UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement | Programa de las Naciones Unidas para el Medio Ambiente
Программа Организации Объединенных Наций по окружающей среде | برنامج الأمم المتحدة للبيئة
联合国环境规划署

UNEP

PROJECT DOCUMENT

SECTION 1: PROJECT IDENTIFICATION

1.1 Project title: **Support to the Integrated Program for the Conservation and Sustainable Development of the Socotra Archipelago**

1.2 Project number: 5347

1.3 Project type: Full-size project

1.4 Trust Fund: GEFTF

1.5 Strategic objectives: BD 1, BD 2, LD 3

1.6 UNEP priority: EM SP, EA(a), Output 312

1.7 Geographical scope: Yemen

1.8 Mode of execution: External

1.9 Project executing organisation: Ministry of Water and Environment (MWE) / Environment Protection Authority (EPA), Yemen; Support to the international coordination by Senckenberg Society for Nature Research (SGN)

1.10 Duration of project: 48 months
Commencing:
Completion:

1.11 Cost of project

	US$	**%**
Cost to the GEF Trust Fund	**4,854,566**	**24.40**
Co-financing	**15,042,521**	**75.60**
Cash		
		0.0
Sub-total	*0*	*0.0*
In-kind		
GIZ, Germany	7,500,000	37.69
EPA, Yemen	4,500,000	22.62
Royal Botanic Garden Edinburgh (RBGE/CMEP), UK	1,015,000	5.10
Local District Councils Socotra	500,000	2.51
Governorate of Hadramaut, Yemen	500,000	2.51
UNEP/DEPI/TEU	300,000	1.51
Senckenberg Society for Nature Research(SGN), Germany	200,000	1.01
Institute of Evolutionary Biology (CSIC-UPF), Spain	181,151	0.91
CABI	150,000	0.75
La Sapienza University, Rome, Italy	116,370	0.58
Mendel University, Brno, Czech Republic	80,000	0.40
Sub-total	*15,042,521*	*75.60*
Total	**19,897,087**	**100.0**

I. Project summary

Socotra Archipelago has been ranked among the richest island systems in the world in terms of biodiversity (Miller and Morris 2004; Banfield et al. 2011). The delicate ecological balance between people and nature, underpinning the preservation of the natural and cultural values of the Socotra World Heritage Site (WHS), and also building the basis for the long-term sustainable livelihoods of the local population, is severely threatened and may represent a major loss in terms of globally important biodiversity. The main underlying causes, external factors and pressures affecting the Socotra WHS include immigration, uncontrolled infrastructure development, poor governance at local and national level, over-use of the limited available natural resources (both marine and terrestrial) leading to accelerating desertification, soil erosion and land degradation, increased threats to the islands' ecological balance and food security by invasive alien species, insufficient coordination among government entities and donors operating in the Socotra WHS, and last but not least lack of predictable and long-term financing mechanisms to sustain the management of the WHS. Current trajectories are especially bound to result in the loss of biodiversity, land degradation and depletion of resource populations jeopardising the basis for the nature-based sustainable economic development and the very future of the Archipelago and its people. This would also present a great cost to the Republic of Yemen as a whole i.e. due to the impending losses of economic opportunities e.g. in eco-tourism and fisheries and the resulting need to subsidize the human population on the islands. Similar causes and factors have negatively affected other similarly biodiversity-rich and important islands in the world, at their early stages of development, which is where the Socotra WHS stands, at this very juncture between a pathway that takes the island's sustainable development into account and another pathway of development at the cost of its socio-ecological foundations. The evident need for action is thus also related to the well-documented global trend that more species have gone extinct on islands than anywhere else, including e.g.: 80-90% of all reptile extinctions; 80-93% of all bird extinctions; 50-81% of all mammal extinctions (refs. in Conover 2002). Islands have suffered 64% of IUCN-listed extinctions and account for 45% of IUCN-listed critically endangered species. For example, over half of the endemic birds of the Hawaiian Islands are now extinct. The major causes for such island extinctions are habitat loss, introduced species and deliberate exterminations.

The main problem this GEF project will address is ***to prevent the irreversible loss of the unique ecosystems, biodiversity and natural resources of the Socotra WHS***.

All major studies on Socotra unanimously point to the fact that a sustainable development pathway for the Archipelago has to rely on the long-term preservation of its unique terrestrial and marine natural assets, as well as its cultural heritage (e.g. Cheung & DeVantier 2006, Scholte et al. 2011, Van Damme & Banfield 2011, Van Damme 2012).

The Project therefore seeks to sustainably strengthen governmental and non-governmental capacities to manage and protect the Socotra Archipelago WHS. To achieve this aim, the Project will implement activities according to four Components, addressing certain root causes and factors that are intimately intertwined: (1) Improved Biodiversity Conservation/Protected Area Management (BD/PAM), (2) Invasive Alien Species (IAS) Management, (3) Sustainable Land Management/Land Degradation (SLM/LD), and (4) Enabling Environment (related to the institutional framework, capacity development and sustainable financing). The joint execution of the envisaged activities of the interlinked project components is vital to achieving the outcomes. Each Component is strategically designed to tackle pressing environmental issues with known detrimental effects on the insular ecosystems, based on local background data, comparable case studies and lessons learned from previous projects, fine-tuned by intense stakeholder feedback, and in particular

by combining environmental conservation efforts with improved and diversified livelihoods of the main stakeholders, the Socotri people.

Socotra is now under increasing threat from IAS (Van Damme & Banfield 2011). In order to protect its biodiversity, this Project aims to increase capacities for the prevention and control of IAS by generating awareness, developing and strengthening institutional capacity, enhancing the policy and regulatory environment and developing and implementing best management strategies. To this end a community-based management strategy to control IAS in the Socotra WHS will be devised, including an updated IAS inventory and be operationalised in coordination with an Integrated Conservation Management Framework (ICMF).

Sustainable land management simultaneously treats the interconnected elements of the land, its sustainable use, and livelihoods. In the context of this project, it adds important value due to aspects that are only partially covered by biodiversity conservation and invasive alien species management. At the same time it strengthens these components, as SLM can help relieve pressures from the protected areas. SLM will thus form an essential part of the overall ICFM, in assessing and mapping land-use and land degradation impacts, developing a community-based strategy for SLM in the Socotra WHS, and operationalising this strategy by ways of preparing and implementing a suite of grassroots activities including by adapting FAO's 'Farmer Field School' intervention approach.

The Project aims at leaving a sustainable legacy with regard to managing the Socotra WHS. This evidently requires a strong Enabling Environment that empowers the local stakeholders, both at the levels of authorities and the communities, to command the necessary political and technical capacities and financial resources by the time the Project is terminated. The principal baseline issues to be addressed are: (a) the lack of adequate capacities and policies to manage the Socotra WHS, and the insufficient coordination among governmental and parastatal agencies and other stakeholders, (b) the unsatisfactory situation with regard to environmental awareness and the management of environmental data and knowledge, and (c) the insufficient funding for the Socotra's WHS management, including the lack of funding from public sources and lacking sustainable cost-recovery and financing mechanisms. Fostering the Enabling Environment will form the central backbone of the Project, leveraging support to the other three components and increasing their mutual cohesiveness. This encompasses a comprehensive suite of activities related to institutional strengthening and capacity development at large. The development and implementation of an information management strategy and communication and awareness activities will form the second pillar of the Enabling Environment. Establishing a Trust Fund and piloting sustainable funding mechanisms aims to pave the way for a financially more sustainable WHS management in the future.

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

ABS	Access and Benefit Sharing
AZE	Alliance for Zero Extinction
BD	Biodiversity
BiK-F	Biodiversität und Klima Forschungszentrum (Biodiversity and Climate Research Centre)
CABI	Centre for Agricultural Biosciences International (former Commonwealth Agricultural Bureaux International)
CBD	Convention on Biological Diversity
CBO	Community-based Organisation
CC	Climate Change
CCA	Common Country Assessment
CD	Capacity Development
CMEP	Centre for Middle Eastern Plants
CSO	Civil Society Organisation
DSS	Decision Support System
EA	Executing Agency (of the Project)
EBM	Ecosystem-based Management
ED&RR	Early Detection and Rapid Response
EEZ	Economic Exclusion Zone
E(S)IA	Environmental (and Social) Impact Assessment
EPA	Environment Protection Authority (Yemen)
EPL	Environment Protection Law (No. 26)
ESS	Ecosystem Services
EU	European Union
FAO	Food and Agriculture Organisation (of the United Nations)
FFS	Farmer Field School
FIP	Fisheries Investment Project (of IFAD)
FoS	Friends of Soqotra
FS	Field School
FWA	Fish Wealth Authorities
GALSUP	General Authority of Lands, Survey and Urban Planning (Yemen)
GEB	Global Environmental Benefits
GEF	Global Environment Facility
GHG	Green House Gases
GLISPA	Global Islands Partnership
GO	Governor's Office
GOAMM	General Organisation for Antiquities, Museums and Manuscripts (Yemen)
GoY	Government of Yemen
HDI	Human Development Index
IAS	Invasive Alien Species
IBA	Important Bird Area
ICCA	Indigenous conservation territories and areas conserved by indigenous peoples and local communities
ICDP	Integrated Conservation and Development Project
ICMF	Integrated Conservation Management Framework
IFAD	International Fund for Agricultural Development
I-SEA	Institution-centred Strategic Environmental Assessment
IUCN	World Conservation Union (International Union for the Conservation of Nature)
LC	Local Council
M&E	Monitoring and Evaluation
MA	Millennium Ecosystem Assessment
MAI	Ministry of Agriculture and Irrigation (Yemen)
MCT	Ministry of Culture and Tourism (Yemen)

MDG	Millennium Development Goals
MEAs	Multilateral Environmental Agreements
MF	Ministry of Finance (Yemen)
MFW	Ministry of Fish Wealth (Yemen)
MI	Ministry of Interior (Yemen)
MLA	Ministry of Local Administration (Yemen)
MSBRA	Marine Science and Biological Research Authority (Yemen)
MWE	Ministry of Water and Environment (Yemen)
MPIC	Ministry of Planning and International Cooperation (Yemen)
MPWUD	Ministry of Public Works and Urban Development (Yemen)
MSP	Marine Spatial Planning
MT	Ministry of Transport (Yemen)
NAPA	National Adaptation Programme of Action (for the UNFCCC)
NAPCD	National Action Programme to Combat Desertification
NBSAP	National Biodiversity Strategy and Action Plan
NCEAS	National Center for Ecological Analysis and Synthesis (California Univ., USA)
NCG	National Coast Guard (Yemen)
NGO	Non-Governmental Organisation
NPA	National Plan of Action for the Protection of the Marine Environment from Land-based Activities (Yemen)
NWRA	National Water Resource Authority (Yemen)
PA(M)	Protected Area (Management)
PAME(TT)	Protected Area Management Evaluation Tracking Tools
PERSGA	The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (formerly Programme for the Environment of the Red Sea and the Gulf of Aden)
PES	Payment for Ecosystem Services
PFM	Participatory Forest Management
PIF	Project Identification Form
PM	Prime Minister
PMT	Project Management Team
PMU	Project Management Unit
PPG	Project Preparation Grant (of GEF)
PPP	Policies, Plans and Programmes
PRA	Pest Risk Analysis
PRC	Project Review Committee (of UNEP)
RBGE	Royal Botanical Gardens of Edinburgh
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RFP	Request for Proposal
RFQ	Request for Quotation
SCDP	Socotra Conservation and Development Programme
SCP	Systematic Conservation Planning
SCZP	Socotra Conservation Zoning Plan
SES	Social-ecological System
SGBP	Socotra Governance and Biodiversity Project (of UNEP-EPA/GEF)
SGN	Senckenberg Gesellschaft fuer Naturforschung (Senckenberg Society for Nature Research)
SGP	Small Grants Programme (UNDP/GEF)
SIDS	Small Island Developing State(s)
SISSAP	Socotra Invasive Species Strategy and Action Plan
SLM	Sustainable Land Management
SMEs	Small- and Medium-sized Enterprises
SRI	Senckenberg Research Institute and Natural History Museum
SSLMSAP	Socotra Sustainable Land Management Strategy and Action Plan

STAP	Scientific and Technical Advisory Panel (of the GEF)
STF	Socotra Trust Fund
TOCE	Temporally Open-Closed Estuary
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
US$	United States Dollar
WB	The World Bank
WHS	World Heritage Site (of UNESCO)
WWF	World Wildlife Fund for Nature
YER	Yemeni Rial

SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

2.1. Background and context

1. Yemen is ranked 154th on the Human Development Index (HDI, 0.500), ***placing it amongst the low human development countries*** (UNDP 2014, estimates for 2013).Yemen is one of the poorest countries in the Arab region, with a poverty rate of 0.28% and about 45% of the population living on less than US$ 2 per day and social development indicators such as child malnutrition, maternal mortality, and education attainment remain poor. Approximately 32% of the population are classified as food-insecure. Since the unification of the country in 1990, its relative position on the HDI index has remained steady, with very slow progress towards attaining the MDG goals. At 2.9%, the country has one of the highest population growth rates globally and the population is expected to double in 23 years to around 40 million. This puts additional pressure on natural resource exploitation, notably the fact that Yemen currently faces severe water shortages, with available ground water being depleted at an alarming rate, severe land degradation, especially desertification (FAO 2005) and evident indicators of overfishing (e.g. Zajonz et al. 2010b, Alabsi & Komatsu 2014). The Yemeni economy is caught in a jobless slow growth cycle leading to stagnant *per capita* incomes and rising levels of unemployment, particularly amongst the youth.

2. There are large gender disparities, with significant gaps in women's access to economic, social and political opportunities. This situation was exacerbated by the recent political crisis, and Yemen now faces a formidable web of economic, environmental, and political challenges which contribute to the country's low level of human development. In 2013, Yemen entered a phase of political transition, complicated by drought and food insecurity. The recent period of instability in the country has been recognised internationally as having severe impacts on its natural as well as cultural heritage, directly compromising biodiversity and sustainable development (Van Damme 2011). Development needs have not been translated adequately in international support: despite being one of the world's least developed countries, Yemen is one of the lowest recipients of overseas development. A country-wide Integrated Strategic Environmental Assessment of Coastal Zone Management conducted for the World Bank identified major legal, policy and institutional weaknesses to managing the coastal social-ecological systems, including the Yemeni islands and thus also the Socotra group (Zajonz et al. 2010c). The Common Country Assessment (CCA) 2011 identified a long list of obstacles (nine, both structural and programmatic) to explain why development interventions in Yemen have poor outcomes, among which, again, poor institutional and human capacities. At the same time, the CCA mentions that regional cooperation is gradually increasing, allowing immediate opportunities. Expanded and concerted international cooperation is therefore required to address a wide range of acute development issues in Yemen, bearing in mind that conservation needs to happen in a sound development context, including related to democratic governance, in order to improve the current situation.

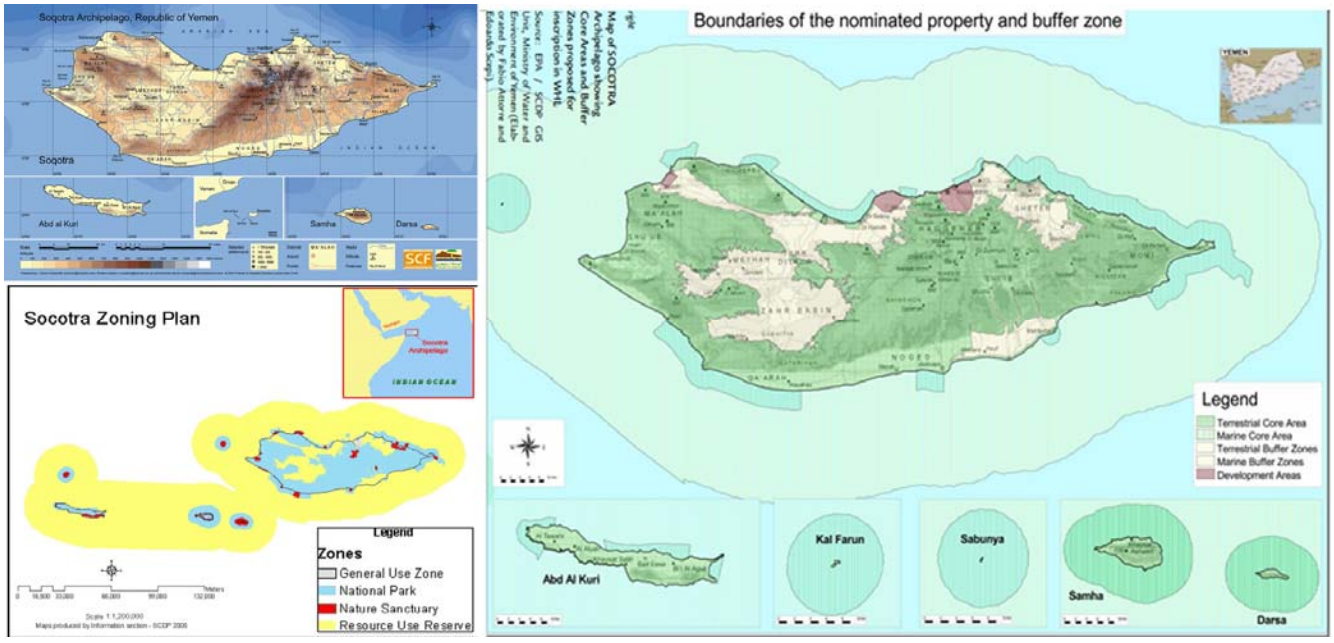

Fig. 1: Socotra Archipelago, Republic of Yemen, the Socotra Conservation Zoning Plan (SCZP) and the UNESCO WH nominated area. *Sources: Friends of Soqotra (upper right inset); Yemen, Presidential Decree 275 (lower right inset); UNESCO* http://whc.unesco.org/en/list/1263/documents/

3. ***The Socotra Archipelago*.** Socotra is a Natural World Heritage Site (first natural WHS in Yemen and one of only a few in the Arab Region) and globally recognised as a centre of biodiversity. Socotra is ranked among the top ten continental islands in the world in terms of botanical diversity, harbouring an extremely high concentration of globally unique plant species per square km. Owing to its remote geographic location (480 km south of the Arabian Peninsula and 240 km east of the Horn of Africa) and long geological isolation as a Gondwanan micro-continent, Socotra has a unique assemblage of animal and plant species. It is often referred to as "the Galápagos of the Indian Ocean", and the application for inclusion in the World Heritage List, which is entirely based on its biodiversity value, states that: *"The Socotra Archipelago is a unique living museum and a masterpiece of evolution featuring almost 300 endemic plants (36% of the total), over 30 endemic vertebrates, and more than 300 species of endemic invertebrates (among those so far described). In addition, each of the archipelago's three inhabited islands exhibits its own high level of endemism rendering the archipelago as a whole even more significant."*

4. The Socotra Archipelago has received wide international recognition for its uniqueness (Van Damme 2012; see also Section 2.2): it is the most important centre for biodiversity within the Horn of Africa Biodiversity Hotspot identified by Conservation International (one of only two hotspots that are entirely arid). BirdLife International identified 22 Important Bird Areas within the archipelago, and it forms one of the world's 221 globally important Endemic Bird Areas. The Worldwide Fund for Nature (WWF) lists it as one of their 200 Ecoregions and it is also included in the regional network of important Marine Protected Areas (PERSGA; Haddad et al. 2001, Gladstone et al. 2003) . The site also has all the required characteristics for designation as an AZE site (Alliance for Zero Extinction), and this is currently being

explored. It was designated by UNESCO as a Man and Biosphere Reserve in 2003 and as a Natural World Heritage Site in 2008. The first Ramsar site in Yemen was also nominated in Socotra (Qalansiya Lagoon) in 2007. Besides its exceptional terrestrial biodiversity and endemism, Socotra's marine environment has an extremely rich diversity, which contains a combination of species originating from all neighbouring seas (Indian Ocean, Red Sea, and Arabian/Persian Gulf), even the Pacific Ocean. It possesses well-preserved and unique marginal coral communities that exhibit a unique array of fish assemblages with one of the highest diversities among Western Indian Ocean coasts, with 253 species of reef-building corals (DeVantier et al. 2004), 730 species of coastal fish and some 900 modelled to occur (Zajonz et al. 2002, Zajonz et al. unpubl.), 600 molluscs and over 300 species of crab, lobster and shrimp (Cheung & DeVantier 2006, updated). Due to its long period of isolation, limited human impact and moderate resource use, Socotra is exceptional among islands worldwide for having virtually no extinctions among plants, reptiles, birds and molluscs in the last century (Van Damme & Banfield 2011).

5. The archipelago is also characterised by a unique cultural heritage: the Socotri people speak a unique non-written pre-Islamic language of ancient origin, and their cultural traditions host a wealth of traditional knowledge on the sustainable use of natural resources and biodiversity. The documentation and conservation of these cultural values are recognised as vital to the preservation of the delicate balance between nature and human livelihoods in the archipelago. This consideration was the basis for recent support provided for community-based conservation by the GEF, UNDP and other international donors, and the archipelago now hosts some of the few and outstanding examples of community-based protected areas in the region. For additional information, please see Cheung and DeVantier (2006), Banfield et al. (2011), Miller and Morris (2004), Scholte et al. (2011), Van Damme (2009, 2011, 2012), and Van Damme and Banfield (2011).

6. The United Nations system and in particular UNDP Yemen has been (and is still) working very closely with the Government of Yemen (GoY) on environmental and development issues in general and specifically to support the protection of the Socotra Archipelago, since 1997. A brief summary of past and ongoing conservation initiatives supported by the UN is provided below (all projects listed are implemented with the EPA/MWE of Yemen):

7. - Conservation and Sustainable Use of Biodiversity of Socotra Archipelago (“Socotra Biodiversity Project”, 1997-2002): funded by the GEF and implemented through UNDP. The project was later extended to 2003 (as SCDP, see below). It was the first and to date the largest GEF project in Yemen. As one of the main achievements, this project developed a national Environmental Protection Authority team with biodiversity conservation as its main task and stimulated the first large biodiversity data collection on the archipelago by major scientific institutes (e.g. Senckenberg Research Institute and Natural History Museum (SRI, Germany), Royal Botanic Garden Edinburgh (RBGE, UK), BirdLife International, etc.), forming the basis for future regional conservation efforts; it developed the Socotra Conservation Zoning Plan (SCZP) approved by Presidential Decree, defining a hierarchical system of nature sanctuaries, national parks, resource use zones and general use zones, through a consultative community and science based process (plan approved in year 2000); supported the establishment of several conservation-oriented NGOs on Socotra; supported the design and implementation of other parallel and subsequent initiatives in the archipelago, such as the EU-funded draft of a sustainable

development Masterplan (which however was never legally promulgated), several projects under the GEF Small Grants Programme, as well as a range of UN projects (as follow-up phases, see below) and bilateral donor interventions (primarily by the Netherlands, Italy, Czech Republic, among others) on health, water management, governance, fisheries development, ecotourism, sustainable agriculture and livestock management.

8. - Socotra Conservation and Development Programme (SCDP) - Phase One: implemented through and funded by UNDP and the Netherlands (2001-2003). It provided support for the conservation of biodiversity on the archipelago, and expanded work to integrate a range of development projects initiated in the previous phase, thus forming the basis for the UNESCO nomination as Man and Biosphere Reserve in 2003, and the subsequent declaration as World Heritage Site (2008), as well as for the nomination of first Ramsar sites in Yemen (2007). The programme achieved a subsequent 5-year extension with funding from Italy, and further GEF support (see below); supported the first explorations of the island's significant cave systems and, with it, also major archaeological findings (De Geest 2006). It further played a major role in mitigating the impact of road constructions in the island. Parallel to these two projects, a third project, Environment, Natural Resources and Poverty Alleviation for the Population of Socotra Archipelago (the so-called Health and Water Project) was funded by UNDP and the Republic of Yemen to improve health service provision and access to water (2001-2002).

9. - Socotra Conservation and Development Programme (SCDP) - Phase Two: implemented through UNDP and funded by UNDP and Italy (2004-2008). It focused on training of national staff and establishment of the basis for an integrated Decision Support System (DSS) to better support environmental governance for the archipelago's sustainable development. The outcomes of the latter project in relation to sustainable development on Socotra have been compiled in Attorre (2014), indicating how the island globally has become an important case study for finding the delicate balance between conservation and development.

10. - Socotra Governance and Biodiversity Project (SGBP): funded by the GEF and UNDP and implemented through UNDP (2008-ongoing). At its onset, this project was aimed on mainstreaming biodiversity management considerations in Socotra's local governance. The project was dormant for a few years and recently reactivated. Its main intended outputs include establishing a legal and institutional framework for the management of the WHS in close collaboration with the local government authorities and in line with the decentralisation process of Yemen, fostering decision support systems, and support to local CSOs. For more information, please refer to <http://www.socotraproject.org/> and <www.undp.org.ye>.

11. The achievements, lessons learned and challenges faced by the above projects and other non-GEF funded initiatives have all been carefully reviewed and considered in the design of the proposed GEF project. Since the beginning of conservation efforts on Socotra in the 1990s, the challenges have become clearer and have been analysed in more detail, leading to specific actions evaluated and prioritised herein. Despite previous efforts from UN/GEF projects, the integrity of the WH site is strongly compromised (Section 2.3), in fact more so as a result of increased human impacts during the last decade. The proposed project aims at both decreasing human pressures on the environment as well as increasing local capacity to directly address primary challenges. To accomplish this goal, the project strives to incorporate the knowledge learned both from local projects as well as from

comparable case studies in order to ensure community participation and gender-sensitive involvement in project decision-making for biodiversity conservation and sustainable development and to pilot sustainable conservation funding mechanisms.

2.2 Global significance

12. The target site is a well-documented and globally recognised *"unique living museum and a* masterpiece *of evolution featuring almost 300 endemic plants (36% of the total), over 30 endemic vertebrates, and more than 300 species of endemic invertebrates (among those so far described). In addition, each of the archipelago's three inhabited islands exhibits its own high level of endemism rendering the archipelago as a whole even more significant"* (UNESCO WHC). The biodiversity values and GEBs delivered by preserving the Socotra WHS are now well documented in the scientific literature, also as a result of recent efforts supported by the GEF (see list of publications in Appendix 16). As an example, the archipelago hosts 10 endemic species of birds, including the recently described Socotran Buzzard (Porter & Kirwan 2010), the globally unique *Dracaena cinnabari* woodland (Socotran Dragon's Blood Tree) at Firmihin and the highest diversity of *Boswellia* (frankincense tree) species in the world at Homhil. The IUCN status for vascular plants is provided in the following table (source: CMEP 2014). At present, Socotra has an extremely high diversity in different groups, indicating local radiations with ancient origins (e.g. in plants, terrestrial molluscs, isopods, beetles) and with cave faunas that harbour 100% endemism, besides globally important populations of birds (e.g. Egyptian Vulture, Socotra Cormorant; for details, see Cheung & DeVantier 2006). The number of endemic plant taxa totals 315, of native plant taxa 830 and non-native plant taxa 102 (CMEP 2014). The biodiversity value of these species lays, among other reasons, in the preservation of unique genotypes which can lead to major innovations and associated assets of Access and Benefit Sharing (ABS) under the Nagoya Protocol to the Convention on Biological Diversity (CBD); basic phytochemistry analysis of Socotran endemics for example, has shown strong anti-carcinogenic features of unique compounds and the Socotran Aloe (*Aloe perryi*) is globally renowned for its medicinal values ("socotrine" became synonym for aloe). Also for several other organism groups the rate of endemism is extremely high on Socotra (see chart below).

