



Ministry of Agriculture, Lands,  
Forestry, Fisheries and the Environment



This report summarizes the key outcomes of the national efforts carried out in 2014 and 2015 towards putting in practice the land degradation neutrality concept. The LDN project, which was sponsored by the Republic of Korea, was carried out with the support of the UNCCD Secretariat and implemented in partnership with the Joint Research Center of the European Commission and CAP 2100 International.

## 1. LDN National Voluntary Target and Strategy

### The essence of the national voluntary targets

The objective of setting national voluntary targets is to be able to evaluate the effectiveness of the actions taken to address problems of land degradation and to obtain Land Degradation neutrality.

### Key strategic implementation actions/measures to achieve the set voluntary target

The key implementation strategic actions are to:

- ✓ Support farmers, land owners and communities in their efforts to prevent and reverse land degradation through application of sustainable land management practices.
- ✓ Integrate the various aspects of LDN into the NAP.
- ✓ Assess and remove policy, legal and institutional barriers to SLM.
- ✓ Acquire and apply knowledge of the biophysical, climatic and socio-economic factors contributing to land degradation and drought mitigation in affected areas.
- ✓ Address the problems of land degradation in the hot spots identified in the Grenada and Carriacou through effective actions.
- ✓

### Voluntary Targets

- ✓ Increase the fertility and productivity of 580 Ha of cropland by 2030
- ✓ Transform 800Ha of abandoned cropland into agroforestry by 2030
- ✓ Implement soil conservation measures on 120 ha of land by 2030
- ✓ Rehabilitation of 383 ha of degraded land at Bellevue South in Carriacou by 2030
- ✓ Rehabilitation of 100 Ha of degraded forests in Grenada and Carriacou by
- ✓ Increase forest carbon stocks by 10% by 2030.

### Country statistics

Index	
Total area	133 Sq miles
Total population	107 613
Rural population	68721
Urban population	38892
Cultivated area	17814.46
Natural area	10949.95
GDP (per capita)	9 322 USD
Human Development Index (HDI)	79

## **2. Different Critical Processes and their Corresponding Key Drivers**

The key types of land degradation in Grenada and Carriacou as identified in the newly aligned NAP are water erosion, acidification and pollution, loss of soil life, soil fertility decline, and pests and diseases infestation. The key direct drivers are deforestation, overgrazing, inappropriate agricultural practices and variations in climate

### **Water Erosion**

The main land use categories affected by water erosion in Grenada are Urban areas, Perennial croplands, Annual croplands, Shrub lands and forests, totaling an area of 14,229 Ha. Loss of top soil occurring in the northern parts of the island is due principally to agriculture development while in the southwestern peninsula and surrounding areas it is caused by urban and infrastructure development.

In Carriacou, over 1800 Ha of land is affected by water erosion. The main land use categories affected are shrubs and grasslands and pasture and grazing. Over 100 Ha of bare ground exhibiting different types of soil erosion exist in the Belle Vue South area in Belmont.

### **Acidification and Pollution**

Acidification of soils occurs mainly in cropland areas, affecting over 860 Ha. Acidification of soils is caused by the use of Agricultural Biocides, such as weedicide used in chemical land clearing, and the indiscriminate use of pesticides and fertilizers. Chemical degradation occurs mainly in parts of St. David's, St. George's, St. Mark's and St. John's

### **Soil Fertility Loss**

Loss in soil fertility is evident in annual croplands results mainly from inappropriate activities during land preparation. Slash and burn method of land preparation destroys soil structure and kills soil microorganisms. Chemical land preparation poisons the soil and reduces land productivity. There is also a reduction in the use of soil organic materials.

### **Pest and Diseases Infestation**

Increase in pests and diseases occur within perennial and underutilized cropland. Pest infestation is most prevalent along the eastern, southeastern and northwestern parts of Grenada.

## **3. Drivers of Land Degradation**

The main direct drivers of water erosion are deforestation, aggregate mining, urbanization and infrastructure development, and inappropriate agricultural practices. Inappropriate agricultural practices are evident during physical and chemical methods of land clearing, land preparation, irrigation and drainage and planting.

