Final Country Report LDN Target Setting Programme -Republic of Seychelles

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Summary

The government of the Republic of Seychelles has over the past two decades become very aware of the threats of land degradation. Land degradation in Seychelles, mainly occurs due to forest fires, clearing of forest for development purposes (agriculture, including plantations; housing; tourist facilities; infrastructure), effects of invasive alien species, unsustainable agriculture, construction practices and landslides / rock falls. In 1997 it ratified the United Nations Convention to Combat Desertification (UNCCD), and ever since the country has been an active party to it. Land Degradation in Seychelles has been addressed since then through a number of government funded schemes as well as related UNDP/GEF funded projects such as:

- Coastal erosion adaptation and rehabilitation programs
- Capacity building for Sustainable land Management ;
- Expansion and Strengthening of the Protected Area Subsystem of the Outer Islands of Seychelles and its Integration into the broader land and seascape;
- Mainstreaming Biodiversity Management into Production Sector Activities (the development and implementation of Land, Water and Coastal Use Plans.

In 2012 the National Action Plan (NAP) for Sustainable Land Management (SLM) was approved at cabinet level and planned for implementation under the Seychelles Sustainable Development Strategy 2012-2020. The NAP sets out long term strategies aimed at achieving land management within the country mainly through the precautionary approach such as policy review, capacity building, awareness raising and education on Sustainable land management. The NAP has six specific goals:

1. Land use planning and management is supportive of sustainable land management;
2. Forested land and watersheds are sustainably managed;
3. Agricultural land and water is sustainably managed and contributing to food security in the Seychelles;
4. Physical infrastructure developments and coastal zone developments are supportive of sustainable land management;
5. Integrated water management and sustainable land management are mutually supportive;
6. Climate change adaptation measures are adequate to combat land degradation.

In May 2018, the Republic of Seychelles validated its Land Degradation Neutrality (LDN) under the UNCCD targets and measures, as part of the Sustainable Development Goals for 2030.

OVERALL LDN TARGETS TO MINIMIZE AND REVERSE LAND DEGRADATION TO ACHIEVE LDN BY 2030

Overall LDN Targets:

- Maintain Forest Cover through sustainable management of Forest and Biodiversity over and area of (287 Km^2)-2870 Ha
- Maintain and restore Coastal Wetlands and Mangroves Forests over an area of (7.93 Km^2)-793 Ha
- Expand and promote Good/smart Agricultural /Agronomic Measures and practises over an area of (6.82 Km^2)-682 Ha
- Apply effective LDN and SLM , Land Use Planning and contain Urban /Artificial areas within an overall area of (56.6 Km^2)- 5660 Ha
- To put in place an LDN monitoring system(GIS & Remote Sensing) and develop adequate human resources skills at the national level to continuously assess, and review the land use/cover carrying capacity / LDN measures of each sector annually to achieve Land Degradation Neutrality.

Key LDN Measures:

Forest and Biodiversity Cover:

- Rehabilitate / restore degraded lands on steep slopes and maintain overall forest cover :
- Manage Invasive Alien Species , restore and expansion of the protected areas networks in Key Biodiversity Areas adjoining native forests earmarked in the SSLUP Spatial Strategy Map
- Forest Fire Management Plan (maintaining at Fire Breaks Forest-Settlement Interface and key biodiversity Areas, Protected Areas (National Parks and Nature Reserves).

Wetland and Mangroves Cover :

- Ecosystem based adaptation projects in Wetland restoration and shoreline management plan as LDN preventive measures against saline water intrusion ;
- Apply Ridge to Reef approaches in managing productive landscapes to achieve Land Degradation Neutrality ;

Agricultural Land cover :

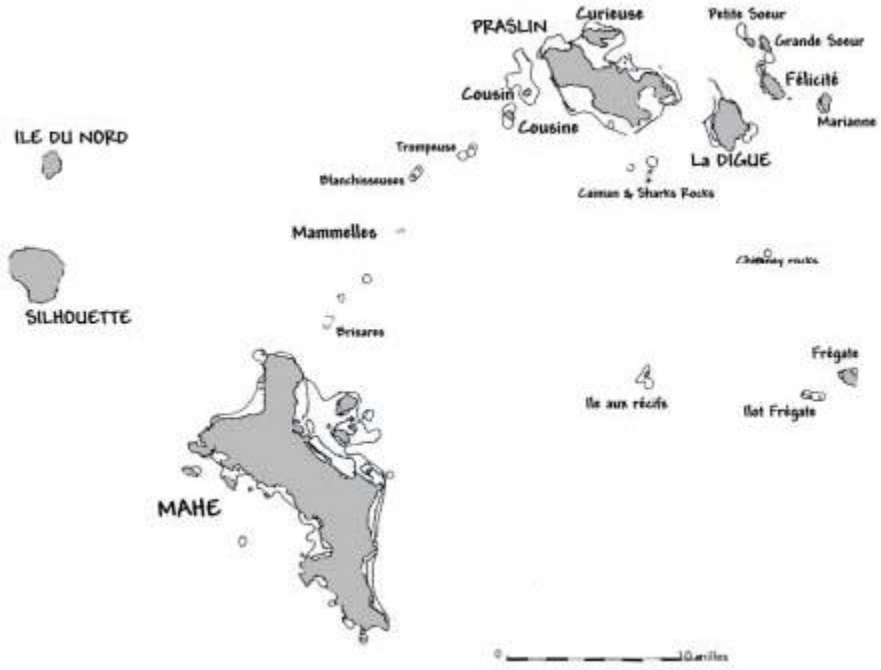
- Protect Highly productive Agricultural land from land conversion for Development purpose:
- Promote sustainable land management and Good Agricultural Practises
- Provide financial and technical incentives to Farmers to maintain and encourage agronomic and agroforestry expansion with stewardship schemes:

Urban /Artificial Areas Land Cover:

- Prepare specific LDN land use planning and detailed urban design guidelines (Scale, height, floor areas ratio, plot coverage) for Artificial Areas /urban development including steep slopes
- Minimise impervious layers wherever possible
- Define effective building plot coverage to achieve Land degradation Neutrality
- Promote vertical extension rather than horizontal sprawl of artificial areas /urban settlement expansion
- Promote tree/forest conservation and native plants as soft landscaping features on at least 65 % of the overall plot area.
- Encourage step building design and construction adapted to contour /slope minimise cut and fill(excavation)
- Encourage water sensitive urban designs and minimise impervious layers wherever possible
- Implement Sustainable Urban Drainage System (using natural processes/System to manage urban runoff water.

1.0 Introduction

The Seychelles is an island archipelago in the Western Indian Ocean located between 3 and 10 degrees south of the equator and between longitude 46 and 57 degrees east. The total land mass of Seychelles is 455 square km, and it has an Exclusive Economic Zone (EEZ) covering 1.374 million square km. Seychelles consists of 155 islands, of which 42 are granitic and the rest of coralline origin. The granitic islands of the Seychelles consisting of the main islands of Mahe, Praslin, Silhouette and La Digue are composed of a core of ancient granitic rock which forms the steep uplands, with narrow surrounding coastal plains formed by beach sand. Both types of soils are physically and chemically poor. Approximately 80% of Seychelles land area is under some form of forest or vegetation cover, and the remaining area is more or less urbanized in the main islands. The remaining coralline islands are small in size and known as the "outer islands".



Source: Capacity Building for Sustainable land Management Project for Seychelles UNDP/GEF

Figure 1: Location of Granitic Islands Seychelles.

2.0 Land degradation in Seychelles

Land degradation in Seychelles, mainly occurs due to forest fires, clearing of forest for development purposes (agriculture, including plantations; housing; tourist facilities; infrastructure), impacts of invasive alien species, unsustainable agriculture, construction practices and landslides / rock falls. The Seychelles Damage, Loss, and Needs Assessment (DaLA) 2013 Floods report in January 2013 (possible effects of climate change tropical cyclone forming nearer to Seychelles' islands),indicated ,that heavy rains resulting from the tropical cyclone Felleng caused severe flooding and landslides in the Seychelles. The intense rainfall during 2 days , overwhelmed existing natural and constructed drainage systems and retaining walls, causing floods, landslides, rock falls, and resulting in serious damage to homes and public buildings, roads, bridges, drainage systems, water and sanitation systems, crops, and farms.

2.1 Land degradation drivers

The main drivers of land degradation identified in Seychelles are:

- forest fires though infrequent have been identified as one of the major causes of deforestation specifically on Praslin island, which results in a loss of forest cover, leading to further land degradation;
- The conversion of land for agriculture, building of settlements and associated infrastructures on ecologically sensitive marginal lands and steep slopes;
- The unsustainable harvesting of forest products, cultural tradition of burning refuse and vegetation as well as the uncontrollable invasion of alien creepers in forest areas are causes of land degradation;
- Unsustainable agriculture is another threat leading to land degradation. When the topsoil vegetation cover is removed on cultivated upland slopes, the soil becomes impoverished. Farming activities have migrated upland due to the increasing development pressures on the flat coastal plains to accommodate for the tourism industry and housing. Consequently, the loss of the fertile topsoil leads to a decrease in the infiltration capacity of the soil, which increases run-off especially after torrential rains, causing soil erosions, landslides and rock falls. Furthermore, reduced fallow period from intensive crop farming leads to depletion in essential soil nutrients;
- Other causes of land degradation include unauthorized constructions and reclamations of Wetlands, inadequate soil conservation measures and insecure land tenure ship, having little incentives to invest in sustainable land management;

- Erosion, pollution and the loss of fertility of agricultural land, and urban encroachment onto agriculture land;
- Climate change, is a threat to forests , agricultural land and land in coastal areas(Coastal erosion and salt water intrusion);
- Land development pressure to develop residential areas, tourism projects and other developments which can disfigure land and cause erosion, both in coastal areas and in pristine forests.

Land Degradation in Seychelles is being addressed through a number of government funded schemes as well as related UNDP/GEF funded projects such as:

- Coastal erosion adaptation and rehabilitation programs
- Capacity building for Sustainable land Management ;
- Expansion and Strengthening of the Protected Area Subsystem of the Outer Islands of Seychelles and its Integration into the broader land and seascape;
- Mainstreaming Biodiversity Management into Production Sector Activities (the development and implementation of Land, Water and Coastal Use Plans.