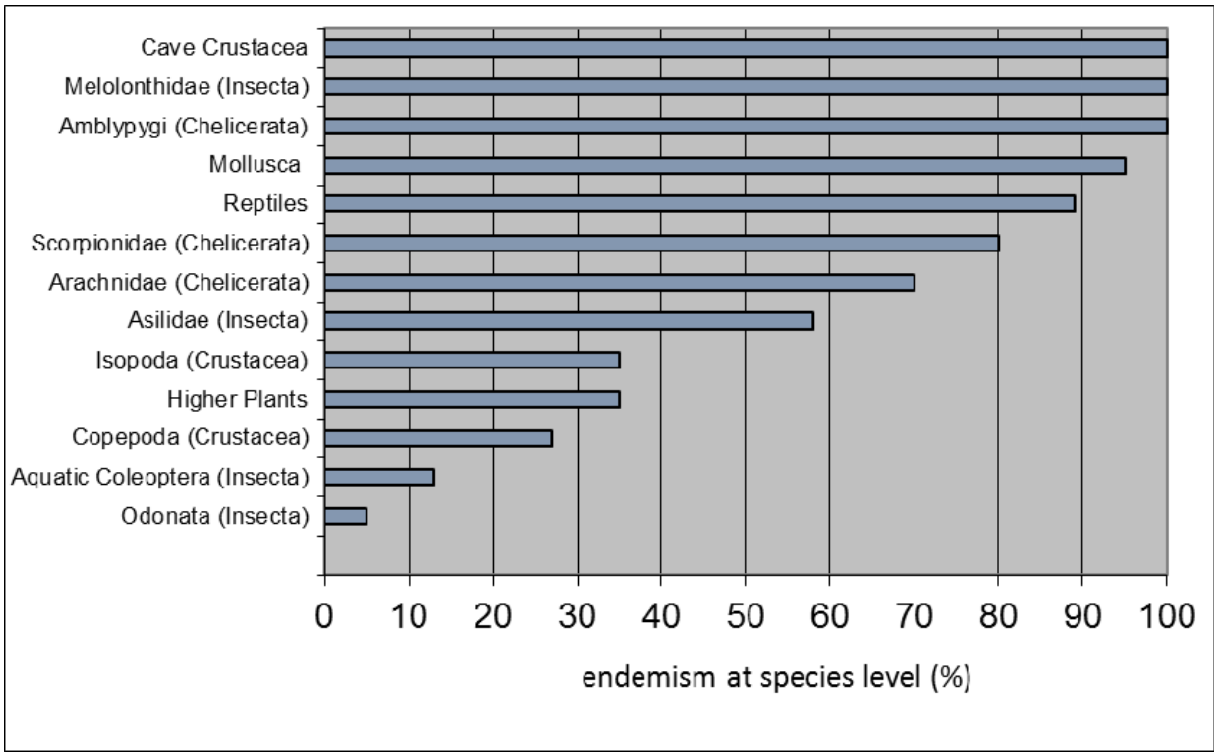

Figure 2: Percentual endemism (species) of selected groups on the Socotra Archipelago illustrating the global significance of its biodiversity (Van Damme, unpublished).

13. Given the high visibility and global recognition of the WH Site, conservation efforts in the archipelago also have significant demonstration and educational value at the national and regional level. In fact, Socotra was presented in 2012 as one of 26 globally relevant case studies of World Heritage Sites selected by UNESCO for its 40th anniversary publication (Van Damme 2012). In the Middle East, Socotra is widely accepted as one of the most valuable biodiversity hotspots of the region. The Socotra WHS experience can inform the establishment of new PAs and PA networks along the blueprint of a community-based Socotra model. In addition, the project will generate the same benefits at the global level, especially through established linkages with the international Global Islands Partnerships (GLISPA), IUCN and Small Islands Developing States (SIDS) networks, to which the Socotra EPA team is already contributing with their experience and lessons learned in community based PA management. Other benefits of the Project include the positive impact expected on the long term preservation of the unique cultural, language, traditional and archaeological values of the Socotra WHS, which are closely intertwined with the archipelago's natural resources, biodiversity and traditional land and fishery resource management practices (e.g. ethnobotanical knowledge; Miller & Morris 2004). The global value in this project therefore lies in the general importance of reconciling biological and cultural values on an island group with an extremely long history of bio-cultural balance and the restoration of this balance can be an example to projects on islands or insular ecosystems with high cultural values worldwide.

14. The Socotra Archipelago World Heritage Site (WHS) is at a juncture between a sustainable development path, and losing its unique biodiversity and natural resource base. Several other biodiversity-rich island ecosystems in the world (e.g. Cape Verde, Canary Islands, Guam, Galápagos, Hawaii, Reunion, Seychelles)

passed the same juncture in their history and an opportunity was missed, leading to direct extinctions and ecosystem collapse driven by human intervention (see Section 2.3). In the case of the Socotra WHS, the most intense wave of development has started in the past decade, which forms an enormous threat, yet at the same time offers huge opportunities for timely measures, but evidently within a limited time window (Van Damme 2012, Van Damme & Banfield 2011). The Project is globally significant in that it targets one of the few examples of island systems in the world where well-planned biodiversity protection and careful development planning can help avoid direct extinction of the majority of endemic species, as historically occurred in nearly all insular diversity hotspots on the planet. The Socotra Archipelago has not suffered extinction of its endemic birds, reptiles and terrestrial molluscs in the last century, which puts it in contrast to records on most islands. By tackling the most pressing issues causing insular extinctions worldwide, this project aims to significantly increase chances of survival of the archipelago's ecosystems and unique species, therefore safeguarding ecosystem services for local communities in the long-term.

15. The delicate ecological balance between people and nature, underpinning the preservation of the natural and cultural values of the Socotra WHS, is now severely threatened by desertification, land degradation and rapidly increasing pressures originating from outside the archipelago (see following Section 2.3). If allowed to happen in the Socotra WHS, it will represent a major loss in terms of globally important biodiversity, which is also the basis for the long-term sustainable livelihood of the local population.

2.3. Threats, root causes and barrier analysis

16. The main underlying causes, external factors and pressures affecting the Socotra WHS, include immigration, uncontrolled infrastructure development, poor governance at local and central level, suboptimal coordination among government entities and donors operating in the Socotra WHS, and the lack of predictable and long-term financing mechanisms to sustain the management of the WHS. In the current business-as-usual scenario, critical issues such as WHS governance, sustainable land management, including IAS management, do not seem to be addressed in a comprehensive manner. In general, recent threats analysed within an insular context have not been prioritised nor strategically tackled. Van Damme and Banfield (2011) discuss parallels between Socotra and Galápagos, suggesting that in 30-40 years, Socotra would be facing the same ecosystem decline as the Galápagos do at present. Under this scenario, the history of the Socotra WHS could read as many other once-biodiversity-rich islands around the world: the unique opportunity of avoiding biodiversity and economic losses will be missed.

17. Analysing the drivers of ecosystem change and prioritising threats to sustainable development are key to understanding and subsequently strategising action in order to reduce detrimental environmental effects on Socotra. For this purpose, it is imperative to compare the main causes of biodiversity decline and resource depletion in other insular ecosystems. Recent comprehensive literature revisions studied exactly these key elements on Socotra within an insular context and have suggested strong arguments showing future decline and the need for immediate action. The latter is fine-tuned using information at first hand, gathered during

preparation workshops for this project from main stakeholders including local communities and updated by the Environmental Protection Authority on Socotra.

18. A recent review of challenges that affect Socotra's biodiversity (Van Damme & Banfield 2011) indicated the following main negative drivers of ecosystem change: increased threats to the islands' ecological balance and food security by invasive alien species, pollution (primarily yet solid waste, sewage and insecti- and herbicides), unsustainable tourism and habitat degradation by desertification, soil erosion and direct habitat destruction, e.g. due to clearing and unlicensed development and construction activities. These factors strongly weaken natural ecosystem resilience, not least against climate change (increased drought) or diseases. In addition, "cultural erosion" on Socotra is a contemporary phenomenon rapidly leading to over-use of the limited available natural resources (both marine and terrestrial), including through wood harvesting, overfishing and overgrazing, leading to further land degradation and depletion of critical resource populations. This results in a negatively increasing feedback loop, leading to gradually further deterioration of ecosystems and "silent extinctions" that often are the preludes of population and ecosystem collapse (Van Damme & Banfield 2011).

19. The same impacts are well known to have permanently altered ecosystems elsewhere, causing the direct extinction of species (e.g. Cape Verde, Canary Islands, Guam, Galápagos, Hawaii, Reunion, Seychelles, etc.) and loss of cultures on other islands worldwide (e.g. Easter Islands, Guam). Islands per se are less resilient to human impact than continental ecosystems, due to their restricted ecological networks and specialised and less competitive species assemblages following long periods of isolation and embodied by often small, localised endemism, and their generally limited dispersal and trophic connectivity. This is based on the well-documented trend that more species have gone extinct on islands than anywhere else, mainly as a result of invasive alien species (IAS) and habitat/land degradation (LD); including e.g.: 80-90% of all reptile extinctions, 80-93% of all bird extinctions, and 50-81% of all mammal extinctions (refs. in Conover 2002). Islands have suffered 64% of IUCN-listed extinctions and host 45% of IUCN-listed critically endangered species. In the past 500 years, IAS for example have contributed to the extinction of nearly half of the global bird extinctions: 67% of globally threatened birds inhabiting oceanic islands are affected by IAS compared to 30% of globally threatened birds on continents. For example, over half of the endemic birds of the Hawaiian Islands are now extinct, due to habitat loss, introduced predators and diseases. Socotra has not lost any of its endemic bird or reptile species yet, but it is clear that the same causes that have led to direct extinction in other islands, are present and increasing, or at least looming.

20. In addition, both short and long-term financing to the preservation of the WHS remain unpredictable and insufficient, and are mainly linked to short-term donor support. The ephemeral character of the latter jeopardises the investments in biodiversity and development of the last decade.

21. The majority of these threats have already been recognised during UNESCO's initial evaluation of the WH Site, yet large efforts towards remediation have not been strategically planned or executed.

22. All existing studies unanimously point to the fact that a sustainable development pathway for the archipelago has to rely on the long-term preservation of its unique terrestrial and marine natural assets, as well as its cultural heritage, as both are

intimately intertwined (Cheung & DeVantier 2006, Van Damme & Banfield 2011, Van Damme 2012). However, the mounting pressure is jeopardising the basis for a nature-based sustainable economic development path and the very future of the archipelago and its people. For example the same factors that have negatively affected other similarly important islands in the world at their early stages of development (see above) are nowadays about to take hold on Socotra’s social-ecological island systems.

23. As human pressures are continuously mounting on the archipelago due to an increase of the human population (immigration and population growth), and leading to an increase of – mostly unsustainable – resource use practises, it is believed that without intervention, the current threats to Socotra's biodiversity and resources irreversibly affect local livelihoods and food insecurity through the loss of ecosystem services. The following diagram attempts to summarise the root causes, key threats, barriers and effects underpinning the key problem that the proposed GEF- and baseline projects are aiming to address, in the form of a “problem tree”. The proposed Project aims to fill these large gaps in conservation and sustainable development planning and management on Socotra, recognising the root causes, by addressing certain major threats directly and relieving main barriers in management.

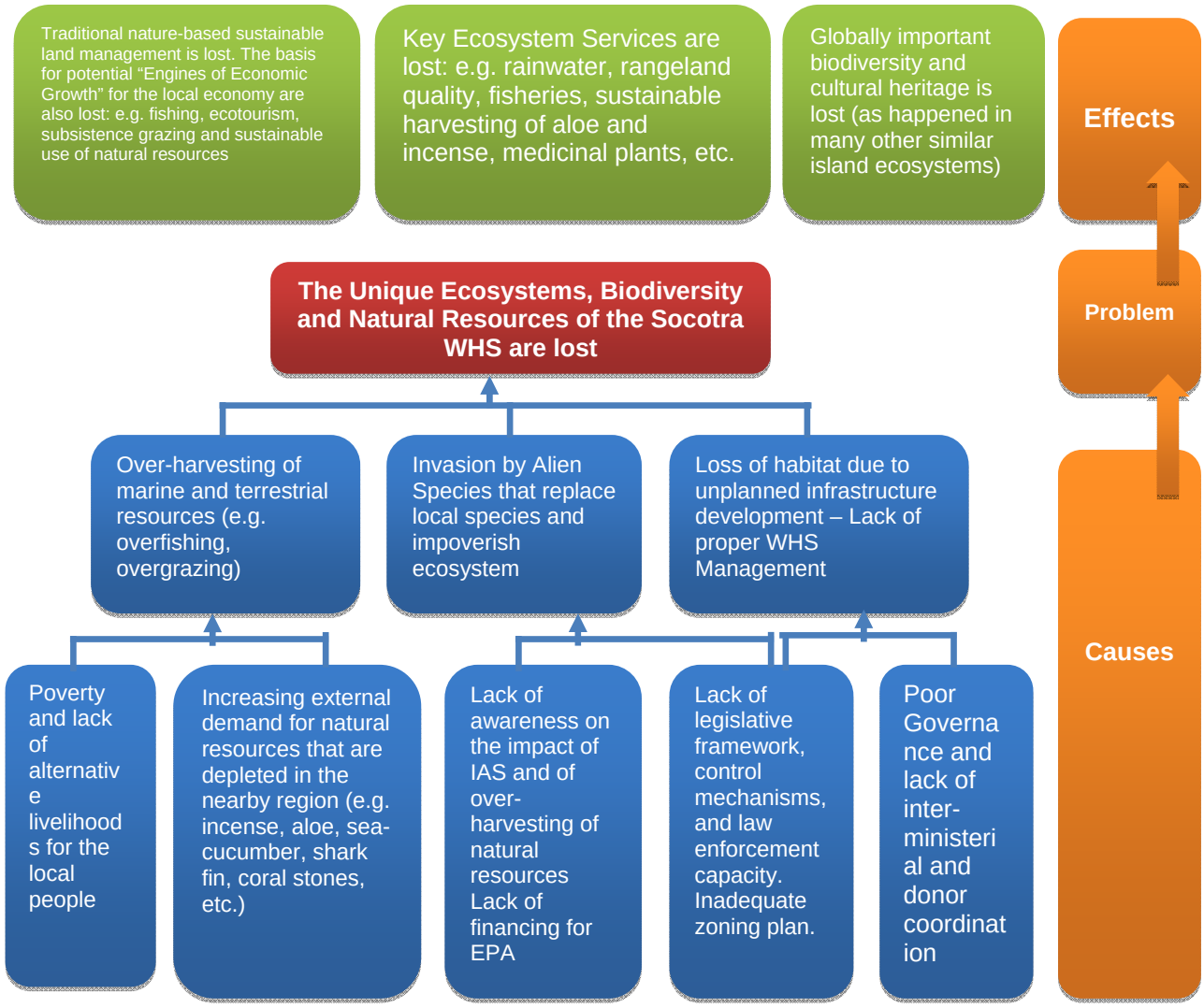

Figure 3: Root causes, threats and barriers

2.4 Institutional, sectoral and policy context

24. The present section presents a screening of relevant legislation and regulations; policies, plans and strategies; international conventions and agreements acceded to by Yemen; and the institutional and sectoral framework.

25. **Legal and policy analysis:** The legal framework for the Project is characterised by a great diversity of laws and legal acts on a range of different subjects and levels, being national, regional or local in scope and mostly not harmonised. This diversity results in a highly complex legal sector and produces inconsistencies and conflicts between tiers of jurisdiction. The following environmental, resource and societal issues relevant to the Socotra WHS and the Project objectives are, broadly, covered by current legislation:

    - National sovereignty (territorial waters, continental shelf, economic exclusion zones (EEZ), access rights), and related surveillance and enforcement
    - Environmental protection and conservation
    - Transportation and navigation (safety), and marine pollution
    - Living marine resource exploitation
    - Water and geological resources and commodities
    - Agricultural wealth
    - Land registration, spatial and urban planning, and shoreline protection
    - Local administration and law enforcement
    - Special economic zones
    - Cultural/archaeological heritage
    - Tourism

26. Legislation pertinent to the project interventions fields is presented in Table 1 and an overview of the major legislative acts affecting the Socotra WHS is provided in Appendix 17.

27. The Socotra Conservation Zoning Plan (SCZP), promulgated by Presidential Decree (275) in 2000, provides the legal basis for the Socotra WHS, and the main legal benchmark and justification for the Project. It stipulates the objectives of the WHS, spatially defines the system of terrestrial, coastal and marine protected areas, and prescribes the main regulatory issues pertinent to the four main conservation management categories (see the detailed description of the Project Component 1 in Section 3.1).

28. National environmental legislation in Yemen combines the constitution, and laws and regulations related to environmental protection, the responsibilities and mandates of the *policy agency,* Ministry of Water and Environment (MWE), and the sub-ordinate *technical agency* EPA, and for several conservation areas. Next to the SCZP the Environment Protection Law No. (26) of 1995 (EPL) assumes a central position (and so does practically the Project executing agency EPA, assisted in technical issues and the international coordination by SGN) and is the main legal reference point for the Project in the current system of heterogeneous and specialised sectoral legal provisions. The EPL is well suited to integrate horizontally across different sectors via the paradigms of environmental sustainability and social equity, and because the EPA is inherently cross-sectoral, it is supervised by an inter-ministerial panel. The environment sector can also integrate vertically because EPA is well interlinked with

other agencies at the central and provincial level.

Table 1: Key legislation concerning the fields of interventions

Fields of intervention	Concerned key legislation
1. Biodiversity Conservation / Protected Area Management	- Law No. (26) of 1995, "On Environment Protection", and its By-law No. (148) of 2000 - Prime Minister's Decree No. (104) of 2002, "Concerning the Approval of the Regulations Protecting Endangered Flora and Fauna and Regulating their Trade" - Law No. (16) of 2004, "On Protecting the Marine Environment from Pollution", Amending Law No.(11) of 1993
2. Invasive Alien Species Management	- Law No. (26) of 1995, "On Environment Protection", and its By-law No. (148) of 2000
3. Sustainable Land Management, and Land-Use (and Sea-Use) Planning and Management	- Law No. (32) of 1999, "On the Agricultural Wealth" - Law No. (33) of 2002, "On Water Resource Management" - Law No. (21) of 1995, issued by a Republican Decree, "On State Lands and Estates" - Law No. (1) of 1995, "On Ownership for Public Interest/Common Benefits" - Republican Resolution By-law No. (20) of 1995, "On Urban Planning" - Republican Resolution (Presidential Resolution) By-Law No. (37) of 1991, "On the Territorial Seas, the Exclusive Economic Zone (EEZ) and the Continental Shelf" - Cabinet's Resolution No. (98) of 2002, "Concerning Stopping the Covering of the Coastal Cities' Beaches" - Republican Decree of the Law No. (42) of 1991, as Amended by the Republican Decree No. 43 of 1997, and re-shuffled by Law No. 2 of 2006, "Concerning the Regulation of Fishing and the Use of Aquatic Living Organisms and their Protection"
4. Overarching and cross-sectoral	- Law No. (31) of 2013, "On the Establishment of the Governorate of Socotra" - Law No. (4) of 2000, "On the Local Authorities", and its Executive Regulation issued by the Republican Decree No. (269) of 2000

29. In terms of ***Policies and Strategies*** no coherent conservation and development framework for Yemeni islands or explicitly the Socotra WHS exists to date which could serve as a benchmark and guideline for the Project. Individual sectoral policies and regimes for certain objectives exist, which are rather disperse and heterogeneous in their objectives, scope and level of implementation, though often ell elaborated and justified in itself. Table 2 compares the most relevant policies and strategies with the intervention fields of the Project. The conformity of the Project's intervention logic with the respective key policies is assessed in Section 3.6.

Table 2: Key policies concerning the field of interventions

Fields of intervention	Concerned key policies and strategies
1. Biodiversity Conservation / Protected Area Management	- National Biodiversity Strategy and Action Plan (NBSAP), 2004 - National Plan of Action for the Protection of the Marine Environment from Land-based Activities (NPA), 2003 - National Environmental Action Plan (NEAP), 1996
2. Invasive Alien Species Management	- No specific policy known yet
3. Sustainable Land Management, and Land-Use (and Sea-Use) Planning and Management	- Irrigation Water Policy, 2001 - Agriculture Sector Reform Policy, 2000 - Water Resources Policy and Strategy, 1999-2000 - Watershed Policy, 2000 - National Action Plan to Combat Desertification - Wastewater Reuse Strategy - National Plan of Action for the Protection of the Marine Environment from Land-based Activities (NPA), 2003 - Fisheries Sector Reform (in preparation) - Fisheries Sector Strategy, 2000
4. Overarching and cross-sectoral	- Vision 2025 - Fourth Five-Year Development Plan for the Period 2011-2015 - Pilot Programme for Climate Resilience (PPCR) - National Adaptation Programme of Action (NAPA), 2008 - National Capacity Self-Assessment (2007) - Poverty Reduction Strategy Paper (PRSP 2003-2005) - Environment and Sustainable Development Investment Programme (ESDIP), 2003-2008 - National Strategy for Environmental Sustainability (NSES), 2006

30. In summary, it is recognised that the overarching legal and policy framework for conserving the natural heritage of Socotra and developing its economic and social systems in a sustainable way is reasonable. There is an evident need to revise the SCZP especially with regard to spatial conservation planning and to further detail and harmonise policies. This should ideally result in the formulation of an integrated "Socotra Conservation and Development Strategy" supporting the SCZP. In this context it will be necessary to re-examine national key policies thoroughly (most of them are very useful but are neglected too often) and to harmonise the Socotra policy framework with national ones and vice versa. The ensuing regulatory prescriptions need to be carved out by formulating by-laws and executive regulations governing the actual policing in a case-specific fashion. The project proposal does allocate resources supporting this.

31. **International agreement and protocols:** The Republic of Yemen has signed, ratified or is otherwise party to approximately thirty international and regional conventions, agreements, treaties and protocols addressing e.g. environmental protection, biodiversity conservation, biosafety, ozone depletion etc. A list of the main protocols which are relevant to the Socotra WHS is provided in Appendix 18. Most of them are generally in agreement with the tenets of the Project, and shall be considered as appropriate. A number of these protocols have already afforded some degree of protection especially to marine and coastal habitats and biodiversity. However, the overall enforcement of the recommendations and regulations is still generally weak.

32. **Institutional and sectoral analysis:** According to the SCZP and the EPL the main responsibility and mandate for the Socotra WHS is accorded to the MWE, and its technical agency EPA. The EPA represents the designated *Executive Agency* of the proposed Project and commands vast experience in managing the WHS. Its Socotra branch has several specialised departments and is the largest in Yemen in terms of staffing.

33. Socotra's recent declaration as a Governorate, forming part of the national political reform process, and the ensuing nomination of a Governor and the establishment of a local institutional and administrative body, represents a presently ongoing process. How the cooperation of the new governorate administration evolves with MWE, EPA, the local District Councils, and other agencies which are relevant to the Project objectives such as the Ministry of Agriculture and Irrigation, Ministry of Transport, and Ministry of Fish Wealth, remains to be observed and needs careful readjustment of the Project's Component 4 to remain relevant and supportive to the existing - and evolving - institutional framework for the island.

34. The WHS management, and thus the operation of the Project must inevitably function within a complex and heterogeneous regulatory and institutional framework. This is reflected by a lack of coordination between ministries and authorities at all levels, and insufficient results of decision-making processes, thus of governance. The confusion of responsibilities and the lack of clarity is especially obvious where key legislation (see before) and institutional mandates are examined (Table 3).

Table 3: Key legislation and responsible policy and technical agencies

Code	Law	Policy agency	Technical agency
CY	The Constitution of the Republic of Yemen		
EPL	Law No. (26) of 1995, "On Environment Protection" / Executive Regulation of the Law No. (26) of 1995, issued by the Prime Minister's Decree No. 148 of 2000 / Republican Decree No. (101) of 2005, "Concerning the Establishment of the EPA"	MWE	EPA
SAD GOS	Presidential (Republican) Decree No. 275 of 2000, "Concerning Socotra Archipelago" Law No. (31) of 2013, "On the Establishment of the Governorate of Socotra	Var., MWE GO	Var., EPA Var.
AL WL	Law No. (32) of 1999, "On the Agricultural Wealth" Law No.(22) of 2002, "On Water Resource Management"	MWE, MPWUD, MLA, MAI	NWRA, LC, Water Corporations, var.
MPL	Law No. (16) of 2004, "On Protecting the Marine Environment from Pollution"	MT, MWE	MAA, EPA, NCG
FL	Republican Decree of the Law No. (42) of 1991, as Amended by the Republican Decree No. 43 of 1997, and re-shuffled by Law No. 2 of 2006, "Concerning the Regulation of Fishing and the Use of Aquatic Living Organisms and their Protection"	MFW	MSBRA, FWA
MTWL	Republican Decree of the Law No. (37) of 1991, "Concerning the Territorial Waters, Near-by-waters, Economical Zones, and Continental Shelf" / Republican	MI	NCG

Code	Law	Policy agency	Technical agency
	Decree of the Law No. (15) of 1994, "Concerning the Marine Law" / Republican Decree No. 1 of 2002, "Concerning the Establishment of the Coast Guard Authority"		
SEL	- Law No. (21) of 1995, "Concerning the State Land and Estates" / Law No. (1) of 1995, "On Ownership for Public Interest/Common Benefits" / Republican Resolution By-law No. (20) of 1995, "On Urban Planning"	MI, MPWUD	GALSUP
LAL	Law No. (4) of 2000, "Concerning Local Authorities", and its Executive Regulation Issued by the Republican Decree No. (269) of 2000	MLA, MI	Governorates, LC
AHL	Law No. 21 of 1994, "On Archaeological Heritage/Antiquities"	MCT	GOAMM

35. The preliminary stakeholder analysis (2.5) identifies additional authorities which also play a role, having their own agendas and policies. Potential conflicts and problems concerning institutional mandates, different tiers of jurisdiction and the application of existing laws may occur in a variety of governance fields, as for example in:

    - Establishment and enforcement of conservation areas
    - Spatial planning, land use and registration, and enforcement thereof
    - Management of key resources and licensing of exploitation
    - Managing urban, rural, and agriculture water resources
    - Beneficial uses and respect of local interests
    - Steering investment and economic development
    - Environmental protection, monitoring and enforcement
    - Resource use surveillance and enforcement
    - Supervision of EIAs, and environmental management plans

36. No legal and institutional mechanism exists at present that provides for *proactive planning*, prioritisation *of conservation and development management issues*, accords *coordinated policy and law making*, and ensures *integrated governance*. Instead, governance action is currently largely proponent-driven, reactive, and vulnerable to vested interests and informal ruling. The Project may instigate an "Integrated Conservation Mechanism Framework" (ICMF) based on the I-SEA process cycle in order to help overcoming this situation.