### **Deforestation**

Deforestation is occurring mainly throughout the central and southwestern ends of the island, specially in the parish of St. Georges

### **Overgrazing**

Soil erosion resulting from overgrazing of animals is evident on the island of Carriacou, where rearing of animals, (Sheep, Goats and Cattle) is part of the culture. For decades the Lego (let loose) practice has been practiced. During the dry season (January - May), when food for the animals become scarce, animals are let loose to roam. The main land use categories affected by overgrazing are shrubs and grassland and pasture and grazing lands.

### **Aggregate mining:**

Uncontrolled mining of sand, gravel and other aggregates increases the vulnerability of ecosystems to erosion and natural hazards, habitat destruction, and loss of lives and livelihood. Little or no focus to rehabilitate mined-lands devalues the general landscape, and negatively impacts the capacity of land resources to deliver critical regulatory and cultural ecological services needed by society.

### **Inappropriate agricultural practices**

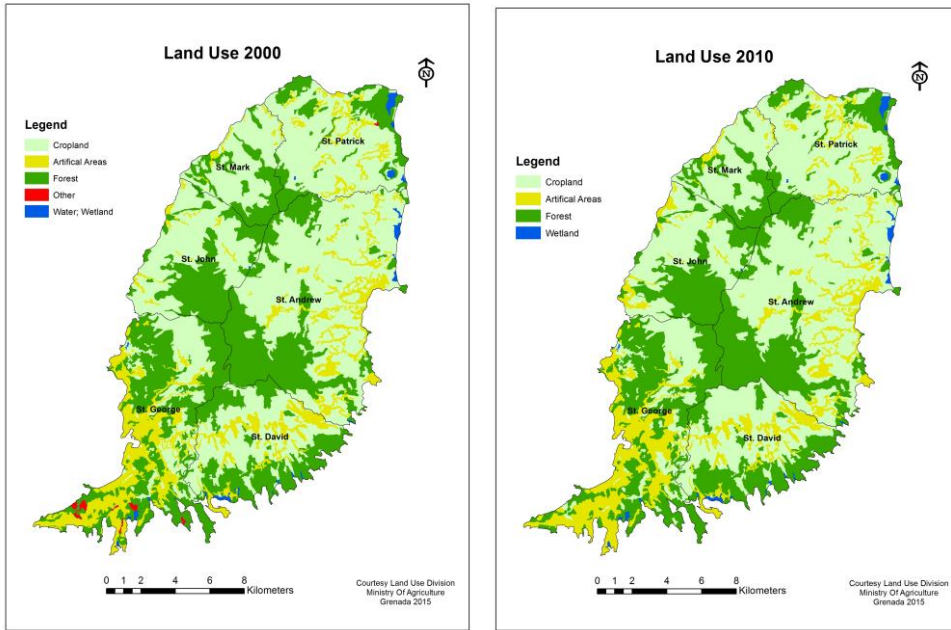
Inappropriate agricultural practices are a major cause of land degradation in Grenada. Some of the practices include slash and burn, use of chemicals during land preparation, indiscriminate use of inorganic fertilizers, herbicides and pesticides and planting of shallow rooted crops on steep slopes. **Climatic Drivers**

Natural hazards like hurricanes and floods are a direct cause of land degradation, All types of forest were severely affected by Hurricane Ivan (2004) and Emily (2005). Similarly the devastating impacts of these disasters left a wave of soil erosion particularly on steep slopes with limited protection.

