable energy supply, environmental sustainability, and climate and disaster.

8.5.4 Greening of the sectors

Samoa has developed sector policies over the past ten years that reflect the principles of sustainable development and are supported by actions that promote the transformation into a green economy through green growth. Despite this, implementation of the policies and plans are dependent on availability of funding and access to technical capacity and affordable green technology.

Environment

The primary focus of the environment sector has been the development of policies and plans to support implementation of the laws passed promoting conservation and sustainable use of natural resources. In this sense, a lot has been achieved with national plans and policies now completed for each issue such as biodiversity, climate change, waste management, toxic chemicals, energy and sustainable land management. In all the plans and policies established, there is strong emphasis on the promotion of green technology.

Environmental work is still guided by the National Environment and Development Management Strategy (NEMS), which was prepared in 1994 (SPREP 1994). In practice, much of this work has been integrated into the SDS and sectoral policies and plans.

The Ministry of Natural Resources and Environment (MNRE) has a Corporate Plan (2008–2011; and 2012–2014), and a number of plans for MNRE divisions, including the National Biodiversity Sector and Action Plan (NBSAP), the Sustainable Land Management Plan (SLMP), the National Implementation Plan on Persistent Organic Pollutants and the Waste Management Policy and Waste Management Strategy.

- **Biodiversity conservation.** Through the NBSAP, Samoa has developed a conservation of biodiversity programme that aims to expand its protected areas network, which currently accounts for around 10 per cent of land area. The protected area network includes national parks, watershed areas, community-based conservation areas and former plantation forests protected as conservation forests rather than being logged. In the marine area, more than 60 villages have established traditional fishery reserves to go along with two district marine-protected areas and a government marine reserve. The protected areas are being used for nature tourism, conservation of biodiversity, carbon sinks, and breeding and nursery grounds for native biodiversity.
- **Land management.** The Sustainable Land Management Plan addresses enhanced productivity and livestock production from improved pasture, enhanced crop production through improved soil fertility maintenance, identification of new commercial uses of forest plantations, and the identification of alternative species for reforestation purposes.
- **Waste management.** The Waste Management Strategy provides the framework for addressing both solid and liquid waste, including hazardous wastes. Some of the programmes relevant to the green economy include promoting recycling with the private sector and a ban on non-biodegradable plastic bags. The ban on plastic shopping bags was also instituted as part of the waste minimisation

programme. Management of residential waste has changed significantly over the last decade from being burnt or buried: a roadside collection service begun in 1997 now covers the whole country. All household waste collected is delivered to a centralised semi-aerobic landfill system in Upolu and Savaii.

- **Climate change.** Developed in 2007, the Samoa National Climate Policy (NCP) provides a national framework to mitigate the effects of climate change and adapt to its impacts in an effective and sustainable manner. It provides overarching, strategic direction for all of the government's climate change initiatives. The goal of the policy is 'to enhance Samoa's response to the impacts of climate change in support of national sustainable development efforts' (MNRE 2007). The NCP has been effective in ensuring that the full range of climate-related activities are undertaken. The major areas of activity have been on mitigation and adaptation through external funding. The NCP has helped to ensure that there has been progress in the enabling activities involving awareness, information, capacity building and the regulatory framework. Most of the actions identified in the NCP are either being implemented or are in the process of planning and preparation.
- **Environmental management.** Samoa enacted the Planning and Urban Management Authority (PUMA) Act 2007, which requires all developments to obtain development consent. Development consent provides the opportunity for the PUMA to review developments and advise on the preparation of environmental impact assessments. To date, this process has been a useful tool for the promotion of the concept of sustainable development, including promoting environmental guidelines that facilitate the transformation into a green economy.

Infrastructure

- **Energy.** Samoa's first ever dedicated National Energy Policy (NEP) was approved by cabinet in June 2007 and was followed by a Strategic Action Plan in 2008. The NEP identifies five objectives: improved energy planning; increased use of renewables; an efficient, reliable and affordable electricity supply; safe access to petroleum products; and efficient transport.

The NEP identifies the need to promote clean and renewable energy to reduce Samoa's heavy reliance on imported fossil fuel. The commitment to renewable energy in the NEP has helped to ensure that Samoa has made progress in the last five years in promoting the use of renewable energy, including pilots on solar energy, coconut oil and biogas, and planning for more hydropower schemes.

SDS 2012–2016 re-emphasised through 'Key Outcome 12: Sustainable Energy Supply' the commitment to increase the contribution of renewable energy services and supply by 20 per cent by the year 2030.

To promote renewable energy, Samoa has participated in a Global Environment Fund (GEF)-funded Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP), including demonstration of renewable energy installations (e.g. the copra biofuel project for some government vehicles and Apolima Island solar power project) and building capacity (e.g. related to

geothermal and biofuels and involving socio-economic evaluations, such as for the Tafa'igata waste-to-energy project).

The Pacific Environment Community Fund is supporting a US\$4 million 400-kW grid-connected solar photovoltaic system project. The Government of Samoa has also committed to exploring other options for renewable energy, including biomass and wind. Hydro-electricity, which currently provides 36 per cent of electricity, is also being assessed for potential sites in a co-management approach with traditional landowners.

In promoting energy-efficiency products, an Asian Development Bank-funded project installed power factor correction capacitors for the top 20 commercial users in the country. A long-term plan is currently under development for other energy-efficiency options, including conversion of streetlights to efficient alternatives and energy audits for government buildings – as highlighted in the Pacific Islands Forum Communiqué of 2011, which was the result of the Pacific Islands Heads of Government Dialogue.

- **Transport.** Samoa's transport system is all privately operated, with government vehicles being the only ones under the government's control. At present there is no policy to convert government vehicles to fuel-efficient vehicles, mainly due to the current costs of such vehicles and the availability of the technical capacity nationally to service them.

The Land Transport Authority (LTA) is the main agency of government overseeing both transportation and road management. LTA is a recipient of PIGGAREP funding, testing gas emissions from vehicles with the goal of establishing a fuel-efficient standard that will further enhance the existing restrictions on the importation of vehicles over 12 years old.

- **Water.** Samoa's water system services roughly 95 per cent of the population, with the remainder receiving its supply exclusively from wells, springs and small rainwater reservoirs. Although water is widely available, only a small proportion of the population receives safe, treated water due to village-owned and -operated water systems. A multi-sectoral Water Sector Policy and Plan developed in 2008 provides a framework for collaboration and implementation of activities that promote sustainable access to safe drinking water.
- **Housing.** Although no policies have been developed for the housing industry, discussions are underway through the energy efficiency programme to conduct an energy audit for all government buildings, with the goal of converting them to energy-efficient buildings. This will be used as a catalyst for environmentally-friendly building design. Furthermore, the environmental impact assessment component of providing development consent for buildings also provides advice on the use of green products, technology and designs for buildings.