37. Present technical and physical capacities of relevant agencies are limited, with those of EPA Socotra being yet at least sufficient to digest the interventions. Moreover, future capacity needs in the light of the political reforms are insufficiently known including those pertinent to the Governor's Office and the two districts of Hadiboh and Qalansiyah. In response, it will be critical to conduct a full capacity analysis at the start of the Project and to develop a strategic Capacity Development Plan (CDP) towards offsetting the capacity shortages.

38. **Special considerations:** At present it is impossible to predict the shape of the future institutional framework on Socotra, and the importance and position of the different actors in relation to each other. The Project therefore allows sufficient flexibility to tie planning and management procedures with utmost sensitivity to the evolving new administration of the Governorate. The inception of the project will probably take

place at a time when the build-up of the Governorate's administration receives some momentum as well, thus providing opportunities for the project to be both, influential and supportive. The role of the EPA may change vis-à-vis other governmental agencies and the local administration at the Governorate and District level. The EPA may have to assume a more balanced role in environmental and development decision-making and may be knit into a web of other legally mandated key actors. *Yet the EPA will remain the main executing agency of the proposed GEF project and a key player, assisted in technical issues and the international coordination by SGN.* EPA may consider this as an opportunity to reduce its present "policing" role to the benefit of its preferred role as supporting the development of environmental legislation and assisting the preparation of sectoral policies.

2.5 Stakeholder mapping and analysis

39. The mapping and analysis of the stakeholder arena, conducted during the PPG phase of the Project, is briefly summarised as follows, in reference to a detailed report included in Appendix 19. The report also presents a long-list and preliminary ranking of all stakeholders and political actors which were included in this assessment. The following stakeholder categories have been applied to aggregate the stakeholders into meaningful entities with regard to their social and political position:

    A. ***Central government and sub-ordinate executive and parastatal agencies (ministries, authorities (partly with local branches), boards etc.)***

    B. ***Sub-central governmental bodies (regional, governorate, district, municipal)***

    C. ***Civil society organisations (CSOs, NGOs, CBOs)***

    D. ***Private sector and organised interest groups***

    E. ***Donor agencies (and their programmes and projects)***

40. Eight variables were assessed for each individual stakeholder according to "expert knowledge" and seven were included in the analysis: *Interest*, *Impact*, *Influence*, *Importance*, *Power*, *Resources*, and *Presence & Familiarity*. The *Urgency* to be granted to a stakeholder was rated separately. Certain cumulative stakeholder clusters, i.e. within the categories D and E were used in order to rate the relative relevance of a particular group. Most subordinate executive authorities were jointly assessed with their line ministries, in assuming identical political objectives and resourcefulness. The Environment Protection Authority (EPA) was rated separately from the Ministry of Water and Environment because of its unique position on Socotra and its role as *executive agency* of the Project. The new „super-governorate" of the *Hadramaut Region*, as explained in the preceding section, was excluded because its mandate and powers remain unclear at present. Once the ongoing governance changes are completed and take root through the establishment of Governors' Offices (GO) and related entities and government authorities, these will be included in an extended stakeholder assessment, so as to link them appropriately to the Project implementation arrangements.

Table 4: List of key stakeholders ranking above the average, by groups.

Rank	Stakeholder (above mean ranking of 23 score points)	Code	Urgency	Scores
A. Central government and sub-ordinate executive and parastatal agencies [1]				
1	Environment Protection Authority (EPA, of MWE)	A19	5	36
4	Ministry of Transport (MT) & CAMA & MAA & YSPA	A16	3	33
5	Ministry of Planning and International Cooperation (MPIC)	A14	5	32
9	Ministry of Agriculture and Irrigation (MAI)	A3	4	31
10	Prime Minister, Cabinet (PM)	A2	5	30
12	Ministry of Water and Environment (MWE) & EPA & NWRA	A17	4	28
18	Ministry of Oil and Mineral Resources (MOMR) & GSMRB & PEPA	A13	3	25
17	Ministry of Local Administration (MLA) & YIPDA	A12	3	25
16	Ministry of Interior (MI) & GALSUP & NCG	A10	3	25
23	Ministry of Public Works and Urban Development (MPWUD)	A15	2	24
27	Parliament	A1	4	23
28	* Ministry of Culture and Tourism (MCT) & GAT	A4	3	22
34	* Ministry of Finance (MF)	A7	1	20
35	* Ministry of Fish Wealth (MFW) & MSBRA & FWA	A8	4	20
B. Sub-central governmental bodies (regional, governorate, district, municipal)				
2	Governor‘s Office (GO) and Executive Council	B1	5	35
6	Local Councils (districts of Hadiboh and Qalansiyah)	B2	5	32
11	Police and Security forces	B3	3	30
24	Municipal authorities and offices	B4	3	24
C. Civil society organisations (NGOs, CBOs)				
7	Communities, Sheikhs	C1	4	32
20	Environmental NGOs	C5	4	25
19	Fishery cooperatives and associations	C2	3	25
25	Eco-tourism CBOs	C4	3	24
D. Private sector *				
31	* Medium-size (nat'l, local) enterprises (e.g. tourism, transport, trade)	D2	3	22
32	* Small (local) entrepreneurs (e.g. tourist guides, drivers, honey)	D3	2	21
E. Donor agencies (and their programmes and projects)				
3	GIZ	E3	4	35
8	UNDP-GEF/SGBP	E1	4	32
13	SRI/BiK-F	E10	3	27
15	UNESCO-WHC/IUCN	E7	4	26
14	UNDP-GEF/Small Grants Programme	E2	2	26
22	Italian Development Cooperation/University of Rome	E6	3	25
21	Czech Development Cooperation/University of Brno	E5	3	25
26	RBGE-CMEP	E11	3	24
	**BirdLife International		3	24

[1]* The stakeholders A4, A7, A8, D2, and D3 ranked below average but were included in order to account for their potential role in the Project’s intervention strategy.

** Retroactively added, due to further information since the reconnaissance mission.

41. Stakeholders were analysed in two steps. Firstly, the whole set of stakeholders was subjected to a screening (classification and score rating). Secondly, a subset of key stakeholders was determined and briefly assessed.

42. The total number of rated stakeholders is 48. The maximum number of score points for an individual stakeholder was 45. Individual scores range from 36 to 8 points; with the EPA (A19) ranking highest, and the Ministry of Justice (A11) coming out lowest. The mean score was 23.3. A total of 27 stakeholders achieved a score equal or in excess of the mean value. The 27 stakeholders above the mean scored cumulatively 67.9% of the total score and form primarily the list presented in Table 4. The list is sorted by stakeholder groups, while the ranks provided refer to the entire set screened. Due to the relative size of the groups, the categories (A) (central government) and (E) (donors) have disproportionally high shares of the cumulative scores. This nonetheless reflects the high relevance of these groups to the Project. In both groups, a high proportion of representatives exceeded the mean value (50.0% in (A), 58.3% in (E)), thus underpinning their relevance. The group (B), however, leads with 80.0% above average by a great margin, underscoring the crucial role the local government will have to play. In summary, the local governmental bodies appear to represent the most critical stakeholder group, closely followed by both the central government agencies (with EPA enjoying a special position as executing agency, assisted in technical issues and the international coordination by SGN, and commanding a long-standing tradition of work of Socotra) and the donors. The civil society groups are next but they will obviously play a crucial role as well on account of the Project's objectives and participatory intervention strategy. Their relatively low turn-out is partly due to the variables chosen, e.g. the low levels of influence, power, and resources commanded by them.

43. Looking at "Interest", there are a relatively large number of stakeholders (23) which are assumed to have a critical to significant interest in the Project. On the one hand, strong levels of interest appear to suggest ample opportunities for mutual cooperation and creating synergies. On the other hand, such a stakeholder landscape will entail a diversity of vested interests and bring about the need to put a lot of efforts into communicating, and grooming critical actors and partners. Moreover, a negative impetus of certain stakeholder interests needs to be taken into account. A range of stakeholders exist with high interest such as the communities (CBOs, NGOs), MWE, MAI, and MFW) which appear to be eager for conservation but have only modest to little influence and power.

44. Looking at "Impact", there are only a moderate number of stakeholders (13) upon which the Project should have a critical to significant direct impact. The stakeholders receiving the highest impact are the communities, representing in fact a very large number of individuals and groups. Among those receiving a high impact, only few may potentially consider some of the Project outcomes as conflicting with their own objectives. Actual impacts and their perceptions by certain stakeholders may change as the interventions unfold, and the project management should carefully try to mitigate adverse impacts.

45. Looking at formal "Power", there are only a moderate number of stakeholders (10) which are able to exert significant formal/coercive power, led by the MPIC and the PM and consisting mostly of line ministries at the national level. As the sole local player the GO will, presumably, be able to bring to bear significant formal power in

support of reinforcing project objectives. A moderate number of stakeholders command only limited power but seem to have an important role to play in facilitating the success of the Project, e.g. the MWE-EPA, MFW, and CBOs/NGOs. The Project should aim at strengthening the role of currently disempowered but important players, and try to win the support of certain top level players with an interest in the Project success.

46. When expected *Impact* is compared with *Influence* (Table 4 of Appendix 19) it turns out that the majority of those stakeholders, which will be moderately to strongly impacted by the Project, only command modest to medium influence in the political economy. Conversely, possibly less project-friendly agencies command substantial influence, and this again needs to be taken into account.

47. To accommodate the evolving stakeholder landscape in the best possible way, the Project will complete an extended stakeholder analysis during its inception phase, and further fine-tine its strategy for addressing the political economy.

2.6. Baseline analysis and gaps

48. A brief summary of the main barriers and gaps directly related to this project, is as follows (see also Fig. 3):
    - A common strategic vision for the management of conservation and development in the Socotra WHS is yet to be carved out the main stakeholders. The governance systems are currently reforming presenting a challenge yet also an opportune moment to influence legal and institutional frameworks towards improved management of the WHS.
    - There are currently no strategies for developing the capacities to successfully manage the Socotra WHS, in particular in procuring sustainable funding to achieve conservation goals.
    - There is no overarching systematic approach to revise and update conservation management on the Archipelago in a socio-economic context, and its translation into the new local policy and governance structures. The SCZP has not been assessed in a global conservation context since 2000, despite new, direct pressures on cultural and natural heritage in the Socotra WHS.
    - The lack of coordination, strategic interventions and the integration of management plans for specific major threats leading to loss of biodiversity and threatening livelihoods in small island states worldwide, i.e., Invasive Alien Species (IAS), soil erosion, desertification/land degradation. These threats have been identified on Socotra as priorities, yet the gap lies in the lack of local capacity and coordinated action.
    - Little efforts exist in strategically approaching the loss of local culture and traditional knowledge on the Archipelago and therefore the links to the local environment, directly increasing unsustainable use of valuable resources and therefore impacting future generations and local ecosystems.

49. The investments by the Government of Yemen and its partners and donors (including the GEF) in the Socotra Archipelago have been quite significant, relatively to the economic context of Yemen and to the limited national budget. Tangible progress and results have been achieved since the first GEF-supported intervention in 1997 (UNDP-GEF/EPA Socotra Biodiversity Project), and efforts are still ongoing (see below).

50. The current level of investment can only address the root causes illustrated above to a limited extent, because (a) the development of the necessary professional capacity and awareness has just begun in recent years, and this from a very low baseline level; (b) there continues to be a chronic lack of adequate financial resources to manage a WHS of this size and complexity; (c) the surrounding political and socio-economic context is difficult, so that other development aspects are seen as priority (e.g. healthcare, governance, education, water supply etc.), (d) donor support remains essential at these initial stages, but tends to be short-term, unpredictable and linked to political stability (i.e. all donor support virtually stopped in the period 2010-2012 during the 'Arab spring' in Yemen, thus putting cultural and natural heritage achievements in danger; see Yahia 2011; Van Damme 2011). Recent experience of GEF projects in the Socotra Archipelago WHS clearly shows how the development of adequate national capacity and financial sustainability mechanisms is an essential but costly and time-consuming effort that will require a consistent and much longer-term engagement by the GoY and its partners and donors. A continued effort will be needed by the coming generation, to help create the human and financial capital that can sustain the long-term management of such a remote and complex network of community-based marine and terrestrial protected areas.

51. Currently, financial support from central government provides only for EPA's staff salaries and limited operational costs. Substantial technical advisory support and ad-hoc investments are provided through ongoing initiatives supported by the German Government/EPA-MWE, and the UNDP-GEF/EPA "Socotra Governance and Biodiversity Project", both of which focusing on selected priority interventions. These are also complemented by several smaller projects (including GEF Small Grants funding) in the Socotra WHS. The baseline scenario includes a range of interventions, mainly focusing on the very basics of PA management, sustainable use of natural resources by local communities, and local governance issues. These ongoing efforts in tandem with the efforts of the EPA create a platform of respective baseline initiatives in the WHS that will underpin the proposed new GEF project. However, in the business-as-usual scenario, critical underlying issues such as biodiversity conservation and community-based PA management, management of invasive alien species, sustainable land management, continued capacity development, and securing long-term financial sustainability of the PA network (see Section 3.3) would not be specifically covered by any of the baseline investments. The following ongoing and planned baseline projects build the above solid platform:

52. (1) ***GoY support for the Socotra branch of the EPA*****,** with quite significant ongoing and planned annual investments in terms of staff, equipment and infrastructure (relatively to the context of Yemen). The EPA operates on many fronts to support the management of the existing PA network, environmental research and monitoring of terrestrial (including subterraneous) and marine ecosystems, environmental education and awareness, liaison with local governments and other government bodies to foster and support sustainable use of natural resources, control of invasive alien species and species export, support the development of local community-based environmental NGOs, etc. These investments by the GoY and the EPA Socotra budget have consistently and significantly increased since 1997, but then slumped again due to the national political crisis and the forecast for the coming years is hard to predict.

53. The work of EPA in Socotra also links up to the national level where the GoY is also investing significant amounts in supporting the mandate of EPA and MWE. Tentative

total figures for GoY support that will constitute the baseline investments for this project are projected to amount at 4.5 million USD for the coming years. This baseline co-financing includes: 45 full time staff, including 15 technical and 30 support staff of the EPA Socotra branch, with fully equipped offices, library, meetings rooms, 4WD vehicles, satellite communication facility, education/awareness display rooms, GIS system and associated database aimed at compiling existing information on projects carried out on the Socotra WHS.

54. The EPA team is structured as follows, providing an outline of ongoing work by EPA and partners that will underpin the GEF project intervention:

55. (i) Protected Area Management Team: works on the management of PAs in close collaboration with local community groups. Associations for the management of protected areas have been established in recent years at priority sites and include the Nature Sanctuaries of: Dihamri, Homhil, Ditwah, Skand and Roosh (compare Annex 9 to Appendix 19, PPG Mission Report). Each PA is established and managed in partnership with a local community group in the area, who are responsible for managing the PA, ecological monitoring programmes, law enforcement, community education and awareness programmes, establishment and management of community campsites and associated visitor services and hospitality management – all these tasks are implemented with support and oversight from the PA team of the EPA Socotra branch. Besides the local PA community, the EPA's PA team operates in close collaboration with all EPA sections/teams as listed below, with selected international partners and with other island-wide community groups including e.g.: Socotra Ecotourism Society (supports tourism promotion), women groups (support handicraft development and marketing for all island), bee-keepers association (supports honey collection and marketing), Socotra Cultural Heritage Association (promotes cultural tourism island-wide).

56. (ii) Research and Surveys Team: this includes staff trained during the past 16 years in biodiversity surveys (mainly with GEF support) and equipment and facilities of the EPA-Socotra that will provide the baseline for the GEF project. It is composed of two subunits:

57. (ii a) Terrestrial Ecology Team: manages periodic bird surveys (mainly with BirdLife International regularly published in OSME –Ornithological Society of the Middle East- and BLI bulletins; several scientific publications in peer-reviewed journals – examples available upon request); maintains the Socotra Herbarium and contributes to plant surveys using the permanent plots, photographic monitoring points and transects, remote sensing (the Herbarium was developed and is managed in collaboration with the RGBE-CMEP; remote sensing: Univ. of Rome; permanent plots: Univ. of Brno, other partners – local staff was trained in Edinburgh, Rome, Prague and on location); conducts other zoological records and surveys on other taxa including: reptiles, amphibians, selected taxonomic groups of invertebrates, etc. (staff trained and collaborating with the SRI, Univ. of Barcelona, and a range of international partners).

58. This team of the EPA also works on priority IAS control programmes. In recent years the Socotra EPA and partners have successfully contributed to e.g. (a) control and eventual eradication of the Indian House Crow (*Corvus splendens*), (b) control of the expansion of *Prosopis* spp. – all IAS programmes have been community-based and entail initial awareness, education and close collaboration with local communities. For example, for (a) local communities were involved in identifying Crow's nesting

sites, climbing trees to destroy nests, monitoring and trapping adult of birds – resulting in complete eradication after 10 years of efforts with the EPA and BirdLife team (Suleiman et al. 2011). On (b), following initial awareness and education, communities are involved since 1999 with EPA in identifying and manually controlling/destroying existing stands of *Prosopis*, spotting and reporting any new stands across the island and collaborating with the EPA in their removal (Cheung & DeVantier 2006). This is also applied to other IAS species and the proposed GEF project will build upon this existing capacity and positive experience to implement the IAS Component (see Section 3.3., Component 2).

59. (ii b) Marine Ecology Team: conducts marine biodiversity, habitat (remote sensing) and fisheries surveys (with SRI/BiK-F and many other partners, formal and on-the-job training in coral, fish, marine invertebrates and fisheries expertise, etc.); set up of a local marine biological voucher collection (linking to the herbarium); permanent underwater monitoring stations (transects) for coral and fish diversity and ecology set-up across the entire archipelago, aligned with the PA network, and monitored since 1999 by local staff and international partner (SRI, see overviews in Cheung & Devantier 2006), expanded to include selected environmental parameters since 2007 (e.g. sea water temperature, light); surveys of fish catch and effort with interviews to local fishing communities across the island and built-up and operation of a basic fisheries database (1999-2007); estuarine ecology and fish connectivity studies (SRI/BiK-F, since 2007); establishment and operation of a coastal fish biomass monitoring programme since 2007, including satellite sensor-based primary productivity parameters, designed inter alia to evaluate the efficacy of the PA network, and to support ongoing studies on marine climate change impacts (vulnerability), marine and coastal ecosystem services and social-ecological systems (SRI/BiK-F, including continued technical and academic training to Yemenis); studies of fish conservation genetics and fish phylogeography (SRI/BiK-F), and reef fish feeding ecology (Univ. Rome); sea turtles conservation, monitoring, nest-protection and tagging programme, ongoing since 1998 and now supported – though only at basic level - by the Univ. of Sana'a (Dr A.K. Nasher and EPA) in collaboration with several community groups living near the main turtle-nesting beaches.

60. (iii) Education and Awareness Team: This team comprises 2-3 technical officers at the EPA office and a basic informal network of former 'Environmental Extension Officers' (on payroll of previous projects), local members of the team, located in remote areas across the entire archipelago (including outer islands). The team is experienced and will after certain investment, i.e. by revitalizing at least part of the network by instrumental in supporting the implementation of environmental education, training and awareness programmes, as for example: on-site development and printing of awareness materials, posters, booklets, in Arabic; regular training programmes for pupils and special courses for school teachers;; establishment and support for school Wildlife Clubs; organising periodical visit to the EPA centre and presentations organised for schools and other government departments

61. (iv) Support and Logistics Unit: operates 4WD vehicles, including small car mechanic/repair shop, a power generation system for the EPA building (otherwise there is yet no 24/7 power supply grid on the island), and a basic material and diving store. This unit cares also for the procurement and stocking of fuels during the monsoon season (when few ship-based supplies reach the island), and commands

effective liaison and logistic relationships with mainland Yemen (i.e. mainly with Mukallah, Aden and Sana'a).

62. (v) Administration and Finance Unit: administers government and donor funds through a financial, administration and reporting system, established with initial GEF support, which has provided the basis for several government and donor-funded projects since 1997-98.

63. Other Government departments that work jointly with the EPA in the management of the Socotra WHS, both at the local/provincial and central level, include, inter alia: the administration of the new Governorate (Governorate Council), district governments (Local Councils) in Socotra; and MWE (Water and Environment), MAI (Agriculture and Irrigation), MCT (Culture and Tourism), MLA (Local Administration), MFW (Fish Wealth), MPIC (Planning and Development), and several education agencies; with some of the above ministries being able to collaborate through local subordinate departments and agencies. A full overview of the legal, institutional and stakeholder landscape is presented in Section 2.4 and 2.5. These partners are involved in the design and operation of the governance mechanisms of the WHS, and will be key stakeholders and partners in the Project's intervention fields (see under Section 3.3 for details under different components). The special situation related to the creation of the Socotra Governorate and the incipient provincial administration – as discussed in Section 2.4 – is presently obscuring a proper baseline and institutional gap analysis. For the vast majority of them, however, it would be at present fair to state, that their specific capacities and financial resources which they can bring to bear are limited and will remain so for some time to come, especially on-site. It is therefore envisaged to conduct a full capacity and training needs assessment at the onset of the Project (see Component 4, Section 3.3).

64. (2) ***International donors and partners*** have provided and continue to provide significant baseline investments in Yemen in addition to government capacities and funding, supporting the EPA/MWE and specifically the preservation of the politically stable and peaceful Socotra WHS as a springboard to subsequently expand conservation efforts in the rest of the country. These are in particular as follows:

65. **Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH:** provides significant baseline investments through its ongoing project *"Local economic development through a sustainable use of natural resources and through conservation of biodiversity in Yemen"* financed by the German Federal Ministry for Economic Cooperation and Development (BMZ; PN 2009.2231.0). Key target beneficiaries of this initiative are *"the people in need living in or around protected areas, using the natural resources for their means of livelihood"*. The German-funded programme follows a multilevel approach reflected in three main components and including (a) at the central level: sector policy advice and institutional development of EPA with focus on capacity development, (b) at the local level: concrete action to support the living conditions of people using natural and biodiversity resources, the first local intervention area being the Socotra Archipelago, and (c) upscaling at national level: the positive results from local protected area management will be up-scaled into other parts of the country through EPA and other suitable partners for the identification and development of further protected areas in Yemen. The project is currently implemented by EPA/GIZ (project officially launched in Socotra in April 2013 and GIZ-EPA mission ongoing) and the main portion of GIZ funding will underpin and complement especially the implementation of the SLM Component of the proposed GEF Project. Close coordination will create synergies and allow to

lever a critical intervention mass to jointly make a difference in SLM on Socotra. The GIZ intervention will target selected PAs as well and to this end will underpin and complement the BD-PAM work of the Project.

66. **International Fund for Agriculture Development (IFAD):** the ongoing IFAD *Fisheries Investment Project* (FIP) (IFAD 3332-YE, 2013) pursues fisheries sector development in Yemen at large, with partial activities on Socotra, that *focus on enhancing incomes within fishers' communities without increasing pressure on the over-exploited resource base*. It is implemented by the Yemen Economic Opportunity Fund, funded by IFAD, the EU and the Islamic Development Bank and consists of two main components, (a) sustainable resource management, and (b) value chain modernisation. It complements activities envisaged in Components 1 and 4 of the proposed Project, investing mainly in supporting the technical needs and capacity development of fisheries and in the evaluation of related laws. Conversely, the GEF Project will support the resource management objectives of the IFAD project by strengthening the spatial (PA) management framework of the exploited resource base, an aspect which is usually weakly addressed in fisheries projects, notably in Yemen, where Fishery policies traditionally have been production-oriented. A second parallel country-wide EU-led fisheries investment project has been advertised recently but not begun operations yet and may provide additional opportunities to streamline objectives and create synergies with the proposed GEF Project.

67. (3) In addition, several other major national and international partners including UNDP (with GEF and non-GEF funding), Italy, France, USA, Japan, the Yemen GEF Small Grants Programme, BirdLife International, The Senckenberg Research Institute and Natural History Museum (SRI) and its Biodiversity and Climate Research Centre (BiK-F, Germany), University of Birmingham (UK), Royal Botanic Gardens Edinburgh (RBGE) and its Centre for Middle-Eastern Plants (CMEP, UK), UNESCO WHS Centre, Mendel University (Czech Republic), Institute of Evolutionary Biology (CSIC-UPF, Spain), members of the international “Friends of Soqotra” (FoS) network, etc. have been and continue to be significantly involved in research, conservation and sustainable development of the Socotra Archipelago. The above-listed international institutions have played and continue to play a critical role in supporting the efforts of the Government of Yemen and the EPA Socotra in the management and conservation of the WHS. The value of such ongoing and planned baseline investments is quite significant and it is fully complementary with, and additional to, the EPA programmes listed above. These investments provide an excellent basis for most aspects of the proposed GEF Project, and particularly for (a) formal and on-the-job training in various aspects of BD research and PA (both terrestrial and marine), IAS and SL management for existing and newly recruited local EPA staff, (b) operation and upgrading of existing Herbarium and biological voucher collections, laboratories and diving facilities of the EPA Socotra, (c) targeted research and management, (d) development and publication of educational and awareness materials supporting most project components, (e) GIS, DSS and information database operation and upgrading, (f) advocacy and fund-raising efforts in support of the establishment of the Socotra Trust Fund and for WHS management, etc. Selected examples are provided as follows.

68. **United Nation Development Programme (UNDP) / Global Environment Facility (GEF) / EPA – Socotra Governance and Biodiversity Project (SGBP):** has aimed at continuing the preceding UNDP interventions with a special focus on capacitating the local governance systems. The project “*Strengthening Socotra’s Policy and*

Regulatory Framework for Mainstreaming Biodiversity" (Atlas Award ID 00049646), usually referred to as *SGBP*, started in 2008 and was to end in 2013. It experienced certain set-backs due to the political circumstances in Yemen, was dormant for some time, and extended. The project seeks to contribute "to the goal of creating a sustainable and well-governed path of development for the Socotra archipelago that ensures the conservation of its globally important biodiversity. The project's objective is that Biodiversity management considerations are mainstreamed effectively into the current process of decentralizing governance for development on the Socotra Archipelago. The objective will be achieved through the four following project outcomes that reflect the necessary interventions to address the constraints identified in each element of the mainstreaming framework: Local Governance Support, Mainstreaming Tools, Strengthening NGO Advocacy and Benefits of Biodiversity Conservations to Local Livelihoods" (UNDP-GEF/GoY Project Document 2008, amended in March 2010 adding activities in the fisheries sector). The project does not appear to be fully operational by the time this project document is prepared. If it were, certain outputs under Component 1 (e.g. SCZP revision, PAM) and Component 4 (e.g. capacity development, ICMF) would call for close collaboration and coordination.