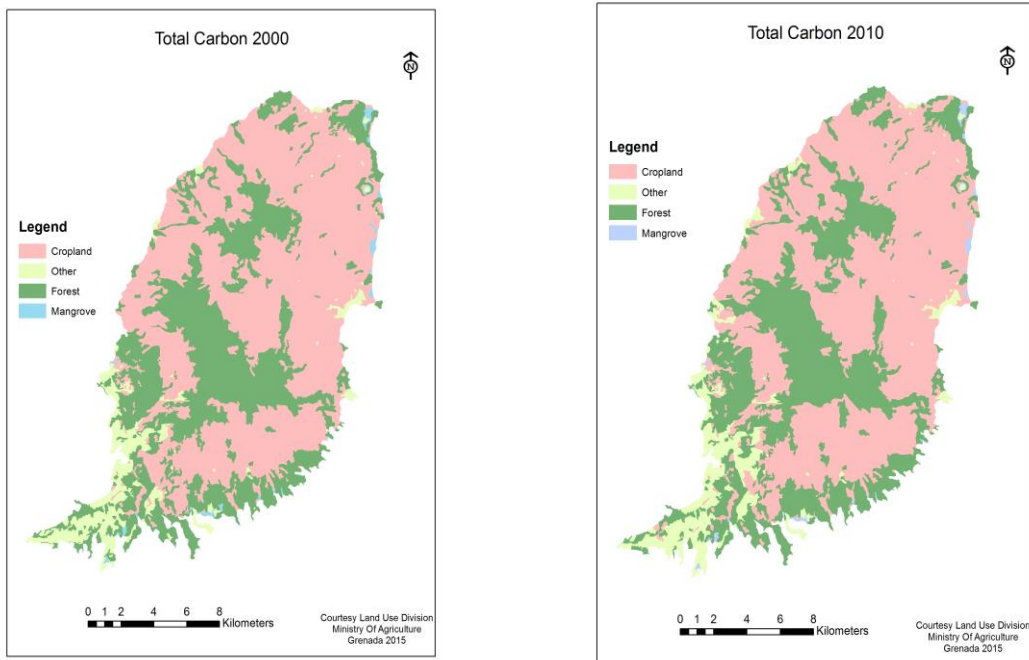
### **Indirect Drivers of Land Degradation in Grenada**

The indirect drivers of land degradation in Grenada are the driving forces of the direct causes of land degradation. They include - Population pressure, Consumption pattern and individual demand; Land tenure; Poverty, Labour availability; Inputs and infrastructure; Governance, institutions and politics; Inadequate Knowledge and Supportive Attitude; Land use Change and Planning and Economic Drivers. These are elaborated in section 1.1.2.4 of the aligned NAP.

Maps showing changes in Land Use from 2000 to 2010.



Maps showing changes in soil carbon between 2000 and 2010.



### 3. National Land Management Plan

Table 1 - Presentation of national basic data using the LDN indicators framework

Land-Use Category	Land area (2000)	Land area (2010)	Net change in area (2000-2010)	Net land productivity change (sq km, 2000-2010)					Total Carbon (2010)
	Ha	Ha	Ha	Declining	Early stage of declining	Stable but stressed	Stable not stressed	Increasing	ton/ha
Forest land	9317.0	9229.96	87.04						1292194.4
Shrubs, grasslands and sparsely vegetated areas	1813.1	1719.99	93.11						103199.4
Cropland	18077.1	17814.46	262.64						1645.51
Wetlands and water bodies	262.71	250.02	12.69						9058.45
Artificial areas	1864.7	2320.17	250.02						
Bare land and other areas									
Balancing term									
<b>Total</b>	<b>31334.6</b>	<b>31334.6</b>	<b>705.77</b>						<b>1406087.76</b>

**Table 2 - Target setting**

Negative trends	Area (Ha)	Corrective measures	LDN target		Investments required (M USD)
			Area (ha)	Time (year)	
Increase in area of abandoned cropland due to neglect.	800	Restore abandoned cropland to perennial crops and agro-forests.	800	2025	0.5
Increase degradation of forest due to adverse climatic conditions.	150	Rehabilitation degraded forests.	150	2030	1.0
Decreasing natural soil fertility and loss of soil life in cropland	580	Improve soil fertility in croplands through the use of agro-forestry practices and organic manures.	580	2030	1.0
Diminishing use of soil conservation measures leading to soil erosion	120	Implement soil conservation measures.	120	2025	1.0
Emerging desertification due to vegetation destruction and water erosion	250	Rehabilitate degraded lands	250	2030	3.0
<b>Total</b>	<b>1900</b>		<b>1900</b>		<b>6.5</b>

