



## GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: FULL SIZE PROJECT

TYPE OF TRUST FUND: GEF TRUST FUND

### PART 1: PROJECT INFORMATION

Project Title:	Mainstreaming IAS Prevention, Control and Management		
Country(ies):	Mauritius	GEF Project ID:	9553
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5503
Other Executing Partner(s):	Ministry of Agro-Industry and Food Security	Submission Date:	July 13, 2016
		Resubmission Date:	July 23, 2016 September 8, 2016
GEF Focal Area(s)	Biodiversity	Project Duration (Months)	72
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>		Corporate Program: SGP <input type="checkbox"/>
Name of parent program:	N/A	Agency Fee (\$)	369,385

### A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
BD2 – Program 4	GEFTF	3,888,265	17,003,000
<b>Total Project Cost</b>		<b>3,888,265</b>	<b>17,003,000</b>

### B. INDICATIVE PROJECT DESCRIPTION SUMMARY

<b>Project Objective:</b> To safeguard globally significant biodiversity in vulnerable ecosystems through the prevention, control and management of Invasive Alien Species (IAS) in the Republic of Mauritius.						
Project Components	Financing Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Co-financing
1. Policy, regulatory and institutional framework and capacity for effective IAS management	TA	<p>1.1. Operational policy, regulatory and institutional framework established for effective prevention, control and management of IAS, and capacity in place to support implementation.</p> <p><i>Indicators: Improvement in IAS management framework operational score, as measured by the GEF IAS TT; Strengthened national capacities in key agencies (listed under footnote 3), as measured by the UNDP Capacity Development Scorecard; Establishment and operationalization of IAS 'apex agency'.</i></p> <p><i>Baseline and targets will be established during the PPG.</i></p>	<p>1.1.1. Review and update of National Invasive Alien Species Strategy (NIASS) is completed through a consultative process to ensure that it takes into account the current national policy and institutional framework, regional initiatives and global good practice in IAS management; and development of a budgeted Action Plan with specific and costed activities, timelines, and roles and responsibilities. An 'apex agency'<sup>1</sup> is established and operationalized with sustainable funding to provide overall national coordination on IAS.</p> <p>1.1.2. Existing legislation is strengthened for more effective control and management of IAS, including specifically the Plant Protection Act (2006), Forest and Reserves Act (1983), the Environment Protection Act (2002), the Fisheries and Marine Resources Act (2007) and the Animal Diseases Act (1952)..</p> <p>1.1.3 A cross-sectoral policy coordination framework is established for the incorporation of IAS issues including risk-based IAS management into the legal and policy framework of all relevant agencies at</p>	GEFTF	800,000	4,784,393

<sup>1</sup> The apex body would to oversee IAS issues in the Republic of Mauritius. The exact form of the apex body has not yet been agreed. In the NIASS, three options were discussed: i) A stand-alone committee of representatives of major stakeholders; ii) A group embedded in a major government department; or iii) An independent government agency. Option 3 was strongly recommended.

			<p>the national and inter-island levels, involving Ministry of Agro-Industry and Food Security (MAIFS), Ministry of Environment, Sustainable Development, and Disaster and Beach Management (MESDDBM), Ministry of Housing and Lands (MHL), Ministry of Tourism and External Communications (MTEC) and Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Island (MOEMRFSOI) and Ministry of Industry, Commerce and Consumer Protection (MICCP).</p> <p>1.1.4. A technical secretariat for IAS is established, comprising a small full time staff of technical experts on a comprehensive range of IAS species, pathways, vectors and management approaches.</p> <p>1.1.5 Based on the IAS assets inventory and capacity needs assessment, capacity is strengthened in key agencies and organizations (see 1.1.4) for IAS management and technical staff mandated to deal with different aspects of IAS prevention, control and management through training in key areas including international, national and inter-island laws, policies and institutions, global standards and good practice, risk analysis, and technologies and techniques for identification, monitoring and surveillance, ecological and socio-economic impact assessment, contingency planning, integrated IAS management and ecosystem restoration.</p> <p>1.1.6. Financial sustainability of the apex agency and IAS operations will be secured through the development and application of new and innovative market-based and fiscal mechanisms and incentives to support IAS management (e.g. permits, registration and inspection fees, fees for quarantine or containment of suspected IAS, fees from disposal of vector material such as contaminated soils and risk assessments, revenues from the export of invasive species, and fines for IAS infractions) and by facilitating budgetary coordination between sectors and government institutions to ensure coherence investments and actions to address IAS threats efficiently.</p>			
2. Incorporation of risk-based management of IAS into pathways and ecosystem management	TA/IN V	<p>2.1. Sustainable biosecurity<sup>2</sup> strategies for risk-based prevention and early detection and rapid response implemented for priority biological invasion pathways and species.</p> <p><i>Indicator: Reduced entry and spread of IAS into 7 islands or island groups</i></p>	<p>2.1.1. Sustainable biosecurity strategies for risk-based management of priority pathways, species and ecosystems implemented nationally and within-country by:</p> <ul style="list-style-type: none"> <li>Establishing national and inter-island biosecurity priorities and resource needs, including baseline [there is currently a lack of recorded information on introductions and dates of first detection];</li> <li>Implementing pre-border, border and post-</li> </ul>	GEFTF	2,304,000	6,256,517

<sup>2</sup> The term biosecurity is sometimes used to include all aspects of invasive species management, but here it is used in the more restricted sense of preventing the spread of invasive species across international or internal borders, so covers prevention and early detection and rapid response.

	<p>(mainland Mauritius, mainland Rodrigues, Agalega, St. Brandon, Mauritius northern islet PAs, Mauritius southeastern islets PAs and Rodrigues islet nature reserves) through biosecurity inspections of goods and persons who arrive on the islands by air or sea</p> <p>2.2. IAS threats managed and ecosystem functions restored in selected PAs covering 541 ha (specifically, Flat Island [253 ha], Gabriel Island [42 ha], Rodrigues [46 ha], and the proposed new PA in Mourouk Valley [200 ha]) to sustain populations of 38 critically threatened species.</p> <p><i>Indicators: (i) Improved management of effectiveness of the 5 target PAs), as measured by METT scores and threat reduction and biodiversity status progress as per the GEF BD 1 TT; (ii) Establishment of new Mourouk Valley PA, covering 200 ha; Sustainable populations of 24 critically threatened species on Flat and Gabriel Islands; Sustainable populations of 14 critically threatened species on Rodrigues<sup>3</sup>; IAS infestations reduced by 93 ha (75 ha Round Island and 18 ha on Mourouk Valley); Improved financial sustainability as indicated by Financial Stability Scorecard.</i></p> <p><i>Precise baseline and targets will be established during the PPG.</i></p>	<p>border IAS prevention and early detection and rapid response management approach;</p> <ul style="list-style-type: none"> <li>• Pioneering cost-recovery schemes to contribute to the sustainability of biosecurity operations and the IAS apex agency and address market failures; and</li> <li>• Acquiring equipment and infrastructure to help ensure that priority biosecurity measures are effectively implemented.</li> </ul> <p>2.2.1. Biodiversity conservation and ecological restoration of two key Satellite Islets (Flat Island and Gabriel Island) by:</p> <ul style="list-style-type: none"> <li>• Developing baseline information necessary for effective IAS management and planning;</li> <li>• Reviewing and implementing IAS management plans and costed operational plans and changing the protection status of the islands as needed;</li> <li>• Implementing island biosecurity measures;</li> <li>• Restoring habitat through IAS removal, planting of native species and the use of analogue species;</li> <li>• Promoting reptile and seabird conservation, and reintroducing threatened Mauritian native plant and animal species;</li> <li>• Implementing a responsible tourism initiative for ecological and financial sustainability; and</li> <li>• Establishing a conservation volunteer scheme to prevent the spread of IAS.</li> </ul> <p>2.2.2. Biodiversity conservation and ecological restoration of Rodrigues PAs (Ile aux Cocos, Ile aux Sables, Grande Montagne, and Anse Quitor) by:</p> <ul style="list-style-type: none"> <li>• Developing baseline information necessary for effective IAS management and planning;</li> <li>• Implementing IAS management plans and costed operational plans;</li> <li>• Declaring a new PA on the Rodrigues mainland (Mourouk Valley 200 ha)</li> <li>• Implementing island biosecurity measures;</li> <li>• Restoring native forest cover by removing invasive alien plants and replacing with native Rodriguan plants in Mourouk Valley;</li> <li>• Supporting local community participation and local management of PAs through Free, Prior and Informed Consent, community participation in restoration-related activities and the development of local management committees as appropriate;</li> <li>• Implementing comprehensive business plans that accurately estimate the financial</li> </ul>			
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<sup>3</sup> There is no formalised monitoring system for Mauritius as a whole but experts from a range of organisations have been consulted on the status of rare species through the IUCN Red Listing Process and the indicators are derived from this process. The baseline for the project will need to be established during PPG, and refers to the number of species that are present or could be introduced to the target landscapes whose populations are sustained through the current PA system. The numbers of sustainable populations of critically threatened species refers to the additional species that could be sustained as a result of the project.