69. **Royal Botanic Gardens Edinburgh (RBGE) / Centre for Middle Eastern Plants (CMEP) (UK):** has a long history of published botanical work in the WHS herbarium operations, and collaborated with the EPA on plant research and BD surveys as well as on herbarium maintenance, plant databases, and plant IAS management. Their ongoing research is closely aligned with this GEF proposal, and produces molecular evidence to incorporate conservation of evolutionary processes into the PA system of the Socotra WHS. This will include maintaining a high quality database of Socotra plant distributions and establishment of traditional uses and cultural practices, as well as plant functional types, for consideration in improved PA design (Section 3.3, Component 1), notably the intended revision of the terrestrial part of the SCZP.

70. **Senckenberg Research Institute and Natural History Museum / Biodiversity and Climate Research Centre (SRI/BIK-F), Germany:** has, similar to the RBGE, a long-standing history of marine biodiversity work (partly published), including the local voucher collections and research databases. It presently operates a fully equipped marine and environmental field research station in Hadiboh, Socotra, which stems from almost two decades of collaboration with the local EPA branch on marine BD and fisheries as well as zoological, ESS and SES research. The SRI/BiK-F (through its working group on 'Tropical Marine System of the Future' headed by Uwe Zajonz) collaborates with EPA in regular qualitative and quantitative marine and coastal biodiversity and ecology monitoring, remote sensing and habitat mapping and community-based PA management, marine turtle surveys, and fisheries and coastal socio-economic surveys, etc. The SRI/BiK-F provides on-the-job training for local EPA staff and academic training for students from Hadramaut University, Mukallah, and will further cover Climate Change issues, legal, institutional, and policy frameworks, and Coastal Zone Management, based on earlier works in Yemen for the WB and UNDP. The activity portfolio therefore ties well into the present GEF Project, and its data are key for the intended revision of the marine part of the SCZP.

71. **Commonwealth Agricultural Bureaux International (CABI)**: Involved in major IAS control programmes worldwide and recently also in the Arab region, CABI will provide significant expertise in IAS management through know-how sharing, joint training with its other existing programmes, as well as taking advantage of a range of

databases and publications on IAS that will be adapted to the context of the Socotra WHS and translated in Arabic. This will support the cost-effectiveness of the project, with significant cost-savings, and will also benefit other Arab-speaking countries in the region that can learn from the Socotra WHS example.

72. **BirdLife International (UK):** Its experts, e.g. Richard Porter, support regular bird surveys, targeted research and provides highly-qualified on-the-job training for local EPA staff (ongoing). This results in regular publications in peer-reviewed journals, regular updates of the Socotra portion of the Bird Atlas for the Middle East, and regular revisions of the status of the 22 IBAs in Socotra, etc. Bird data are key indicators for the intended revision of the terrestrial part of the SCZP.

73. **University of Tuebingen (Germany):** Dr. Dana Pietsch is conducting the only specific soil survey programme in the Socotra WHS and in the process she is training local staff and providing significant baseline information on soil quality, soil and land-use mapping, land degradation patterns, etc. This contribution will be integrated in the databases and DSS at EPA and will substantiate the development of SLM for the WHS under Component 3 of the project (Section 3.3).

74. **La Sapienza, University of Rome (Italy):** Several researchers from the Univ. of Rome have been involved in recent years in supporting the local EPA branch in the framework of the UNDP-Italy program. These efforts will continue and will focus on (a) training and capacity development for the DSS and in PA management (funded by the Government of Italy as a follow-up to the above UNDP-Italy program), and (b) joint research on the modelling and prediction of the effects of climate change on the archipelago's terrestrial ecosystems. In addition, La Sapienza has collated data for terrestrial biodiversity monitoring on Socotra that can be used as a basis for ecosystem health;

75. **Institute of Evolutionary Biology (CSIC-UPF; Spain):** Conducts studies (regularly published) on the genetic diversity of reptiles and amphibians, unveiled significantly higher levels of diversity than originally known. This research will be expanded to cover other taxa and it will underpin the improved design of the PA network in the WHS (conservation genetics). Training and capacity development for local EPA staff will also be undertaken as part of the process and this will also fully complement the scope of the GEF project.

76. **UNESCO WHC Regional Office:** conducts presently – through IUCN - a small project supporting EPA's WHS management capacities that can be upgraded by Component 4 of the GEF project. UNESCO had signalled interest in engaging in the possible establishment of a state-of-the art visitor information centre for the Socotra WHS, probably expanding on the SRI/BiK-F field station. While this would fully complement the GEF project's aims, particularly in Component 4, the present status and feasibility of these plans is unknown. The establishment of a WHS Visitor Centre is highly desirable though, in order to enhance awareness and education efforts for local residents and foreign visitors alike and the dissemination of results, and the Project shall seek to facilitate and support activities of other donors to this effect.

77. **University of Birmingham (UK):** hosting knowledge on archipelagic biodiversity and biogeography, and ongoing molecular biodiversity research applying -*omics* tools (genomics, transcriptomics, metabolomics) (Dr K. Van Damme).

78. **Friends of Soqotra (FoS, UK):** UK Charity, providing the main platform for the Socotra science and development community, publishing '*Tayf - the Soqotra*

Newsletter' and organising annual meetings and scientific symposia also involving local stakeholders, experts and practitioners, which have been crucial to the preparation of this project (Lednice, Czech Republic, 2013; Frankfurt a. M., Germany, 2014; Rome, 2014). FoS secures continued awareness for the bio-cultural values of and on Socotra, with extremely valuable expertise provided by its members, e.g. Dr Miranda Morris (one out of 2-3 non-native speakers of the indigenous Socotri language).

79. **Local community-based NGOs in Socotra:** The Socotra WHS features several community based groups and environmentally oriented local NGOs that were established in recent years, mainly with EPA and GEF support, and will form important conduits for participatory processes and grassroots activities of the Project; these include, inter alia: Socotra Women Association, Socotra Bee Keepers Association, Socotra Ecotourism Society, Socotra Cultural Heritage Association, Socotra Fisheries Cooperatives, Management Associations for the PAs of Dihamri, Homhil, Ditwah, Skand and Roosh, and several local School Environmental Clubs (compare Annex 7 to the PPG Mission Report, in Appendix 19 of this document).

80. Additional **Bilateral Donors** and partners, besides the aforementioned, have been and will continue to be involved in supporting various aspects of WHS management that will complement and underpin the proposed GEF project. Selected donors include, for example: Japan - small grants in support of local environmental awareness programmes and waste management with EPA and local councils; USA - support to the establishment of and fund-raising for the Trust Fund, micro-grants for local community development programmes; Yemen – activities of the Social Fund for Development under preparation.

81. The total baseline investments underpinning the GEF project and co-financing in support of conservation development aspects of the Socotra WHS are currently estimated at around 20 million US$ over the project period, of which over 12 million, i.e. over 60% were secured as direct Project co-financing. The major intervention fields of the GEF Project will therefore receive a baseline investment by collaborating partners, either in terms of existing technical, operational and supporting capacity and recent/ongoing work affecting for example conservation and protected areas, terrestrial and marine resource management, community development and capacity that will benefit the GEF project,

82. In the baseline scenario, however, and against the backdrop of the framework of recent initiatives substantial gaps exist, which are more or less exclusively addressed by the objectives of the GEF Project. First and foremost, the strategic level at large is insufficiently considered by the existing baseline activities. There is an evident lack of an overarching strategy of how to breathe life into the commendable SCZP and how to translate its ageing spirit into a consistent policy across sectors and agencies that reflects the political reforms and the contemporary economic and environmental conditions. Secondly, no concise strategy exists to develop the capacities for successfully managing the Socotra WHS, referring to national authorities, parastatal agencies and the communities alike; neither has a baseline been established nor the proper needs been identified with regard to the incipient Governorate Administration or the ailing local branches of key authorities. This also encompasses the lack of access to information and the use of state-of the-art instruments in conservation and development decision making, and the absence of mechanisms to sustain continued funding for the WHS management beyond short-lived donor interventions. Moreover, the present framework of institutionalised

knowledge misses to capture modern concepts on the global environmental debate and thus does not provide opportunities to link up with and to tap into potentially beneficial schemes (both analytically and practically) such as REDD+, Ecosystem Services and Payments thereof, Carbon Credits and micro-grants. In spite of isolated activities under the baseline scenario, the questions remain ill-responded to how to successfully manage the existing complex WHS network of protected areas, how to adapt it to the changing needs and pressures, and how to make best use of it for species and ecosystem-based conservation, while preserving and possibly expanding sustainable uses for improved community livelihoods. Furthermore, especially the critical issues of controlling and managing invasive species, soil erosion, desertification, land degradation and pastures yet remain under-studied and are neither properly reflected nor integrated into existing conservation and development strategies and plans for the Archipelago.

83. The Project will substantially contribute to addressing these important shortcomings of the baseline scenario by devising the pending strategic frameworks, developing required capacities and - for the first time - introducing sustainable finance mechanisms and properly integrating IAS management and SLM issues within the socio-economic context of this unique and biodiversity-rich Natural WHS (see Section 3.3).

2.7 Linkages with other GEF and non-GEF interventions

84. The project builds on and intimately links with previous and ongoing interventions related to bio-cultural conservation, development and capacity development in the Socotra Archipelago. Lessons learned from former interventions have been taken into account during the preparation of this project in order to avoid repetition. Continuous coordination with ongoing initiatives is aimed at further reducing potential risks of duplication and overlap, and implementation will be carried out in close partnership with GEF- and non-GEF interventions on Socotra, in order to maximise positive results. The most relevant GEF and non-GEF interventions on Socotra linked to the proposed project have been listed above, in Sections 2.1 (UN supported and GEF supported interventions) and 2.6 (non-GEF interventions).

85. The main UN/GEF-programmes related to biodiversity on Socotra since 1997, implemented by MWE/EPA, are the “Socotra Biodiversity Project” (1997-2001), the first and largest GEF project in Yemen implemented through UNDP, the Socotra Conservation and Development Programme (SCDP) of which Phase 1 (2001-2003) was implemented through and funded by UNDP and the Royal Netherlands Embassy and Phase 2, implemented through UNDP and funded by UNDP and Italy (2004-2008) and finally the Socotra Governance and Biodiversity Project (SGBP), funded by GEF and UNDP and implemented through UNDP (2009-ongoing). UN/GEF project documents and evaluations (e.g. Infield & Sharaf Al Deen 2003, Gawler & Mashour 2009), including the IUCN evaluation of the WHS (Hawa & Abdulhalim 2013), were carefully studied during the preparation of the proposed project, which provides valuable lessons from the past, in particular in relation to designing meaningful project goals and realistic activities that are consistent to the programme (e.g. Infield & Sharaf Al Deen 2003), community involvement and capacity development. The ongoing SGBP forms a strong link with the proposed Project in improving local governance for biodiversity management, and coordinating benefits of both projects.

86. Although these large interventions have formed an important basis for biodiversity protection on Socotra, e.g. through partially implementing the SCZP and facilitating the nomination of Socotra as a UNESCO WHS (Scholte et al. 2011), they have also raised local expectations in development and partly resulted in local counter-reactions to ICDPs (Peutz 2011) which is important to recognise for the implementation of any project of this scale within a local context. Furthermore, these large interventions often failed to recognise some of the most important and acute problems on the archipelago, such as land degradation, IAS, sustainable funding mechanisms, the loss of local culture and customary resource management practises (e.g. traditional pasture and fishery regulations and the indigenous language) and the need for knowledge transfer at a community level. Recognising these issues (e.g. Peutz 2011, Morris 2014) and main challenges to bio-cultural values on islands in general, and Socotra in particular (e.g. Van Damme & Banfield 2011), were crucial in devising the proposed Project.

87. Efforts from smaller scale GEF interventions (SGP) also provide an important background for the proposed project. A list of all (39) projects funded by the GEF/UNDP SGP carried out on Socotra (2006-ongoing; Table 5 below) shows relevant links, indicated by Focal Area. About a third of these projects falls each under the GEF Biodiversity Focal Area (BD, 33%) or Land Degradation (LD, 31%), relatively less under Climate Change Mitigation (CCM, 26%). Only one (out of 39) SGPs, and in fact the only of all GEF interventions, has been devoted to IAS, and mainly focused on a single species of invasive birds (Indian House Crow), therefore illustrating how Component 2 fills a huge gap in GEF-funded interventions on the archipelago, directly reducing extinction risks for globally significant biodiversity. The analysis of Socotran SGPs identified an important local need for the continuation and scaling up of GEF-interventions in the Focal Areas of BD (Component 1) and SLM/LD (Component 3), making up two thirds of all SGP projects on the archipelago since 2006. Several of the SGP projects on BD involve rainwater harvesting, which is here included as an activity under Component 3 (SLM/LD). The narrow boundaries between these Focal Areas in ongoing GEF-interventions indicate the importance of integrating and implementing these components in concert with the proposed project, increasing the importance and addressing local needs.

Table 5: GEF Small Grants Programme projects on Socotra

SGP Title	Focal Area	Starting Date	Project Number	Amount (USD)
Community livelihood improvement in Steroo, Nujid, Socotra	CCM	2014	YEM/SGP/OP5/STAR/CC/Y3/14/07	50,000
Rain-water harvest and rangeland improvement in Rokeeb, Socotra	BD	2014	YEM/SGP/OP5/STAR/BD/Y3/14/09	27,127
Rain-water harvest in Badiet Abataroh, Socotra	BD	2014	YEM/SGP/OP5/STAR/BD/Y3/14/06	49,960
Rain-water harvest in North Coast of Socotra	BD	2014	YEM/SGP/OP5/STAR/BD/Y3/14/08	49,983
Use of solar energy for home electrification in Abataroh, Socotra	CCM	2014	YEM/SGP/OP5/STAR/CC/Y3/14/10	37,440
Communities livelihood improvement in Central Diksam plateau, Yemen	LD	2013	YEM/SGP/OP5/Y2/Core/LD/13/09	26,336
Communities livelihood improvement in Central Diksam plateau, Yemen	LD	2013	YEM/SGP/OP5/Y2/STAR/LD/13/10	30,881
Communities livelihood improvement in South	LD	2013	YEM/SGP/OP5/Y2/ST	28,393

SGP Title	Focal Area	Starting Date	Project Number	Amount (USD)
Diksam plateau, Yemen			AR/LD/13/11	
Rain-water harvest and rangeland improvement in lower Shibiro, Socotra	BD	2013	YEM/SGP/OP5/Y3/STAR/BD/13/02	50,000
Rain-water harvest for community livelihood in Central Momi, Socotra	BD LD	2013	YEM/SGP/OP5/Y3/CORE/LD/13/01	50,000
Rain-water harvest for community livelihood in Qabehaten, Socotra	LD	2013	YEM/SGP/OP5/Y3/CORE/LD/13/04	50,000
Use of solar energy for home electrification in Matyaf, Socotra	CCM	2013	YEM/SGP/OP5/Y3/STAR/CC/13/03	41,690
Women gardens development in Manafou, Hadiboh, Socotra	BD	2013	YEM/SGP/OP5/Y3/STAR/BD/13/05	25,897
Land erosion control in Hajft, Drakbou, Qalaansiyah District, Socotra	LD	2012	YEM/SGP/OP5/Y2/CORE/LD/12/06	14,278
Pastoralists' livelihood improvement in Shibiro, Diksam, Socotra	LD	2012	YEM/SGP/OP5/Y1/CORE/LD/12/08	28,085
Bee-resources and vegetation cover conservation on Socotra	BD	2011	YEM/SGP/OP5/Y1/CORE/BD/11/01	50,000
Rain-water harvest for biodiversity conservation and community livelihood in Kabehaten region, Socotra	BD	2011	YEM/SGP/OP5/Y1/CORE/BD/11/04	49,953
Rain-water harvest for biodiversity conservation in Southern Momi, Socotra	BD	2011	YEM/SGP/OP5/Y1/CORE/BD/11/05	50,000
Traditional pastoral systems support in Tidaah Region, Socotra	LD	2011	YEM/SGP/OP5/Y1/CORE/LD/11/03	27,346
Rain-water harvest for improving community livelihood in Mayhah, Qalancia, Socotra	MFA	2010	YEM/GEF/SGP/OP4/Y3/CORE/10/7	36,808
Rain-water harvest for the conservation of threatened Frankincense species, Hadiboh District, Socotra	MFA	2010	YEM/GEF/SGP/OP4/Y3/CORE/10/8	30,787
Safe anchouring and fisheries habitat' development in Halah-Socotra	IW	2010	YEM/GEF/SGP/OP4/Core/Y3/10/5	26,495
Protection of Kedha Manafu Village from flood	LD	2009	YEM/GEF/SGP/OP4/Y3/CORE/LD/09/02	5,690
Rain-water harvest in Ma'la Plateau, Qalaansiyah, Socotra	LD	2009	YEM/SGP/OP4/Y3/CORE/LD/09/01	49,669
Rainwater harvest in Harf Area, Myhah, Socotra	LD	2009	YEM/GEF/SGP/OP4/Y2/CORE/09/04	22,530
Eco-tourism management in Rouche Marine Protected Area, Socotra	BD/ CCM	2008	YEM/SGP/OP4/Y1/Core/2008/2	23,320
Galelhon water supply and women home gardens development in Galelhon Village, Socotra	CCM	2008	YEM/SGP/OP4/Y1/Core/2008/1	12,624
Invasive species control on Socotra Island	BD	2008	YEM/GEF/SGP/OP4/CORE/Y1/08/06	13,510
Water harvesting Project, Darkbou Villages, Socotra	LD	2008	YEM/GEF/SGP/OP4/CORE/Y1/08/03	50,000
The use of renewable energy in water supply in Rokeeb, Socotra	CCM	2007	YEM/OP3/2/7/9	12,291
Community-based eco-tourism development for conservation and Liveliihood in Amahk, Bedhola, Nojed Plain, Socotra, Yemen	CCM	2006	YEM/OP3/2/06/05	15,844
Feasibility study for processing and packing dates	BD	2006	YEM/OP3/1/06/02	2,000

SGP Title	Focal Area	Starting Date	Project Number	Amount (USD)
on Socotra, Yemen				
Home gardens for growing vegetables and the traditional cereal "Bamba" (Teff) in Hazzallanu village- Socotra Island, Yemen	BD	2006	YEM/OP3/2/06/07	4,557
Sustainable environmental management and eco-tourism for conservation in Scund, Socotra Yemen	LD	2006	YEM/OP3/1/06/04	50,000
Sustainable land management for the protection of Qadheb Village from flood, Socotra	LD	2006	YEM/OP3/1/06/05	50,000
Use of solar energy in water supply for Shu'eb village, Socotra	CCM	2006	YEM/OP3/1/06/03	18,480
Using solar energy for water supply in six villages in Nojid plain, Socotra, Yemen	CCM	2006	YEM/OP3/2/06/06	45,824
Using solar system for providing drinking water and irrigation - Afsar Village, Socotra	CCM	2006	YEM/OP3/1/06/01	8,702
Water supply and home gardens for women in three villages, Deneghen, Socotra Island, Yemen	BD	2006	YEM/GEF/SGP/OP3/CORE/Y2/06/04	38,092

88. A structured stakeholder consultation process during the preparation phase of the proposed Project included stakeholder workshops and a preliminary stakeholder analysis conducted in Europe (Lednice, 2013) and on Socotra (Hadiboh, 2014; see Appendix 19 for the PPG Mission and Workshop Report), presentations and communication during international meetings (FoS Annual Conferences 2012, 2013, 2014), the dissemination of PPG progress on a project website hosted by the SRI/BiK-F (http://www.bik-f.de/root/index.php?page_id=77&projectID=142), and the call for specific stakeholder input via feedback forms. This comprehensive process further allowed for a full analysis of the landscape of non-GEF interventions in Socotra and the identification of important opportunities for cooperation at local, national and international levels. Coordination with local governance structures, main international donors (i.e. those with major projects linked to the four main Project components) and local NGOs, have resulted in generating support- and co-financing letters (Section 7.2, Appendix 2). The re-design of the main components of the Project during the PPG phase was positively received by local communities as well as by international institutes and donors, i.e. the need for local community-driven management of PAs and a revision of the SCZP (Component 1), the need for a strategic management and awareness for IAS (Component 2), the need for SLM and a reduction of desertification in relation to traditional laws, customs and uses (Component 3) and finally the need for sustainable financing, capacity development and on-the-ground community-driven knowledge transfer (Component 4) (see also Appendix 19 for the PPG Mission Report). All current and previous non-GEF interventions lack several of the main outcomes and outputs of the proposed Project (compare Appendix 4, Results Framework), which can be considered as GEF-specific and of great benefit to Socotra. It is envisaged that by the proposed Project's activities and initiatives, and through several pilot studies, other projects will accommodate and replicate similar methods on Socotra and beyond (see Sections 2.2 and 3.9).

89. Linkages with current non-GEF interventions on Socotra itself include those related to biodiversity conservation, climate change mitigation, agro-forestry, livelihood improvement, poverty reduction, sustainable land management, ecosystem services

and capacity development. A wide diversity of currently ongoing activities exists on Socotra (as detailed in Section 2.6), with which the project components show useful links, yet little direct overlap. In fact, the project will allow stronger coordination of related projects within a broader context, and furthermore, such interventions include crucial pilot data and bear the potential for scaling up. Among the non-GEF interventions that have strong cross-cutting links, are projects by
BirdLife International, on bird conservation and monitoring, IBAs;
CMEP/RBGE (UK), on *in situ* conservation in plant nurseries, plant distribution and biodiversity monitoring, design of terrestrial PAs, education and awareness programmes related to plants on Socotra and beyond, population genetics and ABS;
Sapienza University of Rome (Italy), on DSS, terrestrial spatial planning, vegetation analysis, CCM/forecasting, fauna and flora distribution and conservation, sustainable development;
Mendel University (Czech Republic), on agro-forestry, sustainable replanting, spatial analysis, climate monitoring;
Institute of Evolutionary Biology (CSIC-UPF, Spain), on reptile evolution and conservation genetics;
University of Tuebingen (Germany), on combating desertification and soil/land degradation;
Friends of Soqotra (UK), on awareness, international annual conference, outreach;
SRI/BiK-F (Germany), on marine and coastal conservation planning, marine and coastal biodiversity, ecology and ecosystem services (ESS), CCM and vulnerability analyses, and fishery-based social-ecological systems (SES).

90. Despite linkages with the proposed project, substantial gaps remain that are only possible by strategic GEF-intervention, as detailed in Section 2.6. For these activities, imperative to the long term continuation of the bio-cultural heritage on Socotra, the proposed GEF intervention is strongly needed.

91. Linkages with larger non-GEF interventions include several major projects on Socotra. Strong links are present with a large project financed by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the GIZ (since 2013, detailed in 2.6 above), which includes significant investments towards sustainable use of natural resources and conservation of biodiversity in Yemen. The GIZ intervention shows perhaps the strongest links to the proposed project, in capacity development, community involvement and livelihood improvement and PA management, which is then scaled up nationally. In its rationale, the GIZ-intervention complements Components 1, 3 and 4, and coordination is foreseen and agreed upon (Letter of Intent GIZ-UNEP, Section 7.2).

92. A second major intervention on Socotra is the ongoing IFAD Fisheries Investment Project (see before), to finance a fisheries sector development project that would *focus on enhancing incomes within fishers' communities without increasing pressure on the over-exploited resource base*. This large non-GEF intervention is linked to Components 1 and 4 of the proposed Project, in relation to living marine resource use.

93. The web-based modelling, measuring and monitoring tools developed by the GEF/UNEP Carbon Benefits Project (http://www.unep.org/climatechange/carbon-benefits/) will provide substantive support in calculating the carbon sequestration potential through the Project's SLM component, and in utilising these to explore

opportunities for alternative income generation and sustainable financing for the island, e.g. through REDD+ or PES schemes.

94. Similarly, the tools developed by Global Forest Watch (GFW, www.globalforestwatch.org), a partnership supported by UNEP and convened by the World Resources Institute, offer opportunities to test the application of GFW on broader 'landscapes' rather than on forests, e.g. to monitor the status of changes to the landscape and vegetative cover, possibly assessing impacts of management measures applied on sustainable land management, or to monitor changes in settlements and infrastructure.

95. At the global level, linkages have been identified with the GLISPA, UNESCO WH, and the SIDS networks, the ICCA Consortium and CABI, which provide both established and potential partner organisations and agencies. Relevant approaches of these agencies and programmes were considered and adopted in the design of this project in order to be in-line with globally relevant actions on island groups with rich bio-cultural values, applied to a local Socotran context. Major concerns of recent UNESCO/IUCN WHS evaluations have been incorporated as well. Further linkages will be identified and strengthened during the first phases of project implementation, in order to ensure constant coordination with globally significant initiatives and findings, and to apply state-of-the-art methods and tools on Socotra, as long as these recognise the importance of local communities and their cultural and natural heritage (Borrini-Feyerabend et al. 2012).

96. There are other international fora and platforms which will have influence on Project components or parts of it, e.g. UN-REDD discussions and developments on the carbon sequestration potential in Socotra and how to apply the respective methodologies, or IPBES on the application and dissemination of ESS tools. UNEP as GEF Agency will support the proposed Project in establishing the appropriate linkages and in monitoring ongoing discussions.

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

3.1. Project rationale, policy conformity and expected global environmental benefits

97. To effectively address the above issues, gaps and threats, the GEF intervention envisages a blend of incremental technical support, on-the-job capacity development and critical barrier-removal actions. These interventions will build upon prior experience from GEF-funded projects in the same area, existing local capacity, and baseline data, and the GEF support will complement and enhance ongoing baseline investments. The GEF Project will complement and add further critical dimensions to the ‘business as usual’ scenario (which already includes some limited GEF support), to support a pathway to sustainable development on Socotra, while focusing in its four Components on 1) biodiversity conservation and community-based PA management, revision of the PA design based on latest science, 2) management of invasive alien species, 3) sustainable land management and combating land degradation, and 4) enhanced institutional and human capacities and improved governance mechanisms to manage the WHS, and for securing long-term financial sustainability of the PA network. The Project will generate significant Global Environmental Benefits (GEBs, see below) that would not otherwise be achieved, and it will be implemented in full synergy and close coordination with EPA, the Governorate of Socotra and other key authorities and local stakeholders, including

the concerned communities, and capitalise on the baseline investments of the GoY, GIZ, IFAD, UNDP and other major donors active in the Socotra Archipelago. Project objectives, outcomes and outputs are motivated and described in detail in Section 3.3 and in Appendix 4 (Results Framework).

98. This Project will contribute to achieving several GEF-5 Focal Area Strategic Objectives, including: BD (Biodiversity), specifically to the achievement of Outcome 1.1 under BD-1, "*Improved management effectiveness of existing and new protected* areas" (Project Components 1, 4), Outcome 1.2 "*Increased revenue for protected area systems to meet total expenditures required for managemen*t" (Project Component 4) and BD-2 Outcome 2.3 "*Improved management frameworks to prevent, control and manage Invasive Alien Species*" (Project Component 2); and LD (Land Degradation), specifically contributing to LD-3, Outcome 3.2 "*Good management practices in the wider landscape demonstrated and adopted by relevant economic sectors*" (Project Component 3).