#### 4. Centered NAP SWOT Analysis

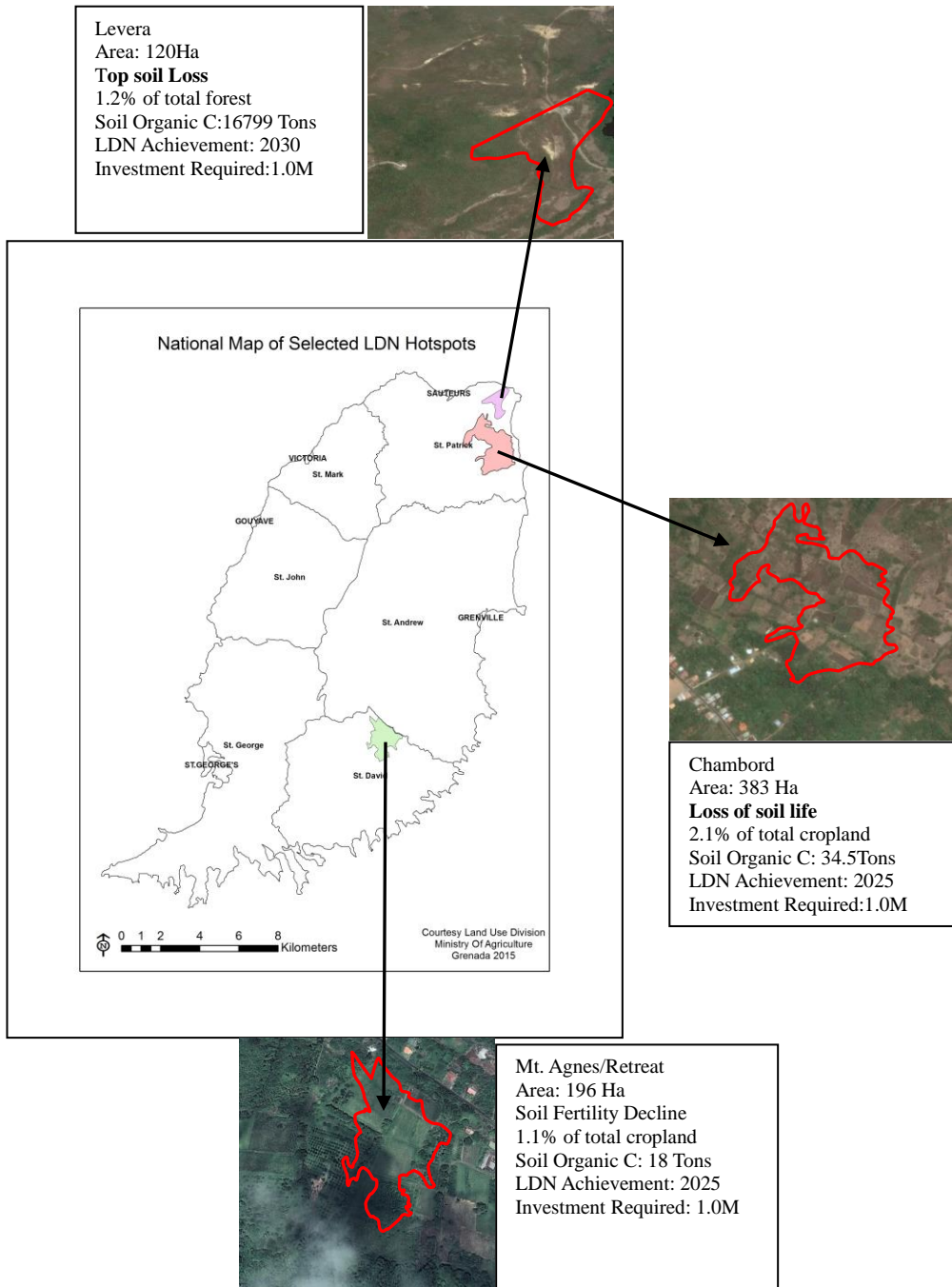
On the 20<sup>th</sup> April, 2015, the LDN Working group met to conduct a SWOT analysis of Grenada's newly aligned National Action Plan (NAP) to combat desertification and drought. Prior to the meeting, copies of the NAP were sent to LDN members for review. The Group looked at the strengths, weaknesses, opportunities of the NAP and possible threats to its implementation. Among the strengths of the Nap is the participatory approach during its development and the promotion of synergies among the three Rio Conventions. The summary findings of the analysis is shown in Table below