2.2 Legal and Institutional Environment

Seychelles has an extensive legislative framework for land and environment management covering most of the land use sectors. Some legislation should be reviewed to reflect the present situations and take into account the country's challenges to combat land degradation, disaster risk reduction and the effect of climate change. The main objectives of the Environment Protection Act 2016 are to eliminate fragmented legislations and strengthened environment protection at a broader level. Other linked legislation on land and environment currently under development are:

- the protected areas bill,
- the biodiversity bill,
- the Physical Development Act

These new legislations will further harmonize and consolidate sustainable land management and environment conservation in Seychelles. The existing legislations related to land management in Seychelles are:

- **The Environment Protection Act (EPA, 2016**) has been revised and up scaled to better protect , improve and preserve the environment and provide policies for environmental impact assessment process, the establishment of sensitive areas, wetland protection, coastal zone

management, waste management standards and makes provision for prevention, control and abatement of environmental pollution.

- Under the EPA, the **Environment Impact Assessment** (EIA) Regulation requires that, for certain categories of projects or activities, an EIA must be prepared and an environmental authorization issued. This Regulation aims to ensure that new infrastructure developments do not cause land degradation;
- **The Town and Country Planning Act of 1972** is under review to be replaced by the **Physical Development Act** to bring it up to speed with the pace of development with regards to National physical development strategy and local district land use plans.
- **Seychelles Strategic Land Use development Plan (2014-2040)** approved at cabinet level sets the National strategic land use planning framework for Seychelles.
- **National Parks and Nature Conservancy Ordinance** (1971, amended in 1973 and 1982) covers the establishment of National Parks and Special Reserves;
- **State Land and River Reserves Act** (Cap 150) of 1903 establishes the role for forest rangers, and establishes the concept of watershed protection zones along rivers and rivulets.
- **Lighting of Fires (Restriction) Ordinance** (Cap 232) of 1940 establishes the concept of areas where lighting fires is banned, by order of the Minister responsible for agriculture. Fire bans can be seasonal however significant to Forest Fire prevention and disaster risk reduction;
- **Breadfruit and Other Trees Act (Cap 122)** of 1917, amended in 1988 and 1994. This provides guidance for harvesting more than 30 species of fruit and non-fruit trees and practise of agroforestry ;
- **Forest Reserves Ordinance** (Cap 153) of 1955, makes provision for the designation and protection of some specific type of forest land into reserves;
- **The Coco de Mer (Management Decree**) of 1979, amended in 1994, provides for the protection of this fruit tree and national symbol;
- **Cabinet Decision (2002)** on ensuring that all designated agricultural land is only used for agriculture;
- **The National Policy on Disaster Management (2006**) aims at addressing the increasing incidences and emergence of disasters. The National Disaster Secretariat is carrying out a country wide risk and vulnerability assessment, and produces land movements risk map for every district.
- **Landscape and Waste Management Agency Regulations (2009)**, provides landscaping competences to the designated waste agency.

The Integrated Financing Strategy, 2012 for Sustainable Land Management (SLM) has also identified the following threats to the implementation of SLM in Seychelles:

- There is no clear institution responsible for advancing work in sustainable development and SLM and to align economic development with environmental and social aspirations.
- Institutions are often lacking financial and human capacity. There is a shortage of personnel qualified and inadequate financial resources to implement a number of capital intensive projects.
- There is the need for the local population to be sensitized on the long term benefits of SLM. For example many farmers lack awareness of environmental implications of unsustainable agricultural practices.
- The key government agencies involved with economic planning, trade and investment do not necessarily factor environmental conditions in their planning and implementation processes.
- Environmental economics and land use carrying capacity assessment is not inadequately considered in development permitting processes. Many of the reasons for land and environment degradation is the absence of appropriate cost benefit analysis, economic valuation, impact assessment for economic decision-making in both government and private sector.
- Decision-making in both government and business is often made in spite of lack of appropriate scientific information on factors leading to land degradation as well as their interactions with islands ecosystems.
- The policy framework concerning the lease agreements by farmers and livestock farmers is not conductive to best practices of SLM.
- The enforcement of legislation is poor due to weak institutional capacity and lack of skilled human resources for development control.

2.3 Leveraging Land Degradation Neutrality and SDGs

LDN is intrinsic to the sustainable land management (SLM) process, which enables the setting of specific measurable targets for the advancement of sustainable land management.The National Action Plan (NAP) for Sustainable land Management was validated and endorsed and approved by cabinet in July 2012 and incorporated as part of the national implementation mechanism of the Seychelles Sustainable Development Strategy 2012-2020.The National Action Plan for Sustainable Land Management of Seychelles has six specific goals:

1. Land use planning and management is supportive of sustainable land management;
2. Forested land and watersheds are sustainably managed;

3. Agricultural land and water is sustainably managed and contributing to food security in the Seychelles;
4. Physical infrastructure developments and coastal zone developments are supportive of sustainable land management;
5. Integrated water management and sustainable land management are mutually supportive;
6. Climate change adaptation measures are adequate to combat land degradation.

The review of the National Development Strategy of Seychelles in view of its alignment to the Sustainable Development Goals (SDGs) 2030 and Programme Based Budgeting creates further leverage for LDN with SDG target 15.3.This can be achieved by setting up of a SDG monitoring and reporting system (under the Ministry of Finance, Trade and Economic planning and the Bureau of Statistics Seychelles). SDG Target 15.3 directly contributes, to maintain or enhance the land natural capital and associated ecosystem functions (landscapes) and services to other SDGs, including those relating:

- to climate change mitigation and adaptation,
- biodiversity conservation,
- ecosystem restoration,
- food and water security,
- disaster risk reduction, and
- poverty reduction;

Other significant LDN related leverage opportunities under implementation:

- Seychelles Strategic Land Use development Plan (2014-2040)
- Tourism Masterplan -Situational Analysis (2018)
- National Biodiversity Strategy and Action Plan (NBSAP) Seychelles (2015-2020)
    - National Parks and Nature reserves ,
    - Key biodiversity Areas and Invasive Alien Species management ;
    - Protected Areas Network Expansion;
    - Wetland and Mangroves Restoration
- FAO National Forest Inventory and Policy, Seychelles 2017-2018

The UNDP Seychelles Office -Programme Coordinating Unit PCU/GOS/ UNDP/GEF is also working and implementing several LDN linked projects on:

- Sustainable land management projects to reverse land degradation (Baseline, targets and Measures);

- Ecosystem based adaptation projects in Wetland restoration and shoreline management plan as preventive measures against saline water intrusion ;
- Ridge to Reef approaches in managing productive landscapes as part GEF 7 allocation for land degradation;

3.0 Land degradation Neutrality Indicators

Setting the LDN baseline is a stock-taking exercise where a snapshot of the current land-based natural capital is taken; it does not provide direct information on the present status of land degradation.

A temporal assessment of land degradation trends, coupled with an analysis of the driving forces behind these trends, is an essential step in terms of understanding current conditions of land degradation, revealing anomalies and identifying degraded areas. Such an assessment has provided an indication of the evidence base for setting sound LDN targets, making decisions about potential interventions and prioritising efforts in areas where degradation is taking place. The trends of land degradation can be identified using the LDN default data provided by the UNCCD, mapping out indicators showing changes over a 10-15 year period and alignment of locally available data and overlaid and verified by digitized from Google Earth in figure 2 below.

Figure 2: Mahe-Digitised Artificial Area, Google Earth 2015.

3.1 LDN baseline indicators

The LDN indicators consist of three main national indicators to measure change over a time span of 10-15 years. The indicators are complementary rather than additive and the components of land condition should

be analysed separately. However, land cover, while being an important indicator in its own right, should also be used to stratify the other two indicators.

The baseline has been calculated by estimating, for each of the following indicators, the average value across the 10-15 year baseline period (t0):

1. **land cover;**
2. **land productivity (metric: net primary productivity); and**
3. **Carbon stocks above and below ground (metric: SOC).**

The use of this small set of comparable indicators is recommended for baseline setting, detecting changes over time and reporting progress towards LDN targets. For the purposes of LDN, it is important to note that the three indicators provide good coverage of the land-based ecosystem services underpinning LDN and together can be used to monitor the quantity and quality of land-based natural capital and the ecosystem services that flow from that land base. In addition, the indicators address change in the system in different yet highly relevant ways. Land cover provides a first indication of a reduction or increase in vegetation, habitat fragmentation and land conversion. Land productivity captures relatively fast changes while SOC reflects slower changes that suggest trajectory and proximity to thresholds. As mentioned above, these indicators can, however, be complemented and enhanced by national (or subnational) level indicators to provide full coverage of the ecosystem services and qualitative LDN measures and associated land use management strategies, policies action plans as well as institutional effectiveness in :

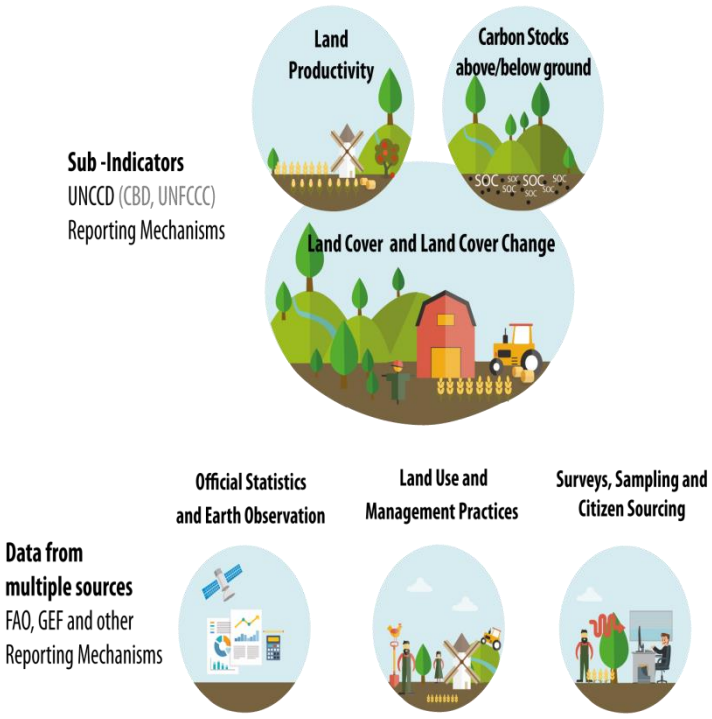


Figure 3: LDN Indicators-Sub indicators

- avoiding land degradation through land use planning that fully accounts for the potential and resilience of land resources;
- adopting sustainable land management policies and practices in order to minimize current land degradation;
- Rehabilitating / restoring of degraded lands.

3.2 Default Global data land Cover indicators

As part of the global support programme, the UNCCD, Global Mechanism has provided land use change cover geographic higher resolution data from the period 2000-2015 for Seychelles islands. The data sets consist of land use change mapping over a 15 year period by using a combined series varying satellite image resolution of up to 30 mts pixel. The metadata of the default data (Annex 1 & 2) describes the processes used to capture and analyse the data to achieve the required outcomes. The methodological framework adopted is based on the Intergovernmental Panel on Climate Change Good Practice Guidance for Land Use, Land-Use Change and Forestry (LULUCF) under the Kyoto protocol.