99. The Project further contributes to the achievement of Objective 1 of the Sustainable Forest Management / REDD+ Focal Area Results Framework, as it will contribute to the conservation of large areas of dryland forest, translated in Socotran context into shrubland and woodland. In Cross-Cutting Capacity Development, the Project contributes to CD-4 in strengthening capacities for management and implementation of convention guidelines through the development of sustainable financing mechanisms under its Component 4 and to CD-5 in enhancing capacities to monitor and evaluate environmental impacts and trends through the establishment of PAMETT under Project Component 1.

100. Whereas the Project Components have strongest links to the GEF-5 BD and LD Focal Areas, for which Focal Area Tracking Tools are used to track the main indicators throughout the entirety of the project cycle (Appendix 15), it is envisaged that the Project will further contribute to other GEBs and will provide the basis for facilitating GEB contributions in future projects on Socotra. All envisaged links and ties to the Project Components are expanded in detail in Table 6 below, which indicates strong emphasis on Components 1, 2 and 3 in the selected GEB, yet in many cases cross-cutting links can be established to GEBs for Component 4. This table illustrates that the project components are not only relevant to the conservation of globally significant biodiversity and combating desertification through PA-, SL- and IAS management strategies and overall capacity development, knowledge management and establishing sustainable funding mechanisms, but that several activities of these components also contribute, to a lesser extent, to Climate Change Mitigation and Sustainable Forest Management/REDD+. Such ties result from the synergetic nature of the Project, approaching significant threats and challenges in the only way that ensures tangible outcomes, i.e. strategically coordinated and at different levels, enabling the tools and capacity for bio-cultural conservation on Socotra. The Project links with the Sustainable Forest Management/REDD+ Focal Area through its activities in combating land degradation and increasing sustainable use of shrubland and woodland on Socotra and thus contributing to and increasing the carbon sequestration potential in these areas, mainly through Component 3. Although shrubland and woodland are not synonymous to forest, no real forests exist on Socotra, yet translation to local context is necessary, as the use of wood- and shrubland on Socotra is parallel to that of forest use, and the degradation of shrubland through direct destruction (e.g. for firewood) or through unsustainable

grazing practices has strong impacts on desertification and a reduction in carbon sequestration potential on the main island.

Table 6: Conformity of relevant GEBs linked to the Project Components, cross-referenced

GEB (Focal Area Objectives)*	Conformity of Project Components	Cross-Reference
Biodiversity (BD)		
Goal: Conservation and sustainable use of biodiversity and the maintenance of ecosystem goods and services **a) BD 1.1**: Improved management effectiveness of existing and new protected areas	a) *Cross-cutting.* The Socotra Archipelago, as a UNESCO Natural World Heritage Site, contains globally significant bio-cultural values, of which biodiversity conservation strategies are important to this project and covered in all components, mainly through Components 1 (BD/PAM) and 2 (IAS), but also Components 3 (SLM/LD) and 4 (Enabling Environment). In Components 1 and 4, conservation is approached through baseline studies and strategy development, increasing management capacities of PAs and capacity development (e.g. awareness and institutional strengthening), in Component 2 through combating IAS as one of the major threats to islands' BD worldwide and in Component 3 by tackling Land Degradation and improving Sustainable Land Management. Tools and strategies applied are novel at this scale for Socotra (e.g. IAS and LD strategy, new approaches to PAM, ecosystem services) and are aiming at strengthening bio-cultural conservation in the archipelago.	Section 2.1-2.2 Section 3.3 Outcome 1.1 - 1.2 Outcome 2.1 - 2.2 Outcome 3.1 - 3.2 Outcome 4.1 - 4.3
b) BD 1.2: Increased revenue for protected area systems to meet total expenditures required for management	b) In *Component 4*, the project aims at establishing a suite of sustainable financing mechanisms to support the implementation of an Integrated Conservation Management Framework (ICMF) of the Socotra WHS in the long-term. To achieve this outcome (4.3), a Sustainable Financing Plan will be developed, based on a financial needs assessment. The establishment of a Socotra Trust Fund incl. an endowment aims at sustaining the resources needed, and at least two local income generating activities and financing mechanism will ensure local involvement.	Section 3.3 Output 4.3.1 Output 4.3.2 Output 4.3.3
c) BD 2.3: Improved management frameworks to prevent, control and manage Invasive Alien Species	c) *Components 2 and 4*. Component 2 addresses the relevant strategic elements from identifying and mapping existing and potential IAS to developing and implementing community-based management plans. It further aims at sectoral briefings and awareness raising to mainstream IAS issues. This is underpinned through Component 4's capacity development plan (4.1.1), the introduction of ecosystem services approaches and tools (4.1.2) and the development of an Integrated Conservation Management Framework (4.1.3)	Section 3.3 Output 3.1.1 Output 3.1.2 Output 3.2.1 Output 4.1.1 Output 4.1.2 Output 4.1.3

Land Degradation (LD)		
LD 3.2: Integrated landscape management practices adopted by local communities, through		
a) Improved provision of agro-ecosystem and forest ecosystem goods and services	a) *Components 1, 3 & 4.* Component 3 focuses strongly on SLM and combating LD on Socotra, improving provision of ecosystem services, without negatively impacting biodiversity. Analyses of the terrestrial ecosystem services will be fed into Component 1 in function of Protected Areas, and is covered under Component 4.	Section 3.3 Output 1.1.2 Output 1.2.2 Output 3.1.1 Output 3.1.2 Output 3.2.1 Output 4.1.2
b) Restored and sustained freshwater, coastal and marine ecosystems goods and services, including globally relevant biodiversity and ecosystems	b) *Components 1, 3 & 4*. Protection and sustainable use of terrestrial freshwater ecosystems, coastal and marine ecosystems in Protected Areas, including selection of areas not yet included in the SCZP with globally relevant biodiversity, are part of Components 1 and 3, the ecosystem services analysis in Component 4. Research has pointed out globally relevant biodiversity in aquatic and marine ecosystems of Socotra threatened by unsustainable management. Piloting the use of rainwater is part of releasing pressures on unsustainable use of freshwater resources.	Section 3.3 Output 1.1.2 Output 1.1.3 Output 1.2.1 Output 1.2.2 Output 3.2.1
c) Reduced vulnerability of agro-ecosystems and forest ecosystems to Climate Change and other human-induced impacts	c) *Cross-cutting*. In order of importance - all components are synergetic in their aims of reducing vulnerability of the Socotran woodland and shrubland ecosystems in protected areas to human-induced impacts, in particular Component 3, devoted specifically to Land Degradation and SLM. Impact analysis of specifically CC for terrestrial ecosystems is part of Component 1 under general threats analysis but also as a separate activity related to Protected Areas. The same threats analysis will assess other human impacts on PAs, and follow these up through the project's duration using PAMETTs. Component 2 provides the Socotra Archipelago with the means to combat one of the most important threats to terrestrial ecosystems on islands, IAS. Finally, Component 4 provides the ecosystem services framework and the ICMF that ensure reduced vulnerability of such ecosystems in the long term.	Section 3.3 Outcome 1.1-1.2 Outcome 2.1-2.2 Outcome 3.1-3.2 Outcome 4.1-4.3
d) Conservation and sustainable use of	d) *Cross-cutting, mainly Components 1, 3, 4*. See above, GEB (a) Biodiversity (The conservation of	Section 3.3 Outcome 1.1-1.2

Land Degradation (LD)		
biodiversity in productive landscapes	globally significant biodiversity) for the motivation, expanded to productive landscapes. Sustainable use of biodiversity in productive landscapes is specific to Component 3, analysis of baseline data and ecosystem services, applied to Protected Areas, and is a result of the synergy of Components 1 and 4.	Outcome 2.1-2.2 Outcome 3.1-3.2 Outcome 4.1-4.3

Climate Change Mitigation (CCM)		
LD Objective 5: Promote conservation and enhancement of carbon stocks through sustainable use of land use, land use change and forestry, through		
a) Reduced GHG emissions and enhanced carbon stocks under sustainable management of land use (including peatlands), land use change, and forestry	a) *Components 1, 3 & 4*. Mainly Component 3 (SLM/LD) is linked to reducing GHG emissions through developing sustainable land management strategies on Socotra, aimed at decreasing impacts on ecosystems and with a focus on sustainable traditional land use (also Component 4). Furthermore, Component 3 includes screening for alternative means to the use of firewood in order to reduce Carbon output (see also below under Climate Change Mitigation b). Component 1 will take land use change into account for planning of the Protected Areas and the socio-economic interaction with (and benefits for) local communities (also Component 4) in the long term, which will enhance carbon stocks.	Section 3.3 Output 1.1.2 Output 1.2.2 Output 3.1.1 Output 3.1.2 Output 3.2.1
b) Increased use of renewable energy and decreased use of fossil energy resources	b) *Component 3.* Alternative and renewable energy as alternative sources to reduce the impact on the use of firewood will be investigated as an activity, as part of Land Degradation and Sustainable Land Management.	Section 3.3 Output 3.2.1

Sustainable Forest Management / REDD+		
SFM 1.1: Enhanced enabling environment within the forest sector		

Sustainable Forest Management / REDD+		
and across sectors; and **SFM 1.2: Good management practices applied in existing forests** through: **a)** Reduction in forest loss and forest degradation **b)** Maintenance of the range of environmental services and products derived from forests **c)** Enhanced sustainable livelihoods for local communities and forest-dependent peoples	*a-c) Cross-cutting, mainly Components 1, 3*. Strongly linked with the GEB Land Degradation Focal Area (see above), reduction in large stands of woodland and shrubland can be interpreted as forest degradation. The protection of wooded vegetation types, such as the *Dracaena* woodland in the Nature Sanctuary Firmihin, is mainly part of Component 1 and its protection to an extent part of Component 2, yet the maintenance of environmental services and products derived from woodland/shrubland ecosystems on Socotra and the enhancement of sustainable livelihoods for local communities, is part of Component 3, which will also focus on participatory management of woodland areas. Study of the ecosystem services of these habitats and the institutional framework for maintenance and protection, is part of Component 4.	Section 3.3 Output 1.1.2 Output 1.1.3 Output 1.2.1 Output 1.2.2 Output 3.1.1 Output 3.1.2 Output 3.2.1 Output 4.1.2 Output 4.1.3 Output 4.1.6

* GEF-5 Focal Area Framework

3.2. Project goal and objective

101. The Project Objective is to strengthen governmental and non-governmental capacities sustainably to manage and protect the Socotra Archipelago WHS through biodiversity conservation, invasive alien species management and sustainable land management.

102. To achieve its Objective, the Project is organised in four Components: (1) Biodiversity Conservation and Protected Area Management (BD/PAM), (2) Invasive Alien Species Management (IAS), (3) Sustainable Land Management/Land Degradation (SLM/LD), and (4) Enabling Environment (related to the institutional framework, capacity development and sustainable financing). Under these Components, 9 Outcomes are formulated, to which 23 Outputs will be contributing, as detailed in Section 3.3 below.

3.3. Project components and expected results

103. The Project aims to reduce impacts of internationally recognised major environmental pressures on Socotra, through four main components that are intimately intertwined. The joint execution of the specific activities of the interlinked project components is vital to achieving the outcomes. Each Component is strategically designed to tackle pressing environmental issues with known detrimental effects on the insular social and ecological systems (Section 2.3), based

on local background data, comparable case studies and lessons learned from previous projects, fine-tuned by intense stakeholder feedback. This refers in particular to the need of combining environmental efforts with livelihoods of the main stakeholders, the Socotri people.

Component 1 - Biodiversity Conservation and Protected Area Management (BD/PAM)

104. Component 1 focuses on improving the existing protected area management on the Socotra Archipelago and is strategically designed to achieve two Component Outcomes:

> Outcome 1.1: A BD-PAM strategy is developed, incl. an updated conservation data baseline and a revised Conservation Zoning Plan
>
> Outcome 1.2: The BD-PAM strategy is operational, incl. improved management and expansion of the PA network, and coordinated with the integrated conservation management framework

105. Indicators for Component 1 include a revised functional SCZP, a BD-PAM strategy, the number of existing PAM plans that are revised and new PAM plans being prepared, as well as the number of established (co-)management committees. Close inter-linkages exist with the establishment of an Integrated Conservation Management Framework (ICMF, see 4.1.3). For lower-level indicators and specific targets, please refer to the Results Framework (Appendix 4).

106. The rationale behind Component 1 is the urgent need for evaluation, re-organisation and subsequent improvement of the current PA management systems. Current selection, design and delineation of the PAs in the Socotra Archipelago results directly from the “Socotra Biodiversity Project” (1997-2002, Section 2.1), which accomplished the creation of the Socotra Conservation Zoning Plan (SCZP) in 2000, designed in a participatory manner using baseline scientific biodiversity data in tandem with traditional community knowledge. The Plan was developed with GEF support and the result of extensive community consultations and multi-disciplinary scientific research and field surveys in the years 1998-2000. Spatially, it was mainly based on data amassed by a few main research groups, for marine/coastal (SRI, Germany; both in terms of BD and fisheries) and terrestrial PAs (plants - RBGE, UK; birds - BirdLife International). During the follow-up of the previous project (SCDP Phase 1), pilot areas within the SCZP network were implemented. The SCZP is historical, as it represents the first network of protected areas formally established in Yemen (Presidential Decree No. 275, 2000). It includes all land in the archipelago and a buffer zone of 12 nautical miles surrounding the archipelago encompassing a total area of 21,450 km^2 with 3,730 km^2 of land area and 17,720 km^2 of marine area[2]. The plan assigns different areas into four main management categories, with increasing levels of protection: General Use Zone (1.4% of total area), Resources Use Zone (23.5%), National Park (72.6%) and Nature Sanctuary (2.5%). (see Cheung & DeVantier 2006; UNEP-WCMC (http://www.unep-wcmc.org/; http://whc.unesco.org/en/list/1263). Being an island system and for its vast share of marine areas, Socotra is also one of 46 sites on UNESCO’s Marine WHS list (http://whc.unesco.org/en/marine-programme/).

[2] Note that the area numbers in the WHS nomination file (2008) are not entirely identical with those of the SCZP (2000), as they were recalculated using improved GIS data. For the purpose of the Project Document and the GEF BDTTs, the figures of the WHS nomination file are employed.

107. The UNESCO WHS Property includes approximately 97.5% of the total land area (except the three designated General Use Zones of 5,500 ha) and basically the entire marine area. Socotra is thus now one of the larger insular Natural WH Sites worldwide (Van Damme 2012) with a core area (National Parks and Nature Sanctuaries, as legally promulgated by the Socotra Conservation Zoning Plan, SCZP) of 410,460 ha (68% terrestrial, 277.512 ha; 32% marine, 132.948 ha), covering 73% of the terrestrial surface, about 50% of the coastal area and all the surface and coasts of the smaller islands and islets. The Nature Sanctuaries include a total of 12 terrestrial and 25 marine protected areas which are embedded in National Parks.

108. Whereas the strength and the importance of the SCZP is widely accepted (e.g. partly responsible for Socotra's WHS nomination), evaluation of the design and the implementation three years after its creation has suggested that the active management of protected areas on Socotra has not been achieved, resulting in little management or little direct protection of threatened biodiversity and unrealistic expectations of immediate local benefits from PAs by the population (Infield & Sharaf Al Deen 2003). The terminal evaluation of the SCDP (Gawler & Mashour 2009) suggested the importance and the need for further implementation of the SCZP. As a result of previous projects, only few of the PA management plans have been developed or are enhanced and made operational (Gawler & Mashour 2009), and all are in need of systematic evaluation. In addition, conflicts over land ownership have caused problems in the implementation of these management plans (in one of the pilot protected areas). Therefore, over a decade later on Socotra, the lack of active management of PAs and the absence of direct protection of threatened biodiversity, e.g. by ecosystem- or species-specific management plans, remains. A recent evaluation of the Socotra WHS by UNESCO (2012) corroborated these concerns and singled out a number of key issues to be urgently addressed which prompted ensuing decisions of the UNESCO WH Committee.

109. The current management of PAs appears to be substantially outdated, whereas the global conservation sciences have strongly advanced in the last decade, introducing new tools (e.g. systematic and spatial conservation planning, decision support systems and various – *omics* fields) and evaluation methods. Furthermore, recent research shows that impacts outside of PAs strongly affect the biodiversity within and that network approaches, including corridors and links, should be considered at an ecosystem scale (Ecosystem-based Management, EBM), not at a limited area scale (MacDougall et al. 2013), yet this is only possible now, after and since the mapping and identification of specific ecosystems in Socotra.

110. The PA revisions are necessary on Socotra, to avoid direct loss of biodiversity and of cultural values tied to biodiversity. Among the Outcomes of the third international conference on SIDS, 1-4 September 2014, it was noted that "*To conserve by 2020 at least 10% of coastal and marine areas in Small Island Developing States, especially areas of particular importance for biodiversity and for ecosystem services, through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures in order to reduce the rate of biodiversity loss in the marine environment*;" (UN, A/Conf.223.3) - Component 1 is aimed to directly remediate this threat, and without such efforts, biodiversity (and bio-cultural) decline on Socotra, one of the most diverse islands on the planet, would not be avoided.

111. Importance lays in the identification and revitalisation of bio-cultural diversity conservation areas managed by indigenous people and local communities (ICCAs) and strengthening them in the face of current threats and climate change, including the potential for revival of traditional practices (see also Component 4) and assisting local communities with the knowledge, practice and the tools to conserve bio-cultural values for the future (Borrini-Feyerabend et al. 2012). On Socotra, the strong link between culture and nature is tightly connected to the unique language, and the conservation of the language is crucial to grassroots conservation on the archipelago (Miller & Morris 2004, Van Damme & Banfield 2011). Component 1 will seek to (a) support the documentation of the most important ICCAs together with local communities, (b) assist local communities to manage their valuable areas and help gain recognition of their land- water and bio-cultural resource rights, (c) emphasize the links between biological and cultural diversity of ICCAs, (d) provide means for accessible evaluation of these areas focusing on outputs and impacts (see PAMETT under this component), (e) provide assistance in management, (f) help prevent and mitigate threats (see also Components 2 and 3), (g) support culturally-sensitive and education services that incorporate local language and knowledge (see also Component 4), (h) strengthen traditional knowledge (see also Component 4), (i) support reconciliation efforts respecting communities and their ties to nature.

112. Over a decade from the establishment of the SCZP, a significant amount of new research and field studies was conducted under a wide range of projects (e.g. a flavour of this diversity is provided in Zajonz, U., Van Damme, K., Lavergne, E., Setzkorn, K. and Jansen van Rensburg, J. (Eds. 2012), including the description of hundreds of new invertebrates and large distributional datasets regarding locality and population data of new and already known species. These data now provide a firm scientific basis for revision and necessary improvement of the CZP, reflecting the results of most recent studies such as, e.g.: ongoing plant studies by RBGE, Sapienza Univ., Rome, and Mendel Univ., Brno; the review of the population and distribution of the birds of Socotra (Porter & Suleiman 2013) and the review of the status of all IBA sites in the archipelago (Porter 2013); discovery of an entire karst system beneath the island with a large number of endemics and high sensitivity to land change (De Geest 2006); climate change impact prediction models developed for the island's vegetation and some other taxa (e.g. Attorre et al. 2007); DNA-based studies on the genetic diversity for some taxonomic groups in the archipelago (e.g. reptiles; Sindaco et al. 2011), identification of new areas rich in plant endemism that are not yet adequately protected (Banfield et al. 2011), as well as important freshwater and coastal zone ecosystems (including remnants of coastal mangrove forest) not yet having the correct level of protection as their potential role in CC ecosystem-based adaptation is also not properly valued (Van Damme and Banfield 2011). The same applies to the about 20 Temporally Open-Closed Estuaries (TOCEs) of Socotra which, according to ongoing studies of the SRI/BiK-F, form an intricate web of critical ecosystems around primarily the main island in terms of trophic and reproductive ecology (Lavergne 2012; Lavergne, Zajonz et al. 2012), biodiversity (Lavergne, Zajonz et al., in prep.) and genetic connectivity (Lavergne et al. 2014) which to date is insufficiently reflected in the CZP. Additional SRI/BiK-F studies underpinning marine and coastal conservation and resource management include e.g. population genetic connectivity of reef fishes (Pulch 2010, Pulch et al. in prep.), mapping and supply-demand assessment of coastal ESS (Goerres 2011), and assessments of CC-resilience of coral reef communities (Klaus et al. in prep.), and of CC-vulnerability of fisher communities and their conceptualisation as SES and

supply systems (Martin 2013). The latter study is also partially grounded on a fish biomass productivity monitoring programme conducted by the SRI/BiK-F since 2007 which reveals that the coastal and marine ecosystems of the WHS are witnessing an apparent decline of inshore fish biomass productivity, as shown by a drop of 1.53t/ha to 0.24t/ha over from 2007-2011, with strong impacts in the PAs (Zajonz et al. 2012, Aideed 2014), hinting to substantial overfishing and loss of sustainable traditional management practices and insufficient management and enforcement of the MPAs.

113. The SCZP also assumed that areas important for plants would contain areas of special zoological interest; however this is yet to be verified scientifically by e.g. pooling data on different taxonomic groups. Basic (distribution) data for some taxa is still lacking, and "advanced" ecological data (long-term quantitative monitoring) for most groups is needed to establish ecological corridors. Such data include meta-population studies, population genetics, species relationships, food-web interactions, dispersal capacities and phylogenetic diversity. The majority of endemics, besides plants, birds, reptiles and a few invertebrates, have no IUCN status, despite their importance in the ecosystem (Van Damme & Banfield 2011). The law enforcement and monitoring capacity of the EPA Socotra branch is yet fairly limited, and this capacity constraint has not yet allowed the proper protection of some important areas (e.g. Homhil and Dihamri) and the full implementation of key aspects of the SCZP both on terrestrial, coastal and marine habitats (Van Damme 2012).

114. Component 1 addresses the above needs by thoroughly evaluating, updating and implementing the SCZP, thereby strengthening PA management to allow for ecosystem resilience and for reducing risks of extinction. This Component will focus on improving the effectiveness of the existing system of PAs (see below), as measured through the Protected Area Management Effectiveness Tracking Tools (PAMETT). An improved PAMETT score will be mainly achieved through improved/updated design of the existing CZP, continued capacity development for EPA (Component 4), and in conjunction with the results and expected outcomes from all Project Components. In spite of the above constraints, an informal assessment of the PAME of Socotra WHS (R. Klaus, unpubl. presentation data, in Zajonz et al. 2012) indicates that the site is still above regional averages. There is therefore an opportunity and challenge to maintain and improve current PAMETT rating by (a) revising and improving CZP design and underpinning management, legislative and regulatory framework, (b) mobilising additional, long-term and predictable financial resources to sustain and enhance PAM (d) continue to develop local professional capacity and further strengthen liaison with local communities and local authorities. This is the focus of the EPA, MWE and their partners and donors in the Socotra WHS; however, current baseline investments would not be sufficient to address the above issues without the incremental GEF intervention and additional long-term support.

115. This Component is closely linked with all other components, e.g. Component 2 in tackling and monitoring IAS and their impacts in PAs. The strong link with Component 3 lays in the importance of alternative livelihoods to reduce pressures of existing (and future) PAs, but also in the Field Schools in education, awareness and traditional land management (and language), which is crucial to maintaining biodiversity (Miller & Morris 2004, Morris 2002; 2014; Van Damme & Banfield 2011). Finally, synergy with Component 4 lays in the support to improved capacity of communities, socio-economic analyses and ecosystem services value flows (see Component 4, Activities 4.1.1 and 4.1.2), and the support to participatory

management of the WHS through consultative processes with the local government and EPA, education and awareness programmes and in establishing long-term sustainable funding strategies. Biodiversity monitoring programmes, GIS database centralisation and knowledge management systems, building on the existing capacity and infrastructure of the EPA and the supporting international network of research institutions and networks (e.g. Friends of Soqotra) will further enhance such capacity development.

Outcome 1.1 - A BD/PAM strategy is developed, incl. an updated conservation data baseline and a revised Conservation Zoning Plan (CZP).

116. Component 1 will accomplish the above by developing a Biodiversity/Protected Area Management strategy, which includes the evaluation of all existing PAs and their management. Management plans for example have been created for several PAs under the SCDP project, yet not fully implemented (e.g. for Dihamri, Skand, Ditwah Lagoon and Homhil). The evaluation of these sites (marine as well as terrestrial) will contribute critical baseline data for further decision-making. This consists of (a) evaluating the existing PAs and (b) compiling the lessons learned for future management, per PA.

Output 1.1.1 - The existing PAs and their management are evaluated.

117. The evaluation will use an integrated approach for the Protected Area Management Effectiveness Evaluation (PAME) and thus be instrumental in linking up with monitoring for the CBD, RAMSAR and other global initiatives such as IPBES. The PAMETT (Stolton et al. 2003, 2007) will allow a follow up towards the status of management (Leverington 2008) for the duration of the project and beyond, and will therefore be started at the very onset of this component. Some information is already available with regards to PAME, e.g. from BirdLife International (IBA), and data will be compiled from different sources (e.g. CMEP, University of Sapienza, Rome, SRI/BiK-F, etc.). At the beginning of the evaluation, the methodology will be selected and the links between these management effectiveness indicators and conservation outcomes should be interpreted with care (e.g. Nolte & Agrawal 2013). The evaluation will be carried out by the managing communities (for those PAs that are managed) together with EPA and the Local/Provincial Councils. Preliminary screening of the management of the PAs on Socotra during the PPG (refer to Annex 9 to the PPG Mission Report, Appendix 19), indicates that only five out of the total listed PAs (i.e. 17%) are currently managed, and these five are all under tourism pressures. Data from all PAMEs will be centralised and be tracked for a minimal period of the project's lifespan so as to provide a firm base for monitoring PAM improvement. In addition and as part of the evaluation, all existing relevant data (in synergy with different institutes) will be streamlined. This would constitute the status quo of knowledge; in fact the evaluation will identify the basic layers of metadata necessary for decision making and for facilitating better management (see below).

Output 1.1.2 - Baseline studies and analyses on BD and PA conducted

118. Baseline studies will gather and streamline basic data that will allow future follow up of the evaluations - they are selected and linked to the indicators listed in the PAMETT, and modernised. This will constitute an extended knowledge baseline to analyse gaps, assess and prioritise threats in order to improve future decisions regarding the PAs. The baseline studies in themselves will provide the necessary foundations for future management and evaluation, yet these studies will also instantly increase management effectiveness of existing PAs simply by a compilation

of data. A number of activities are envisaged to achieve this output (refer to results framework in Appendix 4). Together, these activities are aimed at providing an update of all relevant information gathered since the creation of the SCZP in 2000 and later recommendations (e.g. SRI-DAAD Workshop October 2007, "Synoptic Biogeography of Socotra Archipelago, Yemen) and will present state-of-the-art conservation tools that allow a firm basis for future monitoring of ecosystem and key species status, necessary to identify cause and effect (e.g. between threat and decline).