#### Findings of NAP SWOT Analysis Exercise.

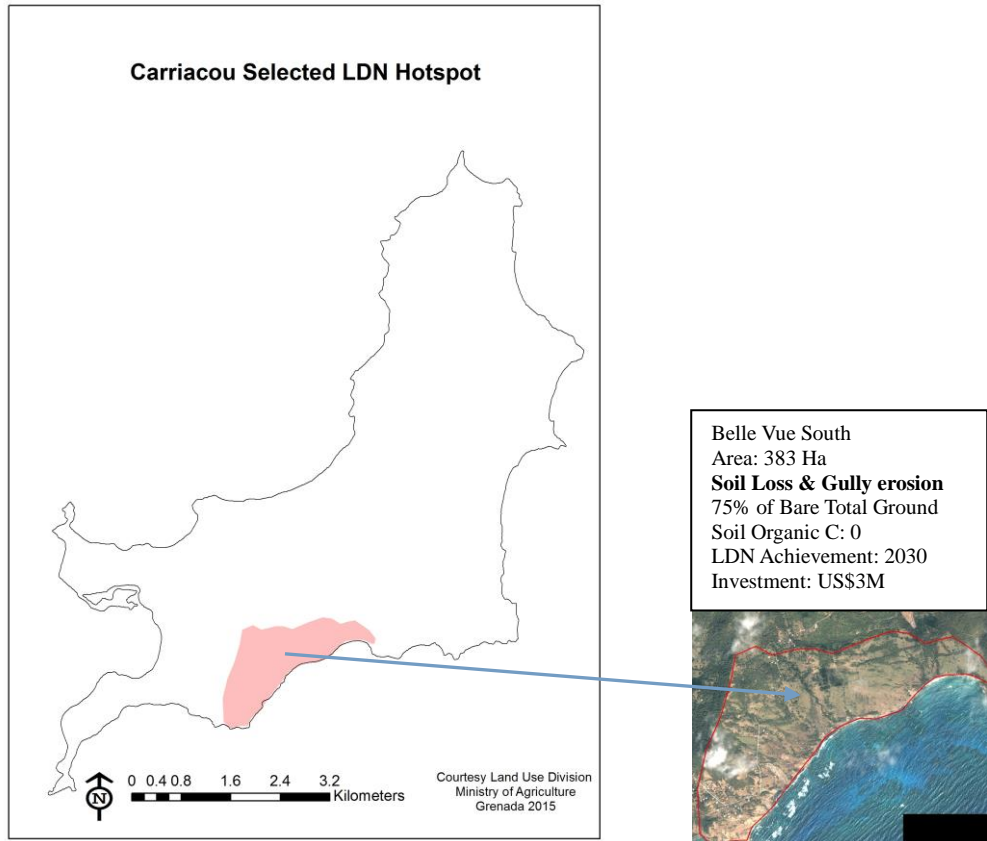
STRENGTHS	Usable by a variety of stakeholders
	Makes provision for the inclusion of a NCB and other implementation mechanisms
	It contains projects and plans that can enable its implementation
	Its contents reflects the use of a multi-stakeholder participatory approach based on consensus
	Contains a results framework which can be used to monitor progress in implementation
	It promotes synergies among the three Rio Conventions
	It meets the SMART criteria
	It accommodates a Communication Strategy to support its implementation
	It is aligned to the Ten year strategy
	It is in harmony with National Development policy and Strategic Plan for sustainable development
	Creates awareness of the UNCCD and SLM in Grenada
WEAKNESSES	Does not sufficiently identify funding sources
	Not yet integrated into development planning
	Lack of an IIF/IFS
	Insufficient up-to-date baseline data, especially socio-economic
	Lack data on poverty severity and income inequality
	Lack information on population living in affected areas
	Lack information on trends in access to safe drinking water
	Lack information on proportion of population using improved drinking water source
	Does not provide an estimate of distribution of classes of land productivity
	Lack information on soil organic carbon stock
OPPORTUNITIES	Can attract funding especially from CBD and UNFCCC sources and contributes to strengthening partnerships.
	Makes provisions for expanding the scope of stakeholders involvement and creating new champions for implementation of the NAP
	Increased government support for SLM interventions
	Increased government support for SLM interventions
	Enhances integrated/holistic approaches to addressing LD issues
THREATS	Insufficient financial support to fund implementation
	Accelerated land degradation can impede its implementation
	Change in government priority that is inconsistent with emphasis on SLM
	Decrease in human resources capacity; non-functioning of the NCB