			needs of PAs and options for income generation to recover costs of PA management; and <ul style="list-style-type: none"> <li>Establishing a system for monitoring the impact of activities on soil erosion, hydrology, and IAS distribution and abundance.</li> </ul>			
3. Knowledge management and learning		3.1. A National IAS Information System is established to inform effective IAS prevention, control, monitoring and management, in partnership with key stakeholders.  <i>Indicators: Operational National IAS information and monitoring system and extent of access and actual usage of information in government planning and management decision making process.</i>  <i>Baseline and targets will be established during the PPG.</i>	3.1.1. A participatory review and survey is undertaken to ascertain the status of IAS pathways, IAS distributions, the cross-sectoral economic, environmental and cultural impact of IAS and the successes and lessons learned from past and ongoing IAS prevention, early detection and rapid response, eradication, control and mitigation and restoration.  3.1.2. A National IAS Information System (NIASIS), including a participatory monitoring network using citizen science and modern ICT and building on the Knowledge Management Framework to be developed under the "Expanding Coverage and Strengthening Management Effectiveness of the Protected Area Network on the Island of Mauritius" project, is developed and operationalized to monitor and inform risk-based management of species, pathways and ecosystems based on agreed protocols.  3.1.3. A National IAS Gateway is developed to provide rapid access and dissemination of information to enhance deployment of coordinated actions between institutional partners on IAS management.  3.1.4. A national IAS communications and awareness strategy and action plan is developed and implemented, with steps to ensure that international good practice related to IAS is embedded in policy and practice.  3.1.5. IAS tools and manuals are developed to complement training courses and for use in day to day IAS management operations (e.g. commodity inspection and treatment manuals, risk assessment manuals, early detection and rapid response decision-trees, inspection systems, monitoring, control techniques, etc.) and guidelines are developed to embed IAS issues into key sectors whose activities have IAS implications.		600,000	5,152,423
Subtotal					3,704,000	16,193,333
Project Management Cost (PMC)				GEFTF	184,265	<b>809,667</b>
<b>Total Project Cost</b>					<b>3,888,265</b>	<b>17,003,000</b>

**C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE**

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
Government of Mauritius	Public investments executed by relevant sectoral ministries (as per Budget Estimates for 2015/16 -2017/18))	Grant	15,210,000
Government of Mauritius	Rodrigues Regional Assembly	In-kind	225,000
GEF Agency	UNDP	In-kind	100,000

CSO	Non-governmental partners	In-kind	468,000
Private Sector	Tourism operators in target landscapes, private sector and land owners	In-kind	1,000,000
<b>Total Co-financing</b>			17,003,000

#### D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS <sup>a)</sup>

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) <sup>b)</sup>	Total (c)=a+b
UNDP	GEFTF	Mauritius	Biodiversity	n/a	3,888,265	369,385	4,257,650
<b>Total GEF Resources</b>					3,888,265	369,385	4,257,650

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#### E. PROJECT PREPARATION GRANT (PPG)

Is Project Preparation Grant requested? Yes  No  If no, skip item E.

#### PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: \$ 130,000					PPG Agency Fee: \$ 12,350		
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee (b)	Total c = a + b
UNDP	GEFTF	Mauritius	Biodiversity	n/a	130,000	12,350	142,350
<b>Total PPG Amount</b>					<b>130,000</b>	<b>12,350</b>	<b>142,350</b>

#### F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	541 Hectares
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	47,155 Hectares (including agricultural land not under sugar cane in Mauritius, deer grazing land in Mauritius, harvested area of vegetables and cereals in Rodrigues and a further 40% of the land area of Rodrigues – estimate of land area under grazing)
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	Number of Countries: 1
	Functional environmental information systems are established to support decision-making in at least 10 countries	Number of Countries: 1

## PART II: PROJECT JUSTIFICATION

**Context and issues:** The Republic of Mauritius is a small island state with a total land surface of 2,040 km<sup>2</sup>, encompassing the main island of Mauritius (1,865 km<sup>2</sup>), Rodrigues (109 km<sup>2</sup>)<sup>4</sup> and two groups of outer islands; Agalega (21 km<sup>2</sup>) and St. Brandon Archipelago (also known as the Cargados Carajos shoals) (3 km<sup>2</sup>). Mauritius is a stable multi-party democracy with a population of approximately 1.26 million inhabitants, nearly 1.21 million of whom live on the main island and about 41,000 on Rodrigues. Agalega has a permanent population of about 300 and coconut cultivation is the main industry. St. Brandon has small transient populations mainly of fishers. Mauritius ranks third in Africa in terms of GDP per capita (US\$ 18,728 in 2014) and it displays fairly high levels of human development (HDI of 0.777 in 2014) and medium levels of inequity (GINI coefficient of 35.8 in 2012). Most MDGs have been met with the notable exception of Goal 7 (Ensure Environmental Sustainability). The Mauritian economy is based on tourism, textiles, sugar, and financial services. Information and communication technology, fish processing, hospitality and property development, health tourism, renewable energy, and education and training have emerged as important sectors in recent years. Measuring about 2.3 million km<sup>2</sup>, including approximately 400,000 km<sup>2</sup> jointly managed with the Seychelles, Mauritius has one of the largest Exclusive Economic Zones in the world, the exploitation of which is a government priority. Small

<sup>4</sup> These figures include offshore islets.

scale agriculture and fisheries, while not major contributors to GDP, are significant in terms of their impact on land resources, employment and the local economy.

Mauritius is located in the Madagascar and Indian Ocean Islands Region, which has been classified as one of the world's Global Biodiversity Hotspots<sup>5</sup>. Its tropical climate, topography and history of isolation, has resulted in the evolution of a diverse terrestrial biota with a high degree of endemism. Around 46% of all higher plants, 80% of birds, 94% of reptiles and 40% of Mauritius' bat species are endemic. With 94% of its endemic plants classed as threatened, Mauritius has one of the most endangered island floras in the world. Marine biodiversity has fared better, but is also under threat. The islands are surrounded by extensive reef systems and a total of 290 marine families comprising 1,656 species have been recorded within the inshore area. Around 50 of these species are of economic importance including fish, molluscs, lobsters and shrimps. St. Brandon Island is the nesting ground for two species of endangered marine turtles (*Chelonia mydas* and *Eretmochelys imbricate*) and is an important breeding ground for numerous seabird colonies as are Round Island, Serpent Island and the islets around Rodrigues. Mauritius has three Ramsar sites and has important habitats for more than a dozen regularly visiting migratory bird species. Like many small island states, Mauritius is dependent on the healthy functioning of both its terrestrial and marine ecosystems for its economic development and social well-being. A significant proportion of the country's economic sectors depend on ecosystem services and these are affected by a number of interacting anthropogenic threats.

The current protected area estate of the island of Mauritius, defined as terrestrial and marine State Protected Areas, namely National Parks, Nature Reserves, Ramsar Sites, Marine Parks and Fishing Reserves amounts to 12,553 ha<sup>6</sup>. This comprises of 7,593 ha of terrestrial PA on the Mauritian mainland, 16 offshore islets covering 735 ha, 2 Marine Parks covering 838 ha of and 4 Fishing Reserves covering 3,387 ha. IAS must be intensively managed in all terrestrial protected areas to effectively conserve native biodiversity. The potential for effective integrated IAS management is particularly high on offshore islets. This management, which comprises: biosecurity to ensure that the risks of new species introduction and spread are minimized; area-wide management by managing whole ecosystem units by means such as biological control, surveillance and the use of analogue species; and intensive species recovery and ecosystem restoration on specific sites. Management of this type has been undertaken on Round Island (169 ha) – a Strict Nature Reserve (IUCN Category Ib) and Ile aux Aigrettes (25 ha) – a Habitat/Species Management Area (IUCN Category IV). However, Flat (253 ha) and Gabriel Islands (42 ha) by virtue of their accessibility, beauty, size and sandy beaches have become major tourist attractions. This presents threats and opportunities for biodiversity conservation. Their insularity offers biosecurity opportunities while visitor frequency poses a biosecurity challenge. Their value for mainstream tourism brings with it the threat of unsustainable development but a potential for cost recovery, sensitization of tourists and Mauritians and public participation in conservation that cannot be provided by Round Island and Ile aux Aigrettes because of their limited accessibility (in the case of Round Island) and carrying capacity (for both Ile aux Aigrettes and Round Island). The proposed project provides an opportunity to move the management of Flat and Gabriel Island onto a sustainable trajectory that would ensure that the ecosystem restoration and biodiversity potential of both islands is maximized in a manner that is compatible with the development of the islands for international and local tourism. Such a venture would be unique in Mauritius.

The current protected area estate of the island of Rodrigues, defined as terrestrial and marine State Protected Areas, namely Nature Reserves, Marine Protected Areas and Fishing Reserves amounts to 7,870 ha. This comprises of 24 ha of terrestrial PA on the Rodrigues mainland, two offshore islets covering 22 ha, one Marine Protected area covering 4,343 ha, four Marine Reserves covering 2,421 ha and Reserved Fishing Areas covering 1,060 ha. Following extensive clearance and forest fires, no contiguous native forests were left in Rodrigues by the twentieth century, though small patches and isolated native individual plants do occur. Calls for action led to the initiation of active conservation work in 1982 with the WWF/Rodrigues Forestry Service Plants Programme to save critically endangered plant species. Under the management of expatriate staff propagation techniques were developed, new individuals of rare plants were discovered and in 1986 the lowland Anse Quitor valley and a key upland site Grande Montagne, were declared Nature Reserves. These sites have been substantially restored under GEF Projects that began in the late 1990s with work being increasingly led by Rodriguan professionals and the local community. The restoration and species recovery techniques and community participation efforts pioneered in Anse Quitor and Grande Montagne Nature Reserves need to be expanded in order to create more sustainable conservation in Rodrigues at the landscape level as the basis for the development of an island-wide Protected Area Network. The ideal site for this expansion is the Mourouk Valley, which contains the largest population of naturally occurring Rodrigues endemic plants on the island. It also covers a greater altitudinal range and more diverse habitats than Anse Quitor and Grande Montagne and is part of the catchment for the 4,343 ha (3,604 ha inside the lagoon 738 ha outside) South East Marine Protected Area (SEMPA) which was proclaimed as a multi-use MPA in 2009. The Mourouk valley offers appreciable green and ecotourism tourism potential with a botanic garden currently under development through the Rodrigues Regional Assembly. Under the project, an 18 ha mainland Mourouk Valley nature reserve would be declared and intensively restored with native and endemic plants through a partnership approach involving the state (Forestry Service), an NGO (Mauritian Wildlife Foundation) and local communities in a partnership to conserve biodiversity, increase ecosystem resilience, boost the local economy, promote awareness and build biodiversity restoration capacity.

<sup>5</sup> Myers N, Mittermeier RA, Mittermeier CG, da Fonseca GAB & Kent J (2000). Biodiversity hotspots for conservation priorities. *Nature*, 403, 853-858.

<sup>6</sup> Fifth National Report to the CBD (Table 2).