119. The baseline studies include seven activities which are strongly linked to one another (refer to results framework in Appendix 4), several partially overlapping, as follows:
(a) *Identification and monitoring of indicators of management effectiveness of biodiversity and ecosystem health*. This activity builds further on Output 1.1.1, starting from the PAMETT. Further identification of indicators is necessary, as is their adaptation to local conditions on Socotra. Identifying indicators of ecosystem health requires input from the other activities (c, f, g).
(b) *PA specific threats assessment (human pressures)*, focuses on identifying threats per PA in detail, analysing impacts, and adapting them to the local context. This is realised by a combination of techniques, by compiling data of the last few years per site from local communities and EPA, yet also from new surveys, necessary to evaluate current impacts (including from IAS, Component 2 and SLM/LD, Component 3 and socio-economic analysis, Component 4). The key here is human pressures, which partly involves understanding the use of PAs for local communities. The provision of water for local people in relation to CC and the impacts of drought and land changes on resource use impacts on PAs are one of the examples of major threats to be assessed, and envisaged to have a strong effect on Socotra. The identification of the threats and a more elaborate understanding (e.g. coral mining in Qadamah, overgrazing in Homhil), allows stronger feedback for future PAMEs.
(c) *Consolidation of key community and -taxa distribution data* is vitally important to revising the SCZP. Parts of this work are already collected by several institutes (e.g. plants - CMEP and Sapienza Univ. Rome; marine biota - SRI/BiK-F), yet this information will be streamlined and used as a background for further systematic and spatial conservation planning. The data is scattered at present and a filtering of relevant information is crucial to updating the SCZP.
(d) *Conservation genetics and barcoding of keystone species*; although molecular work has been carried out on Socotra, it has not been done in a systematic matter (conservation genetics), and not fed into PA planning. This activity will select relevant data from molecular work and at the same time streamline a necessary collection of additional (future) work that will allow to assess the uniqueness of populations and the need for potentially new PAs which otherwise remain undetected. Molecular tools have become vital to conservation, and are a strong asset to several of the science partners with which this Project will coordinate. The importance lies in identifying keystone species that are indicators of habitat fragmentation. Such activities have also led to the recent discovery of completely new taxa, e.g. the Socotra Buzzard, revealing new insights and needs in conservation of fauna and flora. Furthermore, all *-omics* (genomics, transcriptomics, metabolomics) are insufficiently employed on Socotra, while these techniques have become increasingly affordable and feasible, e.g. for understanding links between cause and effect of biodiversity decline. Expertise is present in collaboration with this project (Van Damme K., University of Birmingham, UK), e.g. for testing the impacts of pollutants on direct extinction risks (*Socotrapotamon* and pesticides; Van Damme & Banfield 2011), and impacts on

water quality for example. These tools are important in understanding population resilience and population genetics and diversity in the face of climate change and the adaptability/adaptation to its effects.
(e) *Climate Change analyses;* modelling and mitigation tools are important in forecasting PA efficiency and the selection of suitable habitats for sensitive species (e.g. Attorre et al. 2007). The piloting of CC analyses and modelling tools is needed for marine as well as terrestrial habitats, as climate change will most likely affect the north and south of Socotra in different ways (Van Rampelbergh et al. 2013). Any analysis will have to take potential changes in human impacts into account. Due to the complexity of these modelling tools, the actual intervention level and intensity will be jointly determined with other donors engaged in this field, and may ultimately be limited to the coordination of complementary and synergetic actions.
(f) *Conservation priority analysis of taxa and habitats* is the collection of data necessary for specific management plans in Output 1.2.2; much of this data is already collected by science partners, yet needs to be applied;
(g) *Establishing biodiversity monitoring systems;* indicators can be biological, economic or social. Biological Indicators can be used to track changes over time, and several have been established in the past. For example, a network of 58 plant monitoring stations was established by CMEP in 1999/2000 as part of the first GEF/UNDP project, with many re-visited in 2007/2008: they incorporate easy-to-monitor panoramas and include a good set of associated data, with the opportunity to include them in the current proposal and expand the network with the development of simple monitoring tools. These stations were set up before the most recent bouts of development. In addition, vegetation analysis databases (Fabio Attorre, *pers. comm*.) identify specific indicators exactly defined herein, that can be directly fed into the project. Further, both institutes are developing useful photographic plant profile guides for habitat monitoring which are directly applicable in the field. The SRI and EPA jointly operate a network of permanent inshore marine biological/environmental monitoring stations since 1999/2000 (established also during the first GEF/UNDP project), which was expanded in 2007 to specifically assess MPA efficacy and marine resource use. Ample data is available to develop biological, ecological and also social indicators and analyse long-term trends.

Output 1.1.3 - Revision of the Conservation Zoning Plan (CZP).

120. The SCZP revision requires the input of consolidated existing and new data, prioritised, analysed and visualised using systematic/spatial conservation planning tools. This involves major activities that can be divided into two main topics, as follows:
(a) A l*and and sea tenure assessment study* is vital to the success of a revised SCZP, especially in conjunction with new PAs. In the past, conflict in land and sea tenure has complicated PAM in Socotra as well as in many other regions in the world, and such a study will help understanding the complexity of tenure and existing formal or customary user rights and use practises, and assess the feasibility of PAM design, necessary for future PAMEs.
(b) *Systematic/Spatial Conservation Planning* is a major activity under Component 1, which integrates and visualises the data of nearly all other activities under this component; these data, i.e. those collected under 1.1.2 will provide a solid foundation for conservation management planning. Contemporary planning processes include the now widely adopted Systematic Conservation Planning (SCP)

(Margules & Pressey 2000[3], Moilananen et al. 2009[4]) approach, which would employ the use of GIS based decision-support tools such as the spatial prioritisation software MARXAN[5,6,7] to help identify biodiversity hotspots or priority areas for resource based management (Ball & Possingham 2000, Ball et al. 2009). Data collected from previous projects that developed DSS tools on Socotra (e.g. Italian donors) and spatial analyses of vegetation types (e.g. Kral & Pavlis 2006; Mendel University, Czech Republic; Sapienza, Rome) can be integrated with these tools. Institutes such as CMEP include ethno-botanical data added to distribution records, which can be included as a social component/data layer to the spatial planning tools. Equally useful tools include RAMAS GIS, a comprehensive risk assessment analysis which allows the study of fragmented populations and imports spatial data on ecological requirements of species, used to analyse habitat suitability and patch recognition. This tool can be used to establish models to predict species extinction risks and time to extinction and should be taken into consideration. Marine Spatial Planning (MSP)[8] tools (Ehler & Douvere 2009, GEF 2012) can be used in parallel or integrated with Marxan/RAMAS in order to reach a comprehensive CZP. A complete coastal and marine GIS-based habitat and biotope classification and mapping inferred from satellite imagery conducted by the SRI in 1999-2001 (Klaus & Turner 2004) can be brought to use to this effect. In both cases, the main goal is a framework providing means to improve decision making related to uses of terrestrial and marine resources and space, adopting ecosystem-based management, yet depending strongly on social context, which should be integrated. SCP will take also ecological corridors and buffer zones into account and consider CC forecasting, where feasible.

Outcome 1.2 - The BD-PAM strategy is operational, incl. improved management and expansion of the PA network, and coordinated with the Integrated Conservation Management Framework (ICMF, see 4.1.3)

121. The second Outcome (1.2) of the Component 1 will ensure that the BD-PAM strategy is operational, realised by reviewing the management plans of existing and new PAs, and their development and implementation, as well as the development of special management plans at targeted species conservation and resource management.

Output 1.2.1 - Management plans of existing and new PAs reviewed/developed and implemented

122. The activities include (a) revision and implementation of management plans of existing PAs and (b) development of new management plans of the predicted new PAs. Both activities will be necessary, as PAMs may exist but are not properly implemented (e.g. threats are not dealt with accordingly); further, new PAs will be selected that will need new PAM plans. The aim of Output 1.2.1 is to establish management plans for all PAs.

Output 1.2.2 - Special management plans aimed at targeted terrestrial and marine species conservation and resource management developed and implemented

[3] For a review of systematic conservation planning.
[4] On related quantitative methods and computational tools.
[5] http://www.uq.edu.au/marxan/ freeware available from the University of Queensland
[6] http://www.kent.ac.uk/dice/cluz/index.html for a review of Marxan.
[7] "*Marxan*" is available from the University of Queensland." (http://www.uq.edu.au/marxan//index.html?page=77654).
[8] http://www.unesco-ioc-marinesp.be/

123. Special management plans will be prepared which hitherto do not exist. Single recommendations have been prepared for extremely vulnerable species (e.g. a few plants), but not applied. Therefore, this Output involves (a) the preparation of species conservation action plans, (b) the preparation of selected resource management plans and (c) the identification of alternative ecotourism areas and ecotourism management plans. The first activity is straightforward, the second and third are related to resource use and benefits for local communities. Especially the identification of alternative ecotourism areas is important for 1) allowing income of communities besides those benefiting from major PAs, and 2) decreasing the impacts of tourism on several of the more threatened areas, e.g. an increase in pollution and opportunities for IAS on Socotra - see Van Damme & Banfield 2011). Such eco-tourism areas should be carefully selected using all collated data, and drafted management plans. Selected resource management plans are expected to also strongly link to Component 3 (SLM/LD).

124. Component 1 is only feasible if the project demonstrates close synergy with major knowledge hubs that contain the expertise and experience on the existing biodiversity and its management within a regional context: (a) local communities, which depend on the protected areas for their livelihoods with whom the project should strive to find a harmonious balance, and who have expressed direct concerns of ecosystem decline; (b) local conservation groups and managers, such as EPA, who can act as local centres of data collection (of both previous and new data); (c) international research institutes, some of which harbour invaluable data necessary for planning and decision-making in the revision of the PAs, as highlighted before, which have all offered their support for this project (see also the co-financing and support letters in Appendix 12).

Component 2 - Invasive Alien Species (IAS) Management

125. Invasive Alien Species (IAS) are recognised as one of the biggest threats to biodiversity, especially on oceanic islands (Smith 1985, Denslow et al. 2009; Guezou et al. 2010, Kueffer et al. 2010). The Socotra Archipelago has been declared among the top five richest island systems in the world in terms of biodiversity (Miller & Morris 2004), which is now under increasing threat from IAS (Van Damme & Banfield 2011). In order to protect this biodiversity from IAS this Project aims to increase capacities to prevent and control the introduction of IAS by generating awareness, developing and strengthening institutional capacity, enhancing the policy and regulatory environment and developing and implementing best management strategies.

126. The Component is formed by 2 Component Outcomes:

    Outcome 2.1. A community-based management strategy to control IAS in the Socotra WHS is devised, including an updated IAS inventory.

    Outcome 2.2. The IAS management strategy is operational and coordinated with the integrated conservation management framework.

127. Indicators for Component 2 include an updated baseline dataset for IAS, the preparation and acceptance of an IAS strategy by the stakeholders, the operationalisation of a participatory IAS management strategy and recommendations on how to coordinate the IAS strategy with the Integrated Conservation Management Framework (ICMF, see 4.1.3). For lower-level indicators and specific targets, please refer to the Results Framework (Appendix 4).

Outcome 2.1 - A community-based management strategy to control IAS in the Socotra WHS is devised, including an updated IAS baseline

128. A comprehensive management strategy will be developed to guide the effective prevention and control of the introduction and spread of IAS, based on available information and capacities. The strategy will be harmonised with other relevant or related plans, programmes and initiatives and developed in a participatory manner with input from all stakeholders to facilitate adoption.

Output 2.1.1 - All existing invasive and potentially invasive species are identified, including their direct or potential impacts on PA and BD management and ecosystem services

129. Information on the presence, abundance, distribution and possibly even impact of IAS on the Socotra Archipelago will provide the required baseline data to determine their threat to biodiversity. This data will largely determine further actions and be acquired from various sources, including communities.

130. A comprehensive literature review to collate all information pertaining to the presence of naturalised and invasive plants, insects and other organisms on Socotra will be undertaken (Van Damme and Banfield 2011; Senan et al. 2012; De Sanctis et al. 2013). This will be followed by a verification process using active participatory surveys to ensure that all naturalised and IAS on Socotra are recorded and mapped, including pests associated with introduced crop plants and any livestock diseases. Participatory surveys will be undertaken in close cooperation with local communities. Voucher specimens of all naturalised and invasive species will be collected, formally identified and, in the case of plants, housed in a herbarium (i.e. forming part of the existing herbarium of EPA Socotra), to be used as reference material to aid in future identifications and during capacity development programmes. Other organisms will be identified by specialists and housed in appropriate facilities (whereby the biological reference collection at EPA Socotra should be involved).

131. By working with communities it is envisaged that they will become more familiar with the identification of exotic species. Once a complete, up to date list of naturalised and invasive species has been compiled, it will be included in existing national or regional databases which will be linked to international databases such as CABI's Invasive Species Compendium. Other than reference specimens to aid in future IAS identification, an IAS Identification Guide will be developed and made freely available to communities, Protected Area staff and other relevant stakeholders. Information on the different IAS, their abundance and distribution will contribute to the development and implementation of various management strategies.

Output 2.1.2 - A community-based IAS management strategy is developed, incorporating guidelines for policy, legal and institutional frameworks

132. An over-arching IAS strategy, harmonised with other strategies/plans, is critical to ensure the effective and sustainable management of IAS. The strategy also aims to facilitate the establishment of a multi-stakeholder team, a critical development since IAS are a cross-cutting issue, affecting multiple sectors. Developing the strategy in a participatory manner will ensure buy-in, commitment and subsequent implementation.

133. IAS management cannot be effective without an over-arching strategy to guide effective management such as prevention, early detection (surveillance) and rapid response (ED&RR), control and restoration. The Socotra Archipelago currently does not have an overarching policy on IAS. Key stakeholders from all relevant sectors will

be involved in the development of the 'Socotra Invasive Species Strategy and Action Plan' (SISSAP), which will make reference to the management of all IAS, not just those affecting biodiversity. The SISSAP will be closely coordinated with the ICMF, and stakeholder participation from sectors such as agriculture, finance, transport and trade will be critical since IAS are a cross-cutting issue. In order to ensure buy-in from all sectors, including local communities, in terms of implementation, the strategy will be developed in a participatory manner. The SISSAP will also cover important issues such as awareness creation and capacity development and the creation of a multi-stakeholder team to oversee the management of IAS on Socotra. This team will form part of a larger group dedicated to all biodiversity and livelihood improvement activities on Socotra.

134. Invasive Species Strategies and Action Plans are generally long and detailed and as such not ideal for wider dissemination. To that end a non-technical version will be produced for dissemination to communities and other interested and affected parties.

135. A Biosecurity Act will also be drafted to ensure that the functions of those enforcing biosecurity measures have the legal mandate to do so. The Act will, amongst others, give powers to the multi-stakeholder team to undertake various activities related to IAS management such as the capacity to determine import conditions; charge and retain fees, and to levy fines; powers to eradicate IAS; and powers to search for goods, detain, treat and destroy without compensation. Failure to improve the biosecurity system on Socotra will no doubt result in increased pest invasions. For example, it was estimated that if no improvements were made to New Zealand's biosecurity systems they would have to deal with more than 542 potential pest incursions and 512 phytophagous species becoming permanently established from 2005 to 2017 (Kriticos et al. 2005)

Outcome 2. - The IAS management strategy is operational and coordinated with the integrated conservation management framework (ICMF, see 4.1.3)

136. The over-arching SISSAP provides guidelines as to how best IAS should be managed. It is in effect a framework which requires a number of other inputs in order to make it operational, including aspects related to capacity development and awareness creation, such as the development and implementation of an IAS Communication Strategy. In order to enhance IAS management for biodiversity protection it is therefore critical that the SISSAP be operationalised and integrated into other strategies.

<u>Output 2.2.1 - Pathways for IAS are identified and measures for priority prevention and control are developed and implemented</u>

137. For IAS management to be effective, Socotra needs to develop and implement activities related to prevention, ED&RR, control and restoration. For example, identifying IAS pathways is critical in the development of systems and procedures to reduce the possibility of IAS introductions into Socotra.

138. In order to prevent the introduction of IAS or to reduce the risks of further intentional and unintentional introductions of IAS, it is necessary to identify the various potential sources of IAS. Being an island, maritime transport has been the major means of supplying the Socotra population with a wide range of products. Ships, boats and their cargo have formed a bridge between the mainland and other islands, a pathway which has probably resulted in the introduction of a number of exotic species. Increasing maritime traffic through the current ports of Qalansiyah and Hadiboh, and

with new ports being developed, there will no doubt be an increase in the risk of IAS introductions which could have significant negative impacts on livelihoods and biodiversity on Socotra. Socotra is also connected to the mainland via air transport, a service used mainly for the transportation of people and their luggage and in some cases cargo and fresh food, including plants and animals and their products – another possible source of IAS.

139. Information will be gathered to determine which goods are imported onto the island, where they are being sourced from and if they are being treated in any way to prevent the inadvertent introduction of IAS. Information on pests associated with imported fruit, vegetables and grains in the country of origin will also be collated including information on potential IAS associated with packing materials, pallets and other goods (Allen et al. 1997). Little information on the above currently exists. An analysis will also be undertaken of port facilities, both in the port of origin, if possible, and on Socotra to ascertain if they have adequate quarantine facilities which should include pest control/fumigation systems. A recent rapid assessment has indicated that there are only inadequate facilities on Socotra to detect or deal with IAS. An assessment of quarantine procedures also needs to be undertaken and if appropriate hygiene requirements on ships and boats are being followed. At this point, Socotra has no official quarantine and training of people regarding IAS is virtually non-existent. Based on the pathway analysis a strategy will be developed to manage IAS pathways more effectively.

140. This will involve the development of protocols for the movement of goods between the mainland and Socotra. There is also a lack of facilities at points of entry to undertake safe and efficient clearance of imports and no treatment facilities other than destruction. As such physical infrastructure at ports and the airport and at diagnostic laboratories will need to be improved. Operational manuals will also be developed together with diagnostic aids - relevant staff will be trained in their use. Administrative procedures, such as customs declarations and fees, will also be developed and implemented together with initiatives to improve liaison between various agencies.

141. Managing pathways is a very effective way of preventing IAS introductions, especially illegal or inadvertent introductions. However, many IAS are introduced intentionally either as pets or ornamentals or as contaminants of legally imported goods. In order to strengthen preventative mechanisms it is important for the authorities, especially quarantine staff, to be familiar with risk assessment procedures (Pheloung et al. 1999, Kumschick & Richardson 2013), which is not currently the case. Risk assessments used elsewhere will be assessed in order to identify the most appropriate one for use on Socotra – adaptations/changes will be made if required based on needs and available capacity. Once risk assessments for various taxonomic groups have been developed they will be shared amongst all stakeholder groups for comment/inputs. Risk assessment protocols/manuals will then be developed and training provided.

142. Despite the presence of risk assessment protocols many exotic species may still be introduced and established on Socotra. In order to deal with these species an early detection or surveillance system will be developed and implemented so that new pest incursions can be eradicated while populations are still small and localised. Eradication is the elimination of the entire population of an exotic species, including all life stages, be they seeds, eggs, larvae, pupae or adults. Basic criteria for a successful eradication campaign include, amongst others, support by the public and

all stakeholders; sufficient funding; small, geographically limited populations; all individuals in the population must be susceptible to the eradication technique and there must be effective team management (Lock &Hanson 2007; Kraus & Duffy 2010). Communities and other stakeholders, equipped with IAS Identification Guides and other information pertaining to IAS, will contribute to surveillance activities.

143. Surveys should be focused on high risk entry points such as airports, seaports, and container or freight storage and unpacking areas. High value areas such as biodiversity hotspots should be surveyed more regularly in order to detect new arrivals early. Survey methodologies will vary for one taxonomic group to the next but are significantly easier for plants and most mammals.

144. A review of past and current eradication practices will be undertaken in order to measure efficacy and gaps with a view to documenting lessons learnt. In the past actions were initiated to eradicate introduced cacti and invasive *Prosopis* species on Socotra – these case studies will be critical in the development of best management strategies in terms of early detection and eradication. IAS eradication and restoration protocols/manuals will be developed for various species or taxonomic groups.

145. GIS-based distribution maps will be developed to assist in prioritising IAS for action, especially if they are present or threaten biodiversity hotspots and/or protected areas or areas critical in providing ecosystem services. In order to prioritise introduced species for management information pertaining to their current or potential impact; current patterns of distribution and abundance; life-history traits and estimates of potential habitat are critical (Robertson et al. 2003, Nel et al. 2004, Kumschick et al. 2012). The most widespread and abundant IAS does not necessarily have the most severe impact especially if they dominate in disturbed areas or areas which have little conservation value. Kumschick et al. (2012) have developed a conceptual framework for prioritisation of IAS for management according to their impact which is divided into five steps, namely 1) stakeholder selection and weighting of stakeholder importance by the decision maker, 2) factual description and scoring of changes by scientists, 3) evaluation of the importance of impact categories by stakeholders, 4) calculation of weighted impact categories and 5) calculation of final impact score and decision making. Prioritisation of IAS for management on Socotra will follow a similar process - a combination of scientific information on impacts together with stakeholder's views/perceptions. As such other than active research communities will be involved in garnering information on impacts. The EPA and communities will be involved in all research activities.

146. If prevention, early detection and rapid response have failed, control methodologies need to be implemented to reduce the impact of widespread and/or damaging IAS. Methodologies can include cultural (fire or flooding), physical (manual or mechanical), chemical (herbicides or pesticides) or biological control in the case of plants. In terms of invertebrates, control may involve the use of traps (pheromone or light traps), physical means, insecticides, biological control and other specialised means. Invasive land vertebrates can be controlled by hunting, trapping, baiting, biological control, contraception or even sterilisation. In order for control to be effective it is critical that best management practices for IAS, that are already present, be developed. This will be determined through various experimental trials such as the use of a range of herbicides or different concentrations of a selected pesticide. Control methodologies for potential IAS should be developed for high risk species that are invasive elsewhere and for which control methodologies are known – these will be adapted for local conditions and the availability of pesticides.

Restoration should follow any invasive alien plant management strategy using native species.

147. In order to enhance community participation and understanding of various control methodologies, demonstration trials will be developed for specific target species. Additional training will be provided through the field schools (FS, see their further description under Component 4).

Component 3 - Sustainable Land Management/Land Degradation (SLM/LD)

148. Sustainable land management (SLM) is an essential part of the proposed Project, with its overall vision and plan for conservation and sustainable development on Socotra. While hard evidence is limited, it is clear and agreed by all stakeholders that the island suffers from land degradation, and the problem is worsening with an increasing population of inhabitants and livestock (e.g. Pietsch & Morris 2010, Van Damme & Banfield 2011). Compounding the problem is the disintegration of traditional land management practices – particularly community-agreed rules that regulate transhumance (Morris 2002). With the large majority of the archipelago's population dependent on the land for their livelihoods, land degradation is undermining a primary resource base that threatens biodiversity, ecosystems services and, in turn, food security. Under this project, SLM in the context of Socotra aims to comprise a wide range of activities. The main focus will be on the protection of vulnerable and degrading areas, and improving their productivity and resilience, rather than rehabilitation of badly eroded areas. The latter makes best sense economically and links into the inhabitants' priority of income from the land. The potential for significant, positive changes in the landscape and vegetation can be drawn from a study looking at land improvement in both Kenya and Burkina Faso over the last 25 years – triggered by approaches similar to those proposed here (Critchley 2010).

149. Component 3 comprises two mutually supportive outcomes:

> Outcome 3.1: A community-based strategy for SLM in the Socotra WHS is devised, underpinned by an SLM data baseline; and
>
> Outcome 3.2: The SLM management strategy is operational and coordinated with the integrated conservation management framework.

150. Indicators for Component 3 include a baseline dataset for SLM, the preparation and acceptance of an SLM strategy by the stakeholders, the operationalisation of a participatory SLM framework and recommendations on how to coordinate the SLM strategy with the Integrated Conservation Management Framework (ICMF, see 4.1.3). For lower-level indicators and specific targets, please refer to the Results Framework (Appendix 4).

151. One significant challenge confronting SLM on Socotra is the absence at present of sufficient institutional capacities: there needs to be adequate representation of qualified staff from relevant authorities - especially the Ministry of Agriculture and Irrigation (MAI) (and any NGOs active in SLM) - to guide this component. Links will be forged with NGOs to better implement the SLM component. Another obstacle facing SLM (related to the foregoing) is the lack of awareness and experience regarding SLM on the archipelago. It is clear that the engagement of the local communities is essential – thus a participatory approach – and a positive stream of

benefits flowing back to them will be vital to provide an incentive to continue. Local benefits are key: and with local benefits there should also be a simultaneous flow of GEBs, especially from carbon being sequestered, and increased, in (especially) grazing lands and forested areas. Here, it is possible to estimate accumulated carbon using the protocol developed under the UNEP-GEF's Carbon Benefits Project - a modular, web-based system that allows the user to collate, store, analyse, report and project carbon (as well as total GHG benefits) in a standard and comprehensive manner. This lays the basis for exploring options to leverage sustainable financing (income generating) mechanisms such as REDD+ or PES (see 4.3.3). The GEF's land degradation tracking tool (see Appendix 15) will be key in this respect.

152. Sustainable land management simultaneously treats the interconnected elements of the land and livelihoods. In the context of this project, it adds important extra value. That is because SLM focuses on aspects that are only partially covered by biodiversity conservation and invasive alien species interventions. At the same time it strengthens these components, as SLM can help relieve pressures from the protected areas: SLM is often misunderstood as *conservation of the land* alone – it is equally to do with *raising production of the land*. SLM will thus form an essential part of the overall Integrated Conservation Management Framework (ICFM: see section 4.1.3). It is important that it is truly integrated because the Project must appear as an entity, and not a 'buffet' of unrelated activities that can be selected from. This will further strengthen the integrated conservation and development element of the intervention – ICDP is an approach that has been criticised for failing to offer adequate incentives to participating communities (e.g. Barrett & Arcese 1995) – but one which here will make sure it learns from shortcomings in other projects.

Outcome 3.1 - Community-Based Strategy for SLM in the Socotra WHS is devised, underpinned by a SLM data baseline

153. The strengthening of capacity to manage the island's resources is contingent on having a workable strategy for sustainable land management: a strategy being defined as the optimum ways and means of putting a defined plan into practice. It will form part of the overall strategy for the island under the Project, and should be so well blended into that strategy that it should not be viewed as separate by local communities. Government and non-governmental organisations – as well as the larger community - will simultaneously be empowered by the strategic framework that is jointly decided upon, through receiving a participatory mandate to act.