## 5. Grenada National Map of Selected LDN Hotspots



## Map showing LDN hotspot in Carriacou



## 6. Optional Section Six

### Part 1: Presentation of the LDN national working group and key milestones

The LDN Working group was established as a requirement for the implementation of the LDN project. The establishment of the group was coordinated by Mr. Raymond Baptiste, who is the Chief Land Use Officer in the Land Use Division of the Ministry of Agriculture, Lands, Forestry, Fisheries and the Environment, and the UNCCD National Focal Point.

The group was composed of representatives from various sectors as shown in the back page. Most of the individuals are members of the UNCCD National Coordinating Body. The group was instrumental in steering the implementation of the project by providing technical support.

The Private Sector and Civil Society are represented on the UNCCD National Coordinating Body which was established in 2005. They have integrally involved in the formulation of the NAP and its alignment, preparation of UNCCD National reports, Implementation of the Sustainable Land Management Project and implementation of the LADA Project.

### Key views expressed by the different actors organized by type:

#### 1. Private Sector

Participatory principles were central to the implementation of the Land Degradation Neutrality (LDN) project. The approach adopted in determining the pilot project was particularly effective. Members of the project team utilized the information generated from the Land Degradation Assessment for Drylands (LADA) project to identify potential sites for intervention, fostering synergy in programming. Final decisions regarding targeted sites, and the nature of the intervention were undertaken in collaboration with multi-stakeholders groups, including communities, which increased the level of ownership towards the project. Moreover, the SWOT analysis and critical review of the land degradation drivers included in the NAP, facilitated through the LDN initiative proved extremely important in improving the utility of the Aligned NAP. In the final analysis, the LDN project *added value* to Grenada efforts in improving national and local capacities for land degradation reduction.

*Dianne Roberts, Environmental and Development Consultant,  
Roberts Caribbean Ltd. Member of the NCB and LDN Working Group*

## **LDN Working Group Meetings**

**February 12<sup>th</sup> 2015**

*Project Launch and Inception Meeting*



**Friday 20<sup>TH</sup> February, 2015**

*Development of Project Workplan*



**13 – 15<sup>th</sup> April 2015**

*Carriacou pilot site Assessment*



**Tuesday 28<sup>th</sup> April, 2015**

*Review of land degradation situation and drivers*

*Review of national strategies to address land degradation*

*Conduct SWOT analysis of NAP in relation to LDN*



**23 July 2015**

*Identification of possible financing sources*

*Review of project implementation*

### Main innovative outcomes of the process by the Chair

The innovative LDN approach was very interesting, highly stimulating and very rewarding to the National Working Group and other stakeholders. The project provided a great opportunity to assess the state of implementation of the Convention, which revealed a significant number of weaknesses and threats. It also revealed the deficiencies in the national strategies that are in place to prevent land degradation. The integration of the findings of the LDN Pilot into the NAP will strengthen the relevant components, thereby contributing to its effectiveness as a land degradation reduction and sustainable land management tool. The most innovative outcome of the project is the establishment of specific targets to address Land Degradation, which if addressed, through the implementation of the proposed corrective measures, can allow the country to attain Land Degradation Neutrality by 2030. The attainment of LDN would however require financial resources to implement country specific projects and programs. The Ministry of Agriculture, the NCB and the Government of Grenada stand ready and prepared to support the continuation of this innovative LDN approach through participation in a larger global initiative.