## Threats

**Invasive alien species:** Originally uninhabited by people, Mauritius' unique biodiversity evolved in the absence of ground-dwelling mammals and other functional groups found in continents thus rendering it extremely vulnerable to IAS. At least 21 introduced species of mammal, reptile and mollusc are naturalized in Mauritius with detrimental effects on native biodiversity. Examples include Javan deer (*Cervus timorensis*) that browse native plants and feral pigs (*Sus scrofa*) that disturb the soil and disperse seeds of alien plants. Pigs also probably adversely affect ground-dwelling invertebrates. Javanese macaques (*Macaca fascicularis*) damage native fruits and predate on the eggs and chicks of native birds such as the pink pigeon (*Columba mayeri*), Mauritius olive white eye (*Zosterops chloronothos*) and Mauritius fody (*Foudia rubra*). Rats (*Rattus rattus* and *R. norvegicus*) also predate on the eggs and chicks of native birds, reptiles and invertebrates and are seed predators. In addition, predation by a range of aliens poses a very serious threat to the survival of dozens of endemic snails and other invertebrates, which are often taken by rats and tenrecs (*Tenrec ecaudatus*), toads (*Bufo gutturalis*) and the rosy wolfsnail (*Euglandina rosea*). To date, more than 1,675 plant species have been introduced into Mauritius with at least 20 plant species having been identified as particularly aggressive invaders in Mauritius<sup>7</sup>. Two of the most destructive species are Chinese guava (*Psidium cattleianum*) and privet (*Ligustrum robustum* subsp. *walkeri*), which have come to dominate much of the upland forest in Mauritius where they prevent the regeneration of native plants. Both species are capable of establishing under deep shade, have relatively rapid growth rates, high fruit establishment and long fruiting seasons. Other widespread invasive plants include *Leucaena leucocephala* and *Furcraea foetida* which cover large areas of Flat Island and *Lantana camara* which is found on high densities on Gabriel Island threatening native species such as *Psidium arguta*, *Oldenlandia sieberi*, *Lantania loddigesii*, *Pandanus vandermeeschii* and reducing the potential for reintroduction of threatened lowland and coastal species for species recovery and ecosystem restoration. There are many alien species in Mauritian freshwater ecosystems with potential negative impacts. A survey carried out on the species of fish and macrocrustaceans of Mauritian rivers<sup>8</sup> found five introduced fish species including four Poeciliidae (Genera *Gambusia*, *Poecilia* and *Xiphophorus*) and one Cichlidae (*Oreochromis niloticus*). The effects of these species on the native biodiversity of Mauritian rivers have not been examined. The situation regarding introduced species in the Mauritian marine environment is poorly understood but surveys of marine IAS were carried out in Port Louis harbor in 2009 and 2012 to provide a baseline. The numbers of recorded non-native species increased from 15 to 25 between 2009 and 2013. Of the 10 new species found, some are a cause for concern with respect to possible further spread and impact<sup>9</sup>. The discharge of ballast water in port areas, a known IAS pathway, is poorly controlled despite regulations. Rodrigues is also severely impacted by IAS. However, introduced species in Rodrigues are a small subset of those currently in Mauritius (monkeys, deer and wild pigs for example are not present on Rodrigues). But recent increases in traffic between the two islands have heightened the chances of introducing species that have already established themselves in Mauritius. Asian garden lizards (*Calotes versicolor*) and the Indian house shrew (*Suncus murinus*) were both accidentally introduced to Rodrigues in the late twentieth century. There is also pressure to introduce species established in Mauritius for aesthetic and utilitarian reasons. Significant invasive plant species in Rodrigues include *Litsea glutinosa*, *Leucaena leucocephala*, *Lantana camara*, *Acacia nilotica* and *Psidium cattleianum*. IAS are a threat to Rodrigues' last remaining vertebrate species – the Rodrigues fruit bat (*Pteropus rodricensis*), the Rodrigues fody (*Foudia flavicans*) and Rodrigues warbler (*Acrocephalus rodericanus*) and to almost all of the islands remaining 37 endemic plant species (35 of which are Endangered) including *Diospyros diversifolia*, *Doricera trilocularis*, *Eugenia rodriguesensis* and *Foetidia rodriguesiana* and endemic invertebrates linked with some of these species. By virtue of lack of settlement, and relatively limited IAS introductions due to their insularity, the small islets around Mauritius and Rodrigues have been very important refuges for a significant amount of native biodiversity that has disappeared or is highly threatened on the main islands. Round Island, a 169 ha islet off the northern coast of Mauritius contains at least four species of reptile found nowhere else on earth. These species have survived mainly because rats never colonized the island. Rats, cats and house mice have been successfully eradicated from several other Mauritian islets including Flat and Gabriel Islands in the late 1990s<sup>10</sup> thus increasing their potential for restoration.

**Land degradation and over-exploitation of natural resources:** Land degradation and the impacts of excess sedimentation in reservoir and lagoon areas are visible in both Mauritius and Rodrigues. Although the problem presents itself differently in both islands, it can be traced to unsustainable land use practices in both locations. Soil runs off into streams and rivers, eventually concentrating in river mouth areas, where excess and unfiltered sediment is directly discharged into the sea with significant impacts on lagoon ecosystems. Land degradation has already impacted more than 90% of Mauritius' land surface area<sup>11</sup>. Mauritius lost much of its primary forest during successive waves of colonization, a process that continued in the early years of independence. Although 25% of the island is now under forest cover<sup>12</sup>, most of this is dominated by invasive species and less than 2% of substantially native

<sup>7</sup> Strahm, W. 1999. Invasive species in Mauritius: examining the past and charting the future. pp. In: O. T. Sandlund, P. J. Schei and A. Viken (eds). Invasive species and biodiversity management. Kluwer Academic publisher, Dordrecht.

<sup>8</sup> ARDA. 2003. Premier inventaire des poissons et des macrocrustacés d'eau douce des principales rivières pérennes de l'île Maurice. Ministère de l'Aménagement du Territoire et de l'Environnement, France.

<sup>9</sup> Awad A & Jackson L (2015) An overview of Marine Invasive Species in the WIO Mission Report. ESA-IO Biodiversity Project

<sup>10</sup> Cheke, AS & Hume, JP (2010) Lost Land of the Dodo. The Ecological History of Mauritius, Réunion and Rodrigues. Bloomsbury

<sup>11</sup> Page WS, D'Argent G (1997) A vegetation survey of Mauritius. Report Commissioned by IUCN, Basel. Mauritian Wildlife Foundation, Port Louis, Mauritius

<sup>12</sup> GoM (2015) *Fifth National Report to the CBD*

forest remains<sup>13</sup>. However, invaded forest does provide ecosystem services albeit almost certainly less effectively than the indigenous forest it has largely replaced<sup>14</sup>. Rodrigues lost practically all of its primary forest before 1874<sup>15</sup> and, other than in intensively managed restored habitats, native plant species are only present as isolated individuals or clumps in a matrix of introduced and invasive species that constitutes most of the island's estimated 30% forest cover. Forests are still being cleared in Mauritius for conversion to other land uses such as deer ranching and housing developments. An increasing demand for deer meat has led to high stocking densities which has resulted in increased soil erosion and browsing pressure on both native and introduced forest species. A larger land area is being impacted by changes in agricultural practice. Much of Mauritius' agricultural land is under sugar cane, which has become less profitable in recent years. As a result, owners have either abandoned production or have reduced the attention that they are paying to soil conservation. This tendency is greatest in marginal lands, which are generally those that are most prone to erosion. Those farmers producing fruits and vegetables have similarly adopted unsustainable practices such as heavy and prophylactic use of agrochemicals driven by increasing pest impacts caused in part by systemic biosecurity failures. In Rodrigues, the major cause of land degradation is overgrazing, which has already denuded soils in several drainage basins. Most of the land in Rodrigues is State-owned but is often treated as communal. Over the decades, common land tenure has translated into unregulated access to and use of land resources, resulting in land degradation. However, some of the plant species introduced to combat soil erosion and restore fertility have become problems in their own right and are now contributing to land degradation. A notable example is piquant loulou (*Acacia nilotica* subsp. *adstringens*) which was introduced to Rodrigues in the mid-1970s for erosion control, firewood and fodder. The use of firewood is now rare in Rodrigues and trees such as *A. nilotica* are becoming highly invasive. *A. nilotica* forms impenetrable thorny thickets thus injuring people, excluding livestock and shading understory plants making the land vulnerable to soil erosion. In both Mauritius and Rodrigues, the sustainability of some proposed land degradation solutions, comprising mass planting of species known to be invasive elsewhere, is a cause for concern at the landscape level.

**Pollution:** Land-based pollution from increased economic activities has resulted in eutrophication and hypoxia of marine life as has excess sediment as a result of soil erosion. Eutrophication and hypoxia affects all key functions of marine life, adding a very strong stressor to the lagoon environment, which directly depends on sunlight and oxygen. Excess sediment in lagoons is most severe around river mouths and can be seasonally critical (e.g. during the rainy season). Pollution exacerbates marine invasive infestations and can result in over-abundant native species that can take advantage of simplified ecosystems such as the crown-of-thorns starfish (*Acanthaster planci*) which as adults feed primarily on coral and is capable of reducing coral abundance up to 90%. These interactions reduce resilience, with considerable costs to the economy. Another form of pollution is excessive use of pesticides, a response to increasing pest incidences referred to above, which can have human health impacts and ecological consequence such as resistance and a loss of natural enemies causing increased vulnerability to further pest outbreaks.

**Climate Change:** Average temperature in Mauritius is rising at a rate of 0.15 °C per decade and has risen by 0.74 – 1.2 °C compared to the 1961-90 long term mean<sup>16</sup>. Similar trends have been observed in Rodrigues, St Brandon and Agalega. Rainfall totals and patterns are also changing with total rainfall in Mauritius decreasing while the frequency of extreme heavy rains and storms of tropical cyclone strength or higher has increased significantly over the past two decades. Surface runoff is likely to become more intense in the rainy season; and droughts – with attendant fire risks – more widespread in the dry season. It is believed that climate change will increase IAS impacts because invasive species are often highly adaptable generalists that are able to take advantage or tolerate change and disturbance. For example, sea level rise may create gaps in low lying coastal and wetland vegetation, which can be occupied by IAS; increased forest fires may leave gaps in native vegetation; sea water temperature rise may cause coral die off and leave gaps in marine ecosystems; and climate change may change tolerance levels for pathogens.