Activities in the LULUCF sector provides a relatively cost-effective way of offsetting emissions, either by increasing the removals of greenhouse gases from the atmosphere (e.g. by planting trees or managing forests), or by reducing emissions (e.g. by curbing deforestation). Under Article 3.4 of the Kyoto Protocol, Parties could elect additional human-induced activities related to LULUCF, specifically, forest management, cropland management, grazing land management and revegetation, to be included in its accounting for the first commitment period.

The land classification/category used to capture land use change is as follows:

- Forest
- Shrubs, grasslands and sparsely vegetated areas
- Croplands
- Wetlands
- Artificial areas
- Bare lands
- Water bodies

3.3 Land Productivity and Soil Carbon Content

The other derived land degradation indicators captured based on land use cover changes are:

- Land productivity
- Soil Carbon Content (SOC)

The LDN methodological framework, which was adopted by the 13th session of the UNCCD Conference of Parties, stipulates the three indicators together are suitable proxies for the ecosystem services provided by the land-based natural capital, there is no scientific basis for combining these into a composite indicator to

give a single aggregated value. Aggregation would mask the changes detected in the individual measures, and would prevent the interpretation of individual measures at the national level, based on local knowledge.

Positive change in one of the indicators cannot compensate for negative change in another because all are complementary, but not necessarily additive components of land-based natural capital. Therefore, if one of the indicators shows a negative change, degradation is considered to occur, even if the others are positive. However land degradation occurs wherever negative land covers changes occurs over the specified time period (2000-2015), even though land productivity and soil carbon content increases in over time. The UNCCD default Net land Productivity (NLP) and Soil Carbon Content data captured for the period 2000-2015 is showed the Maps and in annex 1& 2 is summarised as follows as:

VALUE description:

1	Declining productivity
2	Early signs of decline
3	Stable, but stressed
4	Stable, not stressed
5	Increasing productivity

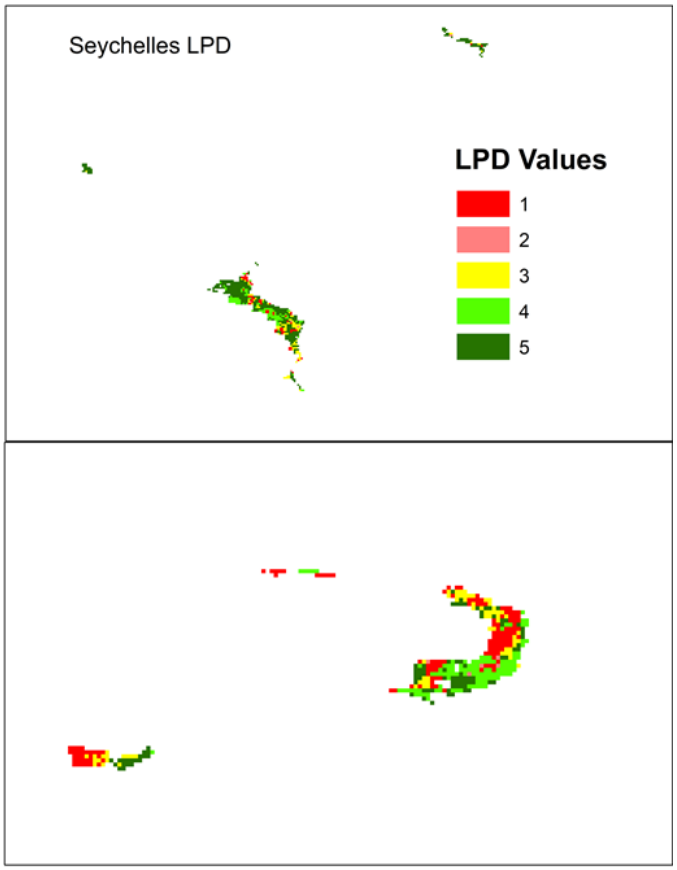


Figure 4: LDN Net Land Productivity Map 2000 (above)-2015

- There is a declining NLP adjoining artificial areas due to significant expansion of artificial settlement and infrastructure resulting loss of Vegetation/Forest cover;
- There are early sign of due to further vegetation loss , slash and burn, forest fire, proliferation of Invasive alien plant species in Forest areas and sparsely vegetated areas;
- Coastal areas are stressed due to loss of coastal vegetation, wetlands ,saline water intrusion, coastal erosion and potential climate change and induced disaster impacts (flash flood, drought etc)

Thus it is essential that LDN national and local institutions be involved to contextualise and interpret changes in the indicators to reflect the national and local conditions. Changes in land cover may be characterised as positive or negative when contextualised with national or local information. Some critical transitions are generally considered as negative, for instance those from natural and semi-natural land cover classes to cropland or to artificial areas; from natural and semi-natural land cover classes or cropland to artificial areas (i.e. urbanization); as well as from forest land to other land cover classes (i.e. deforestation).

3.4 National Land Cover Indicators

The updated satellite land use cover higher resolution data of 30 mt pixel provided by the LDN Target Setting Programme (LDN TSP) was presented and discussed in the LDN Validation Workshop held on 29 May 2018 and it was agreed, the data to be aggregated with local data to be used for small islets. The local data has been sourced from existing GIS data on land use cover, 1993 existing data at the Ministry of Environment, Energy and Climate Change (MEECC) and the Government of Seychelles- UNDP-GEF *project on mainstreaming biodiversity management into production sector activities-Mapping Seychelles habitat-types on Mahé,Praslin, Silhouette, La Digue and Curieuse; Senterre and Wagner, 2014*. However, after reviewing the data, overlaid on Google Earth (GE), it was found that only the forest/vegetation cover data could be used. The built up (artificial areas) data digitized by the MoHL, showed the cadastral demarcated settlement zoning rather than the existing built up cover/ artificial areas. Moreover the GIS section of the MoHL confirmed the unavailability of recent aerial or satellite imagery for capturing changes in land use cover over a 10 year time series. The land cover classes used to detect land use changes in Seychelles are as follows:

VALUE	**DESCRIPTION**
1	Forest
2	Shrubs, grasslands and sparsely vegetated areas
3	Cropland
5	Artificial areas
6	Bare land and other areas
7	Waterbody

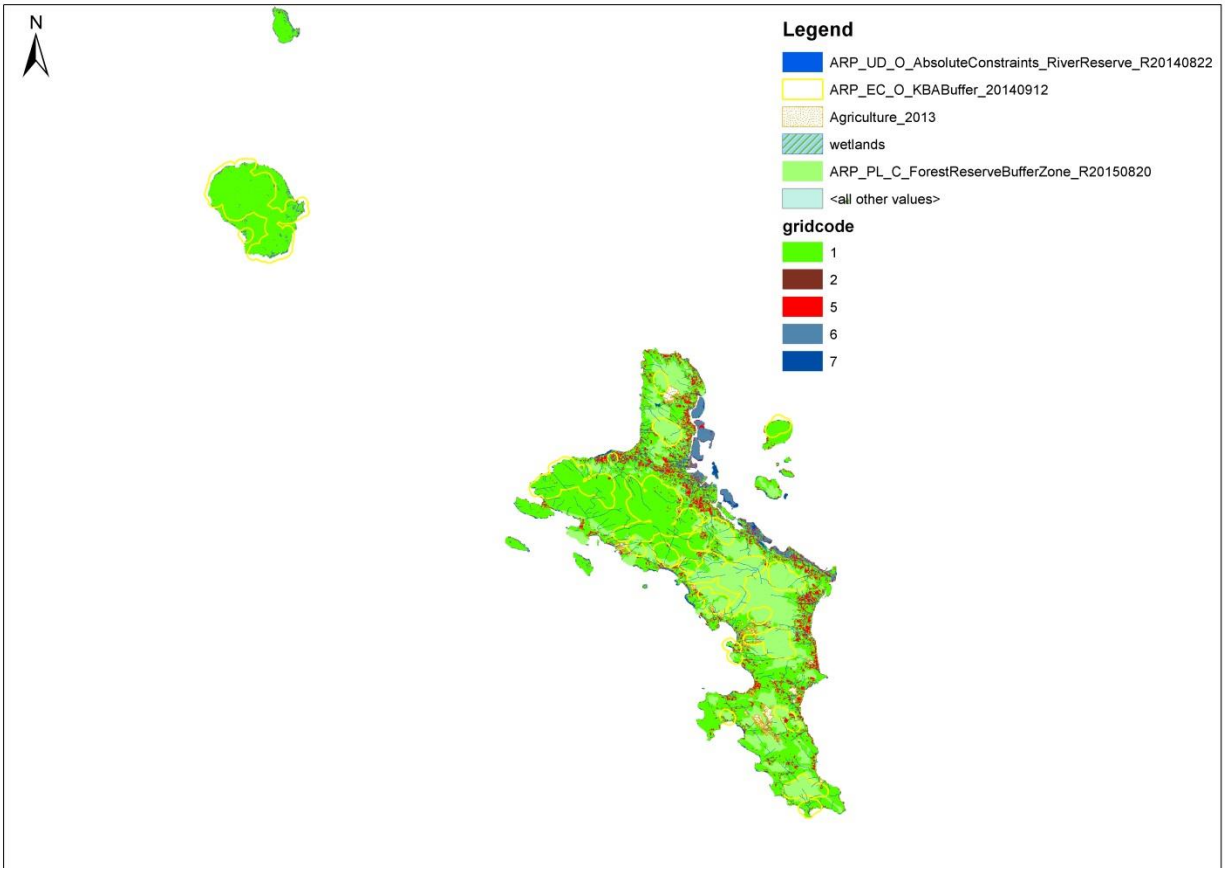


Figure 5: Map Land Cover –Mahe Island, 2000

The present data as shown in the Map-Mahe above and tables were captured from high resolution from the UNCCD 2015 imagery overlaid by the Seychelles Strategic land use and Development plan map (SSLDP) and compared to the existing forest cover for the Mahe, Praslin , La Digue , Silouette and other islets. The gap (as shown in figure 8-SSLDP Map below) in between the forest area as earmarked by the SSLDP and the existing built up area, indicates the trends in future expansion of the artificial areas in the forest area. Hence, an overall decrease in the Forest cover and an increase in the artificial areas have been noted. The representative of the Ministry of Agriculture informed the estimated land area under agriculture/Cropland is 600 ha and informed that part of the agricultural land has been abandoned (under forest cover),hence all the agricultural land will not be captured by image supervised classification and has been aggregated by spatial data from the MoHL.