Economic

- **Agriculture.** Agriculture plays an important role in the economy and the everyday lives of Samoans. Although the sector has decreased in its contribution

to the GDP from 17 per cent in 1999 to less than 10 per cent of GDP in 2010, the 2009 agricultural census showed that approximately 32 per cent of households were non-agriculturally active, while 68 per cent were agriculturally active or relied on a mixture of subsistence agriculture and cash income.³

The Agriculture Sector Plan (2011) goal ‘To revitalise the agriculture sector to increase its contribution to the national GDP from 10% to 20% by 2015’ focuses on reducing poverty and improving economic growth through four key sector policy objectives (Box 8.2).

Policy Objective 4 of the Agriculture Sector Plan has strong emphasis in advancing the implementation of environmentally-friendly production and farming systems to appreciate the value of natural resources, and key outcomes focusing on greening the economy through the promotion of organic farming, improving agricultural production for export and import substitution through environmentally-friendly approaches.

Organic farming is promoted by the private sector through the Women in Business and Development Inc. working with local farmers for organic certification and export of the products.

- **Tourism.** The Samoa Tourism Development Plan (STDP) 2008–2013 promotes sustainable tourism as its core vision, and identifies nature and culture as its main attractions. Within its development objectives, the STDP requires the continuous development and enhancement of tourism facilities in accordance with excellent quality standards, including supporting environmental sustainability as the foundation of quality tourism standards.

To support this objective, the Samoa Tourism Authority (STA) has embarked on developing nature tourism attractions in collaboration with the MNRE and private sector partners, while ensuring that all new tourism developments comply with environmental impact assessment requirements and promoting traditional beach *fales* (traditional bungalows) and green designs for hotels.

Box 8.2 Agriculture Sector Plan

Policy Objective 1: to strengthen policy, legal, regulatory and strategic planning frameworks for sustainable agriculture development

Policy Objective 2: to improve national self-reliance in food production and nutritional security

Policy Objective 3: to enhance private sector capacity in improving agricultural productivity, value-adding and marketing

Policy Objective 4: to ensure sustainable adaptation and management of agriculture resources

8.5.5 Pacific regional efforts for green economy transformation

Within the Pacific islands, the Pacific Islands Forum Leaders and Pacific regional agencies – such as the Secretariat for the Pacific Regional Environment Programme (SPREP), Secretariat for the Pacific Community (SPC), University of the South Pacific (USP) and the Pacific Islands Forum Secretariat (PIFS) – have been at the forefront of advocating for sustainable development, including the transformation of Pacific island economies into green economies in a blue ocean. This is based upon the understanding of the vulnerabilities of the Pacific environments to global economic shocks, and more importantly the changing climate and its fragile and limited natural resources.

This strong support for the Pacific region on sustainability is evident in the ratification by most Pacific island small states of most global multilateral environmental agreements, including some specifically for the Pacific region itself. Furthermore, the establishment of the SPREP, charged with providing support and advice for Pacific island nations on sound environmental management, shows this commitment from within the region.

The 2011 Forum Leaders Communiqué further showed commitment from the Pacific leaders to the concept of the green economy with specific reference to promoting sustainable tourism, renewable energy and the promotion of energy efficiency, conservation and sustainable management of fishery resources, climate financing, and strengthening regional collaboration on other areas.

Gaps

The major gap in the transformation of Samoa's economy into a green economy is the absence of green taxes and internalisation of environmental costs in the economy. Resource economics and economic valuation of natural resources have been used in the region mainly through projects only, but have never really taken been up by countries such as Samoa.

8.6 Constraints for transforming Samoa's economy into a green economy

Samoa's transformation into a green economy is being slowed by a variety of constraints, as listed below.

1. **Lack of financing:** With most of the plans and strategies already in place promoting transformation to a green economy, Samoa as a least-developed country continues to struggle with implementation due to lack financial resources. The majority of funding for environmental work in-country is financed via aid, the GEF and loans. The national budget allocates most of its financial resources to social services and community service obligations for infrastructural development. As long as this continues, the transformation to a green economy will be slow. Plans such as the current climate financing programme being developed in Samoa and encouraged through the Pacific island region under the auspices of the Pacific Island Forum should be supported by the international community. Furthermore, the push for green taxes and budget reforms is not a real option, as the Pacific island small

states are already heavily taxed for their national economic development. Samoa already has a 15 per cent value-added goods and services tax and around 27 per cent PAYE (income tax) for workers earning above T20,000. Companies making any profit are taxed over 25 per cent of the profit.

2. **Lack of technical capacity:** Another major constraint is the lack of technical capacity within the country to effectively implement the necessary plans. A good example is conducting energy audits or environmental economic valuation; although these have been identified over the past five years, the absence of such technical capacity in-country has meant the audits/valuations could not be undertaken. In recognising this, efforts are being made to conduct training for locals. In areas where technical capacity is readily available in-country, progress is much faster and seamless.
3. **Lack of green technology:** Although sustainable development has been around for more than 20 years, green technologies have been very expensive to purchase, or in some cases no suitable technology exists for the needs in Samoa. The conversion and promotion of solar energy has not advanced much, mainly due to the capital and maintenance costs compared with diesel, especially over the short term.
4. **Limited local market:** With a small population of just over 187,000 people, the market in Samoa is very small for the private sector to invest in green products or produce and expect to be profitable over a sustained period of time. A good example is the recycling business, which cannot generate enough waste to operate a profitable business locally, so ends up having to export its waste, thus reducing its potential profits all the more.
5. **Limited market accessibility:** Samoa's isolation from the main markets in North America, Europe and Asia, as well as its close development partners in New Zealand and Australia, means products and produce from the country are not competitive due to high transport costs.

8.7 Conclusion

Samoa as a small state has made progress over the past 20 years in promoting sustainable development through the passing of relevant legislation, and the development and implementation of subsequent policies and plans. However, it has experienced varying degrees of success in terms of transformation into a green economy. What is undisputed is the political commitment of the Government of Samoa, given its support in the provision of available national resources and also being vocal in the international community in securing necessary financial assistance for national and regional implementation.

As a general overview of Samoa's transformation into a green economy, the tourism sector has within its STDP goals and objectives the promotion of green tourism – both as a destination, but also the greening of the industry. The energy sector is also being transformed, with the promotion of renewable energy and energy efficiency, while in the transport sector actions are underway for the establishment of a fuel-efficient standard for vehicles. Agriculture, which is still the main export sector at the

national level, is also prioritising the green economy through organic farming and sustainable agriculture programmes.

As for the environment sector, the greening process has been taken place for a while with the establishment of more terrestrial protected areas, watershed areas and marine-protected areas, and the conversion of state-run reforestation areas into national parks. Land-use plans and sustainable land management plans have been completed and are being used nationally, while waste management programmes support green growth through recycling, biogas from landfill sites and waste collection. The area with most funding currently available is climate change, where mitigation and adaptation programmes are all structured on the promotion of the green economy and green growth.