**Baseline Programmes:** There are a large number of on-going Government programmes as well as initiatives supported by development partners that directly and indirectly address IAS management in Mauritius which constitute "business as usual". Approximately 90% of the relevant baseline investments come from State budgetary resources. The baseline can be divided into four parts: 1. Activities addressing national level biosecurity (implemented by the National Plant Protection Organisation and the Veterinary Service); 2. Activities addressing IAS management for biodiversity conservation and ecosystem services implemented by NPCS (in Mauritius), the Forestry Service (FS) in Mauritius and Rodrigues and by non-state actors<sup>17</sup> in Mauritius and Rodrigues; 3. Activities concerning integrated pest management (IPM) that have implications for IAS in agriculture and in the wider landscape; and 4. Activities that do not directly address IAS but have IAS implications and into which IAS considerations can be embedded; such as the management of EIAs, the development of sustainable tourism and programmes developed under MHL on land use management:

<sup>13</sup> Page and D'Argent (1997) characterise 'high quality' native forest as forest with more than 50% native canopy cover.

<sup>14</sup> There is substantial anecdotal evidence that points to native forest's effectiveness in terms of cyclone resistance, erosion control and soil conservation but quantitative comparisons of such parameters between native and invaded ecosystems have yet to be carried out.

<sup>15</sup> Balfour, I. B. 1879. The physical features of Rodriguez/Botany [of Rodrigues]. *Philosophical Transactions of the Royal Society of London Series B- Biological Sciences* 168:289-292, 302-387.

<sup>16</sup> Mauritius Meteorological Services 2016 (<http://metservice.intnet.mu/climate-services/climate-change.php>)

<sup>17</sup> Principally the Mauritian Wildlife Foundation with support from CBOs and direct contributions from local communities

1. National Biosecurity (total baseline \$3.55 M): The National Plant Protection Organisation under MAIFS is responsible for the protection of plant life or health and the prevention or the limitation of damage from risks arising from entry, establishment or spread of plants. Relevant activities include the implementation of plant quarantine regulations, specific biosecurity protocols such as the White Grub Protocol with Reunion and the Giant African Snail Protocol with Australia, and policy formulation of phytosanitary measure related to international trade. Also under MAIFS, the Division of Veterinary Services is the National Competent Authority for the importation of live animals and the certification of products/food of animal origin.

2. IAS management for biodiversity conservation and ecosystem services (total baseline \$10.613 M): A National Invasive Alien Species Strategy (NIASS) was approved by the Cabinet in 2010; however, an Action Plan was never formulated to support implementation. It appears that the NIASS did not catalyze meaningful change because the strategy was not supported by a robust implementation structure in terms of a recognized apex body and a full time secretariat, and lacked ownership beyond the agencies responsible for biodiversity conservation (principally NPCS) and plant quarantine (NPPO). Today, part of MAIFS, NPCS and FS execute various programs of relevance to the management of IAS including ecosystem restoration in mainland PAs and on islets amounting to a baseline of \$8.94 M. MWF, the largest NGO in Mauritius is responsible for IAS management on Ile aux Aigrettes and (together with NPCS and FS) on Round Island. MWF also controls vertebrate IAS for endangered bird species recovery on the Mauritian mainland which represents \$298 K. Several restoration programs are being undertaken by private sector landowners which amount to \$150 K. Substantial contributions for restoration work, mainly in Rodrigues and to a lesser extent in Mauritius, are provided by community groups who work both inside and outside formally declared Protected Areas. The private sector is increasingly becoming involved in ecosystem restoration through Corporate Social Responsibility Initiatives, a contribution that represents \$1 M. In addition, the Rodrigues Regional Assembly's contribution to restoration and reafforestation activities amounts to \$225 K.

3. Integrated pest management: (total baseline \$2.72 M): IPM in Mauritius has been spearheaded by the Mauritius Sugar Industry Research Institute (MSIRI) in the sugar sector and the Food and Agricultural Research and Extension Institute (FAREI) (operating under the aegis of MAIFS) in the non-sugar sector. Under these bodies Mauritius has adopted biological control, the use of traps and the judicious use of pesticides as part of an IPM package to manage certain pests in the agricultural sector.

4. Activities with indirect IAS implications: (total baseline to be established): MESDDBM is currently modernizing EIA processes, with the aim of introducing more transparency, ease of access and effectiveness. There are also other relevant initiatives executed by the Ministry, e.g. tree on planting on Road Reserves and beach rehabilitation. Also relevant to the project area mapping activities undertaken by MHL. The Ministry of Tourism and External Communications (MTEC) under its Tourism Authority are implementing initiatives under to promote ecotourism and sustainable tourism in the country. The Mauritius Oceanography Institute (MOI) monitor the marine environment around Mauritius, Rodrigues and the Outer Islands, and advises the Government on appropriate policies and strategies for the management of resources under its jurisdiction, the University of Mauritius has well-established facilities which can help with research support, e.g. taxonomy and ecology and Durrell Conservation Academy provide training on biodiversity conservation management (baseline of \$170 K). Other (non-State) relevant baseline programs include: The Biodiversity Project (*Coastal, Marine and Island Specific Biodiversity Management in ESA-IO Coastal States*) executed by the Indian Ocean Commission (IOC) with EU funding, and the EU-financed IUCN-executed Invas'iles Project (*Preparation and testing of a comprehensive model for preventing and managing the spread of invasive species on island ecosystems*).

**The long-term solution** is to undertake a comprehensive and inter-sectoral approach to IAS prevention, control and management through the incorporation of IAS considerations into mainstream sectoral priorities and relevant actions across all islands in the Republic of Mauritius to improve management and conservation of forest, agricultural, coastal and marine ecosystems. This will produce global benefits in terms of conservation of globally significant biodiversity (especially threatened endemic plants, birds and reptiles), the effective management of large marine ecosystems (including coastal and near-shore marine ecosystems), and the arrest and reversal of ecosystem degradation.

**Barriers:** Although the programs and projects described above address numerous elements necessary for IAS prevention, control and management, the baseline for the proposed project is characterized by a number of key deficiencies and barriers to the effective integration of IAS issues into land management activities all relevant sectors. These barriers, which will persist in the absence of the GEF intervention, include:

Fragmented legislative, policy and institutional framework: The major guidance document for IAS management in Mauritius is the National Invasive Alien Species Strategy for the Republic of Mauritius (NIASS 2010-2019), which has the following vision: 'A nation in which the negative impacts of invasive alien species on the economy, environment and society are avoided, eliminated or minimized' and a mission 'To guide the nation so that all Mauritians are together responsible for avoiding, minimizing or removing the negative impacts of invasive alien species.' However, the Strategy has not been fully implemented with IAS management still being driven by sectoral imperatives. Mauritian national legal measures have evolved in a reactive piecemeal manner, responding to new problems and pathways relating to IAS and single sector approaches have been the norm. Coordination and cooperation between relevant institutions is necessary to address existing gaps, conflicts of interest, weaknesses and inconsistencies between the many legal, policy and institutional frameworks that relate to IAS in Mauritius. Specific examples of IAS-related gaps in existing legislation include the Plant Protection Act (2006), the main piece of legislation relating to plant biosecurity, which does not list IAS species with environmental impacts other than those which are also pests of economic sectors. The Forest and Reserves Act

(1983), one of the principal acts governing forest management in Mauritius has no provisions relating to the management of invasive alien plant infestations and in some instances its provisions discourage the control of invasive plants, e.g. the stipulation that "No person may destroy a tree on forest land, which is adjacent to a Mountain Reserve" regardless of the species. The Environment Protection Act (2002), the country's principal environmental management related legislation, does not mention IAS as an environmental threat and contains no explicit stipulations on IAS management. The Fisheries and Marine Resources Act of 2007, which regulates activities undertaken in the marine ecosystem, also does not mention IAS impacts or pathways. Fish farming requires an EIA license, but it is not subject to a systematic risk analysis process. The Animal Diseases Act (1925) has detailed provisions on measures to be followed for the prevention of animal disease through the importation of animals but says nothing about the potential IAS risk of animal imports and how to manage this risk. In light of this failure at the policy level to recognize the importance of IAS, institutional mandates of relevance to IAS are fragmented and spread across departments in different ministries and Mauritius has no formal apex body responsible for IAS issues. The National Invasive Alien Species Committee (NIASC), formed in 2003, is a cross-sectoral body responsible for providing advice on IAS issues to individual government departments but it has no formal authority, and no full time staff.

Insufficient capacity to integrate IAS issues into (multiple) key sectors: IAS management has rarely taken an integrated approach in which IAS considerations are embedded into the management of other anthropogenic pressures, such as land degradation, fragmentation and pollution, that render a system vulnerable to IAS and compound their impact. The continued growth of trade, transport and tourism-related movements has increased IAS risks for Mauritius and the risks posed by Mauritius as an IAS source for other countries. Successful management initiatives have been undertaken in agriculture (e.g. surveillance system for the white grub which poses a threat to the sugar industry), in health (e.g. the malaria prevention programme) and in conservation (e.g. inter-island quarantine operations on Round Island and Ile aux Aigrettes). However, good practice adopted in individual sectors has not been systematically transferred to other sectors nor always within sectors (e.g. introduction of risk-based biological control as adopted in the agricultural sector has not been utilized for biodiversity conservation, and biosecurity practices have not been introduced for all inter-island movements). This inconsistent application of good practice has serious implications for management effectiveness of all landscapes including PAs. For example, the country has pioneered some very successful site-based ecosystem restoration projects in mainland and islet PAs in Mauritius and Rodrigues, a mainstay of which has been invasive plant removal. At the same time, these efforts are being undermined by the absence of invasive plant management at the landscape scale through measures such as risk-based species listing, biocontrol and containment of incipient invasions. On islets, a lack of effective quarantine for ecologically important but easily accessible islands such as Flat and Gabriel Islands has resulted in IAS colonization from mainland Mauritius and local species extinctions. By failing to mainstream IAS concerns, the country runs the risk of addressing one environmental concern at the expense of another.