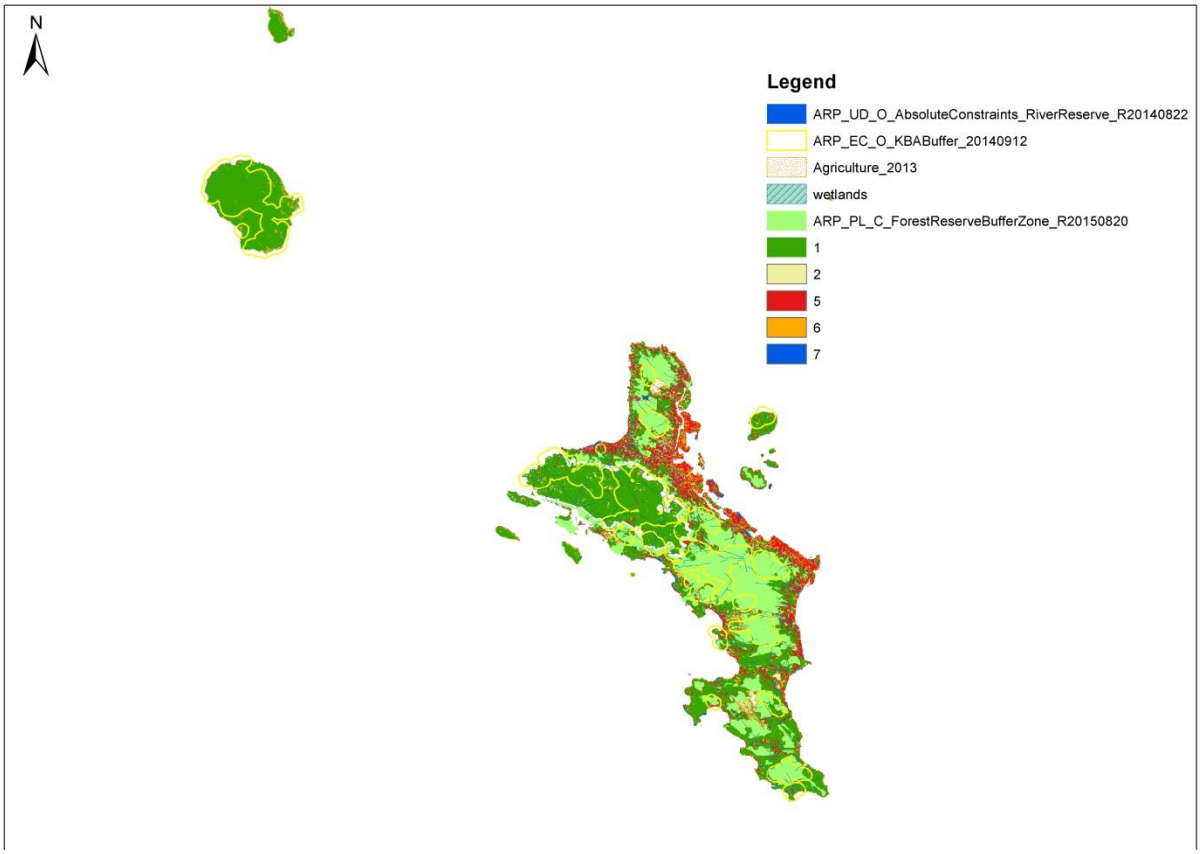


Figure 6-Map Land Cover –Mahe Island 2015

4.0 Assessing land degradation.

The relevant indicator that has been used for Seychelles to map significant changes is land use cover changes. The areas of disaster occurrences in Seychelles are also significant indicators of potential land degradation hotspot areas, such as:

- Flash flood
- Forest Fire
- Landslide and soil erosion
- Coastal erosion
- Coastal saline water intrusion
- Areas of water scarcity (Drought. Low level of water table)

- Loss of Biodiversity
- Proliferation of Invasive Alien species

These changes have been mapped out and the potential direct and indirect causes/drivers of Land Degradations have been identified, the hotspot areas and level of interventions established. The levels of intervention are as follows:

- **National Level** (High Priority Disaster Risk Areas , Productive Landscapes; Ridge to Reef processes);
- **Local/Regional Level** (Eco systemic restoration – Drainage basin, River Ecosystem, Wetlands, Coastal, Forest & Biodiversity rehabilitation etc.)
- **Site level** (In Situ site level interventions & restoration projects)

4.1 Land degradation Change Analysis

The changes in land cover may be summarised as the following critical transitions based on national land use cover changes (see Change Detection islands Maps Annex 2) identified and local information on disaster risk area occurrences;

- from forest land to other land cover classes (i.e. deforestation);
- from natural or semi-natural(grassland, sparsely vegetated areas) land cover classes to artificial areas ,infrastructure and settlements (i.e. urbanisation).
- from natural wetland land cover classes to settlements artificial areas;

The change value identifier shows land cover changes occurred from and various land cover the year 2000-2015. The value 12 shown on the Land cover change Maps (Annex 2) represents conversion of the land use from 1 (forest cover) to 2 (Shrubs, grassland and sparsely vegetated Areas. The land cover changes identified are described in the table below:

Change value Identifier	Land Use Cover Change/Conversion Occurrence 2000-2015
12	Forest (Tree Cover) – Shrubs, Grassland & Sparsely Vegetated Areas
13	Forest (Tree Cover) – Cropland & Grassland Deer Grazing-Pasture Areas
15	Forest (Tree Cover)- Artificial areas
16	Forest (Tree Cover)- bareland (landslide, rock mining areas)
21	Shrubs, Grassland & sparsely Vegetated areas – Forest
23	Shrubs, Grassland & sparsely Vegetated areas-Croplands
25	Shrubs, Grassland & sparsely Vegetated areas-Artificial Areas
62	Bareland-Forest (Tree Cover)
65	Bare lands- Artificial areas

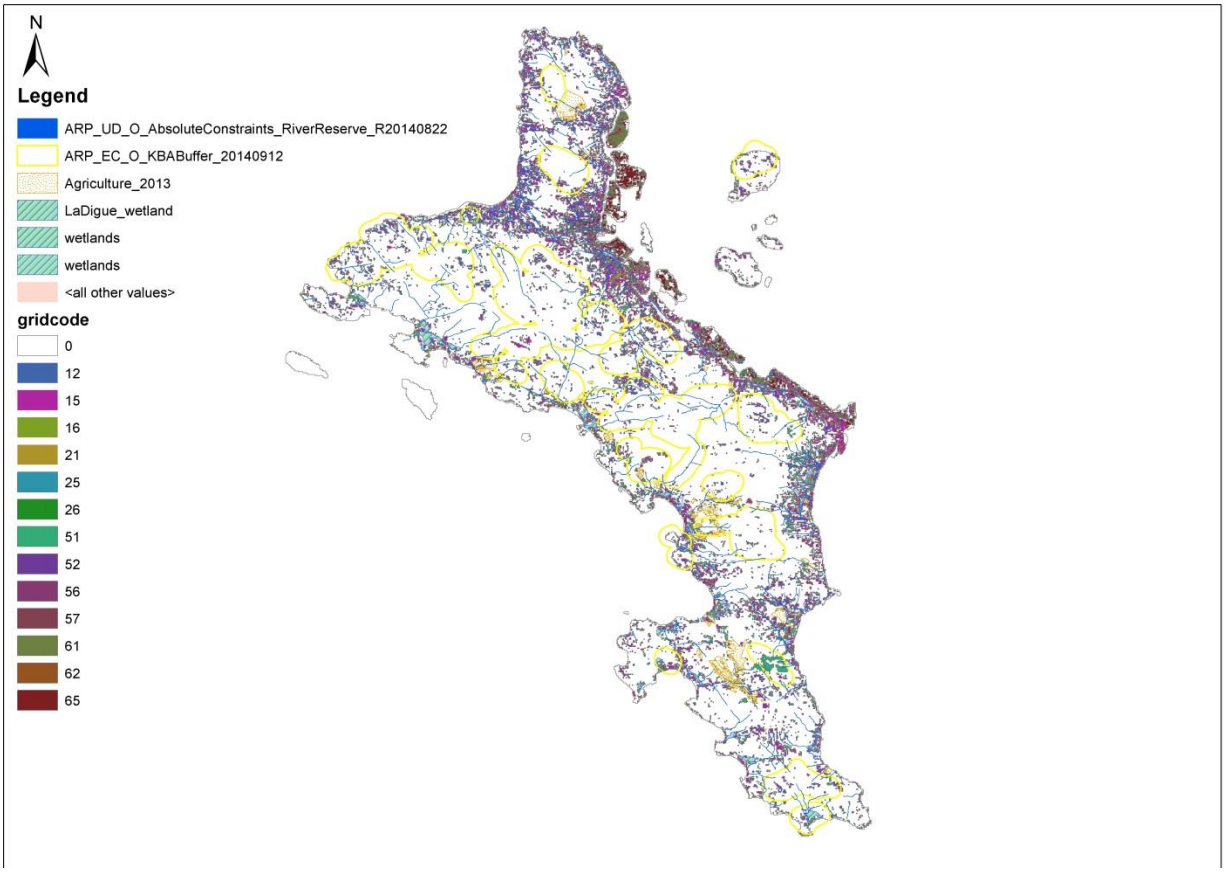


Figure 7; Map Land Cover Change Detection, Mahe Island 2000-2015

4.2 Assessing Land degradation trends and Drivers

Land use cover changes identified at landscape and ecosystem level are human induced socio-economic pressures on land. They are direct drivers of land degradation and potential disaster risk areas. The trends and drivers of land degradation were presented and discussed during the inception workshop and in the LDN Technical Advisory Committee. The main direct drivers of land degradation in Seychelles were agreed in the LDN Technical Advisory Committee as follows:

- Expansion of Urban built up sprawl- increase in (artificial areas) impervious layers
- Loss of wetlands- Expansion of Artificial Area, increasing demand for affordable Housing
- Land mining & rock quarrying- Increasing demand for construction Materials for infrastructure and economic, tourism development

- Land re-profiling change in drainage pattern causing soil erosion- Increase cut and fill in steep slope areas for local housing and tourism development
- Climate change- Disaster Risk Areas:
    - Flash Floods
    - Landslides
    - Invasive Alien Species proliferation
    - Forest Fire
    - Saline water intrusion and sea level rise
- Intensive farming and unsustainable agricultural practices

4.3 Land degradation hotspots Area

The interface between the Forest cover and urban built up areas are the hotspot areas for land degradation, i.e. the loss of forest cover into artificial areas. Figure 8 SSLDP map below above shows the potential Land Degradation hotspot area in the North of Mahe at Glacis, over an area of 319 Ha, where LDN measures may be implemented to minimise land degradation.