Samoa, as a small state in the Pacific islands far from established markets and with limited natural resources, will always be fighting an uphill battle to fully utilise benefits from a green economy. On the positive side, such economic development constraints have been a saving grace for the country, preventing it from ruining its surrounding environment. Therefore, with continued political will to support the implementation of the plans already in place, and when financing is made available by the international financial institutions and donor community, sustainable development and the green economy are real dreams that can be achieved.

Notes

- 1 Principles 15, 7, 3 and 16, Rio Declaration on Environment and Development, 1992.
- 2 Port Vila Outcome Statement/Resolutions, cited in UN ESCAP (MSI+5) (2008), 71.
- 3 Samoa Bureau of Statistics: Samoa Agricultural Census 2009.

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Chapter 9

The Political Economy of Transitioning to a Green Economy in Seychelles

Dr Vinaye Ancharaz

9.1 Introduction

The concept of the 'green economy' is still under debate. Many countries are apprehensive of the process of transitioning to a green economy. They fear that greening key economic sectors could reduce economic growth, while committing them to costly investments and diverting attention away from pressing economic priorities. For these and other reasons, the shift to a green economy and adoption of green growth principles, while a reality in a growing number of countries, has generally been slow.

Seychelles, however, is different. Seychelles is notable not just for its remarkable efforts to promote sustainable development over several decades but, more importantly, for being a living likeness of a 'green economy'. Unlike many countries, the green economy is not an option for Seychelles: it is a critical necessity imposed by the country's geography. The people of Seychelles are, by and large, aware of this reality, and their concern for the environment is entrenched in their day-to-day behaviour. Policy-makers, for their part, have provided leadership in preserving the country's unique biodiversity. This unique connivance between the government and the people has helped ensure that development is sustainable in the broad sense of the term.

Yet the transformation to a green economy is an ongoing process, and it is not an easy one by any means. As we discuss later, Seychelles faces a number of hurdles along the way. Experience indicates that where there is strong political will, the process of greening the economy could be started as a matter of self-interest, and with locally available technologies and limited external funding. This is where Seychelles stands today. However, pushing the agenda forward inevitably requires substantial green investment in key sectors and the capacity to address the country's dependency on fossil fuels. This will not be possible without support from the international community.

9.2 The green economy in Seychelles

This chapter sets out to document Seychelles' transition towards a green economy; to take stock of the impediments to the process and to discuss ways in which they were addressed; and to offer some thoughts on the way forward. Specifically, the chapter will:

- explain the rationale for a green economy in Seychelles;
- discuss the current and emerging challenges to sustainable development in the country;

- explain the conceptualisation of the green economy;
- discuss the implementation of the green economy, highlighting critical success factors and pointing out potential roadblocks; and
- offer some recommendations for moving the process to the next level.

In this chapter, we define the green economy as ‘one that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low-carbon, resource efficient and socially inclusive’ (UNEP 2011). This definition is both clear and comprehensive: it brings forth the three pillars of the green economy, namely economic prosperity, social inclusiveness and environmental sustainability, and suggests that there need be no conflict among these goals. Furthermore, in the report, we use the terms ‘green economy’ and ‘sustainable development’ synonymously. Seychelles has designed a Sustainable Development Strategy (SSDS) 2012–2020 (Government of Seychelles 2011a), which we shall take as a document charting out a plan for Seychelles to shift to a green economy, or a ‘blue economy’ – a concept that is particularly relevant to Seychelles.

The chapter does not aim to provide a comprehensive sectoral analysis of Seychelles’ past environmental management plans or of its current sustainable development strategy. To do so would be an attempt to substitute for the original plans. Instead, the approach taken in this chapter is thematic, cutting across sectors, rather than focusing on any particular sector. However, given the importance of tourism and fisheries to the Seychelles economy, reference will be made to these sectors for illustrative purposes as and when needed. There is also some emphasis placed on the energy sector, given this sector’s greening potential in Seychelles.

The chapter is organised in five sections. The first section provides the background to the study, setting out the rationale for a green economy in Seychelles. *The following section* explains the conceptualisation of the green economy, laying emphasis on the process of formulating two generations of Environmental Management Plans (EMPS) and the current SSDS. It discusses the genesis of the SSDS from the EMPS 2000–2010 and provides key highlights of the strategy. *The third section* turns to the implementation of the strategy. Since implementation strictly speaking has not started yet, our analysis will necessarily be prospective. We shall discuss critical success factors and constraints with reference to the implementation of the past two EMPS. The concluding section will offer some recommendations on the way forward based on the analysis of the previous section.

9.3 The green economy context

9.3.1 Economic vulnerability

Seychelles’ recent economic performance has been punctuated by the effects of adverse external shocks. Economic growth exceeded 7.5 per cent for 3 years in a row (2005–2007) before the financial crisis forced the economy into a recession in 2008 and 2009. The rebound of real GDP growth to 6.7 per cent in 2010 remained

short-lived as the euro crisis started taking its toll around the end of 2011, with pronounced effects in 2012. Consequently, growth dipped to 5 per cent in 2011, and forecasts suggest that growth will remain 'anaemic' (AfDB et al. 2012).

The erratic pattern of economic growth in recent years highlights the vulnerability of the Seychelles economy to external shocks. This vulnerability derives from the country's high export concentration, both in products and markets. Tourism and fisheries constitute the quasi-totality of Seychelles' exports that are destined for the European market. Attempts at economic diversification have generally proved unsuccessful. It appears that Seychelles is condemned to the classic curse of small island economies: geographical isolation, smallness and lack of natural resources conspire to keep economic progress fragile and vulnerable to external conditions.

In spite of this vulnerability, the country has achieved significant economic prosperity and gains in human development over the years. It ranks consistently among the top in Africa on the Human Development Index. Seychelles has met all of its MDGs. And while most of Africa is grappling with youth unemployment, and attendant socioeconomic problems, unemployment in Seychelles is much lower, resulting more from a mismatch in the demand for and supply of skills than the capacity of the economy to create and sustain jobs.

9.3.2 Sustainable development challenges

Seychelles faces a number of current and emerging challenges to sustainable development. First, food security is becoming a critical issue as rising population and incomes, and larger numbers of tourists, are exacerbating supply-side pressures such as land-use changes and more frequent water shortages, especially during dry seasons, in a country with very limited arable land. Second, due to its economic dependence on tourism and fishing, Seychelles faces a growing challenge to preserve its unique and rich biodiversity.

Both the tourism and fishing industries are potentially harmful to the natural environment. Tourism development, although carefully controlled, has led to the construction of hotels in otherwise 'protected areas'. The increased demand for food from tourists is inducing the clearing away of forests and green spaces for agricultural land, while exerting greater pressure on fishing. The tourism sector, for its part, consumes large amounts of water and energy. While some large hotels have installed their own desalination plants, many still consume water from the country's distribution networks, reducing water availability for other purposes, including agriculture. Desalination, on the other hand, often results in chemical waste being dumped back into the sea, which can harm marine life and pollute the beach.