*Raymond Baptiste*  
*National Project Coordinator*

## Part 2: Roles and responsibilities in implementing the LDN strategy

Activity	Ministry in charge	Implementing agency	Target beneficiaries (specifying number)	Target area of affected land and hectares)	Scientific support	Timeframe (starting date and duration)
Restore abandoned cropland to perennial crops and agro-forests.	Agriculture, lands, Forestry, Fisheries & the Environment	Forestry and National Parks Department	200 farmers	Throughout Grenada 800 ha	CARDI, IICA, FAO Grenada Ministry of Agriculture	2017- 2025
Rehabilitation degraded forests.	Agriculture, lands, Forestry, Fisheries & the Environment	Forestry and National Parks Department	20 Forest land Owners  Government of Grenada	Grenada and Carriacou 100 ha	FAO, Forestry Division Ministry of Agriculture	2020 -2030
Improve soil fertility in croplands through the use of agro-forestry practices and organic manures.	Agriculture, lands, Forestry, Fisheries & the Environment	Land Use Division	300 farmers	Mt. Agnes, Retreat and Chambord 580 ha	FAO, Moroccan Government, Grenada Ministry of Agriculture	2017-2030
Implement soil conservation measures.	Agriculture, lands, Forestry, Fisheries & the Environment	Land Use Division	100 farmers	Levera 120 ha	University of the West Indies, FAO, Grenada Ministry of Agriculture	2017-2025
Rehabilitate degraded lands	Agriculture, lands, Forestry, Fisheries & the Environment	Land Use Division, Forestry & Ministry for Carriacou and Petit Martinique Affairs	20 private land Owners Citizens using coastal areas for recreational.	Belle Vue South - Carriacou 383 ha	Grenada Ministry of Agriculture, UNCCD, FAO	2018-2030



## Part 3: Legal Regulatory Framework

### Existing laws and regulations

A diversity of legislative instruments provides the basis for land management within the State of Grenada. The principal pieces of legislation are summarized in the table below.

#### Summary of legislative framework governing LDN

Thematic Area	Legislative Framework
Land use and development control	<ul style="list-style-type: none"> <li>▪ Physical Planning and Control Act (PPDC) 2002 (revised draft regulations 2011)</li> <li>▪ Waste Management Act, 2002</li> <li>▪ Environmental Levy Act 2000 (Amended)</li> <li>▪ Grenada Solid Waste Management Authority Act, 1995</li> <li>▪ Carriacou Land Settlement and Corporation Development Control Act, 1976</li> <li>▪ Crown Lands Act, CAP 159</li> <li>▪ Beach Protection Act, CAP 29</li> <li>▪ Stock Trespass Act and the Road Ordinance</li> <li>▪ Industrial Development Corporation Act, 1976</li> <li>▪ Land Acquisition Act, Cap 159</li> </ul>
Forestry and protected area management	<ul style="list-style-type: none"> <li>▪ Forest Soil and Water Conservation Act Cap 116</li> <li>▪ Forest Soil and Water Conservation Ordinance, No 1 (1949) and No 34 (1989)</li> <li>▪ Bird and Other Wildlife Protection Act, CAP 34</li> <li>▪ Wildlife and Birds Sanctuary Act, CAP 339</li> <li>▪ National Parks and Protected Area Act, CAP 206 (1990)</li> <li>▪ Draft Protected Area, Forestry and Wildlife Act</li> </ul>
Land administration functions	<ul style="list-style-type: none"> <li>▪ Deeds and Land Registry Act, Cap 79</li> <li>▪ Conveyancing and Law of Property Act Cap 64</li> <li>▪ Property Transfer Valuation Act 37/1998</li> <li>▪ Property Tax Act, 1997</li> <li>▪ Land Transfer Valuation Act, 37/1998</li> <li>▪ Land Acquisition Act</li> </ul>

### Eventual limitations faced in the law and regulations enforcement

Environmental violations relating to land degradation and attendant punitive measures are not well defined in local legislation and regulations. Furthermore, enforcement of laws is limited by several constraints including inadequate funding, insufficient trained personnel and inadequate facilities.