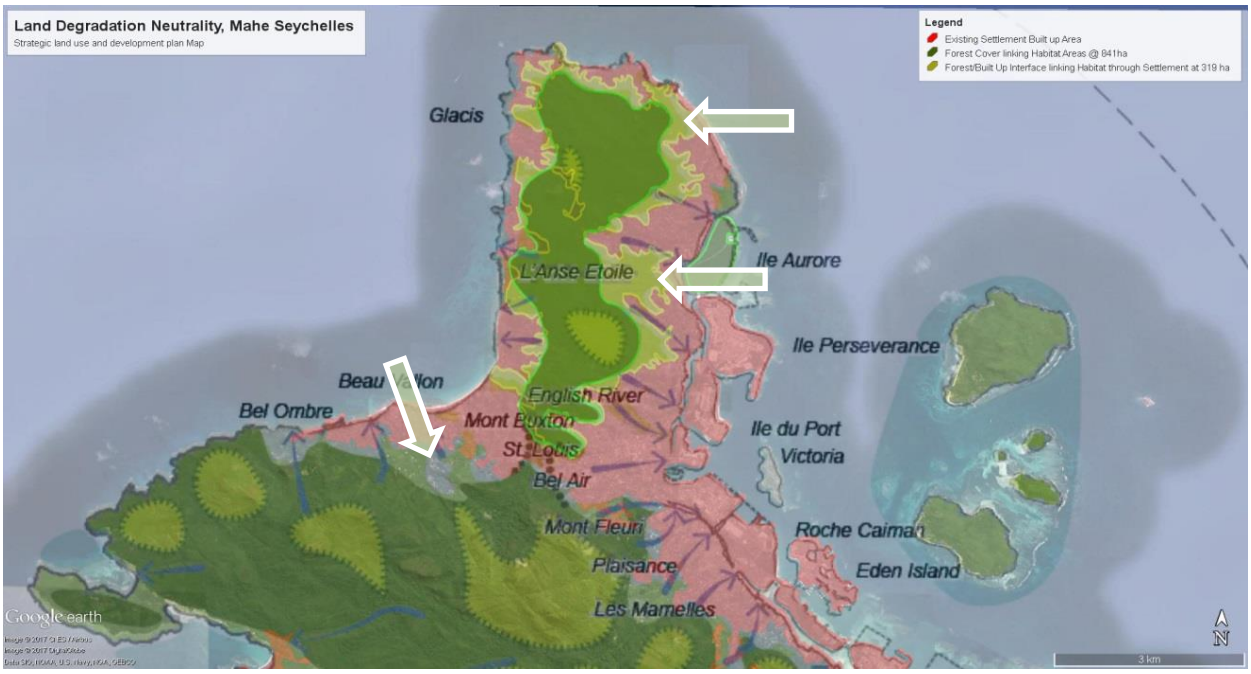


Figure 8: SSLDP Strategy Map overlaid with GE Artificial Area 2015.

The identified LDN hot spots in selected areas will require further assessments to fully understand the historical and current drivers behind observed land degradation dynamics using additional indicators, data sources, including field assessment and visits. LDN hotspots may be considered as priority disaster risk areas and LDN measures/transformative projects should aim to reduce/mitigate potential disaster occurrences. Other potential Land degradation hotspots of Seychelles further identified and presented in Annex 7 are as follows:

1. Praslin Island
2. La Digue island
3. Silouhette island
4. Aldabra Atoll
5. Alphonse island

6. Bird Island
7. Coetivy Island
8. Denis island
9. Desroches island
10. Farquar island
11. Frigate Island
12. Poivre island

5.0 LDN Baseline Indicators Validation

Setting the LDN baseline is a stock-taking exercise where a snapshot of the current land-based natural capital is taken; it does not provide any information on the current present status of land degradation. However it enables the identification of the trends and drivers of land degradation as well as the starting point or baseline to measure and monitor future land degradation. To achieve land degradation neutrality it is essential to set the baseline for land degradations and provide for policy measures and programmes to achieve LDN by 2030. Thus it is essential the LDN national and local institutions be involved to interpret changes in the indicators reflecting the national and local conditions.

5.1 LDN Baseline Indicators

The LDN baseline data has been contextualised based on the locally sourced data from various institutions and presented in the LDN National Validation Workshop. However, the accuracy of the default data may be accounted to the accuracy at 30 mt pixel imagery, variation and discrepancies of the land cover data captured relative to the climatic conditions affecting land cover during the year such as rainy or dry season affecting the vegetation cover and the accuracy in detecting change. The default data has been combined with the local data sets and gaps have been filled in determining the baseline indicators. As per the UNCCD default data land cover data the extent of forest land 2015 amounts to 28710 ha and artificial areas for the main island of Mahe is estimated at 3411 ha. The artificial land cover expansion from 2000- 2015 for Seychelles has increased by approximately 2642 ha. Forest cover has decreased by 5211 ha and grasslands, shrubs sparsely vegetated area has increased by 2698 ha over the last 15 years

The LDN baseline indicators data is summarized in the following table.

Land Use/Cover Category	Area (2000) sq km	LDN Baseline Area (2015) sq km	Area (2015) Mahe sq km	Area (2015) Praslin (Local Data) sq km	Area (2015) La Digue sq km	Area (2015) Silouhette & Other Islets sq km	Net area change (2000-2015) sq km
Forest	339.20	287.09	106.5	24.03	6.39	150.21	-52.11
Shrubs, grasslands and sparsely vegetated areas	43.32	70.30	3.50	3.64	0.13	63.03	26.98
Croplands	6.00	4.05	3.35	0.55	0.15	0.00	-1.95
Inland water bodies	1.00	1.00	0.85	0.10	0.05	0.00	0.00
Artificial areas	26.60	53.02	34.11	8.50	2.26	8.15	26.42
Bare land and other areas	30.62	31.95	5.17	1.65	0.44	24.69	1.33
Coastal Wetland	8.56	7.19	1.66	0.64	0.31	4.58	-1.37
Total	455	455	155	39	9.3	250.7	0

Table 1: LDN Baseline Indicators

6.0 Achieving Land Degradation Neutrality targets

The target setting is a voluntary process aiming to identify LDN measures and transformative projects to achieve land degradation neutrality.

During, several consultative meetings and the Technical Advisory Committee (national working group meeting) conducted in 2017, the relevant LD indicators for the islands of Seychelles were discussed among members and it was concluded that the indicators Land productivity and Soil carbon content is not accurate enough to the measure land degradation trends in Seychelles's context as most of the agricultural land are under vegetative cover and are well managed to keep soil fertility and soil carbon content at an acceptable level. However, it was agreed on the need to put in place a Land Degradation monitoring unit to continuously measure land productivity, soil organic carbon content and land use cover change mapping. It was also agreed that land cover changes were most suitable to capture land degradation due to rapid land use conversion to urbanised /artificial areas. The indicators have been complemented by national (or subnational) level indicators to provide full coverage of the ecosystems and overall landscape. The qualitative LDN measures, associated with existing and proposed land use management strategies, National sectoral policies and action plans as well as institutional effectiveness, are critical to:

- avoid land degradation through land use planning that fully accounts for the potential and resilience of land resources;
- adopt sustainable land management policies and practices in order to minimize current land degradation;
- Rehabilitate / restore degraded lands.

6.1 LDN Measures and Transformative projects

The LDN response hierarchy guides decision makers in planning measures to achieve LDN. The **response hierarchy of *Avoid > Reduce > Reverse*** land degradation is based on the recognition that "prevention is better than cure". Priority for intervention is placed first on land where prevention or avoidance of land degradation is possible, followed by land where reducing degradation through sustainable land management practices is suited, and lastly on reversing degradation through restoration, rehabilitation or reclamation measures.

The concept of neutrality involves **counterbalancing anticipated losses with measures to achieve equivalent gains**. Counterbalancing losses and gains should be managed within the same land type or land cover class (i.e. counterbalance "like for like") taking into account the national land use planning system.

The potential options for measures are as diverse as the forms and drivers of degradation. The same diversity applies to the level and scale of activities (e.g. national, local). Countries therefore should set their measures in line with the trends and drivers of land degradation identified. Addressing only the symptoms of land degradation will fall short of making real progress towards LDN. Hence measures may address the following:

- **policy or technical issues** and be implemented in the form of **programmes or projects** that should be tailored to a specific area at a given geographical and temporal scale.

- **Policy measures** to mainly address the indirect drivers of land degradation (e.g. land tenure, education, governance) and should be identified drawing on the assessment of the drivers of land degradation and the legal and institutional environment

- Technical measures to mainly address the direct drivers of land degradation and can for example be classified in **agronomic, vegetative, structural and management measures.**

The purpose of the LDN TSP validation workshop was to involve the stakeholders in the evaluation of options, which is critical to successful planning and implementation of Land Degradation Neutrality.

6.2 LDN Target Setting Consultative Meetings;

Several technical meetings and working session were held with Governmental representatives, development partners to gain leverage on existing Land Degradation Neutrality measures. Multiples linkages were establish during the Technical advisory Committee (National Working Group sessions) and potential LDN targets were identified through both formal and informal participatory discussions. Site visits were also held to identify Land degradation hotspots areas as well as sustainable land management good practises for the following islands of Seychelles:

- Mahe
- Praslin

- La Digue

Each of the islands has its own specific landscape and ecosystem. Human induced socio-economic development requirements and pressure varies substantially between the islands. Hence, they were assessed separately and with specific LDN targets and measures based on their productive sectors and ecosystem. The remaining islands of Seychelles, human induced land cover changes (land degradation) are non-significant due very small number of inhabitants and the same LDN measures as that of La Digue Island have been applied.