The tourism sector accounts for 25 per cent of GDP and 37 per cent of employment, and the government has designed various plans to further exploit the potential of this sector. Seychelles' Ecotourism Strategy for the Twenty-First Century, developed in 2003, charts out a long-term plan to develop a 'niche' market for tourism in Seychelles, emphasising 'ecotourism activities related to the natural environment', marine activities and cultural tourism. The more recent Tourism Master Plan

2012–2020 (Government of Seychelles 2011b) provides the implementation plan largely missing in the ecotourism strategy. Yet, these initiatives to promote tourism raise fundamental questions about the islands' carrying capacity and their ability to fend off pressures on the country's increasingly fragile ecosystems.

The fishing industry, which according to some stakeholders surpasses tourism in terms of earnings,¹ is also under pressure of commercial exploitation. The Seychelles Sustainable Development Strategy (SSDS) notes: 'Coastal fisheries will continue to be threatened from overfishing and other impacts on fish habitats' (Government of Seychelles 2011a, 11). The risk of overfishing is real due to the need to meet the ever-increasing demand for fish domestically and commercial fishing by franchised foreign vessels, which cannot be effectively monitored for catch sizes. Various human-induced events pose significant threats to the marine environment and fish habitats. Repeated coral bleaching since the worst occurrence in 1998, when Seychelles witnessed the strongest El Nino ever recorded, continues to affect inshore subsistence fishing. Moreover, climate change-induced increases in ocean temperature will likely cause fish stocks to migrate, thereby jeopardising the local tuna-processing industry.

Seychelles is particularly vulnerable to the deleterious impacts of climate change. Farmers are already experiencing water stress, especially during the dry season, which they claim has become longer. While desalination can relieve water shortages, it generally comes at high cost, and is not environmentally sustainable. For this reason, there are campaigns by some NGOs for the better harvesting and utilisation of rainwater. Extended droughts over the last ten years have affected the country's endemic tortoise and bird species. Sea-level rise is causing coastal erosion and damage to coastal infrastructure, as well as natural habitats.

9.3.3 Rationale for a green economy

Seychelles' biodiversity and natural environment are its main economic assets. They constitute the mainstay of the economy. As such, the people and government of Seychelles have every reason to protect the environment, and they are fully aware of this need. Environmental protection in Seychelles, beyond a mantra or a government-led action, actually defines the behaviour of the ordinary Seychellois, who is fully conscious of the environment within which s/he operates. Such behaviour has transcended generations.

Indeed, environmental protection and, more broadly, sustainable development is enshrined in the Constitution of Seychelles, which commits the people to 'participate actively in the sustainable economic and social development of our society'. Specifically, Article 40 (e) of the Constitution states: 'It is a fundamental duty of every Seychellois to protect, preserve and improve the environment' (Republic of Seychelles 1993).

The genesis of the green economy in Seychelles can be traced back to the 1960s, when the first national inland and marine parks were created in recognition of the natural beauty of the islands as a saleable product. Following independence, tourism development received a major policy boost as tourism was seen as the only

viable sector for diversifying the economy out of basic agriculture. However, it was explicitly decided to aim for high-end tourism, which was expected to generate high foreign exchange earnings while keeping tourist numbers, and hence pressure on the islands' natural resources and environment, low and manageable. This policy has not changed to date.

The government has spearheaded Seychelles' transformation to a green economy through a series of plans and strategies dating back to the late 1980s – a time when hardly anyone was talking about sustainable development, much less the 'green economy', and well before the Rio 1992 Earth Summit brought these issues into the limelight. The 1990–1994 National Development Plan and the Environmental Management Plan of Seychelles (EMPS) 1990–2000 together constituted what the government called 'a single and integrated national strategy for achieving sustainable development by the end of the decade and century' (Government of Seychelles 2012: 5). A second-generation EMPS spanning 2000–2010 followed, and in 2011 the government, working in close collaboration with NGOs and the private sector, proposed a Sustainable Development Strategy, the SSDS.

Seychelles was a strong proponent of the 'blue economy' at the Rio+20 Summit, calling for future negotiations on the green economy to consider oceans and their resources, and islands and their natural environment, as critical agents for achieving food security and sustainable development in small island economies. Largely as a result of such pressure, the Rio+20 outcome document includes 20 paragraphs on oceans and the marine environment, and an additional three paragraphs on small island developing states (SIDS). Thus, by virtue of its historical efforts at promoting sustainable development and its unflinching commitment to this ideal, Seychelles despite its small size was able to show leadership at Rio.

The government has used global platforms such as the Rio+20 conference and various regional initiatives, including the Indian Ocean Commission and the Common Market for Eastern and Southern Africa (COMESA), to leverage donor interest in its green policies and attract external funding for projects and programmes. In this, Seychelles benefits from its excellent track-record in environmental protection, which has earned the country several awards and international recognition as an ecotourism destination. Seychelles has declared more than 50 per cent of its land surface as protected areas – the highest in the world – and boasts two UN Educational, Scientific and Cultural Organization (UNESCO)-designated World Heritage sites.

9.4 Conceptualisation of the green economy

9.4.1 The process

The formulation of the first environmental management plan in 1989 was largely a government in-house exercise. It involved inter-departmental co-operation and international partnerships with the UN and the World Bank. Civil society organisations were not involved in the process simply because hardly any such organisation was around at the time. However, about a decade later when the EMPS 2000–2010 was being drafted, several NGOs were actively working in the field of

environmental protection. These NGOs find a legal basis for their existence in Article 40 (e) of the constitution, which urges every Seychellois to ‘protect, preserve and improve the environment’. The government has been generally supportive of these organisations, many of which receive project aid from the government, as well as funding from international donors.

NGOs participated in a limited way in the design of the EMPS 2000–2010, but more fully in the subsequent SSDS 2012–2020 following a critical review of the EMPS that called for greater ownership of the plan by all constituencies.² The same review pointed out that, despite the presence of some donors and private sector actors at the design stage, the process was driven mainly by the government, and community-based organisations were altogether absent. While the formulation of the SSDS addressed many of the shortcomings flagged by the review, it has nevertheless proved difficult to integrate grassroots communities.

However, there appears to be a divide between perception and reality in the strategy formulation process. First, even though this process is described as participatory and consultative, it is clear that ultimately ‘the plan is unknown beyond a small group of organisations and individuals’ (Jean-Louis et al. 2009, 5). Second, this question of awareness and ownership was a recurring issue in the discussions with stakeholders interviewed for this study. It was clear that some organisations ‘did their bit’ without really caring about the strategy. Others were focused on their own strategy, rather than on the EMPS 2000–2010 or the SDSS 2012–2020. This seemed to be the case with tourism, in particular. The NGOs that were interviewed complained about their financial woes and felt that they were marginalised in the debates on sustainable development, even though they were doing a great job on the ground.