<u>Output 3.1.1 - Land degradation status and threats of current land management are identified and mapped, including existing or projected impacts on biodiversity and ecosystem services.</u>

154. This output is designed to lead to the development of the community-based strategy: this is an SLM strategy for the island that emanates from a participatory stakeholder platform and is based on what the communities can – and want to – accomplish. The activities establish the land degradation/ sustainable land management baseline and the evolution towards better land management

155. The strategy will be underpinned by an SLM database, comprising a baseline assessment of SLM/ land degradation status, and thereafter, continuous monitoring of progress. An existing database on land use, understood to be maintained by the EPA, will also be drawn upon: though land use is apparently still unclear on Socotra. The baseline will be carried out at the outset, using a combination of remote sensing (to track long term, visible changes in vegetation etc.) and on-the-ground techniques such as the tools provided by FAO's LADA project (Land Degradation Assessment in

Drylands). As mentioned above, the Land Degradation Tracking Tool (LDTT, see Appendix 15) will be a useful instrument. To avoid it becoming a 'blunt tool', through inadequate baseline data, its effectiveness will be sharpened by revising the LDTT when the initial baseline exercise is complete.

156. There will also be participatory exercises, where land users (through the Field School programme: see 4.1.6) will learn to recognise and measure simple on-the-ground impact in terms of sedimentation (depth of siltation behind barriers), vegetation recovery and production performance (measuring growth of specific plants/ counting numbers of key species in a demarcated area).

Output 3.1.2 - A community-based SLM strategy developed, incorporating guidelines for policy, legal and institutional frameworks.

157. The tangible output of this sub-Component will be a document prepared by, and accepted by, the stakeholders directly involved and endorsed by the relevant authorities. However documentation is not enough on its own: key features of the strategy will be broadly communicated and understood by the community at large. This will include making sure that concepts – both traditional and new – are also documented and clearly articulated in the indigenous Socotri language. The activities describe the mechanisms by which the strategy document will evolve.

158. The establishment of an inclusive stakeholder forum will be the first stage in discussing potential, plans and strategy regarding SLM. The key stakeholders will be drawn from the Archipelago's authorities, the Project Management Unit, the MAI, community-based PAM committees, other relevant NGOs, and representatives from communities where Field Schools are intended to be located. The exact composition of the forum will be determined when the Project begins. The forum may be maintained as a platform for exchange of information and experience, and to modify the SSLMSAP (see below) as is deemed necessary.

159. The eventual product will be an agreed 'Socotra Sustainable Land Management Strategy and Action Plan' (SSLMSAP). This plan will comprise a structured and practical activity schedule over the project period, answering the questions: Which donors/ projects are already involved in which activities? Which are the priority actions for the proposed Project? What comes first? Who is responsible? The SSLMSAP will be prepared in tandem, and in agreement with, the ICMF (see 4.1.3).

160. Under this same Outcome exchange visits will be organised to countries with relevant experience with restoring/ setting up new land management systems, in order to tap into ideas, gain inspiration and bring back a range of new knowledge. Although relatively costly, the rationale for this activity is compelling: Socotri are naturally unaware of knowledge-based development techniques in neighbouring Sub-Saharan Africa which may be highly relevant to them. Examples of potential destination – from which a choice can be made, after discussion under the stakeholder forum mentioned above - are Burkina Faso (restoration of formerly degraded landscapes through campaigns and technical measures based on stone barriers), Ethiopia ('social fencing' of communal areas with internal rules and regulations), Sudan (modernisation of traditional water harvesting development in the Red Sea Hills) and Uganda (Farmer Field Schools). Naturally there are also possibilities of learning from closer to home: mainland Yemen offers many lessons, both technical and social. This would be the logical starting point for exchange visits.

Outcome 3.2 - SLM Operational within the Integrated Conservation Management Framework

161. The second outcome sees the Sustainable Land Management Strategy and Action Plan up and running within the ICMF, with multiple activities initiated. These activities will be characterised by strong community participation, typically channelled through 'Field School' groups (see 4.1.6).

Output 3.2.1 - Priority sustainable land management measures developed and implemented

162. Initially SLM plans will be prepared, stemming from the agreed strategy (SSLMSAP). Most will be pilot implementation activities (direct action on the ground, while closely monitoring and adjusting - if necessary - before upscaling, e.g. participatory forest management: see 3.2.1.2 in the Results Framework, or Appendix 4), though others will involve trials, e.g. testing the effectiveness, both biophysically and economically, of proposed SLM measures through the Field School participants. It must be remembered that there is no experience with a structured approach to SLM on Socotra, therefore the project is starting from 'ground zero' and part of this endeavour is to establish the basis for all future efforts in this field. The mid-term implementation target under this sub-Component is to have SLM in action within, at least, five pilot sites on agricultural land, two pilot sites on grazing land, and one pilot site on forest land. At least three SLM technologies of local promise will have been documented under the WOCAT (the World Overview of Conservation Approaches and Technologies) format. By the end of the project the target is to have implementation of SLM on, at least, 10% of agricultural land, 10% of grazing land and 5% of forest land. A further two (or more) technologies will have been documented through WOCAT: the choice will depend on positive experience. There are various SLM measures proposed that can constitute the focus of SLM implementation and field trials. These include as follows:

163. At the heart of the land degradation problem on Socotra is the breakdown of traditional grazing rules and regulations, leading to a free-for-all regime. The project aims to establish a new management system – possibly based on traditional groupings – guided by Field Schools. The field schools will be the focal points for sharing knowledge and ideas. This is one area where an overseas visit, possibly to Ethiopia (specifically to the IFAD-GEF CBINReMP project around Lake Tana), could act as an important trigger. If defined grazing patterns can be re-established, even if only partly, then this would be a major achievement both in terms of land degradation control, improvement to the condition of livestock, and protection of biodiversity. However the rights to land use are at the core of such initiatives. They must be clearly defined and agreed. It is anticipated that two grazing land management groups will initially be set up.

164. While Socotra has few 'forests' as such, there are areas of wood- and shrubland[9], which are endangered by unregulated harvesting of wood – a problem that has

[9] Definitions:
"Forest": Dense canopy with multi-layered structure including large trees in the upper storey;
"Woodland": Light canopy with single storey of small to medium sized trees with crowns more or less touching and a sparse grass stratum sometimes with herbaceous or shrub vegetation;
"Thicket": Shrubby vegetation with more or less continuous cover, usually with continuous sparse grass stratum;
"Shrubland": Shrubby vegetation more open (discontinued) than thicket, usually with continuous sparse grass stratum. NAPCD for Yemen (2000):

increased recently with the increasing demand for fuel (see also the related findings of the PPG mission report, Appendix 19). Participatory Forest Management (PFM) is closely allied to grazing land management, in that rules and regulations need to be set by a group of land users who then have the responsibility to protect the forest in return for sustainable harvesting of specific forest products. However, once again, the rights to that land have to be clearly set out and agreed. A single prototype PFM scheme will first be established.

165. Home gardens and date plantations are not a novel focus for external advice (in fact, the GIZ intervention is aiming at these too), but the project will emphasise two things in particular: that is fodder production (which will link to zero-grazing: see below), and agroforestry (which will link to both zero-grazing but also 'protect a plant': see below). It is envisaged that a low-growing leguminous cover crop such as *Siratro* or *Centrosema* could be effective in date plantations, planted between the dates, for keeping down weeds, adding atmospheric nitrogen and providing a source of fodder. However, if these species are not already present on the island, alternatives should be sought because of the potential dangers of invasion. Fodder crops could also be promoted in home gardens – of non-invasive species already present on the island. The promotion of agroforestry trees, whether fruits, multipurpose legumes or indigenous species, within home gardens should bring multiple benefits including fodder: once again this should not involve bringing new species from abroad and be agreed upon within the Field Schools.

166. The Project will test various new ideas through the field schools. Three examples are put forward initially. The first is branding of products already sold to tourists (Socotra 'organic' honey is already on the local market, is demanded regionally and commands a premium). The second is to test the viability/ acceptability of zero-grazing of dairy cattle. If more fodder can be produced close to home, then it is possible that a small number of families could each consider housing a single milk cow close to the house/ home garden. There could be multiple benefits – including production of more milk (important for food security and nutrition as well as a cash income), and manure for home garden fertility improvement. The 'protect a plant' initiative is a way of connecting people to biodiversity, by encouraging each family to plant an endangered species at home.

167. In 2007 a modest sized trial was established at Homhil which sought to protect a gully from further erosion by testing traditionally used stone check dams (Pietsch & Morris 2010, Pietsch 2014, *pers. comm.*) Later, cuttings of the indigenous frankincense *Boswellia* sp. were planted in the collected sediment above those checks. Establishment has been good; though this was an informal trial on a very small scale, it offers a precedent for the project to engage the population – through its field schools – to undertake larger trials through what might be called 'farmer managed regeneration'. Initially this would maintain trial status, but could provide measured evidence to support a wider initiative. This could offer both land degradation and biodiversity benefits.

168. In order to help relieve the pressure on wood for cooking, the project will engage in testing alternative and/or renewable energy sources. Once again, these will be piloted on a modest scale, and will focus on e.g. solar panels and improved cooking stoves. Biogas is worth testing also - but only where there are adequate numbers of livestock housed close to the homestead (3-4 cattle, or equivalent): this may not prove popular, or may take some years to occur. Zero-grazing and biogas are components of many GEF LD focal area programmes in areas with low income and

energy problems – once again the IFAD-GEF CBINReMP in Ethiopia provides an example. The actual intervention level will be mutually determined with other donors engaged in this field, e.g. the GIZ, and may ultimately be limited to the coordination of complementary and synergetic actions.

169. Socotra has a long history of water harvesting schemes: mainly on a small scale these comprised cisterns to collect water from hillsides, through stone-constructed channels. However there are other projects engaged in rehabilitation. The project should thus focus on the promotion of gutters and tanks for rooftop harvesting, to provide greater quantities of clean water close to home. As with several of the preceding activities the actual intervention level will be mutually determined with other donors engaged in this field and may ultimately be limited to coordination of efforts.

Component 4 – Enabling Environment

170. The Project aims at leaving a sustainable legacy with regard to managing the Socotra WHS. This evidently requires a strong Enabling Environment that empowers the local stakeholders, both at the levels of authorities and the communities, to command the necessary political and technical capacities and resources by the time the Project is terminated. The principal baseline issues to be addressed are:

    (a) The lack of adequate capacities and policies to manage the Socotra WHS, and the insufficient coordination among governmental and parastatal agencies and other stakeholders.

    (b) The unsatisfactory situation with regard to environmental awareness and the management of environmental data and knowledge.

    (c) The insufficient funding for the Socotra's WHS management, including the lack of funding from public sources and lacking sustainable cost-recovery and financing mechanisms.

171. Component 4 therefore comprises three mutually supportive outcomes:

    Outcome 4.1: Institutional, organisational and individual capacities are strengthened to better manage the environment on Socotra;

    Outcome 4.2: Information and knowledge supports environmental management; and

    Outcome 4.3: A suite of financing mechanisms sustains the implementation of the Integrated Conservation Management Framework (ICMF) of the Socotra WHS in the long-term.

172. Indicators for Component 4 include the enhancement of technical and physical capacities of stakeholders , the number of agencies joining in an inter-agency agreement on sustainable management of the Socotra WHS, the development of an integrated conservation management framework (ICMF), the development of an information management and awareness strategy, the agreement to data sharing between key stakeholders, the set-up of a results-based project monitoring system, the establishment of a Socotra WHS Trust Fund (STF), and the piloting of at least two individual financing schemes. For lower-level indicators and specific targets, please refer to the Results Framework (Appendix 4).

173. While the identification of these baseline issues was corroborated, a number of additional key issues became evident, especially during the PPG Reconnaissance Mission (27/01-02/02/2014) and the 2nd Stakeholder Workshop conducted on Socotra (30/01/2014) (Zajonz et al. 2014, Appendix 19) and were considered:

    (d) Socotra's recent declaration as a Governorate requires careful consideration by those who will be involved in the implementation/execution of the project – the project document and results-based management framework shall allow sufficient flexibility to relate the project management to the evolving new administration. The task of building the public administration on Socotra, however, appears to be substantial and the project does neither have the mandate nor the resources to play a major role with regard to this process.

    (e) The position of the EPA Socotra in the stakeholder arena, being the local branch of the designated Executing Agency (EPA Yemen), assisted in technical issues and the international coordination by SGN, will accordingly change compared to the situation in the past. Key to all three project components BD/PAM, IAS and SLM is ownership, commitment and buy-in by the local population, related organisations and relevant agencies and institutions. The EPA will nevertheless assume a key role in executing the project, assisted in technical issues and the international coordination by SGN. However, at present it engages too much in "policing" while its role should be more on developing policies and supervising environmental processes.

    (f) It will be critical to conduct an extended stakeholder and capacity analysis and a financial needs analysis at the onset of the proposed Project, to set a proper baseline for the activities, including the incipient Governorate administration.

    (g) Community-based approaches inherently need trust and good working relationships between local stakeholders, governmental agencies and the Project. This is rarely a given situation, particularly not in the Arab region. Therefore, approaches for trust-building, negotiating and collaborative decision making should be emphasised and built into capacity development and institutional strengthening. Changes in perceptions of "the others" as good partners are but soft indicators, but nevertheless worthwhile to being captured in the project's M&E system (e.g. through reiterated surveys).

    (h) Compounding the overall challenge is the fact that previous donor interventions have left a widespread "project fatigue" especially amongst community stakeholders that needs to be mitigated, e.g. by especially addressing livelihoods, education and training aspects in order to deliver tangible benefits at the grass-roots level.

174. In considering the STAP comments and drawing on the reconnaissance mission results (Appendix 19) it was agreed to place stronger emphasis on institutional frameworks and capacity development, compared to the PIF, and to adjust the project's logical framework accordingly. This took also into account the declaration of Socotra as a Governorate of its own and the ensuing and ongoing process of establishing respective decision-making and administrative structures and processes on Socotra.

175. As a result, elements related to these baseline issues which had thus far been dispersed across several components of the PIF have been amalgamated into a revised Component 4. It will form the central backbone for enabling the general

project environment, leveraging support to the other three components and increasing their mutual cohesiveness.

Outcome 4.1 - Institutional, organisational and individual capacities are strengthened to better manage the environment on Socotra.

176. The Outcome addresses the baseline that adequate capacities and policies to manage the Socotra WHS are lacking and that the coordination among governmental and parastatal agencies and other stakeholders is insufficient. It will lead to better governance of the Socotra WHS by enhanced technical capacities and improved policy cohesiveness and management coordination among relevant agencies and stakeholders.

177. The key assumption for Outcome 4.1 is that the main issues of overlapping mandates and competing responsibilities can be overcome and mutually organised in a productive fashion.

Output 4.1.1 - A strategic capacity development plan (CDP) for environmental management is prepared.

178. Present technical and physical capacities of relevant agencies are limited, and future capacity needs in the light of the political reforms are insufficiently known including those pertinent to the Governor's Office and the two districts of Hadiboh and Qalansiyah. Moreover, the coordination of donor interventions and mandates in relation to institutional and human capacity development needs to be improved. In response, a strategic Capacity Development Plan (CDP) for environmental management will be prepared.

179. Given the presently volatile nature of the governance and stakeholder environment it will be critical to conduct a full stakeholder analysis and capacity and training needs assessment at the onset of the project that includes the incipient Governorate administration. The stakeholder analysis will update the preliminary one accomplished during the preparation of this project document and as well provide pivotal baseline data for other outputs such as 4.1.3 (integrated conservation management framework (ICMF). It will especially factor in aspects of the existing and evolving political economy. A second major prerequisite to frame the intervention is to compile and review a socio-economic baseline of the island group. Much of the existing data require consolidation and confirmation. In-depth socio-economic follow-on studies should subsequently be conducted informing targeted interventions in selected PAs. Having refined both the information about the stakeholder and governance structures and the social and economic settings of the WHS, the capacities and technical capabilities to manage it can be determined and compared to those presently available. Consequently, the physical capacities and the technical qualification and capabilities of the existing staff and potential workforce of governmental and key non-governmental stakeholders will be assessed and the needs for their upgrading and improvement be identified.

180. Framed by the Integrated Conservation Management Framework (ICMF, 4.1.3) and based on the foregoing activities a strategic and participatory Capacity Development Plan will be prepared in mutual cooperation with the concerned stakeholders and beneficiaries and other donors facing a similar challenge. The CDP will clearly stipulate the overall needs and the key requirements with regard to the Project. It will especially direct the pre-set priority outputs and activities under 4.1.4-4.1.6. It will not least devise a coordination mechanism for the interventions that seeks to maximise

synergies and avoids redundancies across donor activities. This mechanism can ultimately form part of the overall coordination mechanism which is to be developed and established under the ICMF (4.1.3)

Output 4.1.2 - An ecosystem services framework informs management and sustainable financing schemes.

181. The concepts of Ecosystem Services (ESS) and Social-ecological Systems (SES) and their usefulness in supporting management and sustainable financing are not mainstreamed in Yemen's and Socotra's environmental management. This hinders their operational application and cross-linkages to international initiatives and tools such as REDD+, PES, and Natural Capital.

Key definitions "Ecosystem Services"

(Source: Millennium Ecosystem Assessment)

Ecosystem: An ecosystem is a dynamic complex of plant, animal, and microorganism communities and the nonliving environment interacting as a functional unit. Humans are an integral part of ecosystems. Ecosystems vary enormously in size; a temporary pond in a tree hollow and an ocean basin can both be ecosystems.

Ecosystem services: *"Ecosystem services are the benefits people obtain from ecosystems*". These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other nonmaterial benefits.

***Well-being*:** Human well-being has multiple constituents, including basic material for a good life, freedom of choice and action, health, good social relations, and security. Well-being is at the opposite end of a continuum from poverty, which has been defined as a ''pronounced deprivation in well-being.'' The constituents of well-being, as experienced and perceived by people, are situation-dependent, reflecting local geography, culture, and ecological circumstances.

182. The conceptual *framework* of the Millennium Ecosystem Assessment (MA 2005) regards **ecosystems** as *"a dynamic complex of plant, animal, and microorganism communities and the nonliving environment interacting as a functional unit [… of which]* ***people are integral parts****".* It *"places* ***human well-being*** *as the central focus for assessment, while recognising that biodiversity and ecosystems also have* ***intrinsic value*** *and that people take decisions concerning ecosystems based on considerations of wellbeing as well as intrinsic value".*

183. According to the MA "*Ecosystem services are the benefits people obtain from ecosystems*" (Hassan et al. 2005). Another popular definition is that of Constanza (1997) "The benefits human populations derive, directly or indirectly from ecosystem functions". Also the intellectual framework of the Millennium Development Goals and, consequently, also the Post-2015 UN development agenda, draws substantially on the ESS-concept (UNDESA 2013). It is timely to establish an ecosystem services framework for the WHS which informs its management, e.g. in trade-off and vulnerability assessments, and supports potential sustainable financing schemes.

184. There are three activities within this Output which will implement pilot studies, set the technical framework and prepare its operationalisation, and translate the concept into guidelines and toolkits that will assist the wider application in practice.

185. Pilot studies will initially collect and analyse baseline data on potential ESS of typical ecosystem types of Socotra in order to frame and contextualise the application of the concept. Within selected priority areas this will further comprise the identification of critical ecosystem functions and suitable ESS indicators, ESS supply-demand mapping, and trials of (economic) valuation, trade-off and vulnerability assessments. It will be tested how methods and study language can be conceived so as to foster the participation of communities.

186. In parallel to the pilot studies an ESS framework will be developed that sets the stage for informing WHS management with special respect to securing multiple environmental benefits in an integrated way through enhanced ESS and improved governance systems, as requested for GEF interventions by the STAP (5th GEF Assembly, Cancun, May 2014[10]). Having a workable ESS framework will also allow to better address specific small island challenges, as also recognised in GEF's recent commitment to support Small Island Developing States (SIDS). Although not a SIDS through its geo-political setting, Socotra shares many of their challenges, e.g. the very close interdependence of ecosystem services health and sustainable development, and the consideration of ESS will enable the WHS management to conceptually benefit from GEF's support to SIDS.

187. The ESS framework will be based on the operationalisation of a scheme referred to as '*ESS-cascade'* (Figure 4). ESS will be regarded as ***Flow*** of transformed ecosystem functions which create human/societal ***Benefits*** and they are based on a nature-based ***Capacity*** embodied by biophysical structures and processes.

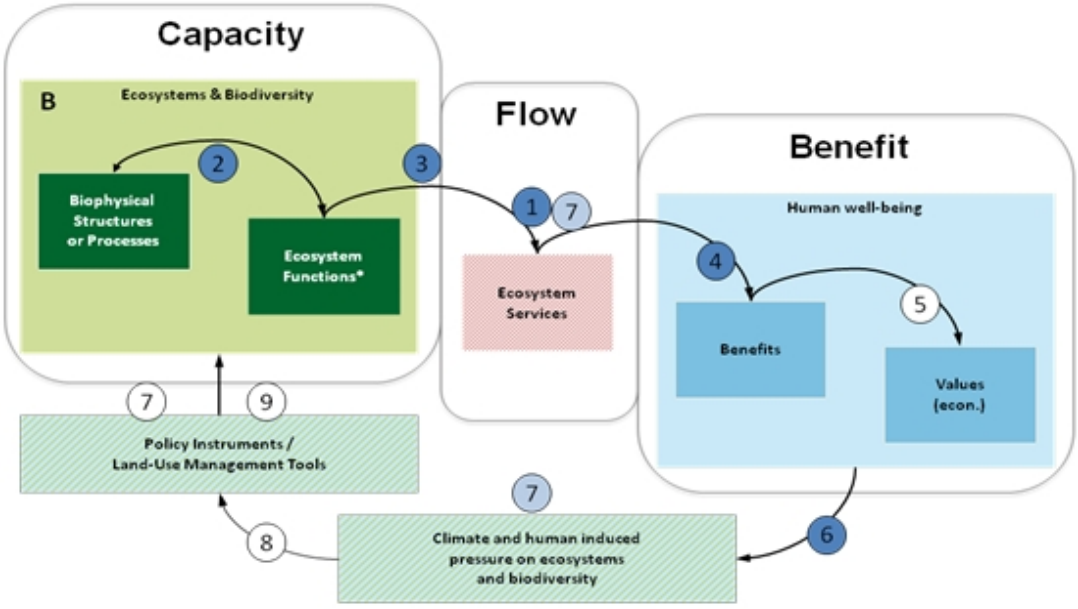

Figure 4: Non-linear ESS research framework (modified ESS-cascade of Loft & Lux 2010 and Liquete et al. 2013; adapted from Haines-Young & Potschin 2010 and Groot et al. 2010)

[10] The GEF, http://www.thegef.org/gef/outcomes-fifth-assembly, consulted on 2014-08-25.

188. Thus, ESS will be framed as a construct, which mediates analytically between ecosystems and humans or, rather, humans and the remaining ecosystem. The *analytical framework* of the MA considers broadly four ESS groups

    - Provisioning services,
    - Regulating services,
    - Cultural services, and
    - Supporting services;

    and a range of services therein (e.g. typology of Raymond 2009), which are specific to the ecosystem(s) of concern and which are based on *Ecosystem Functions* (ecological attributes). The MA framework operates analytically with ten *Ecosystem Reporting Categories*: Marine / Coastal / Inland water / Forest / Dryland / Island / Mountain / Polar / Cultivated / Urban. Starting with the reporting category 'Island", it is obvious that also most other categories and actual services therein need to be considered according to the social and ecological attributes of the Socotra WHS. The value which a society assigns to specific ESS is contextual and may vary temporally and spatially (Loft & Lux 2010). Knowing which social and economic value the Socotris attach to certain key ESS (and thus the underlying ecosystem functions) will be enlightening and provide an important baseline for socially and economically sound decision-making at large. As the ESS framework is established, options to employ or tap into international sustainable funding schemes based on REDD+[11] and PES mechanisms will be explored. How related concepts such a *Natural Capital*[12] or *Coastal Capital*[13] can be translated and applied on Socotra will be assessed as well. Measuring Natural Capital has recently been explicitly embraced by the 5th GEF Assembly in Cancun, May 2014.

189. Further insights will accrue from the conceptualisation of Social-ecological Systems (SES) for case-specific complex human-nature interactions (e.g. Supply Systems) whereby the interrelation of users and resources (ESS sensu lato) will be considered as being shaped by contextual factors: practices, technology, knowledge and institutions (Figure 5).

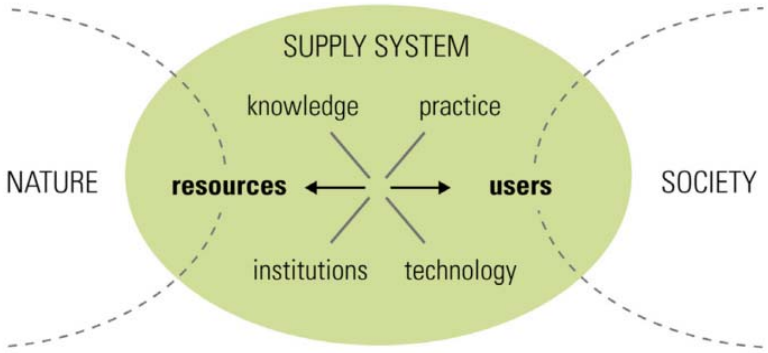

Figure 5: The analytical concept of a Supply System (Hummel et al. 2008, 2011).

[11] UN-REDD Programme, http://www.un-redd.org/ , consulted on 2014-08-25.
[12] Natural Capital, The Nature Conservancy, http://www.conservationgateway.org/ConservationPractices/EcosystemServices/NaturalCapitalProject/Pages/natural-capital-project.aspx , consulted on 2014-08-25.
[13] Coastal Capital, World Resource Institutes, http://www.wri.org/our-work/project/coastal-capital-economic-valuation-coastal-ecosystems-caribbean , consulted on 2014-08-25.

190. Both, ESS valuation and the contextualisation within SES will also allow capturing traditional knowledge and customary management practices, and bringing them to bear for management decisions.

191. Based on results of the foregoing activities the application of the overarching ESS-SES framework will be mainstreamed by preparing guidelines and recommendations on how to compile and use ESS maps and data, and how to apply the framework for case-specific trade-off analyses (e.g. integrating trade-offs between ESS supply, land-use and fishery option into conservation and development planning), vulnerability assessments (e.g. in relation to challenges shared with SIDS), and sustainable finance mechanisms (joint with activities under 4.3.3, in connection to REDD+ and PES schemes). To this end, the Project will primarily seek to capitalise on a growing body of literature and methods offered by major environmental and development agencies (not least of GEF and UNEP, UNDP, WB, FAO and others) which will be adjusted. The application of quantitative ESS indicators in M&E will be trialled.

Output 4.1.3 - Recommendations for an integrated conservation management framework (ICMF) for the Socotra WHS are developed (closely linked to the BD-PAM, IAS and SLM strategies and the capacity development plan).

192. There is presently insufficient coordination among governmental and parastatal agencies concerned with the WHS management both at the level of sectoral strategies and policies and actual decision-making and management. It is of particular concern that no common vision (framework policy and strategy) for the conservation and development of the island group appears to exist. This prevalent lack of agreement among key stakeholders and political actors poses a severe impediment to achieving the WHS objectives. It is suggested to encourage the new Governor to initiate and lead in tandem with EPA a negotiation process that may ultimately result in the formulation of a ‘Socotra Conservation and Development Strategy’. The Project shall support this process by preparing recommendations for an inter-agency framework agreement establishing an ‘Integrated Conservation and Management Framework’ (ICMF) for the WHS. This framework would foster increased coordination and reference in sectoral strategies to the management of biodiversity conservation and marine and terrestrial PAs, invasive alien species, land-use, and other environmental assets as appropriate, e.g. fish wealth. The full stakeholder assessment conducted under 4.1.1 will provide critical information in relation to e.g. interest, impact, influence, importance, power and resources of key stakeholders.