6.3 LDN Leverage gained

The potential LDN Targets and Measures for each land use sector and sub sectors for each island were aligned with the national land use strategies, policies, programs and action plans. They were further reviewed by the main stakeholder during the technical advisory committees and presented for validation in the Validation Workshop on 29 May 2018. The LDN linkages were established with Institutions responsible for National Strategies and sectoral policies and potential targets were identified. One of the main linkages established and leverage on LDN is the Seychelles Strategic Land Use development Plan (2014-2040- see figure 7 below) promoting and supporting the following outcomes:

- **making best use of land** and scarce resources including the delivery of the existing development pipeline;
- **defining a settlement hierarchy** which guides the location of development through designating national, regional and local centres depending on their size, function and services;
- **strengthening the role of Victoria** as the national capital and the centre of government, finance and industry;
- **concentrating development in regional hubs** at Anse Royale, Anse Boileau, Baie Ste ,Anne and Beau Vallon;
- **providing opportunities** for Grand Anse Mahé, Anse Etoile-Ile Aurore and Anse aux Pins- Ile Soleil to become

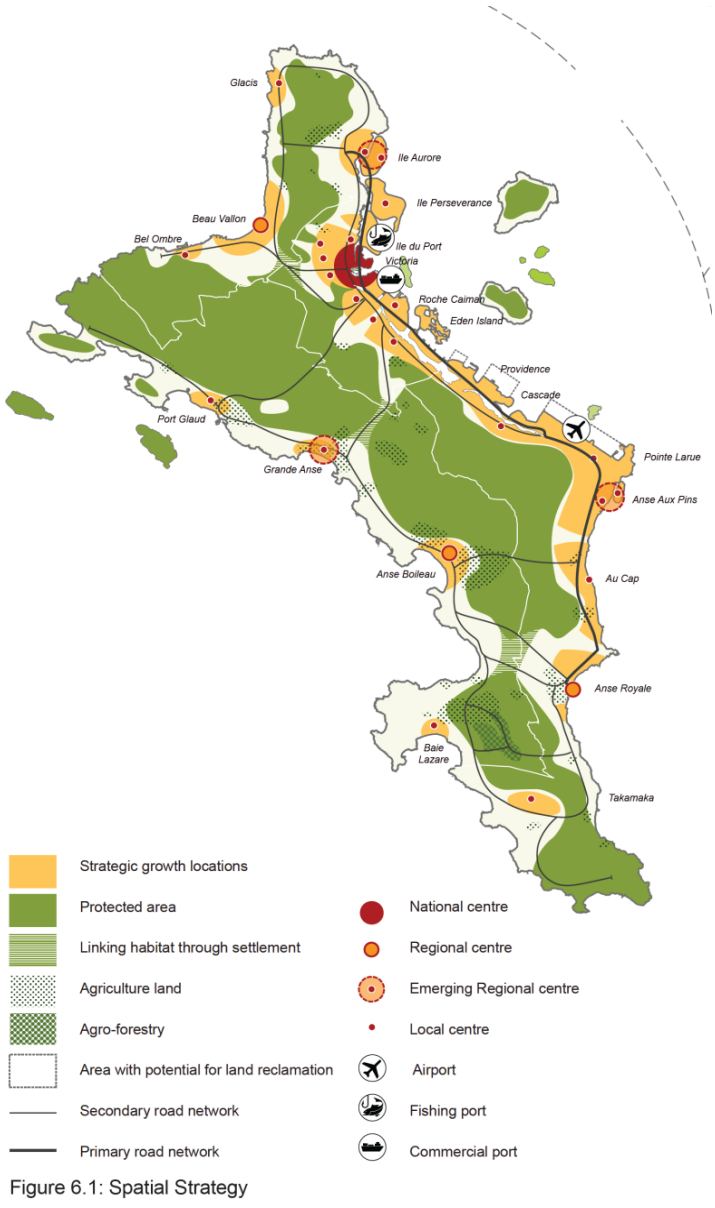


Figure 6.1: Spatial Strategy

Figure 9: SSLUP Spatial Land Use strategy Map-Mahe

regional centres over the lifetime of the Plan;

- **consolidating local centres** to provide services for the local catchment population;
- **providing land in appropriate locations** to accommodate growth of key economic sectors including the blue economy;
- **diversifying the tourism offer** away from traditional beach resorts;
- **providing the necessary transport and utilities infrastructure** and community facilities to support planned levels of growth;
- **reflecting a presumption** against the conversion of agricultural land for development;
- **protecting and enhancing** key environmental and heritage assets; and
- **addressing issues of climate change** and resilience in locating new development

The leveraging process further minimised potential cross sectoral/institutional conflicts and duplication, helped in better streamlining of efforts and initiatives to achieve LDN. The leverage gains of LDN were achieved through sharing of knowledge, data, alignment of targets and common objectives as identified the leverage plan. (See LDN Leverage Plan table Annex 3)

6.4 LDN Target Setting and Measure Validation

The validation workshop was held on 29 May2018. The objectives of the validation workshop were to:

- Present the LDN baseline indicators, trends and drivers for Seychelles
- Present the LDN measures and targets for Seychelles
- Discuss and validate the LDN measures, transformative projects and targets for each land use sectors for the Republic of Seychelles.

The baseline indicators, trends and drivers for Seychelles were presented and potential LDN measures for each land use sector discussed. Land use sector groups were formed, comprising of multiple stakeholders. There were twenty nine participants present in the validation workshop from various government institutions, NGOs, private sector representatives and international development partners (please refer to Annex 1). The main stakeholders present comprised of the following technical representatives from:

- Ministry of Environment, Energy and Climate Change

- Seychelles island Foundation
- Seychelles National Parks authority
- Seychelles Agricultural Agency
- Division of Risk and Disaster Reduction
- Ministry of Agriculture and Fisheries
- Terrestrial Action Society of Seychelles (TRASS)
- Habitat Department, Ministry of Habitat, Infrastructure and land Transport
- Seychelles Planning Authority, Ministry of Habitat, Infrastructure and land Transport
- United Nation Development Programme , Seychelles (UNDP)
- Programme Coordinating Unit PCU/GOS/ UNDP/GEF
- Seychelles Farmers Associations
- Sustainability for Seychelles
- Department of Foreign Affairs
- Tourism Department, Ministry of Tourism Civil Aviation Ports and Marine
- National Meteorological Authority

The following Land use Cover/sector discussions groups were formed to propose and discuss LDN targets & associated measures for each sub sector to be achieved by 2030:

1. Mahe island
2. Praslin island
3. La Digue Island:

Each group recognised the trend and drivers of land degradation of their island and worked towards identifying the responses to the causes of land degradation for each sector and sub sector and proposed the associated LDN measures to be achieved by 2030. The outcomes of each working groups were presented the

designated Team leader. The LDN targets and measures were further discussed, agreed and validated at the end the workshop. The validated LDN targets and measures are presented in the following tables below.

6.5 Overall LDN Targets 2030

The key LDN 2030 targets and associated measures discussed and validated for Seychelles are:

- Maintain Forest Cover through sustainable management of Forest and Biodiversity over and area of (287 Km^2)-2870 Ha:
    - Rehabilitate / restore degraded lands on steep slopes and maintain overall forest cover :
    - Manage Invasive Alien Species , restore and expansion of the protected areas networks in Key Biodiversity Areas adjoining native forests earmarked in the SSLUP Spatial Strategy Map
    - Forest Fire Management Plan (maintaining at Fire Breaks Forest-Settlement Interface and key biodiversity Areas, Protected Areas (National Parks and Nature Reserves).
- Maintain and restore Coastal Wetlands and Mangroves Forests over an area of (7.93 Km^2)-793 Ha:
    - Ecosystem based adaptation projects in Wetland restoration and shoreline management plan as LDN preventive measures against saline water intrusion ;
    - Apply Ridge to Reef approaches in managing productive landscapes to achieve Land Degradation Neutrality ;
- Expand and promote Good/smart Agricultural /Agronomic Measures and practises over an area of (6.82 Km^2)-682 Ha:
    - Protect Highly productive Agricultural land from land conversion for Development purpose:
    - Promote sustainable land management and Good Agricultural Practises
    - Provide financial and technical incentives to Farmers to maintain and encourage agronomic and agroforestry expansion with stewardship schemes
- Apply effective LDN and SLM Land Use Planning and contain Urban /Artificial areas within an overall area of (56.6 Km^2)- 5660 Ha:
    - Prepare specific LDN land use planning and detailed urban design guidelines (Scale, height, floor areas ratio, plot coverage) for Artificial Areas /urban development including steep slopes
    - Minimise impervious layers wherever possible

- Define effective building plot coverage to achieve Land degradation Neutrality
- Promote vertical extension rather than horizontal artificial areas/settlement expansion
- Promote tree/forest conservation and native plants as soft landscaping on at least 65 % of the plot area.
- Encourage step building design and construction adapted to contour /slope minimise cut and fill(excavation)

Infrastructural Measures:

- Encourage water sensitive urban designs
- Minimise impervious layers wherever possible
- Implement Sustainable Urban Drainage System (using natural processes/System to manage urban runoff water

- To put in place an LDN monitoring system(GIS & Remote Sensing) and develop adequate human resources skills at the national level to continuously assess, and review the land use carrying capacity / LDN measures of each sector annually to achieve Land Degradation Neutrality by 2030

7.0 Overall achievements and lessons learned

Land requirement for socio-economic development in the Republic of Seychelles is ever increasing due to local population increase and growth of the tourism sector. Land use planning and the urbanization processes in Seychelles are more complex due to the limited flat land area available for housing and infrastructure development. Over the last 15 years, the forest cover has been reduced by 5211 Ha, resulting from increased expansion of urban areas into Forest lands.

Moreover, small islands developing states such as the Republic of Seychelles are also continuously under the threat of climate change, the impacts of land degradation. Unpredictable changes in the climatic patterns have made daily weather forecast unreliable and becoming a challenge for local communities to take timely preventive measures.

Achieving LDN across landscapes and ecosystems is crucial in building more resilience in communities to adapt to the impacts of climate change. Identifying common grounds and having a balanced, win- win approach among the stakeholders including private economic operators and NGOs have been beneficial in setting national LDN targets in Seychelles. Likewise, leveraging on the building blocks of the National Action Plan (NAP) for Sustainable land management (SLM) program of the UNCCD, and on the need for SDGs progress indicators, has further consolidated the target setting process.

The LDN TSP in the Republic of Seychelles has adopted an integrated response (landscape and ridge to reef) to the impacts of climate change and land degradation. It has leverage on the multiple initiatives of various land use sectors and stakeholders to set LDN targets, also contributing to several SDGs by 2030.

Capturing higher resolution satellite imagery of land cover for (Small islands) has enabled identifications of temporal trends and drivers of land degradation as well as hotspot areas and potential disaster risk areas. However, it essential to highlight the urgent need to put in place an LDN monitoring system(GIS & Remote Sensing) and develop adequate human resources skills at the national level to continuously assess, and review the land use carrying capacity / LDN measures of each sector annually to achieve Land Degradation Neutrality by 2030.