9.4.2 Sustainable development planning: an overview of EMPS I and II

EMPS I (1990–2000)

The first Environmental Management Plan of Seychelles (Government of Seychelles, 1989a) was a list of projects. However, it was backed by UNDP, UNEP and the World Bank, and was able to raise funding pledges of over US\$40 million. It focused on a number of institutional/policy developments, including strengthening government capacity in environmental management through partnerships and training, enactment of a modern Environment Protection Act (EPA) and the subsequent legislation for Environmental Impact Assessment (EIA). Few on-the-ground projects were implemented. Among these, the construction of the Greater Victoria sewerage system is worth mentioning.

The plan was deemed successful. The Ministry of Environment claims that more than 90 per cent of the plan was implemented. However, since the plan was not audited or monitored in a systematic manner, it is difficult to verify this claim.

EMPS II (2000–2010)

Motivated by the success of the EMPS 1990–2000, the government followed through with an EMPS for the next decade (2000–2010). The second-generation EMPS was

more elaborate and was developed through a national consultative process involving a variety of stakeholders, including NGOs and private sector representatives. It had the benefit of drawing on the environment and sustainability principles emerging from the 1992 Rio Summit, and as such was more than just an environment plan. This was clear in the stated objective of the plan, namely ‘The promotion, co-ordination and integration of sustainable development programs that cut across all sectors of society in Seychelles’ (Government of Seychelles 1999).

The plan presented a broad set of projects and programmes to be implemented over the coming decade, complete with indicators, budgets and timeframes. Ten thematic areas were addressed, including:

- society, population and health;
- land use, coastal zones and urbanisation;
- biodiversity, forestry and agriculture;
- energy and transport;
- fisheries and marine resources;
- water, sanitation and waste;
- tourism;
- environmental economics, mainstreaming and sustainable financing;
- climate change; and
- cross-cutting issues.

Most of the projects in these areas were ‘soft’, involving risk assessment and research, capacity building, policy development, sensitisation and outreach, promotional campaigns, enforcement and extension. There were very few infrastructure-related projects. This is true even in sectors where greening typically involves massive investments, such as energy. The biggest investments were made in the ‘water, sanitation and waste’ thematic area, with projects such as the construction of four desalination plants (at a total cost of US\$30 million); installation of a centralised sewerage treatment system (US\$41 million); and setting up of an integrated solid-waste management system on three key islands (US\$46 million). These projects absorbed two-thirds of the budget forecast (US\$173 million) of the EMPS 2000–2010.

In view of Seychelles’ energy deficiency and its reliance on fossil fuels for the totality of its power supply, it was expected that the second EMPS would propose some projects to harness Seychelles’ renewable energy potential. But this was not the case. The laudable goal of limiting emission of greenhouse gases and other pollutants was to be achieved through energy audits, greater use of energy-efficient appliances and solar water heaters, and the preparation of an Energy Master Plan and commissioning of a number of studies in the area of energy conservation and energy efficiency. While these projects are a good start, their contribution to reducing energy consumption and to encouraging a shift to green energy alternatives is limited.

In the tourism sector, two innovative projects listed under ‘Goal 2: Promoting sustainable tourism development’ included the launch of the sustainability label and enforcement of EIA for hotels. The criteria for the award of a sustainability label were pilot-tested, revised and validated at a stakeholders’ workshop. The initiative is now being implemented. Enforcement of EIA guidelines, on the other hand, has been delayed due to a lack of qualified professionals who could undertake such assessment. Capacity building is therefore, naturally, a key goal in the tourism thematic.

An independent review of the EMPS 2000–2010 was carried out by a team of local experts. The review, on the whole, was highly critical of the implementation and co-ordination of the plan. A number of projects were marked down as ‘moderately unsatisfactory’ (forestry, energy and climate change) or ‘moderately satisfactory’ (land use, coastal zones and urbanisation; transport; and tourism). The review does not provide any estimate of the overall degree of implementation. Yet the authorities claim that 85 per cent of the plan was successfully implemented.

A careful analysis across projects suggests that implementation in general was constrained by four sets of factors:

- lack of financial resources;
- lack of capacity building;
- lack of commitment to implement or enforce; and
- lack of communication among implementing agencies.

These constraints need to be monitored and addressed if future sustainable development plans are to succeed.

9.4.3 Seychelles Sustainable Development Strategy (2012–2020)

The SSDS is the most comprehensive document to date steering Seychelles onto the path of a green economy. In many ways, it is an upscale version of the EMPS 2000–2010. It follows broadly the same structure; the projects listed for implementation are also similar, albeit more numerous and more elaborate. Thus, for example, the profile sheet of each project includes information on cross-sectoral linkages (which specify all the implementing agencies concerned), climate change considerations, capacity building requirements and possible sources of funding, among others. Funding sources are more diversified, and for the first time they include regional initiatives such as the Intergovernmental Oceanographic Commission (IOC) and the Regional Program for Sustainable Management of Coastal Zones in the Indian Ocean Countries (ReCoMaP) in addition to UNDP–GEF and contributions from the Government of Seychelles.

More importantly, the SSDS is a document about greening the economy proper – in contrast to the EMPS which, as pointed out by Jean-Louis et al. (2009), was neither ‘an Environment management plan...nor...an *Environmental* management plan – it [was] more of a National Development Plan’ (p. 4, emphasis added).³ The strategy benefited from extensive consultation among government departments and agencies,

and NGOs in particular. There was, however, limited participation by the private sector, and even less by community-based organisations, in the design of the strategy.

Strangely enough, though, at no point in the strategy document is the objective of the SSDS explicitly stated. In the foreword to volume 1 of the SSDS, the President of Seychelles writes: ‘The ultimate objective is to improve sustainable development management in Seychelles’. The strategy speaks of ‘the *vision* of the country to become a knowledge-based society and to manage its natural resources in a sustainable manner’ (emphasis added, p. 9). Yet, the goals or aims of the SSDS are not stated clearly, but are left to the reader’s judgment.

The shift from an environment plan to a sustainable development strategy was meant to address several of the weaknesses of the EMPS II, as highlighted in the review, as well as to redirect environmental management towards sustainable management or the green economy, taking advantage of the emerging interest in this area. The review of EMPS II had noted that a sustainable approach was needed to tackle a number of issues, including population growth, agriculture and fisheries, land use, coastal management and climate change. It was also hoped that the shift to a strategy would help improve the institutional framework and governance effectiveness of the SDSS by selling the document as a multi-stakeholder effort and buying in ownership, as opposed to the past two environment plans that were perceived as the monopoly of the Ministry of Environment and consequently suffered from institutional isolation. Indeed, in launching the SSDS, the government has made a solemn appeal ‘to all stakeholders, including aid donors, to embrace the objectives of the strategy’ (Government of Seychelles 2011a: 3).

