

Chapter 4

The Political Economy of Transitioning to a Green Economy in Guyana

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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.'

- '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 (UNFCCC); 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:

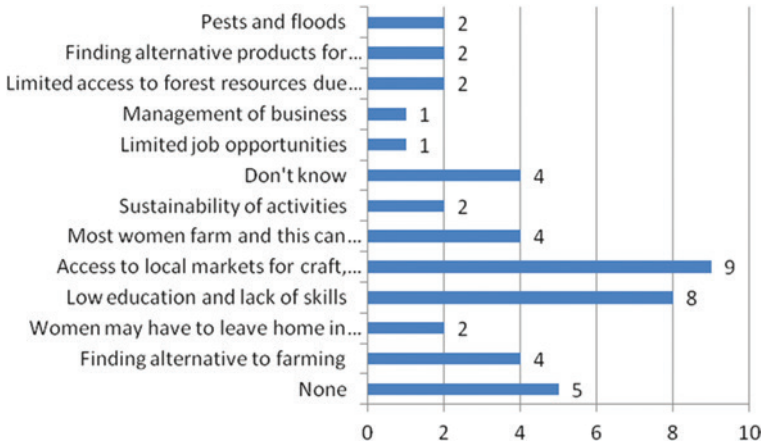
- enhanced environmental awareness;
- reduced logging and protection of forests;
- a healthy environment for present and future generations;
- that standing forests can bring payments which can be used to develop the national and local economy;
- sustainable livelihood options (e.g. the pineapple processing 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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