### Measures envisaged to overcome existing limitations

Improvement of law enforcement will require the following:

- ✓ Regular training of the enforcement personnel to update their knowledge and



improve monitoring capabilities

- ✓ More effective mechanisms for monitoring and surveillance
- ✓ Appointment of environmental wardens
- ✓ Provision of adequate facilities and technologies (communication and surveillance equipment)
- ✓ Reviewing and updating relevant environmental laws and regulations to address legislative deficiencies

#### New laws and regulations needed

There is need for the following new laws and accompanying regulations:

- ✓ Overarching Environmental legislation
- ✓ Land policy legislation
- ✓ Legislation governing aquaculture
- ✓ Forest legislation
- ✓ Soil erosion control legislation

#### Timeframe to improve existing legal regulatory framework

Existing legal regulatory framework is expected to be improved by year 2020.

#### Envisaged additional measures that will facilitate (or guarantee) the enforcement of existing and enhanced legal regulatory framework

- ✓ Monitoring of existing environmental laws
- ✓ Consistency in Government support towards land degradation prevention
- ✓ Maintenance of stakeholder consultation process
- ✓ Institutional strengthening of Land Use Division and related sectors in research capacity development.
- ✓ Enhance technical staff complement in Land Use Planning, Forestry Management, Extension services, and the Veterinary Division
- ✓ Strengthen linkages between socioeconomic development and sustainable land management
- ✓ Create a Documentation and Knowledge Management Centre – Data to inform all aspects of land use for sustainability of livelihoods, water and food security and specialty tree crops for spice commodity restoration and export
- ✓ Use the latest Agricultural Census data to inform revision of the Agricultural Policy, paying particular attention to SLM
- ✓ Conduct land use surveys and Land suitability assessments to support optimal land use.
- ✓ Develop and Implement Land Use Policy to guide land allocation for best use.

- ✓ Design and implement mechanisms to provide incentives for best practice in the use and management especially as they relate to drainage, application of fertilizers and pesticides, and slope stability.
- ✓ Build the capacity for integrating risk management into management of agriculture, forestry and fisheries resources.
- ✓ The thrust toward production should be accompanied by sustainability measures through conservation (wise use). The Land Use Division within the Ministry should lead on this initiative.
- ✓ Targeted public awareness and education with an emphasis on sustainable livelihoods, food security, and water security is the essential underpinning to bring about the desired change in behavior and practice. .
- ✓ Compile an inventory and develop data base of species distribution outside protected habitats to inform biodiversity conservation
- ✓ Develop institutional mechanisms and strategies for enforcement of existing land management laws especially as they relate to sustainability of livelihoods.

## **Part 4: LDN Monitoring, Reporting, Evaluation and Verification System**

The outputs from this project will be incorporated into the NAP, hence monitoring of the implementation of the corrective measures to achieve the targets will be part of the NAP implementation process.

## Part 5: Budget and Financing Plan

<b>Source of funding</b>	<b>Name</b>	<b>2016 to 2020</b>	<b>2021 to 2024</b>	<b>2025 to 2030</b>	<b>Total (US\$)</b>
Internal 1	Regular fiscal budget	0.5	0.5	0.6	1.6
Internal 2					
Internal ...					
Internal X					
External 1	Grant	1.5	1.5	1.9	4.9
External...					
<b>Total</b>		<b>2.0</b>	<b>2.0</b>	<b>2.5</b>	<b>6.5</b>

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