The total cost of implementing the SSDS over the period 2012–2020 is estimated at US\$704 million. The most costly programmes are in the thematic areas of climate change (US\$207.2 million); water, sanitation and waste management (US\$179.5 million); fisheries and marine resources (US\$114.5 million); and energy and transport (US\$95.7 million). These four thematic areas take away 85 per cent of the estimated programme budget. Thus, in contrast to the EMPS II, many of the projects earmarked for implementation in the SSDS involve large investments.

In the area of climate change, the strategy proposes a range of projects aimed at mainstreaming climate change adaptation into the sustainable development agenda; implementing enhanced mitigation measures; and promoting technology transfer and capacity-building measures to support mitigation and adaptation strategies. The main projects listed under the climate change thematic area are adaptation measures in critical areas, such as rainwater harvesting, beach restoration and national disaster crop insurance; mitigation actions, including shifts to green energy sources and reduction of greenhouse gases (especially in the transport sector, which is responsible for 43 per cent of total energy consumption); capacity building at various levels; and transfer of technology in the energy sector.

In the other key sectors, many projects are a continuation of projects identified in the EMPS II. In the energy subsector, for example, a strategic goal is to promote alternative and renewable energies such as solar photovoltaic, wind, hydropower and energy from waste. The development and implementation of a regulatory framework

for promoting renewable energy supply by independent power producers is high on the government agenda, and many interested actors have welcomed the promulgation of the new Energy Act.

The government has committed, and promises to commit over the lifetime of the strategy, substantial financial resources to the SSDS. The bulk of the financing needs are expected to be raised from a variety of local and external sources, including private sector donations and corporate social responsibility programmes; taxes; innovative financing instruments such as debt-for-nature swaps; regional platforms (IOC, ReCoMaP); bilateral and multilateral development partners.

9.5 Implementation of SSDS 2012–2020

The implementation of the strategy has faced some bureaucratic and administrative delays. This was due in large part to disagreement over the governance structure of the body meant to implement the SSDS. Originally, it was envisaged that implementation would be entrusted to an autonomous ‘commission’. However, this was not acceptable to cabinet, which recommended instead that a division under the Ministry of Environment be set up to implement the SSDS. This change called for a sweeping revision of Chapter 11 (‘Institutional Framework’) of the strategy document, and its re-submission for approval to cabinet. The framework for steering and monitoring implementation of the SSDS was expected to become operational by the end of 2013.

This section, therefore, resorts to a *prospective* analysis of the implementation of the SSDS. The analysis is based on knowledge of implementation issues associated with past environmental management plans, being mindful of emerging challenges and recent developments at the local level and in the global context. This section aims to identify critical success factors and discuss potential constraints to implementation.

9.5.1 Critical success factors

Political commitment

Seychelles has historically shown an unflinching commitment to sustainable development, and by implication to the green economy. This follows partly from the value that the people of Seychelles attach to environmental protection – a value that has been transmitted from generation to generation. Political leaders are well aware of the political mileage that strong commitment to environmental protection could earn them. For this reason, sustainable development has been high on the agenda of successive governments.

The government’s commitment to the current strategy is manifest in the amount of financial resources that it is willing to devote to the implementation of the SSDS. No estimate of the government’s contribution to the SSDS budget is available, but if the EMPS II could serve as a guide, one might expect this contribution to be around 40 per cent. This comes to a hefty US\$280 million over an eight-year period.

The government – and, in particular, the Ministry of Environment and its senior staff – has spoken eloquently of the SSDS at public events. In addition to popularising

the strategy, these events also serve as occasions to sell the government's programmes to the public and to buy in their political support.

Despite the political support for the strategy, there are several areas where greater commitment would be welcome. During interviews conducted for this study, it became clear that many stakeholders felt that the government could do more, especially on the policy front. For example, prospective independent power producers (IPPs) were disappointed by government's apparent slowness in enacting the much anticipated Energy Act, which was passed in December 2012.

Ownership

This is clearly a key ingredient in the success of environment plans in Seychelles. Ownership of the SSDS – it is claimed – derives from stakeholders' participation in the design of the strategy even though, in reality, much of it could be implicit in the people's behaviour towards the environment, whether or not a formal strategy exists to protect it. However, as noted by Jean-Louis et al. (2009) and confirmed by the interviews, many people including some NGOs were not fully aware of the specifics of the strategy. On the other hand, communities were left out of the consultation process altogether, and so there is need for the authorities to make greater efforts to inform them of the strategy.

There are more fundamental issues lying beneath the surface. Lack of co-ordination among implementing agencies was pointed out as a major weakness of the EMPS II, and this was evident on the ground during the interviews. Some departments were simply focused on doing their share, caring more about their sector's narrow contribution rather than the final outcome. This is partly the result of the existence of a multitude of sector plans and strategies (e.g. Tourism Master Plan, Energy Act, Energy Policy, National Climate Change Strategy), some of which are not perfectly aligned with the SSDS.

Ownership challenges also arise from perceptions of environment management plans as being solely the responsibility of the Ministry of Environment. Such perceptions are amplified when the plan's secretariat or co-ordination unit is housed within the said ministry. This, for example, was the case with the EMPS II. The SSDS tried to break away from this practice, and proposed that an independent commission be set up to implement the strategy. Unfortunately, this failed to materialise. A dedicated division within the Ministry of Environment has been assigned responsibility for implementing the SSDS.

In the final analysis, therefore, the SSDS might suffer the same fate as the EMPS II: to the extent that the SSDS is seen as the Ministry of Environment's 'baby', other stakeholders may shy away from participating fully in its implementation, reducing its overall effectiveness and impact.

Mainstreaming sustainable development into the National Development Plans

Seychelles' success in implementing past environment plans is partly credited to the effective mainstreaming of sustainability issues in national development policies

and strategies. This means that economic decisions were made bearing in mind their potential environmental impacts. However, before the SSDS, this was done in a casual rather than formal way. The SSDS devotes a whole section to the question of mainstreaming and discusses practical steps in which this can be done. In particular, in the thematic area of climate change, a number of projects are proposed to mainstream climate change adaptation measures into the green economy agenda. In spite of these efforts, as the strategy itself notes, mainstreaming continues to be constrained by a lack of appropriate tools and policies (Government of Seychelles 2011a, 144).

Education and sensitisation

There is no doubt that the education and sensitisation of the population from a very early age have played a key role in promoting environmental awareness and respect for the environment. In this, NGOs have been instrumental. Wildlife Clubs of Seychelles has effectively built a network of clubs based in schools but extending out to communities. Club members learn about environmental sustainability and conservation and are encouraged to put their knowledge into practice. Sustainability for Seychelles is another NGO working to educate professionals, private operators and the general public on environmental issues, with the aim of promoting renewable energy technologies and energy efficiency.⁴ NGOs like these face important financial hurdles in carrying out their activities. There is need for government to support such organisations in their endeavour.