Annex

Annex 1 List of Working Group Members

S. No.	Name	Designation	Institution
1	Mrs Nanette Laure	Director General, National Focal Point (UNCCD) Seychelles Director General Waste Enforcement and Permit Division	Ministry of Environment, Energy and Climate Change
2	Mrs Marie May Jeremie Muzungaile	Director General, Biodiversity Conservation and Management Division	Ministry of Environment, Energy and Climate Change
3	Mr John Quilindo	Principal Forest Officer	Ministry of Environment, Energy and Climate Change
4	Mr Roland Alcindor	Senior Programme Manager-Head Responsible Officer	UNDP, Seychelles Office
5	Mr Jean Marc Baptiste	Responsible Officer	Seychelles Island Foundation
6	Ms Kendra Sofola	Technical Officer	Terrestrial Restoration Action Society of Seychelles (TRASS)
7	Mr Jason Jacqueline		Seychelles National Parks Authority
8	Mr Terrence Athanase		Seychelles National Parks Authority
9	Ms Shirley Joubert	Praslin La Digue Coordination officer	Ministry of Environment, Energy and Climate Change
10	S.Leukovic		Tourism Department
11	Mr Lyroy Camille	Technical Officer	Department of Risk and Disaster Management
12	Ms Mermedah Moustache		Seychelles Agricultural Agencey-Ministry of Agriculture and Fisheries
13	Mr Joseph Francois	Chief Executive	Seychelles Planning Authority-Ministry of Habitat , infrastructure and land Transport
14	Mr Francis Coeur de Lion	GIS officer	GIS Unit- Ministry of Habitat , infrastructure and land Transport
15	Ms Elhe Talma	Technical Officer/IUCN focal point	Mangroves for Future
16	Ms Julie Low	Planning Officer	Seychelles Planning Authority-Ministry of Habitat , infrastructure and land Transport

17	Mr Bernard Belle	Planning Officer	Seychelles Planning Authority-Ministry of Habitat , infrastructure and land Transport
18	Mr Johan Mendez		Ecosystem Based Adaptation Project – PCU/UNDP
19	Ms Lindy Bastienne	Coordinator	GEF/SGP/UNDP

Annex 2- Working Group Meetings and Workshops

LDN Meetings	Description of Meetings objectives	Date
Technical Advisory Committee /National Working Group	Introduction of LDN TSP process and Steps to achieve LDN-Work plan; Establishment of LDN TSP National Working Group - Presentation and discussions of LDN Leverage plan Synergies with National Strategies/Policies/SDGs; - Identifying LDN Hotspots; - LDN Innovative Funds - LDN workplan approval	25 May 2017
Inception Workshop	- To introduce of the LDN target setting process and the UNCCD support programme to stakeholders (CSOs, Government Institutions ,Private Sector, Farmers Association, Environment/Biodiversity conservation NGOs, etc.); - To inform senior government and major international partners on LDN in Seychelles; - To discuss and validate the LDN leverage plan and Land Degradation trends and drivers	09 March 2017
Technical Advisory meetings	Presentation and Discussions of Baseline	22-24 May 2018
Technical Advisory meetings	Presentation and discussions of draft LDN Targets	28 May 2018
LDN Validation Workshop	- Present the LDN baseline indicators, trends and drivers for Seychelles - Present the LDN measures and targets for Seychelles - Discuss and validate the LDN measures and targets for each sector for the Republic of Seychelles.	29 May 2018

Annex 3- LDN Leverage Plan

LDN Stakeholder	Contributions and Synergies to leverage Land Degradation Neutrality	Multi Linkages to National Policies & Strategies
Ministry of Habitat, Infrastructure and land Transport	The Ministry is a member of the Technical Advisory Committee (TAC) /National Working Group of Land Degradation Neutrality Target Setting Process (LDN TSP) and is responsible for the implementation of the Town and Country Planning Act. **The Planning Authority** falls under MLUH contributing to the LDN land cover baseline and target setting process, It is responsible for reviewing requests for any buildings or constructions for developing local and national land use plans directly. Its GIS Centre is currently preparing a database of land classification and current land use.	• Seychelles Strategic Land Use Development Plan 2014-2040 • District land use plans
Ministry of Environment, Energy and Climate Change	The **MEECC** is a member of the Technical Advisory Committee (TAC) /National Working Group of LDN TSP, has the primary responsibility for environmental management and sustainable development processes, Forest and biodiversity management. The DoE is the focal point for all three Rio Conventions. It therefore has a leading role in ensuring national implementation of LDN TSP in the Seychelles, and for reporting to the Convention Secretariats. The DOE consists of three Divisions, each headed by a Director General: • **Energy and Climate Change Division** (National Climate Change Strategy, the Seychelles Sustainable Development Strategy **)** • **Waste Enforcement and Permit Division** (Environment Assessment and Land degradation UNCCD focal point ,Forestry Service) • **Biodiversity Conservation and Management Division** (Wildlife Enforcements and Permits)	• National Forest Inventory (FAO) • Forest Reserves • National Action Plan-Sustainable land Management • Integrated Financing Strategy (IFS) for Sustainable land Management. • Key Biodiversity Areas • Seychelles Sustainable Development Strategy • National Biodiversity Strategy and Action Plan
Ministry of Agriculture and Fishing	The Ministry of Agriculture and Fishing the parent ministry of the **Seychelles Agricultural Agency** (SAA) is a member of the Technical Advisory Committee (TAC) /National Working Group of LDN TSP is responsible for food security, increasing agricultural production and the modernization and development of the agricultural sector. The **Seychelles Agricultural Agency (SAA)** is responsible for food security, increasing agricultural land productivity through modernization and contributing to the management of cropland/ agricultural land use as LDN targets. Its Functions include providing technical assistance to the agricultural sector, and facilitating access to the goods and services required by farmers. This includes research and development, extension, managing leases of state	• Agriculture Investment Framework /plan 2015-2020

	agricultural land, veterinary support, irrigation and other physical and chemical inputs.	
Division of Risk and Disaster Reduction	**The Division for Risks and Disaster Management** (DRDM) is a member of the Technical Advisory Committee (TAC) /National Working Group of LDN TSP is responsible for coordinating efforts to prevent and fight fires, including forest fires. DRDM is similarly responsible for identification of disaster hotspot areas such as landslides and flash floods.	• Disaster risk management and identification of potential Land degradation hotspot areas.
Ministry of Foreign Affairs and International relations	Is a member of the Technical Advisory Committee (TAC) /National Working Group of LDN TSP supports the socio-economic and environmental development of the country by assisting in the mobilization of development assistance, both financial and technical, and in promoting the country among potential investors. The Ministry focus on cooperation and exchanges with the European Union, traditional bilateral partners, regional groupings in particular the African Union, Indian Ocean Commission, COMESA, SADC and the ACP, as well as within regional financial institutions.	• SDGs Focal point.
Ministry of Finance , Trade and Economic Planning	The ministry is a member of the Technical Advisory Committee (TAC) /National Working Group of LDN TSP and is responsible to allocate ministerial budgets, developing financial legislation and implementing fiscal reforms.	• National Development Strategy • Sustainable Development Goals (SDGs) 2030 • Programme based budgeting
Tourism Department , Ministry of Tourism Civil Aviation Ports and Marine	The tourism masterplan (situational analysis) of the Ministry of Tourism has been consulted during the LDN TSP, as hotels are to some extent engaged in biodiversity and Forest conservation activities, especially the high end hotels on private islands (North, Denis, Bird, Frégate, Cousine), or on the larger granitic islands hotels such as (Lemuria, Banyan Tree, Constance Ephelia), mostly in collaboration with Environmental NGOs, contribution to the Wetlands and Forest cover of Seychelles.	• Tourism Masterplan – situational analysis
Seychelles National Parks Authority	The Seychelles National Parks Authority (SNPA) is a Government body/authority under the general supervision of the MEECC is a member of the Technical Advisory Committee (TAC) /National Working Group of LDN TSP. It is responsible for managing most national parks, with responsibilities covering vast areas of forested land. SNPA is also responsible for fighting forest fires on the land that it manages – both inside and outside of protected areas. For privately owned forested land, the exact allocation of regulatory roles is not fully clear	• Protected Area Network Expansion • Invasive Alien Species Management • National Parks /Key Biodiversity Areas Management

		• National Biodiversity Strategy and Action Plan
Seychelles Island Foundation (SIF)	SIF is a member of the Technical Advisory Committee (TAC) /National Working Group of LDN TSP, manages two UNESCO World Heritage Sites in Seychelles, research and public awareness SIF was created by Government Decree to manage the Aldabra Atoll World Heritage Site (WHS).The Foundation has the responsibility for the management of the Vallée de Mai WHS on Praslin and has contributed in the LDN target setting process of Praslin and other islands.	• Vallee de Mai Management Plan • Multi-partnered project 'Strengthening Seychelles' protected area system through NGO management modalities', UNDP/GEF
United Nation Development Programme , Seychelles (UNDP)	The UNDP office Seychelles is an active member of the Technical Advisory Committee (TAC) /National Working Group has directly contributed to the LDN TSP for the Seychelles in terms of their Porte folio projects on land degradation projects under implementation under the **Programme Coordination Unit** (PCU). It has also provided valuable technical, financial and administrative support.	• Ecosystem based adaptation projects in Wetland restoration and shoreline management plan as preventive measures against saline water intrusion ; • Ridge to Reef approaches in managing productive landscapes as part GEF 7 allocation for land degradation
Programme Coordinating Unit PCU/GOS/ UNDP/GEF	The MEECC has established a **Programme Coordination Unit** (PCU), which is currently responsible for executing all GEF projects in Seychelles. All current GEF projects are implemented through UNDP. This PCU manages projects addressing climate change, biodiversity and SLM. The PCU helps ensuring coordination, linkages and synergies across implementation of the three conventions.	• Sustainable land management projects • Mainstreaming Biodiversity Management into Production Sector Activities.
Seychelles Farmers Associations	The Seychelles Farmers Association includes the Praslin and La Digue farmers have been consulted during the LDN TSP site visits.	• Loss of soil fertility • Saline water intrusion in irrigation wells • Inadequate technical and

		financial support • Agricultural land conversion due to development pressure(housing ,tourism)
Sustainability for Seychelles	Sustainability for Seychelles (S4S) is a non-government organisation (NGO), which seeks to promote sustainable, "green" living in Seychelles in collaboration with citizens, the Government, other NGOs and the private sector.S4S participated in the inception workshop of the LDN TSP and its main mission is to "*work towards social, ecological, economic & technological sustainability, and to inspire, inform & enable people to live, work & play in ways that benefit human & natural communities*".	• Ecosystem based adaptation – Coastal land /Wetlands conservation and management
Terrestrial Restoration Action Society of Seychelles (TRASS)	TRASS is an active member of the Technical Advisory Committee (TAC)/National Working Group for LDN TSP and is an NGO responsible restoration of degraded Forest land specifically on Praslin, which can be extended to other island of Seychelles.	TRASS is mostly working on Praslin: • Invasive Alien Species Management • Soil Erosion Monitoring • Developed a Public Private Partnership with private land owners to restore degraded land. • Native Forest Cover restoration on degraded land (40% of Praslin). • Supports Forest and biodiversity conservation, including research, public education and training.