Insufficient knowledge, awareness and access to useful, timely and detailed information of relevance to IAS management: Most Mauritians are aware of specific biological invasions, generally related to outbreaks of human and animal disease and agricultural pests. However, awareness about IAS as a generic issue with environmental, social and economic impacts is low. Most people in Mauritius would probably not be familiar with the term "invasive alien species". Without basic levels of awareness about the causes and consequences of IAS, it is unlikely that the general public will provide the consistent support and collaboration that an effective IAS management framework requires. Critical information to support IAS management is lacking. The full economic cost of IAS is unknown and not accounted for in planning decisions, monitoring of IAS management efforts is inconsistent. It is essential that invasion risks of live imports and potential IAS vectors are assessed in a timely manner. This requires rapid access to relevant and credible information. EIAs do not systematically incorporate assessments of IAS risk, partly due to inadequate information on native and non-native alternatives to recommended (potentially invasive) plants to be used for purposes such as landscaping, agroforestry and erosion control. Invasive species distributions in Mauritius have not been systematically assessed nor has the vulnerability of different climatic zones to different biological invaders; knowledge which is becoming increasingly important in the light of climate change. A significant and persistent gap is the absence of a comprehensive assessment of the socio-economic impact of IAS in Mauritius along the lines of those undertaken in some other countries<sup>18</sup>. In the absence of such information, those who claim that systematic risk-based prevention and control of IAS is highly cost-effective are less able to effectively support their case than counterparts in countries such as South Africa where relevant and credible research has been undertaken<sup>19</sup>.

### **Outline of the project strategy**

The project is designed to support the implementation of the National Invasive Alien Species Strategy and Action Plan and its objectives for strengthening national and local island-level management effectiveness and orienting it more concretely towards biodiversity conservation. **At the national level**, the project will aim to support the establishment of an IAS apex agency to coordinate implementation of the NIASSAP. It will strengthen the capacity of key institutions to prevent, control and manage IAS;

<sup>18</sup> e.g. Pimentel D, Lach L, Zuniga R, Morrison D (2000) Environmental and economic costs of nonindigenous species in the United States. *Bioscience* 50: 53–65.

<sup>19</sup> e.g. Van Wilgen BW, Richardson DM, Le Maitre DC, Marais C, Magadla D (2001) The Economic Consequences of Alien Plant Invasions: Examples of Impacts and Approaches to Sustainable Management in South Africa. *Environment, Development and Sustainability* 3: 145–168, 2001.

integrate critical partners (targeted production sector stakeholders) into IAS prevention and control mechanisms; improve information resources on IAS; and put in place priority setting and decision-making tools for more effective prevention, control and management of IAS. **At the site level**, the project will demonstrate effective IAS management in high priority conservation areas that harbour globally significant ecosystems. The primary emphasis at site level will be to prevent the entry and spread of IAS into these areas through prevention and early detection and rapid response systems, in order to prevent IAS problems at source and thus avoid costly control and eradication efforts. The project will promote integrated IAS planning and coordination on 7 islands or island groups (mainland Mauritius, mainland Rodrigues, Agalega, St. Brandon, Mauritius northern islet PAs, Mauritius south-eastern islet PAs and Rodrigues islet nature reserves) to help to reduce the entry or spread of IAS. It will promote the more effective management of IAS threats and support ecosystem restoration in selected PAs (specifically, Flat Island, Gabriel Island, and Rodrigues, and will work to gazette a new PA in Mourouk Valley) to sustain populations of critically threatened species. The project will work with local residents and producers to reduce the potential impacts of IAS stemming from productive activities within and around conservation areas. It will also support measures to address IAS in sites where existing IAS are having a severe impact on biodiversity and/or ecosystem functions, and where control and eradication measures can be cost effectively implemented with a high likelihood of success.

Specifically, under **Component 1**, the project will aim to put in place a comprehensive policy, regulatory and institutional framework for effective prevention, control and management of invasive alien species. While a National Invasive Alien Species Strategy (NIASS) was drafted in 2010, it has not been operationalized to date due to the lack of an apex organization assigned to support coordinated implementation. As a result, a consultative process will be established to update the NIASS to ensure that it takes into account the current national policy and institutional framework, regional initiatives and global good practice in IAS management, and a budgeted IAS Action Plan with specific and costed activities, timelines, and roles and responsibilities will be developed to support implementation. To oversee implementation going forward, an ‘apex agency’ will be established to provide overall national coordination on IAS, and a cross-sectoral policy coordination framework will be put in place to ensure the incorporation of IAS issues into the legal and policy framework of all relevant agencies at the national and inter-island levels. The apex agency will be supported by a technical secretariat for IAS, comprising a small full time staff of technical experts on a comprehensive range of IAS species, pathways, vectors and management approaches. At the policy and strategic level, the project will ensure that IAS considerations are mainstreamed into the National Development Strategy and relevant Acts, including specifically the Plant Protection Act (2006), Forest and Reserves Act (1983), the Environment Protection Act (2002) (which does not mention IAS as an environmental threat and contains no explicit stipulations on IAS management), the Fisheries and Marine Resources Act (2007) and the Animal Diseases Act (1952). Where possible, formal or informal partnerships will be facilitated to assist in risk-based IAS management across all landscapes, and where needed, the capacity of the various agencies and technical staff mandated to deal with different aspects of IAS prevention, control and management will be strengthened through training provided in key areas including international, national and inter-island laws, policies and institutions, global standards and good practice, risk analysis, and technologies and techniques for identification, monitoring and surveillance, ecological and socio-economic impact assessment, contingency planning, integrated IAS management and ecosystem restoration. Under **Component 2**, the project will implement a set of activities focused on IAS pathways management and integrated management of a range of key landscapes which will incorporate IAS dimensions to ensure that objectives are met without unintended consequences in terms of IAS impacts. Pre-border, border and post-border IAS prevention and early detection and rapid response along prioritised pathways into and within the country (mainly but not exclusively between-islands) will be reinforced by an approach based upon species and pathways risk assessment. Biodiversity conservation in islets will be improved through effective inter-island biosecurity and ecosystem resilience to IAS will be increased by reintroduction of key threatened plant and animal species and analogue species (tortoises) to fill the empty large herbivore niche in Mauritian protected areas. Activities will be undertaken to ensure that IAS considerations are systematically incorporated into the management of existing PAs in Rodrigues, into adjacent areas that function as buffer zones and locations with PA expansion potential, and into the Rodrigues landscape as a whole to ensure that the land is effectively managed for biodiversity, soil and water conservation whilst ensuring a IAS risks are minimised. Activities to ensure that sufficient capacity is built, both in individuals, organisations and groups for whom IAS is a core concern, and in those whose action influence IAS risks. Under **Component 3**, the project will undertake activities that will provide timely access to information required for decision-making, ensure that information is kept up to date and provides inputs for evidence-based adaptive management based on agreed protocols, raise awareness of IAS as a cross-sectoral issue to build support for IAS-related work, and encourage participation in IAS-related activities.

### **Incremental reasoning and global environmental benefits**

The project’s **incremental approach** can be summarised as follows: The Government of Mauritius has clearly identified the importance of safeguarding its natural capital (biodiversity and ecosystem services) by mainstreaming IAS prevention, control and management into key policy, regulatory and institutional frameworks and across key sectors. However, despite this strong policy commitment, the integration of IAS management priorities has not started and systemic and institutional barriers still remain to achieving the required changes, despite the urgency of the issue of land and forest degradation and associated impacts on biodiversity, ecosystem services and livelihoods. **In the baseline situation**, the barriers and insufficient capacity for integrating IAS concerns into all management actions that affect the interdependent terrestrial, coastal and marine ecosystems means that a

business-as-usual scenario would promote continued weakness in terms of coordination and integration of IAS concerns among the various sectors and stakeholders that manage or influence terrestrial, coastal and marine resources and ecosystems. As a result, IAS risks to key ecosystem services such as biodiversity conservation, climate change adaptation and mitigation, and watershed services will continue to be widespread in areas ranging from upland forests and agricultural landscapes to coastal landscapes and out to coral reefs and other inshore marine habitats, with significant impacts including biodiversity loss, sedimentation, pollution and nutrient overloads flowing from terrestrial to coastal to marine ecosystems. **In the alternative scenario enabled by the GEF**, systemic and institutional barriers to mainstreaming IAS prevention, control and management will be removed at the national, and local levels, backed by incentives for community-based natural resource management to make sustainable land and forest management compatible with effective biodiversity and ecosystem management. The integration of IAS considerations into the various programmes and projects described in the baseline analysis will help to improve the management effectiveness of PAs, prevent species extinctions, sustainably conserve globally significant biodiversity, and protect and improve ecosystem function in Mauritius, Rodrigues, offshore islets and the Outer Islands; thereby strengthening the national economy and local livelihoods, and generating global environmental benefits. At the pilot landscapes, stakeholder capacity development and local level integrated green development will reduce the threat posed by IAS and help to ensure that interventions affecting landuse such as reforestation, biofuel feedstock plantation and species introduction for erosion control do not result in negative side-effects in terms of IAS impacts. This will contribute to sharp decreases in pasture and forest degradation, improved status of globally significant biodiversity and improved and sustainable livelihoods. Addressing knowledge gaps, strengthening capacity for more holistic ecosystem management, and promoting inter-sectoral coordination and policy harmonisation should be considered to be a major contribution to the implementation of activities under the NBSAP (currently under revision) and more broadly to the National Development Strategy because of the implications of integrating IAS issues into sectoral policies and plans on the Mauritian economy as a whole.