9.5.2 Constraints

Government policy

Government policy has generally evolved to support and speed up Seychelles' transition towards a green economy. This role has spanned across all sectors and has taken various forms, including laws and regulations, incentives, taxes and subsidies. In the energy sector, for example, the government has made a voluntary commitment to achieve 15 per cent of Seychelles' energy supply from renewable energy sources by 2030. In the SSDS, a number of projects have been earmarked to deliver on this commitment. These include soft actions aimed at developing or improving the regulatory framework for promoting renewable energy (such as the new Energy Act, amendments to the Public Utilities Corporation [PUC] Act to allow IPPs access to the national grid, design of feed-in tariffs etc.) to large-scale infrastructure projects (such as a landfill gas power plant, wind energy farms and solar photovoltaic power plants etc.). Similarly, a number of new regulations are being proposed in the SSDS to reduce emissions from the transport sector.

However, there is a general sentiment that the government is not doing enough, especially to shift to renewable energy alternatives, where Seychelles registers a huge 'green deficit'. Some stakeholders believe that the government has not been proactive, and that the policies being adopted now are coming rather too late. Stakeholder consultations indicate that some feel, on the whole, that government policy in support of the green economy may have been either misconceived, incomplete or too soft and 'lacking punch'.

Misconceived policies. The Masdar wind farm on the main island of Mahé became operational in June 2013. It will generate an estimated 6 MW of windpower and has been financed by a major grant from the Abu Dhabi Fund for Development. However, some stakeholders believe that the project is not worth the cost. First, Seychelles' wind energy potential is limited due to the absence of strong winds through most of the year. Second, the project contributes a mere 5 per cent of Seychelles' total energy needs. Thus, although the Masdar project may be welcome as a ground-breaking project in renewable energy development, its impact on Seychelles' energy supply is limited. Consequently, some stakeholders question the rationale of the project and wonder if the country would not have got better value for money if the capital was invested in a solar photovoltaic power plant.

Another example of a misconceived policy is the government-sponsored initiative to distribute energy-saving bulbs to households in replacement of conventional bulbs. The plan is faulty by design. The Seychelles Energy Commission (SEC) implemented a similar plan on a limited basis in the recent past. It gave away energy-saving bulbs to households irrespective of the amount of electricity they consumed. However, the PUC intends to target small consumers of electricity on the argument these are typically the poor households. Yet, if the ultimate goal is to achieve a meaningful reduction in energy consumption, it is the large consumers of electricity who should be targeted.

Incomplete policies. Some stakeholders also consider that even well-intended policies may have partial effects if not accompanied by complementary policies. For example, the Government of Seychelles lifted import duties on solar water heating panels in a bid to encourage wider use of this technology, thereby reducing electricity consumption. However, the policy had limited success since, even after duties were removed, the equipment was still very expensive and outside of the reach of many households. The policy would have been more successful if the government provided some form of concessional finance, through say the Development Bank of Seychelles, as was the case in Mauritius.

Moreover, a tax–subsidy combination is shown to work better than either one of the two. De-taxing solar panels is good, but it would be better if this policy was complemented with higher taxes on 'dirty' energies. This does not seem to be the case at the present. For example, while the government has introduced unleaded fuel, leaded fuel continues to be sold at gas stations since a majority of vehicles have not been equipped to run on unleaded gasoline. The prices of leaded and unleaded fuel are the same, which acts as a deterrent to drivers to switch to cleaner fuel. The SSDS identifies promotion of clean fuels as one of the components of the bigger goal of limiting emission of greenhouse gases and other pollutants from road transportation. However, no detail is provided as to how this would be achieved.

Weak policies. As a result of limited or lack-lustre government efforts at diversification through the years, as well as other factors, the economy of Seychelles remains heavily concentrated in two sectors – tourism and fisheries. This exposes livelihoods, and the economy as a whole, to external perturbations. Also as a result of this economic concentration, Seychelles is confronted with formidable sustainability challenges

arising from the fact that tourism and fishing make important demands on the natural and marine environment. Hence, diversification away from these sectors into environment-friendly economic activities, such as services, could speed up Seychelles' transformation into a green economy.

Technology transfer

Seychelles faces numerous challenges in the area of technology transfer due to its small size (which precludes economies of scale) and isolation, its economic structure, with reliance on just one processing industry (tuna canning), its limited human resource base and, until recently, poor government policy to promote the acquisition and adoption of new technologies. Technology transfer is particularly needed in the areas of coastal zone management, in the energy and transport sector, in climate change adaptation and mitigation and in capacity building across a number of sectors.

Despite its focus on sustainable development, Seychelles has not been able until now to garner the resources and external support needed to enable the transfer of relatively simple technologies and their cost-effective and widespread adoption. This is the case, for example, in the road transport sector where, as noted above, despite the introduction of unleaded gasoline, most vehicles continue to run on leaded fuel because the technological change needed to make the shift is neither easily available nor affordable.

Lack of human capability and finance has constrained investment in research and development in many sectors. The agriculture sector is a case in point. The Seychelles Agricultural Agency (SFA), established in 2009, is mandated to promote food security; to modernise and develop the agricultural sector; and to increase agricultural production. The agency is playing an important role in helping farmers adapt to climate change. It is promoting use of greenhouses designed to adapt to local conditions; micro- and drip irrigation projects in water-stressed areas; and integrated crop management, among others. SFA is also undertaking research on biotechnology aimed at developing drought-resistant crop varieties and high-yield seed varieties and cultivation techniques. However, despite a motivated staff, the agency has made little progress in this direction because of a lack of critical mass of expertise and the absence of mechanisms to facilitate the transfer of knowledge from abroad. Yet this could easily be achieved by the government through partnerships with donor countries eager to share their expertise in agricultural research and development. In this, the region and regional initiatives could provide a useful starting point.

Private sector participation

The private sector can contribute to the green economy transformation in essentially three ways: by paying taxes that allow the government to finance sustainable development projects; by giving donations or engaging in green corporate responsibility activities; and by undertaking 'green' projects or activities. In Seychelles, the private sector was not involved in the design of the strategy as much as other stakeholders, and there is a presumption that it is not playing its part in the game. For example, voluntary

initiatives from the private sector are lacking and donations for green projects have been rare and rather small.

However, the private sector is showing growing interest in a number of sectors – either out of self-interest or due to the profit motive. For example, the tourism industry is particularly concerned about sea-level rise and other deleterious effects of climate change. Consequently, some hotels have contributed to the beach monitoring programme. Opportunities for greater engagement of the private sector in green economy projects are arising in the energy sector and in Clean Development Mechanism (CDM) projects. Private firms and individuals are waiting for the government to provide the legal framework for them to produce and sell solar power to the national grid.⁵ The private sector can also provide financing options for major renewable energy projects, through PPP or other arrangements.