Annex 4: Overall LDN Baseline and Targets

Table 2: Overall LDN 2030 Targets-Seychelles

Land Use/Cover Category	Area (2000)	LDN Baseline Area (2015)	Net area change (2000-2015)	LDN Target 2030	LDN Measure Target Area
	sq km*	sq km	sq km	sq km	sq km
Forest	339.20	287.09	-52.11	287.01	0
Shrubs, grasslands and sparsely vegetated areas	43.32	70.30	26.98	65.16	-5
Croplands	6.00	4.05	-1.95	6.82	3
Inland water bodies	1.00	1.00	0.00	1.00	0
Artificial areas	26.60	53.02	26.42	56.26	3
Bare land and other areas	30.62	31.95	1.33	30.69	-1
Coastal Wetland	8.56	7.19	-1.37	7.93	1
Total	455	455	-0.7	455	0

Annex 5: LDN Target and Measures Table

Table 3-LDN 2030 Target-Mahe Island

Land Use Cover/Sector	Forest Cover							Shrubs, grasslands and sparsely	Croplands			Water Bodies	Artificial area					Barel and and Othe	Coastal Wetlands		Total
Land Use Subsector	National Parks Est	Terrestrial Nature Reserves and Areas of Outstanding Natural Beauty (Landscape corridor)	Key Biodiversity Areas-(55%)Outside National Park Est	Forest Land Mixed Forest) Est	Forest - Coconut/Plantations - AgroForestry-Mix Tourism EcoLodges Est	IAS Invaded/degraded Forest Est	Total		Agriculture /Farming	Mix Agriculture/ Residential	Total		Urban/Residential Areas-R Higher Density (G+1)	Mixed Lower density Residential /Agriculture (G)	Tourism(Hotel Rooms)	Mix Industrial/Commercial/ Infrastructure	Total	Total	Coastal Wetlands	Total	
Mahe																					
LDN Baseline 2015 (ha)	3125		1522	1929	2662	1412	10650	350	335		335	85					3411.0	520		166	15517
		1522	-1522	0	-25	-203	-228	-325	150	79.6	229.6	0	116	70	19.0	75	280.0	-31		74	0
LDN Target 2030 (ha)	3125	1522		1929	2637	1209	10422	25	485	79.6	564.6	85					3691.0	489		240	15517
LDN Measures	Protect and Expand to include KBAs	Protect and expand to include KBAs	Protect ,include in National Parks Restore Native Forest	Protect Maintain Forest reserves ,National Forestry Policy and Legislation	To maintain and apply Sustainable Forest Management	Restore and manage Invasive Alien Sprecies and restore to native biodiversity species			To protect highly productive cropland and minimise conversion to Artificial areas. To restore productive cropland to agroforestry and farming.				The need for the provision of land for affordable housing, infrastructure and Tourism development was highlighted based on the land use assessment and infrastructure requirement of the SSLDP 2014-2025. The application of LDN measures was recognised as high priosity to minimise impervious layers , to encourage higher density and vertical extension of Buildings and minimise building footprint based land use categories (coastal, steep slopes, ESA ,National Parks and reserves).					Bare Rock	Protect , maintain and restore mangrove forests and wetlands as a LDN measure to reduce disaster risks against flash floods, Saline water intrusion,Coastal erosion Ocean and lagoon siltation /degradation.		
	Manage and remove IAS and restore to native species			National Forestry Inventory System LDN Monitoring system	Potential for Nature based /Farming tourism				Potential for Agroforestry and Farm tourism (Vanilla, Cocoa, Breadfruit, Tropical Fruits , organic farming etc				Prepare detailled planning policy urban design guidelines for Sensitive Areas (Steep slopes, ESA, adjoining Wetlands, River Reserves Bioswales drainage system, National Parks and Forest Reserve Areas to implement LDN measures						Use Ecosystem based Adaptation against saline water intrusion , coastal erosion ;Restoration of Wetlands, mudflats and mangroves forest areas to reduce ocean and lagoon degradation and protect marine ecosystem as well as fish spawning areas		

2

Table 4: LDN 2030 Target- Praslin Island

Land Use/Cover Category	Forest Cover							Shrubs & sparsely vegetated areas	Croplands			Water Bodies	Artificial area					Bareland and Other	Coastal Wetlands	Total
Land Use Sub-Sectors	**National Parks Est**	**Terrestrial Nature Reserves and Areas of Outstanding Natural Beauty (Landscape corridor)**	**Key Biodiversity Areas-Outside National Park Est**	**Forest Land Mixed Forest) Est**	**Forest - Coconut/Plantations - AgroForestry-Mix Tourism EcoLodges Est**	**IAS Invaded/degraded (40%)Forest Est**	**Total**	**Total**	**Agriculture/ Farming**	**Mix Agriculture/ Residential**	**Total**		**Urban/ Residential Areas-R Higher Density (G+1)**	**Mixed Lower density Residential /Agriculture (G)**	**Tourism (Hotel Rooms)**	**Mix Industrial /Commercial/Infrastructure**	**Total**			
Praslin																				
LDN Baseline 2015 (Ha)	305.8	19	55.2	564.6	115	706.4	**1766**	**1209**	55		**55**	**10**					**850.0**	**271**	**64**	**4225.0**
		300	0		120	-300	**120**	**-80**	30	17.5	**47.5**	**0**	18.75	10	2.6	4.1	**35.5**	**-123.0**		**0.0**
LDN Target 2030 (Ha)	305.8	319	55.2	564.6	235	406.4	**1886**	**1129**	85	17.5	**102.5**	**10**					**885.5**	**148.01**	**64**	**4225.0**
LDN Measures	Protect and Expand to include KBAs. 10% out of 19.5ha has been restore to high biodiversity area	Protect and expand to include KBAs	Protect ,include in National Parks Restore Native Forest	Protect Maintain Forest reserves ,National Forestry Policy and Legislation	To expand (50 Shrubs+ 70 Bareland) maintain and apply Sustainable Forest Management	Restore and manage IAS.40% of Praslin forest is degraded forest (706 ha), Ongoing Restoration by TRASS (outside National Parks)		To Restore to Forest Cover and cropland	To Expand and protect highly productive cropland and minimise conversion to Artificial areas :To protect highly productive cropland and minimise conversion to Artificial areas				The need for the provision of land for affordable housing, infrastructure and Tourism development was highlighted based on the land use assessment and infrastructure requirement of the SSLDP 2014-2025. The application of LDN measures was recognised as high priosity to minimise impervious layers , to encourage higher density and vertical extension of Buildings and minimise building footprint based land use categories (coastal, steep slopes, ESA ,National Parks and reserves).					To restore to agroforestry and mixed agro; Residential	Protect , maintain and restore mangrove forest and wetlands as a LDN measure to reduce disaster risks against flash floods, Saline water intrusion,Coastal erosion Ocean and lagoon siltation /degradation , TRASS to restore wetlands (Anse Gouvernment, Cap Samy, Nouvelle Decouverte).	
	ManageBiodiversity ,remove IAS and restore to native species			National Forestry Inventory System LDN Monitoring system	Potential for Nature based /Farming tourism				High Potential for Agroforestry and Farm tourism (Vanilla, Cocoa, Breadfruit, Tropical Fruits , organic farming etc				Prepare detailled planning policy urban design guidelines for Sensitive Areas (Steep slopes, ESA, adjoining Wetlands, River Reserves;Bioswales drainage system, National Parks and Reserve Areas to implement LDN measures						Ecosystem based Adaptation to saline water intrusion , coastal erosion ;restoration of Wetlands, mudflats and mangroves forest areas	

Table 5-LDN 2030 Targets- La Digue island

Land Use/Cover Category	Forest Cover							Shrubs and sparsely vegetated areas	Croplands			Water Bodies	Artificial area					Bareland and Other	Coastal Wetlands		Total
Land Use Sub Sectors	National Parks Est	Terrestrial Nature Reserves and Areas of Outstanding Natural Beauty (Landscape corridor)	Key Biodiversity Areas Outside National Park Est	Forest Land Mixed Forest) Est	Forest - Coconut/Plantations - AgroForestry-Mix Tourism EcoLodges Est	IAS Invaded/degraded Forest Est	Total		Agriculture /Farming	Mix Agriculture/ Residential	Total		Urban/Residential Areas-R Higher Density (G+1)	Mixed Lower density Residential /Agriculture (G)	Tourism(Hotel Rooms)	Mix Industrial/Commercial/ Infrastructure	Total				
La Digue																					
LDN Baseline 2015 (Ha)		7.9		382	83	16	488.9	252.0			15	5					241.0	0		31	1032.9
			100				100	-108.5			0	0		7	0.9	0.6	8.5	0			0.0
LDN Targets 2030 (Ha)		7.9	100	382	83	16	588.9	143.5			15	5					249.5	0		31	1032.9
LDN Measures	Protect and Expand to include KBAs	Protect and expand to include KBAs	Protect ,include in National Parks Restore Native Forest	Protect Maintain Forest reserves ,National Forestry Policy and Legislation	To maintain and apply Sustainable Forest Management	Restore and manage IAS		To Restore to Forest Cover		To protected highly productive cropland and minimise conversion to Artificial areas		To protect and maintain	The need for the provision of land for affordable housing, infrastructure and Tourism development was highlighted based on the land use assessment and infrastructure requirement of the SSLDP 2014-2025. The application of LDN measures was recognised as high priosity to minimise impervious layers , to encourage higher density and vertical extension of Buildings and minimise building footprint based land use categories (coastal, steep slopes, ESA ,National Parks and reserves).						Protect , maintain and restore mangrove forests and wetlands as a LDN measure to reduce disaster risks against flash floods, Saline water intrusion,Coastal erosion Ocean and lagoon siltation /degradation.		
	Manage and remove IAS and restore to native species			National Forestry Inventory System LDN Monitoring system	Potential for Nature based /Farming tourism					Potential for Agroforestry and Farm tourism (Vanilla, Cocoa, Breadfruit, Tropical Fruits , organic farming etc			Prepare detailled planning policy urban design guidelines for Sensitive Areas (Steep slopes, ESA, adjoining Wetlands, River ReservesBioswales drainage system, National Parks and Reserve Areas to implement LDN measures						Use Ecosystem based Adaptation against saline water intrusion , coastal erosion ;Restoration of Wetlands, mudflats and mangroves forest areas to reduce ocean and lagoon degradation and protect marine ecosystem as well as fish spawning areas		

Annex 6-List of LDN Reports

- LDN TSP –Inception Report
- Land Degradation Neutrality Institutional Environment /Leverage Plan report
- Land Degradation Baseline , Trends and Drivers report
- Land Degradation Target and Measures Validation Report

Annex 7 LDN Hotspots Map