**Global Environmental Benefits:** The project is designed to: i) reduce threats to globally significant biodiversity by improving management frameworks to prevent, control, and manage invasive IAS; ii) avoid extinction as a result of IAS management; iii) improve management effectiveness of protected areas; iv) reverse land degradation in areas outside of formally protected areas and in productive land through the promotion of through the integration of IAS considerations into SLM practices and agroforestry leading to the restoration and sustainable flows of ecosystem services with positive impacts to communities as well as to inland coastal and marine ecosystems, and; v) strengthen capacity and partnerships to mainstream IAS prevention, control and management. On Mauritius (Flat and Gabriel Islands), the project will seek to secure sustainable populations of 24 critically threatened species of plants, birds and reptiles; namely *Psiadia arguta*, *Oldenlandia sieberi*, *Latania loddigesi*, *Pandanus vandermeeschii*, *Hyophorbe lagenicaulis*, *Diospyros egyptarum*, *Phyllanthus revaughani*, *Dictosperma album var conjugatum*, *Fernelia buxifolia*, *Turraea thouarsiana*, *Zanthoxylum heterophyllum*, *Sideroxylon boutoniana*, *Urena lobata*, *Eugenia lucida*, *Gouania tiliifolia*, *Syzygium guehoi*, *Olea europea var africana*, *Terminalia bentzoe*, *Scolopia heterophyllum*, *Barleria observatrix*, *Poupartia borbonica*, *Hornea mauritiana*, Mauritius Olive White-eye (*Zosterops olivaceus*) and Mauritius Fody (*Foudia rubra*) (baseline 36 species). On Rodrigues, sustainable populations of 14 critically threatened plant species; namely *Badula balfouriana*, *Carissa spinarum*, *Dombeya rodriguesiana*, *Eugenia rodriguesensis*, *Foetidia rodriguesiana*, *Hibiscus liliiflorus*, *Lobelia vagans*, *Mucuna cf. Gigantea*, *Polycias rodriguesiana*, *Scolopia heterophylla*, *Tanulepis sphenophylla*, *Turraea laciniata*, *Vepris lanceolata* and *Zanthoxylum paniculatum* (baseline 32 species) will be targeted. The project will also contribute to the goals of the CBD in implementing activities identified in the Mauritius NBSAP. The project will also contribute to the Government's commitment and obligation to the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region. Finally, the project will directly contribute to the fulfilment of Aichi Targets: please see Annex 1. The project will directly or indirectly contribute to all 17 SDGs but in particular to SDG 12 (Ensure sustainable production and consumption patterns) by embedding IAS issues into mainstream sectors, SDG 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) by incorporating risk-based IAS management into marine resource management, and SDG 15 (Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss) by incorporating risk-based IAS management into land management decisions and by directly managing IAS impacts to conserve biodiversity in terrestrial protected areas.

**Innovation, sustainability and potential for scaling-up:** This approach acknowledges and actively incorporates the issues of scale, proximity and interconnectedness of environmental systems on SIDS, and utilises a cross-cutting approach to provide 'joined up' solutions for sustainable development. Addressing IAS as a whole island issue with systemic causes and consequences will help to ensure that a suite of interacting threats to the terrestrial and marine environment are addressed. In addition to IAS, these threats include land-based pollutants, nutrients and sediment, disrupted hydrological services, and degradation of critical habitat that have significant negative impacts on important coastal/marine ecosystems including wetlands, mangroves, seagrass beds and coral reefs. The management systems adopted through this project will build on approaches to mainstreaming IAS pioneered in the Pacific Ocean and in Seychelles (under a UNDP-GEF Project). However, they will differ from the Seychelles work and that adopted in other SIDS in several key dimensions. The coordination and implementation mechanisms will take into account the greater importance of agriculture to Mauritius than Seychelles, Mauritius' relatively diversified economy and its relatively high biosecurity capacity at least in terms of the traditional functions of a national quarantine service. The emphasis, therefore, will be

on improving upon existing structures in multiple sectors to embed IAS considerations, not on creating major new structures from scratch. Breaking down silos and embedding IAS considerations in sectoral decision-making can help to move IAS from the margins to the mainstream for improved efficiency, effectiveness and sustainability. Socio-economic costs of IAS and cost recovery options for IAS management will be investigated in all sectors so that economic sustainability is addressed across all aspects of the project thus internalising externalities and providing finance for IAS management operations. This approach of systematic reinforcement and inter-sectoral coordination can be a model for medium-sized SIDS and developing countries with islands with relatively diversified economies and significant if fragmented IAS management capacity. The emphasis on island-specific and national biosecurity measures through this project will help to sustain the biodiversity gains leveraged by the project through the restoration of islets. These outcomes will be particularly strategic as conservation of this type on islets used for mainstream tourism has rarely been attempted in the developing world and will represent a first in the western Indian Ocean. The awareness raising and sensitization potential of these sites both for Mauritians and visitors from throughout the world is considerable. Community groups will be contacted early in the PPG process to elicit their interest and cooperation. There is a long and successful tradition of community participation in biodiversity conservation activities in Rodrigues. Partners in the project, including the Rodrigues Regional Assembly (RRA) and Mauritius Wildlife Foundation (MWF), will adapt tried and tested approaches to engage communities to benefit this project. For example, through its Commission on Environment and other Commissions such as Youth, the RRA has already supported IAS management by clearing invasive plants and replanting with nature reserves in a variety of locations including mainland and islet PAs, watersheds and coastal habitats. The MWF (which is the national affiliate of BirdLife International and aims to help save critically threatened birds and plants from extinction) will be involved in executing IAS management and biodiversity (forest) restoration activities with communities under Component 2, community participation in biosecurity and IAS management through citizen science in Component 3, and training local communities in IAS management under Component 1. In addition, the islands of Mauritius and Rodrigues have a number of other NGOs and farmers' associations such as le Mouvement Autosuffisance Alimentaire, Rural Women's Association, and Action for Development, and Rodrigues Entreprendre au Féminin who are involved in sustainable agriculture and will be consulted about project activities relating to SLM. Not-for-profit bodies such as the Association des Hôteliers et Restaurateurs de l'île Maurice (AHRIM) will be involved in activities related to sustainable tourism. The work on PAs in Rodrigues will involve relatively large numbers of local people who will be able to increase the value of these lands for sustainable use and the ecosystem services they provide. Embedding IAS considerations into activities undertaken at the site and landscape levels will help the individuals involved and the communities they represent to appreciate the importance of IAS which will enhance their effectiveness as land stewards. The experiential nature of the learning involved in implementing IAS-related activities will complement more traditional training, awareness and knowledge exchange activities to build a practical appreciation of the value of IAS-related knowhow. Experiencing the practical benefits of incorporating IAS considerations into daily operations can help internalize an issue that has, in most countries, persisted as a barely acknowledged externality. The integrated approach to IAS prevention, control, and management developed in this project can serve as a good practice model for developing countries and countries in transition seeking to balance productivity with environmental sustainability.

2. Stakeholders. Will project design include the participation of relevant stakeholders from [civil society organizations](#) (yes  /no ) and [indigenous peoples](#)<sup>20</sup> (yes  /no )?

Stakeholder	Role in IAS management and in the project
Ministry of Agro Industry and Food Security (MAIFS)	MAIFS is directly responsible for the majority of activities that concern the management of IAS that affect terrestrial ecosystems in Mauritius in terms of plant and animal biosecurity and land managed for agriculture and ecosystem services. MAIFS will coordinate project development and execution as the majority of the project activities fall under the direct responsibility of different Sections and Departments of MAIFS. The following sections within MAIFS will be involved in project activities: National Plant Protection Office (NPPO) and the Veterinary Service coordinate plant and animal biosecurity respectively and will take the lead in activities concerning IAS prevention and early detection and rapid response; The National Parks and Conservation Service (NPCS) is the CBD Technical Focal Point agency and is responsible for the management of native terrestrial biodiversity in Mauritius including the management of National Parks (including some islets); the Forestry Service (FS) is responsible for the management of terrestrial Nature Reserves in Mauritius and Rodrigues (including some islets), management of Mountain Reserves, River Reserves, Road Reserves and State Lands leased out for deer ranching and other extensive land uses. NPCS and FS will take the lead in activities concerning terrestrial biodiversity conservation in land falling under their respective jurisdictions. The MAIFS remote sensing unit will lead on activities relating to mapping under Component 3. The Mauritius Cane Industry Authority (MCIA), specifically the Mauritius Sugar Industry Research Institute (MSIRI) and the Food and Agricultural Research and Extension Institute (FAREI) will help ensure that integrated pest management initiatives are compatible with IAS considerations at the landscape level and will help embed IPM approaches into land management sectors.
Ministry of Environment, Sustainable	MESDDBM is the central authority for the protection of the environment in Mauritius through a framework environmental law – the Environment Protection Act (2002) as amended in 2008 – which provides for the coordination of environmental issues amongst the various relevant sectors. It is the focal point for the UN

<sup>20</sup> Mauritius and Rodrigues do not have any indigenous people and were only settled from the 17<sup>th</sup> Century onwards.