Financing

The Government of Seychelles faces the formidable challenge of raising US\$704 million over eight years to finance the SSDS. The government was able to raise more than 50 per cent of the financing requirement of the EMPS II from external sources, and it is likely that it will continue to do so with the current strategy, especially since the country can now boast of its past achievements and also thanks to the attention it attracted at the Rio+20 event, where it was a strong advocate of the ‘blue economy’.

The climate change thematic represents about 30 per cent of the total cost of the SSDS, and the government has proposed to seek funding from the World Bank, the GEF and donor countries. Furthermore, private sector financing could be tapped if the appropriate conditions or mechanisms are created. The government must also explore other, innovative financing instruments, such as green bonds and debt-for-nature swaps. However, there is need for better co-ordination of financing from external sources to NGOs and the government to ensure that the SSDS is not compromised.

Governance

An elaborate three-tiered governance structure has been proposed for the implementation and monitoring of the SSDS. A division within the Ministry of Environment will be responsible for the implementation, co-ordination, monitoring and evaluation of the strategy. The second tier will consist of a steering committee, which will review the work and progress of the division. An SSDS council, chaired by the Minister of Environment, constitutes the top tier. The council will provide direction to and oversight of the work of the steering committee. It will also act as a facilitator for project approval and implementation.

The fundamental problem with the above structure is that it places the bulk of the responsibilities for implementing the strategy within the hands of the Ministry of Environment, thus subjecting the strategy to the same criticism that was levelled against the EMPS II: that it was an environmental plan, and was solely the business of the Ministry of Environment. Therefore, as with the EMPS II, the institutional framework of the strategy is likely to raise critical ownership issues.

9.6 Conclusion and recommendations

Seychelles is well set on the path of a green economy. It has both the experience and the political commitment to speed up the transition. After two decades of implementing an EMP, Seychelles adopted a Sustainable Development Strategy (SSDS) covering the period 2012–2020. This strategy borrows heavily from the second EMPS, which ended with some success in 2010. In fact, it is safe to say that the SSDS is the third generation of the EMPS, integrating experience with implementation of past plans and knowledge of sustainable development issues, and drawing on the ongoing discourse on the green economy and the post-Rio+20 agenda.

The design of the SSDS benefited from inputs from a broad constituency. Inevitably, the government was over-represented, but there was also a significant presence of NGOs. The private sector's participation was rather timid, while community-based organisations were not formally consulted even though they had some opportunity to express their views at validation workshops.

The implementation of the SSDS is still at an early stage. So, it is impossible to comment on how the process will go. This report provides an assessment of the critical success factors and likely constraints in the implementation of the SSDS using the EMPS II as a reference. This analysis is prospective. Yet it is well documented, and so can form the basis of discussion on the strategy.

An interesting question to ask at the outset is the following: *Is the SSDS a plan for Seychelles to transition to a green economy?* Bearing in mind the green economy's strategic pillars – namely, economic prosperity, social inclusiveness and environmental sustainability – the answer is an unequivocal 'yes'. Seychelles is probably the one country in the world that is as close to the model of a green economy as is possible.

Seychelles has the highest GDP per capita in sub-Saharan Africa and ranks consistently among the top in terms of human development. This means that environmental protection has not come at the cost of economic development. This is an important observation. It serves to allay the fears of many countries that believe that green growth means slower growth.

Second, poverty is virtually non-existent in Seychelles. This suggests that growth has been inclusive. Jobs have been a critical factor in alleviating poverty, and since most of the jobs occur in the ecotourism sector and in fisheries, they are by definition green. Seychelles has the potential to generate more green jobs in, for example, the renewable energy sector and in services, including tourism.

Finally, environmental protection in Seychelles is entrenched in people's behaviour. The government has provided effective leadership and has shown strong political commitment to the objective of sustainable development. More importantly, both the government and the people of Seychelles know that the natural environment is Seychelles' only asset. Directly or indirectly, everybody's livelihood depends on it. Hence, it is the responsibility of one and all to respect the environment and to protect it. This responsibility is enshrined in the constitution.

Yet, much remains to be done to complete the transition to a green economy. This report argues that the SDSS, if properly implemented, can go a long way towards completing Seychelles' transition to a green economy, or a 'blue economy' as one may wish to call it. Going forward, the Government of Seychelles and relevant stakeholders must pay attention to the following critical elements for the success of the strategy:

- The government has demonstrated strong and unflinching political commitment to achieving the transition to a green economy. It is important that this commitment does not waver.
- Ownership of the strategy is critical to its success. The SSDS must not be perceived as the affair of the Ministry of Environment. It may prove a valuable investment for the government to dispel – through an information campaign, for example – any wrong impression that any stakeholder might have about the strategy.
- There has been some kind of de facto mainstreaming of sustainable development policies and plans into the national development strategy. There is need to formalise the process. However, given the large number of sector plans and strategies in existence, with the Medium-Term National Development Strategy (MTNDS) at the apex, it is important to ensure consistency and relevance. Sector strategies should not subsume the SSDS, and the SSDS must in turn fit into the MTNDS.
- The government will need to implement fully the new Energy Act without further delay. The act will provide the framework for IPPs to produce and sell electricity (mainly from solar PV) to the Public Utilities Corporation (PUC). However, this will not be enough. The government should consider investing in the infrastructure to allow IPPs to connect to the national grid.
- The government will need to eliminate use of leaded fuel. To do this, measures can be put forward that would encourage owners and importers to equip vehicles with the technology, allowing them to shift to the clean energy option. Second, the government could consider introducing a tax on unleaded gasoline to discourage its use.
- To promote the transfer of technology in specific sectors, the government may seek to negotiate agreements with partner countries (beginning in the region), and provide the private sector with the incentives to invest in technology development and transfer.
- The private sector's engagement in the green economy transition needs to be harnessed through arrangements such as PPP. Significant potential exists in renewable energy and in CDM projects. The government needs to provide appropriate incentive mechanisms to attract the private sector to contribute to the transition to a green economy, including by providing finance.
- In addition to attracting private sector investment in major green projects, the government is likely to need to seek support from the international community, and bilateral and multilateral development partners. It should also explore innovative financing instruments such as green bonds and debt-for-nature swaps.

Notes

- 1 This view was expressed by officials of the Seychelles Fishing Authority (interviewed in July 2012).
- 2 It is interesting to note that the national co-ordinator of the second EMPS was in fact from civil society and was later elected as Chair of the Liaison Unit of NGOs of Seychelles (LUNGOS) – an umbrella organisation regrouping all NGOs/CSOs in Seychelles.
- 3 In contrast to this view, many still see the EMPS II as ‘the reference strategic document for sustainable development programs in Seychelles’ (Government of Seychelles 2011a, 7).
- 4 There are other NGOs involved in environmental education and outreach.
- 5 During the fieldwork, a firm suggested that it has acquired and adopted the technology to supply power to the national grid.

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