Stakeholder	Role in IAS management and in the project
Development, and Disaster and Beach Management (MESDDBM)	Convention to Combat Drought and Desertification in Africa (UNCCD) and GEF Climate Change Mitigation Technical Focal Point Agency. Climate change adaptation and mitigation activities and land management activities can result in unplanned consequences in terms of IAS impacts. MESDDBM will help ensure that IAS considerations are integrated into LD and CC activities to minimize IAS-related risks. MESDDBM is responsible for the development of the EIA system in Mauritius and will help ensure that IAS considerations are better incorporated into the EIA process. MESDDBM will sit on the Project Steering Committee and advise on all relevant issues.
Ministry of Housing and Lands (MHL)	MHL is responsible for the implementation of the Outline Planning Schemes which are the main tools that guide the physical development of the different areas in the country and must be taken into account when planning and executing project activities with landuse implications. All landuse activities have potential IAS implications such as increasing susceptibility of a system to IAS through habitat fragmentation and the deliberate or accidentally movement of species. MHL will sit on the Project Steering Committee and advise on all issues relating to landuse planning.
Ministry of Tourism and External Communications (MTEC)	MTEC is responsible for the planning, management and control of tourism development in Mauritius. Tourism is based on the country's natural assets and depends on the ecosystem services the project seeks to protect and enhance. Tourism is a potential IAS pathway in Mauritius but, under favorable conditions, tourism activity can promote practices to minimize IAS impacts, such as between-island biosecurity and even reverse them, such as supporting ecosystem restoration in tourist sites of high biodiversity importance such as offshore islets. MTEC will be actively involved in project activities that take place in key tourism destinations such as offshore islets and destinations of potential value for inland tourism.
Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Island (MOEMRFSOI)	MOEMRFSOI's Division of Fisheries is designated as the enforcement agency for marine and coastal waters under the Environment Protection Act (2002) and has two sections: The Albion Fisheries Research Centre (AFRC) which has eight technical divisions: Coastal Zone Management, Marine Parks, Fisheries Management, Fisheries Planning, Marine Science, Fisheries Research, Aquaculture and Fisheries Training Extension and Development, and the Protection Service, is responsible for the enforcement of the Fisheries Act (2007) and regulations. The Fisheries Act regulates aquaculture and the importation of live fish. The project will work closely with MOEMRFSOI in those activities which take part in the coastal zone as well as in issues that relate to marine biosecurity such as ballast water, hull fouling and aquaculture.
Ministry of Industry, Commerce and Consumer Protection (MICCP)	MICCP is a key stakeholder in implementing biosecurity measures relevant to trade-related IAS pathways and will be consulted on activities relating to commercial interest executed under all project components but notably those under Component 1.
Rodrigues Regional Assembly (RRA)	Decision making in Rodrigues on some matters has devolved to the RRA though it cannot pass legislation. The RRA is led by a Chief Commissioner and is organized into a series of "Commissions" for a various portfolios including the environment. Through its Commission on Environment and other Commissions such as Youth, RRA has supported IAS management by clearing invasive plants and replanting with nature reserves in a variety of locations including mainland and islet PAs, watersheds and coastal habitats. RRA representatives will participate in all project activities in Rodrigues.
NGOs	The Mauritian Wildlife Foundation (MWF) is the national affiliate of BirdLife International and aims to help save critically threatened birds and plants from extinction. MWF will be involved in executing IAS management and biodiversity restoration activities under Component 2 and will be a key stakeholder in Components 1 and 3. The islands of Mauritius and Rodrigues have a number of other NGOs and farmers' associations such as le Mouvement Autosuffisance Alimentaire, Rural Women's Association, and Action for Development, and Rodrigues Entreprendre au Féminin who are involved in sustainable agriculture and will be consulted about project activities relating to SLM. Not for profit bodies such as the Association des Hôteliers et Restaurateurs de l'île Maurice (AHRIM) will be involved in activities related to sustainable tourism.
Private landowners, private industry and industry associations	The activities of private industry and private landowners are key IAS drivers. Private landowners will work closely with the project with regard to IAS issues of relevance to land and seascape management. Private industry and industry associations (such as the Mauritius Chambre of Commerce) will be consulted over the biosecurity implications of trade-related issues under Component 1 and will be the target of awareness raising and capacity building activities based around the development and implementation of good practice guidelines to embed IAS issues into key sectors whose activities have IAS implications.
Local communities	Local communities will be a key stakeholder under all components. Local community involvement in forest restoration in Rodrigues will be promoted under Component 2, community participation in biosecurity and IAS management will be encouraged through citizen science in Component 3, and local communities will be trained in IAS management under Component 1.
Other stakeholders	Other stakeholders will include local governments, universities and research organizations, and multilateral and bilateral partners working on related activities.

3. Gender Equality and Women's Empowerment. Are issues on [gender equality](#) and women's empowerment taken into account? Yes

Mauritius exhibits considerable gender inequality, with the country ranked 120<sup>th</sup> out of 145 countries in the Global Gender Gap Index<sup>21</sup>. Poverty is higher in households headed by women and women were more likely to be in relative poverty than males, and 24 percent of women have experienced some form of Gender-Based Violence. Women are under-represented in parliament (12%), corporate boards (5.6%), and have low employment rates (45.3% compared with 75.2% for men). As part of the process of transforming Mauritius into a High Income economy by 2030, GoM is preparing Vision 2030, which will include a *Marshall Plan Against Poverty* to support the following SDG's: poverty (1), gender equality (5), inclusive and sustainable growth (8) and inequality (10). This transformational agenda, which will be implemented with the support of UNDP, lays emphasis on poverty eradication and social inclusiveness as indispensable for sustainable development. To support this vision, a gender assessment will be conducted to develop a project-specific gender mainstreaming strategy and action plan during the PPG. As a result, gender and social issues will be fully considered in the project, and gender accountability as a cross-cutting issue that will be tracked as part of the project's M&E system. The project will pursue a gender-sensitive approach whereby gender equality in participation will be strongly promoted. The success factors behind existing good practice examples of women's inclusion in activities such as community participation in restoration work in Rodrigues will be investigated as a basis for scaling up. Under all components, participation of women on an equal footing will be promoted in terms of both numbers involved and degree of participation in decision-making. Equal participation of men and women in decision-making forums and in capacity building activities will be encouraged. During the design phase of the project, the role played by women in different project components (gender baseline) will be documented and this information will be used in planning and implementing project activities to help ensure that the project promotes gender equality. The project will work closely with women's associations and businesswomen. UNDP will encourage qualified women applicants for positions under the project as per UNDP rules and regulations<sup>22</sup>.

#### 4 Risks.

The following risks have been identified. These will be confirmed and updated, and mitigation measures will be further elaborated during the PPG.

<b>Risk</b>	<b>Level</b>	<b>Management strategy</b>
Mauritius is likely to witness sea level rise and extended dry spells, which may make conditions more suitable for colonization of certain IAS.	H	Risk assessments will take into account changing climate conditions. General Climate change adaptation measures will be developed and undertaken through other interventions and coordination with this intervention is essential to ensure that adaptation measures do not increase IAS risks.
Mauritius is prone to tropical cyclones which can disrupt activities and increase the risk of IAS introduction and spread.	M	The project's approach of embedding IAS considerations into all relevant activities will help to ensure that IAS are among the issues addressed in emergency plans such as the biosecurity imperatives in the case increased food importation in the event of a cyclone. Cyclones may delay implementation of certain measures which must be factored into planning. In the long term, an emphasis on use of native species in restoration and rehabilitation will increase Mauritius' resilience to cyclones.
Institutional conflicts over the management of land resources constrain implementation of activities.	M	Overlaps persist between institutional jurisdictions in Mauritius such as management mandates on islets so the potential for conflicts exists. This will be managed through the participatory framework for project development and implementation outlined above.
Liberalized trade will increase the risk of IAS introductions.	M	The project will help strengthen the institutional biosecurity framework so that the pressures resulting from increased imports can be effectively managed.
Creation of a Mourouk Valley PA subject to lengthy procedures.	L	Rivière Mourouk is currently officially protected for its watershed functions under Section 4 of the Forest and Reserves Act and can be declared under Section 2 of the Forest and Reserves Act. The biodiversity conservation potential of Mourouk has long been recognized in both Mauritius and Rodrigues and project staff and partners will sensitize decision-makers on its importance. Restoration work can and will be undertaken before the land is proclaimed as a PA.
IAS management measures lack broad based support leading to poor compliance.	L	The majority of the project activities in the island of Mauritius fall under the responsibility of a single ministry (MAIFS) while those in Rodrigues fall under the Rodrigues Regional Assembly. However, a high degree of collaboration is still necessary so it is important to develop a participatory framework for project development and implementation. Experience with the on-going UNDP-GEF PAN Project ("Expanding Coverage and Strengthening Management Effectiveness of the Protected Area Network on the Island of Mauritius) in which structures have been developed to maximize intra- and inter-sectoral collaboration (Steering Committee, Executive Committee, and Technical Working Groups), following MTR recommendations, will be built upon to maximize collaboration among the component lead agencies all of who are housed within MAIFS. The roles delegated to other entities will be formalized through applicable agreements (e.g. MoUs) with MAIFS using clear ToRs

<sup>21</sup> World Economic Forum (2015) Global Gender Gap Report

<sup>22</sup> Gender benefits of the project and women's involvement in the context of this project will be elaborated in further details during the PPG stage.

		that will be developed during the PPG. During project implementation the final design of specific initiatives will continue to include key stakeholders and to ensure their inputs are considered in decision-making. During project implementation there will also be ongoing participation and inclusion of all stakeholders in activities that may impact them, both positively and negatively. The project will develop an IAS communications and awareness strategy and action plan that will specifically target the development of support among key stakeholders and the general public for effective IAS management.
Insufficient community mobilization and involvement in the project constrain implementation of activities.	L	Community groups will be contacted early in the PPG process to elicit their interest and cooperation. There is a long and successful tradition of community participation in biodiversity conservation activities in Rodrigues. This tradition is not yet as strong in Mauritius. RRA and MWF will help to adapt approaches used in Rodrigues to Mauritius where relevant. Community participation will be maximized by securing of Free, Prior and Informed Consent (FPIC) from community groups, the involvement of local communities in restoration-related activities as volunteers and paid staff and the development of local management committees as appropriate.
Change in land use plans with development pressures high in certain key locations leading to marginalization of IAS issues.	L	NPCS and FS have worked very closely with MHL and MESDDBM to ensure that PAN expansion maps are harmonized with the Outline Planning Schemes (under MHL) which are the main planning tools that guide development of the different areas in the country and the Environmentally Sensitive Area (ESA) maps developed by MESDDBM to develop a comprehensive legislative and policy framework for the protection, conservation and sustainable development of ESAs. This approach to mainstream biodiversity concerns into spatial planning will be further developed in the recently approved UNDP-GEF Project: Mainstreaming biodiversity into the management of the coastal zone in the Republic of Mauritius. The project will build on the harmonized planning approach pioneered under these aforementioned projects.
The project would potentially involve the application of pesticides that may have a negative effect on the environment or human health.	L	The project will promote an “integrated pest management” (IPM) approach to IAS management. IPM is a systems-based management approach which seeks to optimize overall environmental, social and economic benefits at the ecosystem level. This generally equates with a minimized use of agrochemicals in the long term and at the large scale. However, IPM does not completely exclude agrochemical use if the long term benefits are considered to exceed the short terms costs and no comparable non-chemical treatment is available. Chemical use, however, is considered as a last option and should not be undertaken routinely or prophylactically. If undertaken, agrochemical use under the Project would be undertaken according to international best practice in terms of the health and environmental safety precautions taken for transport, storage, usage and disposal of chemicals. The most environmentally benign compounds possible would be used and application would be selective as far as possible. No chemical listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants, the Montreal Protocol or WHO Class Ia or Ib would be used in Project activities. Herbicides and other pesticides will not be used in sensitive areas such as in close proximity to water courses. These practices will be formalized in all relevant management plans and summarized in an overall management plan for the use of pesticides and agrochemicals, referencing standards and procedures to be followed

##### 5. Coordination.

The Project’s integrated approach to IAS management for biodiversity conservation and sustainable forest and land management builds upon the achievements and lessons of completed and ongoing initiatives. The on-going UNDP-GEF PAN Project focuses on biodiversity conservation in terrestrial protected areas. The recently approved UNDP-GEF Mainstreaming Biodiversity Project focuses on coastal zone management. This project builds upon the PAN Project in several ways. It applies good practice restoration approaches, including systematic protocols to evaluation the impacts of these actions, being pioneered under the PAN Project in new locations, it expands the mapping and knowledge management approaches from protected areas to the Mauritian landscape as a whole, is implementing financial mechanisms for the sustainable funding of the PA system, is implementing financial mechanisms for the sustainable funding of the PA system, and addresses the issue of ecosystem services in landscapes other than those of high biodiversity importance. The project will complement the Mainstreaming Biodiversity Project by improving ecosystem management in landscapes beyond the coastal zone but not within the (current) protected area network. The project will also build upon the World Bank-GEF Mauritius Biodiversity Restoration Project which pioneered restoration work in Rodrigues and on offshore islets and the WB-GEF Restoration of Round Island Project which demonstrated the effectiveness of relatively large scale islet restoration, species reintroductions and the use of analogue species to restore ecosystem function. The links with the coastal zone work will also complement the achievements of the IOC implemented EU funded ReCoMaP (Regional Programme for the Sustainable Management of the Coastal Zones of the Indian Ocean) which was completed in 2011 and the follow-up Biodiversity Project which is currently being implemented. The biosecurity activities will build upon the achievements of the EU-funded IUCN Invasive Species (Invaz’iles) Project which is currently being implemented and the completed UNDP-GEF Seychelles Biosecurity Project. The project’s biosecurity activities and knowledge management activities will ensure that the project interventions take into account both site-based and landscape level impacts. UNDP will work to ensure that previous

relevant experiences in biodiversity, climate change and SLM projects are taken into account in planning and implementation. Coordination with ongoing projects and programs will be facilitated by UNDP and will involve ongoing contacts with project executing agencies as well as coordination through formal project structures such as its steering committee and working groups.

6. *Consistency with National Priorities.* Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes  /no  ).

This project is country-driven having been developed through a highly consultative National Portfolio Formulation Exercise coordinated through a National Steering Committee under the chairmanship of the Director of Development Cooperation and Africa Strategy (DCAS), based in the Ministry of Finance and Economic Development and involving principal stakeholders and decision-makers in the fields of environment, fisheries, agriculture, finance, energy and climate change mitigation, including national authorities and parastatal, national planning committee, the Small Grant Programme National Coordinator, as well as representative of civil society. The project is consistent with, and supportive of the following national strategies and plans and reports and assessments under relevant conventions: The National Environmental Policy (NEP, 2008) defines the overarching environmental objectives and strategies for the country, which provides a framework for the implementation of the National Biodiversity Strategy and Action Plan (2016-2025) which is currently under revision and identifies IAS as a key driver of biodiversity loss and the importance of addressing its root causes such as transport, tourism and trade; the Forestry Policy of 2006; the National Tourism Policy (2005/6), National Invasive Alien Species Strategy (NIASS) (2010 – 2019), National Climate Change Adaptation Policy Framework (NCCAPF) (2013), Mauritius' Integrated Coastal Zone Management Framework (2010), the Sustainable Land Management (draft) Policy and Investment Plan (2011) and the National Climate Change Adaptation Policy Framework (2013).

7. *Knowledge Management.*

The project design incorporates a component dedicated to knowledge management and learning. This is a clear demonstration of the central importance that the project places on timely access to reliable information as a foundation for risk-based IAS management. Activities undertaken under Component 3 will review and consolidate existing information, establish monitoring systems and communicate relevant information in appropriate formats for different national and international audiences. All KM activities will build upon policy and implementation activities undertaken in Components 1 and 2 and will be supported by capacity building undertaken in Component 1. In addition, the project will build upon the knowledge management framework being developed under the PAN Project which has taken into account the lessons learned from the UNDP-GEF SLM Project that any system must combine technology, processes and protocols, and most critically people, in a system that manages knowledge for the benefit of the entity in question and the wider system of which it is a part. It is vital, therefore, that the system, as has been the case for the PAN Expansion Maps, is compatible with existing systems used in Mauritius, contains clear, agreed upon and implementation processes and protocols and is owned by those in charge of its long term implementation.

### **PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**

#### **A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):.**

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
D.D. Manraj G.O.S.K.	Finance Secretary and GEF Operational Focal Point	MINISTRY OF FINANCE AND ECONOMIC DEVELOPMENT	27TH JUNE 2016

#### **B. GEF AGENCY(IES) CERTIFICATION**

**This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation under GEF-6.**

Agency Coordinator, Agency name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email
Adriana Dinu UNDP-GEF Executive Coordinator		September 8, 2016	Phemo Kgotmotso Regional Technical Adviser, EBD , UNDP-GEF	+251912503309	phemo.kgotmotso@undp.org

**C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)**

## ANNEX 1: Project's Contribution to the Aichi Targets

Aichi Targets	Project's contribution to Aichi Targets
<b>Target 1:</b> By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	<ul style="list-style-type: none"> <li>• People understand IAS issues and how they can be tackled to promote conservation and the sustainable use of biodiversity.</li> </ul>
<b>Target 2:</b> By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	<ul style="list-style-type: none"> <li>• New cross-sectoral policy coordination framework implemented for the incorporation of IAS prevention and management considerations into the legal and policy frameworks of all relevant agencies.</li> </ul>
<b>Target 4:</b> By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	<ul style="list-style-type: none"> <li>• Good practice guidelines for risk-based IAS management developed with those in key sectors such as agriculture, aquaculture, renewable energy, commercial shipping, tourism and recreation, and biodiversity conservation.</li> </ul>
<b>Target 5:</b> By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	<ul style="list-style-type: none"> <li>• Significant areas of habitat restored through removal of invasive plants and replanting of native and endemic plants.</li> </ul>
<b>Target 7:</b> By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	<ul style="list-style-type: none"> <li>• IAS considerations integrated into management interventions to improve soil health, water resource management, biodiversity conservation and vegetation cover across all ecosystems.</li> <li>• IAS considerations integrated into interventions to improve agricultural land management near protected areas in Mauritius and Rodrigues.</li> </ul>
<b>Target 9:</b> By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	<ul style="list-style-type: none"> <li>• All project activities directly or indirectly address IAS pathways, species and affected ecosystems and their effective management.</li> </ul>
<b>Target 10:</b> By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	<ul style="list-style-type: none"> <li>• Reduced risk from marine IAS.</li> </ul>
<b>Target 11:</b> By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine area, especially areas of particular importance for biodiversity and ecosystem services, and conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes,	<ul style="list-style-type: none"> <li>• Improved management of two existing islet protected areas in Mauritius (Flat and Gabriel Islands) encompassing 295 ha and Rodrigues PAs currently encompassing 46 ha, plus another 200 ha of potential PA.</li> <li>• 47,155 ha of land area of Mauritius and Rodrigues benefits from the improved SLM practices.</li> </ul>
<b>Target 12:</b> By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	<ul style="list-style-type: none"> <li>• Strengthened protection of islets aids recovery of the Critically Endangered olive white eye (<i>Zosterops chloronothos</i>).</li> <li>• Improved IAS management provides protection for endangered marine turtles (<i>Chelonia mydas</i> and <i>Eretmochelys imbricata</i>) on St. Brandon Island.</li> <li>• Reduced land-based impacts on marine ecosystems supporting conservation of globally significant corals.</li> </ul>
<b>Target 14:</b> By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	<ul style="list-style-type: none"> <li>• Local communities' engagement enhanced in the restoration of ecosystem services in Mauritius and Rodrigues through the establishment of a conservation volunteer scheme in Mauritius and community participation and local management of PAs in Rodrigues.</li> </ul>
<b>Target 15:</b> By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15	<ul style="list-style-type: none"> <li>• Ecosystem resilience enhanced through improved management of two existing islet protected areas (Flat and Gabriel Islands) encompassing 295 ha and Rodrigues PAs currently encompassing 46 ha, plus another 200 ha of</li> </ul>

Aichi Targets	Project's contribution to Aichi Targets
per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	potential PA and 47,155 ha of land area of Mauritius and Rodrigues which has benefitted from improved SLM practices.
<b>Target 19:</b> By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	<ul style="list-style-type: none"> <li>• Knowledge and science base for IAS management strengthened by acquiring and consolidating information on the status of IAS pathways, IAS distributions, the cross-sectoral economic, environmental and cultural impact of IAS and the successes and lessons learned from past and ongoing IAS prevention, early detection and rapid response, eradication, control and mitigation and restoration.</li> </ul>
<b>Target 20:</b> By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	<ul style="list-style-type: none"> <li>• Cost-recovery schemes implemented to contribute to the sustainability of biosecurity operations and PA management.</li> </ul>