193. The main product will be a document presenting recommendations for an ICMF as a main coordinative mechanism between governmental and non-governmental stakeholders in the management of the Socotra WHS. These recommendations will be elaborated in a participatory manner by ways of an inclusive stakeholder forum. The forum can subsequently become an integral part of the ICMF, serving as a platform for liaison and exchange between stakeholders and between stakeholders and the project. The ICMF is not intended to replace or override lawful governance structures and decision-making processes; it will ideally support and become a part of it. As the institutional and decision-making framework is currently being reformed, the recommendations for the ICMF are intended to help guiding this process. Once operational, a primary output of the ICMF itself should be a unified conservation and development strategy for the Socotra WHS, which describes the best ways and means to achieve the objectives of the Socotra Conservation Zoning Plan, or of its

revision, respectively. The ICMF should best be thought of as an iterative and circular (non-linear) process which is comparable to an *Institution-centred Strategic Environmental Assessment* (I-SEA; compare Zajonz et al. 2009, Zajonz et al. 2010 a, b, c for a pilot I-SEA in Yemen). This would represent an analytical and participatory approach on a higher decision level, with the aim to not only minimise environmental impacts of Policies, Plans and Programmes (PPPs) but rather to maximise their usefulness by assisting the identification of most appropriate ways of PPP development and implementation in relation to strategic environmental, social and development concerns and by mainstreaming the objectives of the CZP into policy formulation, notably by influencing the policy formulation process within the local governance framework. Once the ICMF process is endorsed and launched by the stakeholders, the stakeholder forum could convert into its steering group. The typical steps of an I-SEA are shown in Figure 6 and toolkits to technically organise the process are available for example from the World Bank (WB 2012, Loayza 2010), the OECD (2006), or the European Commission[14].

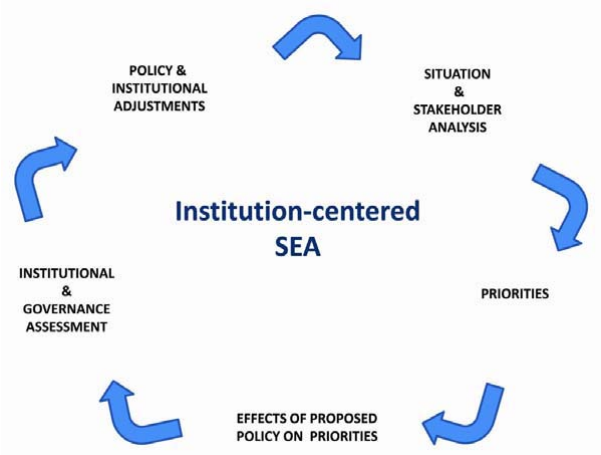

Figure 6: I-SEA and its role in policy formation.

194. The '*I-SEA of ICMF Socotra*' process will be *catalytic and innovative while fostering permanent and transformational change,* attributes recently re-emphasised for GEF interventions by the STAP (5th GEF Assembly, Cancun, May 2014). It will provide the main entry point to harness the consideration of the Project's objectives into ongoing legal and political processes. The preparation of the aforementioned specific strategies on IAS (SISSAP, see 2.1) and SLM (SSLMSAP, see 3.1), and notably the revision of the CZP (representing the overarching conservation policy and strategy) shall embrace the I-SEA logic and be operationally pursued as part of the ICMF procedures. Further activities under this output will seek to capitalise on the establishment of the ICMF. The ICMF document will initially identify critical gaps in sectoral policies and strategies i.e. with regard to the Project's main intended Outcomes (e.g. in the fishery, agriculture, water and transport sectors). It will thus set the initial range of topics to be tackled by the ICMF. As the Project gets into full swing it will use the ICMF to incorporate results and experiences made by it into the sectoral recommendations and to liaise with sectoral agencies. Supplementing the ICMF, bilateral working groups or similar information exchange mechanisms will be established, and sectoral agencies will be technically supported in integrating the

[14] E.g. MER (Version 041209). Netherlands Commission for Environmental Impact Assessment. Strategic Environmental Assessment. Views and Experiences.

recommendations into their respective planning and management instruments. This will entail, inter alia, to further flesh out the ensuing regulatory prescriptions by ways of formulating by-laws and executive regulations governing the actual policing on the ground.

Output 4.1.4 - Capacity development measures implemented for key administrative partners.

195. The administrative capacity of EPA Socotra is limited and that of most other key authorities and agencies on the island is even lower throughout. This pervasive lack of adequate institutional structures and processes is exacerbated by missing technical capacities. While a certain level of qualification exists at EPA in regard to BD-PAM and at the Agriculture Department in regard to SLM, technical capacities concerning IAS, Knowledge Management and Sustainable Finance appear to be virtually absent. Also the understanding of Sustainable Fisheries is poor, even unfortunately at the concerned authorities which activities remain investment- and production -oriented, a fact impeding marine conservation on the island group and thus being of concern to the Project.

196. Based on the results of the stakeholder analysis and the capacity and training needs assessment and guided by the CDP (compare 4.1.1) the Output seeks to address these challenges by two targeted complementary activities. Training plans will be developed and implemented to raise specifically the administrative (organisational) capacity at the EPA and other governmental and parastatal agencies in a sustainable way. How to run a public administration, how to implement responsibilities and workflows, how to organise file keeping will be at the core of these training programmes. In addition, agencies and stakeholders will be trained in I-SEA and related methods in order to prepare and operationalise the ICMF process (4.1.3). Besides human training the activities may also support the enhancement of certain physical capacities to a limited extent. In parallel, the second activity will aim to lift specialised technical capabilities of staff at key partner agencies in the key intervention fields through dedicated training programmes in BD-PAM, IAS, SLM, Sustainable Fisheries, and Knowledge Management. As result of these capacity development measures, the relevant agencies are expected to better meet public demand for administrative services, to match the capacity development measures designed for the communities and the grass-roots level (see e.g. 4.1.6) and to be able to digest the technical and physical input (investment) of the Project itself. At the same time, these activities will allow the Project to respond to training needs emerging from the ongoing development of local governance structures.

Output 4.1.5 - Special programmes for long-term enhancement of policing and academic capacities planned and launched.

197. A main threat to both the CZP and the development opportunities of the WHS is the pervasive lack of policing and law enforcement in critical sectors. Breaches of conservation prescriptions and violations of the zoning plan or resource use restrictions are at present rarely reported and penalised. This has forced the EPA to engage too much in “policing” activities, for which it is not empowered and trained, while its role should be more on formulating and advising sectoral policies. It is furthermore recognised that the relatively low abundance of especially native Socotris with higher education, not least in environmental sciences, agriculture and fisheries, poses a long-term impediment to the sustainability of conservation and development efforts in the WHS. A better educated generation of young Socotris is required which embraces the objectives of the CZP and the ICMF against the

backdrop of their local culture and traditional knowledge and which takes responsibility at the authorities and in their communities.

198. Two dedicated activities will address these issues. A programme for the establishment of a local Ranger Force will be developed in a participatory way and in close consultation with key legal and policing authorities. The Ranger Force would be mandated to act as environmental police with particular powers in high-profile conservation areas and in relation to specific environmental objectives. The programme will comprise actions to lobby for the concept in the enabling environment, not least through the ICMF, to assist its legal endorsement, to prepare and execute a training programme (or to identify training opportunities abroad), and to assist the actual establishment of the force. This force could be staffed partly from existing personnel at EPA and other agencies, thus vacating positions for future better educated staff while creating good positions for them, matching their education levels and making best use of their partly vast professional experience in knowledge-related and community-based conservation and development. A second tangible product will be the preparation and execution of a programme dedicated to enhancing academic education in environmental sciences and natural resource management for Socotris. Possible elements of this programme would be a student grant scheme financed from donors and/or the Trust Fund (4.3.3), a partnership scheme with national and international universities and research institutes, and the twinning of BSc, MSc and in the mid to long-term also PhD dissertation studies between international and local graduate candidates.

Output 4.1.6 - Field schools for community-based environmental management are established and operational

199. In the Socotra WHS no models and schemes have been piloted yet which combine environmental and vocational learning with tangible and local socio-economic and social benefits. Also, the use of elements of self-organisation and sustainable finance mechanisms for such interventions have not been trialled.

200. The project will make use of Field Schools (FS) as a multipurpose, community-based mechanism to help achieve its goals. Based on FAO's 'farmer field schools' (FFS) the field schools on Socotra will not solely be aimed at farmers, but at communities with an interest in land-based livelihoods and the environment. As such the output matches the two forgoing outputs which are directed rather at institutional stakeholders. Thus the FS will focus on a wide variety of topics: sustainable land management will be one, but sustainable fisheries can be relevant to some groups. Invasive alien species and biodiversity will also be covered, depending on the specific interests of the groups. The FS will be arranged in the familiar FFS manner (voluntary membership; host farmer/herder/fisher; regular meetings; localised field activity; facilitated initially by specialists; graduation certificates etc.) but they will differ in being long-duration, and multi-purpose. In this respect they will resemble the SLM-oriented farmer field schools, as pioneered by the FAO-GEF Kagera-TAMP project in East Africa. Many of the key local activities of the project will be channelled through these field schools, and it is anticipated that they will outlive the project as common interest groups – thus ensuring sustainability.

201. The Output will be accomplished through six activities. Initially, options for Field school (FS) will be assessed and prioritised, programmes will be developed accordingly in a participatory fashion (stakeholder consultations on implications and opportunities of establishing field schools); this may primarily involve FSs for SLM,

IAS and BD including Sustainable Fisheries. As a major prerequisite for a successful implementation, simple guidelines and training materials to FS will be produced in English and Arabic language. The implementation of the FS programme will first see the launch of 1-2 pilot FS per sector, followed by the gradual expansion and fine-tuning of the programme. The start of the interventions will comprise to decide with community representatives where to establish field schools, to establish field school governance structures (steering groups), and to hire and train field school facilitators. The Project will support the field schools and facilitators in curricula development and execution/operation throughout the Project's lifetime (incl. topics such as home gardening, date garden improvements, alternative energy options, reducing firewood consumption, traditional and new methods of cropping, fodder and tree production, sustainable fisheries, pest control, and value chain management); options to sustainably finance the FS programme beyond the Project will be explored through Outcome 4.3. The mobility and exchange between field schools will be supported in order to foster a wider spatial coverage and mutual learning. In connection to the latter, the FS programme will include an evaluation and monitoring system, evaluating the overall success of the FS concept and the sector-specific curricula and implementing arrangements, thus seeking to iteratively refine the interventions.

Outcome 4.2 - Information and knowledge supports environmental management.

202. The Outcome addresses the baseline that there is insufficient management of existing and new data and knowledge. Access to data, whether stored physically or electronically, is constrained, and a lack of access and use of analytical data tools prevails. Most of the scientific and institutional memory presently rests with individual scientists and few research institutions, mostly of international provenance, and is therefore neither accessible on the island nor sustainably usable. Moreover, existing information and knowledge is presently only insufficiently translated in public environmental awareness among stakeholders, coupled with the demise of the public recognition of key actors in environment and conservation since the legal promulgation of the CZP. The Outcome will lead to substantially improved accessibility of environmental and socio-economic data and a higher analytical quality in applying them to conservation and development purposes, notably within the I-SEA of ICMF Socotra cycle. Communication with and awareness among the stakeholders and beneficiaries of the Project and the population at large will be enhanced.

203. The key assumptions for Outcome 4.2 are that the partners from the national and international development and science community are willing to enter a data sharing and analysis support agreement.

<u>Output 4.2.1 - An information management strategy is developed.</u>

204. Vast data and information related to the conservation and development of the Socotra WHS have been produced by various actors over the past 15 years. They are scattered among a plethora of national and international stakeholders and are only partially available on the island group. Those availed to the local agencies, however, are not kept well organised and accessible. The use of state-of-the-art analytical and decision-support tools in systematic and spatial conservation planning and rural development planning is very limited and merely restricted at present to academic exercises. On the other hand, intellectual ownership of knowledge produced by basic science (i.e. funded from non-development sources, not owned by Yemen) is insufficiently respected and protected, thus hindering the respective actors

to share information. At the same time traditional knowledge and customary resource management techniques are vanishing among the local population and are thus far poorly recorded and preserved. Again, the treasury of existing – readable and accessible - records is vested with very few individuals of the international support community only, and needs to be broadened.

205. The Project will seek responding to this situation with five interrelated activities. The overarching product will be the development of an information management strategy. The strategy will be prepared in a participatory manner considering the data and information requirements of the Project, the concerned key agencies, the partners from the national and international science and development community, and not least of partner CBOs and NGOs. The preparation of the strategy will comprise the screening of the data landscape, assessment of major repositories and their status and accessibility, identification of gaps and redundancies, establishment of criteria for data quality and ownership, and the identification of physical and technical capacity needs. The strategy will devise data management procedures pertinent to its activities and foresee provisions for a long-term storage and sustained accessibility of information generated or consolidated by the Project. A *Memorandum of Agreement on Data Sharing, Ownership and Usage Rights* will be proposed to key partners and stakeholders, its endorsement pursued, and its operationalisation supported.

206. A tangible deliverable will be the establishment of a Project database or data platform covering facilities and processes for storage as well as for long-term archiving of all accumulating biodiversity, environmental and socio-economic monitoring data during the whole Project period, with special focus on a spatial database with support for geographic objects. Structurally, the data platform will integrate the sector-specific database elements proposed for BD-PAM (see 1.1.2-3), IAS (see 2.1.1) and SLM (3.1.1). According to recommendations for 'Safeguarding Good Scientific Practice'[15], which state that effective data management should enable a user 10 years or longer in the future to recover, access and explore, understand and use the data, it is considered to use uniform metadata documentations that follow international standards, to store the data in a location from which it can be accessed and to select storage formats with long-term use in mind. The database development would recognise recent recommendations for '*strategies for the sustainability of online open-access biodiversity databases*' of Costello et al. (2014)[16], Costello and Wieczorek (2014) and Hobern et al. (2014). It is proposed to use Metacat (Metadata catalogue) as a framework to document and store all data. Metacat (Berkley et al. 2001) is a free and open source software, available from the Knowledge Network for Biocomplexity (KNB), which particularly targets data from ecology and environmental science. It stores metadata in EML (Ecological Metadata Language), a common international standard (XML) covering a

[15] http://www.dfg.de/en/research_funding/principles_dfg_funding/good_scientific_practice/)

[16] "*To sustain such [open-access biodiversity] databases, we recommend they should (a) become integrated into larger collaborative databases or information systems with a consequently larger user community and pool of funding opportunities, and (b) be owned and curated by a science organisation, society, or institution with a suitable mandate. Good governance and proactive communication with contributors is important to maintain the team enthusiasm that launched the resource. Experience shows that 'bigger is better' in terms of database size because the resource will have more content, more potential and known uses and users of its content, more contributors, be more prestigious to contribute to, and have more funding options. Furthermore, most successful biodiversity databases are managed by a partnership of individuals and organisations*."

minimum of key information that guarantees self-describing data sets for long-term storage; especially data in tabular format can be described in detail. Nonetheless, Metacat is not enforcing a specific data format, which enables the storage of a wide range of heterogeneous data sets. The software also ensures access right control for data providers. Metacat's web interface facilitates the input and retrieval of data. A mapping functionality programmed in the extension PostGIS will enable to query and visualise the geographic coverage of stored data sets. Furthermore, it facilitates interfaces to other databases as Metacat is also a key infrastructure component for the NCEAS data catalogue and for the DataONE system, among others. Finally, it is aimed to link the data repository to other scientific and publicly accessible databases such as the Global Biodiversity Information Facility (GBIF; http://www.gbif.org/), World Register of Marine Species (WoRMS; http://www.marinespecies.org/), CABI's Invasive Species Compendium (http://www.cabi.org/isc/), and Global Forest Watch (www.globalforestwatch.org). The collaboration with other specialised international biological data repositories such as FishBase, ReefBase or MolluscaBase shall be considered. Genetic datasets shall be linked to international repositories such as the BoL datasystem or Genebank.

207. During the PPG phase it has been intriguing to note requests by community and local stakeholders to address environmental education and to revitalise traditional resource management practices. It has been especially rewarding to learn that representatives of local authorities themselves made the link between unsustainable resource uses, both terrestrial and marine, and the demise of customary management. The Project will therefore capture such knowledge vested in the Socotra cultural heritage by a targeted recording programme using mainly interview techniques and historic information, classify them, make them publicly available and seek to actively employ them. Making information publicly available will also be undertaken with regard to general important project data using media such as printed and electronic guides, videos and e-apps, thus linking also to the communication and awareness activities described in the following chapter. An added deliverable will be the establishment of an electronic project library which will compile and hold all main references and literature in conservation and development relevant to the Socotra WHS. While initially aimed at facilitating the Project work and supporting the uptake and upscaling of experiences made, the e-library may be made accessible to the wider stakeholder landscape.

Output 4.2.2 - A communication and awareness strategy is developed.

208. Over the past decades, a lot of work has been done in communicating the importance of Socotra to the outside world as well as in increasing public engagement, while raising awareness related to the different conservation and development interventions, with fluctuating past success. Public engagement is crucial to the implementation and the success of the Project, realised through cross-sectoral communication and awareness, aimed at stakeholders of all levels, with mainstreaming of activities through local, national and international channels, and the continuation and stimulation of awareness campaigns linked to the different Components. Several activities of the Project will benefit strongly from a tailor-fit communication and awareness strategy, being relatively new to Socotra. Stakeholder workshops during the PPG have illustrated the potential as well as the need for such awareness and communication efforts, and lessons from the past as well as in other areas (and islands) have shown the importance of good communication strategies in ensuring local participation and engagement, and

therefore effective implementation (see Section 3.10). The project will accomplish this by four interlinked activities that apply to all other components.

209. The stakeholder landscape will be explored as well as lessons learned from the past in order to develop and establish the most effective communication and awareness strategy for the Project, encompassing all its components separately as well as the synergy of all. This involves also mainstreaming to estimate how the intervention can be reproducible in the mainland and other islands worldwide and to determine the best channels of communicating successes and activities. The communication strategy is aimed at reaching several layers of the stakeholder landscape, from local communities on Socotra (by group meetings, leaflets) to international communities (conferences, international media). During the PPG workshops, recommendations on awareness strategies were proposed by stakeholders, which have been taken into account, and it is clear that for "new" interventions, strong efforts in awareness are needed. The Project will hereby make use of existing channels to disseminate and collect information in a continuously self-evaluating communication strategy, such as long-term efforts by the Friends of Soqotra (annual conference and *Tayf – the Socotra newsletter*, translated in Arabic and distributed on the islands) which it will stimulate, as well as opening new channels for public engagement and mainstreaming (e.g. website, meetings, flyers, media, etc.).

210. As the message and the media through which communication is established differs between audiences, the strategy will analyse first how the messages should be delivered and through which medium. It is very important to recognise here that the Socotri have their own language, for which just recently (M. Morris, *pers. comm.*) a script has been developed, which is part of their cultural integrity and identity. The Project will therefore strongly stimulate such local language efforts to be incorporated and be part of the local communication strategy. At national and international levels, the strategy will encompass output in the forms of scientific papers, reports, news feeds, articles, etc., yet also a constant interaction with both the national and international communities involved and connected to activities on Socotra. In the strategy, other projects with related awareness activities are identified and actions coordinated in order to reach maximal effectiveness (e.g. CMEP, GIZ, SGBP, FoS). Several activities are being developed by other donors that can be connected in the strategy (e.g. development of identification apps, University of Sapienza, Rome). It is crucial that the strategy includes communication links with and an analysis of development NGO activities and larger scale investments on the island, e.g. for IAS to target those NGOs that potentially become a vector for exotic species introduction on the islands, or investors that directly impact habitat integrity. This is crucial during the lifetime of the project while capacity building is not fully established yet, and the systems set in motion under Component 4 should be self-sustainable in order to allow further protection of cultural and natural integrity. The communication and awareness strategy in itself is considered a powerful tool to help safeguard the integrity of the WHS, and will be strongly aimed at gender equality.

211. Where possible, main activities in the project should be strongly linked and integrated into wider initiatives in the fields of BD/PAM, IAS and SLM that are being carried out by the Republic of Yemen and beyond (Arabian Peninsula, islands worldwide, etc.), thereby acting as an important vehicle for GEF GEBs beyond the area in which the Project is carried out. In order to make sure that the awareness and communication strategy is sustainable, this mainstreaming and integration

should be top priorities. Further strategies and communication needs per component are outlined in Section 3.10.

212. In general, the strategy will aim at delivering through the following media and at the following levels:

Table 7: Basic mediums and stakeholders to deliver messages as part of the communication and awareness strategy

Stakeholders	Medium
Local communities	Village meetings, direct interaction, posters, brochures, competitions, school involvement (educational materials), local radio and DVD- where possible, disseminating information not only in Arabic but also in Socotri (linking the communication with SLM and FS through stimulating traditional care of resources and cultural memory - for IAS and BD/PAM also local ecotourism guides will be involved in awareness campaigns to increase sustainability)
Government (national, provincial, district)	Conferences, meetings, training, website, both on Socotra as well as on the mainland and including representatives of local communities. Mainstreaming success to governmental level.
International community/donors/NGOs	International conferences (e.g. FoS annual meetings, such as the next conference September 2015 in Porto, Portugal); global conferences such as GLISPA and SIDS conferences, etc.; workshops, scientific papers, brochures, video, general media, opinion papers and editorial pieces, books, website. Aimed at mainstreaming success at international levels and allowing reproducibility.
General public	Public service announcements (TV and radio), competitions, (eco) volunteer engagement, general opinion articles/editorials, general media and educational materials aimed at increasing awareness towards outsiders (e.g. for eco-tourists), international conferences, books.

213. Education is imperative as part of this Project. The Socotra stakeholder workshop during the PPG (Appendix 19, PPG Mission Report) identified local needs and requests for continuous education linked to all components, which were mainly expressed by Socotri women, illustrating the importance of this activity. Once different audiences are identified, the communication strategy will include dissemination of education/awareness materials for different audiences (see above and Section 3.10), using existing as well as new channels. The education materials are aimed at all levels, from governmental levels, to schools to NGOs, ecotourism societies, local universities, and villages and families. For the dissemination of material, the most efficient strategy should be worked out, reaching a maximal number of people. It is envisaged that as a main outcome of the project, IAS

strategies for example will come to the attention to decision makers at the national and regional level and therefore taking an innovative role for the region. At the same time, increasing knowledge and education materials can be achieved in different ways, through conferences, training, public campaigns, school involvement, etc., which should be done in coordination with the concerned Education Ministries and including the district levels. Again, as in the previous activity, the use of Socotri is highly encouraged for local education materials in order to provide knowledge transfer to new generations (schools/university). It is further envisaged that the education efforts as part of this Project will help increase educational standards for Socotri, allowing both transfer of local knowledge by local experts (e.g. FS) as well as training by international and national experts.

214. The Project envisages study visits for local champions and multipliers (e.g. as part of FS), which has proven very successful and useful in past projects. It will include examples for all components, both for general training as well as for management purposes, to other island systems and mainland examples (good as well as bad) of BD/PA, IAS and SL management. This is aimed to ensure that local stakeholders understand that Socotra is not an isolated example, but to learn from case studies elsewhere. The identification of regions, local champions and multipliers, will be done during the first phases of the Project, including the recommendations of the PPG team (see other Components) and will be further identified by local needs and interest in a flexible process in order for implementation to be set in a wider scale including lessons learned elsewhere.

215. The Project will develop and maintain a Website that will be available for interactive searches and that will allow continuous updates and serve as a basis for an e-library for project documents, reports and other papers and linked to available resources, such as the FoS e-library (www.friendsofsoqotra.org) (compare 4.2.1). The project website will be a major communication and awareness tool in both English and Arabic that will allow updates as well as feedback on the activities through interactive fora. It will also serve as a knowledge platform to allow new stakeholders to understand the stakeholder landscape, and will be set up in coordination with existing donors and with experts (e.g. FoS). The project website will also serve as a virtual learning/education tool at all levels, thereby contributing to GEB dissemination and awareness on a local, regional and international scale. The website will be age- and gender friendly, and provide valuable information about the project within the context of Socotra, main challenges and threats to cultural and natural heritage, and will involve constant updates. The main goal is to centralise knowledge gathered during the project and for the project, mainstreaming and translating it through the public domain to make it available and replicable, to ensure public engagement, transparency and openness during all stages of implementation. Interactive educational tools will be included to target younger audiences that can use the website as a learning tool, and also here the Socotri language will be stimulated as a major part of the cultural identity. Therefore, the project website will be useful not only for the project managers as a searchable and interactive database, but will serve as a major knowledge hub and platform for local communities to inform on and provide feedback on the project, as well as developing learning skills. To date, very little information centralisation has been performed at this scale, e.g. by simply allowing a platform to contact all Socotri-based and international NGOs with activities on the island, or to provide basic information on awareness of biodiversity threats on the Archipelago, and the project website is filling a large gap here that will allow mainstreaming. From simple tools such as online recognition of IAS and links to

sound recording of Socotri poetry, to searchable databases and spatial tools, the website will aim at connecting as many groups within the stakeholder landscape in a single platform.

Output 4.2.3 - Results-based project management and M&E is established.

216. The Project results framework (Appendix 4) as approved in the PIF was updated and re-organised during the PPG phase with strong stakeholder engagement and involvement. It will be re-visited, and revised where needed, particularly during the Project's Inception Workshop to ensure that all targets and indicators are agreed upon, are relevant, realistic and achievable, and that responsibilities for gathering information and tracking the achievement of these indicators are well understood among the different stakeholders.

217. In each component, existing baseline studies will be researched, analysed and complemented from the outset to establish a solid data foundation and knowledge on the Project's point of departure (Activities 1.1.1.1, 1.1.2.1-3, 1.1.3.1, 2.1.1.1-2, 2.2.1.1-2, 3.1.1.1, 4.1.1.1-2, 4.1.2.1, and 4.3.1.1). Where needed to substantiate the already existing baseline, further surveys, such as on vegetation cover, reforestation/carbon sequestration potential, or erosion risk etc., will be carried out.

218. Continuous data collection and assessment will not only provide good information for an M&E framework for BD, IAS, SLM, and Sustainable Financing (e.g. for REDD+ schemes or PES), but also be fed into the Project's information network, to be accessible on Socotra. Wherever feasible, local communities will be trained and engaged to gather such baseline data, so as to establish a direct link to the planned project activities and to instil a basic understanding what these data are used for and why monitoring the state of the environment and its drivers of change is important.

219. As described in more detail in Section 6, the project will adopt an adaptive management approach, whereas the supervisory responsibility of ensuring the adherence to GEF and UNEP project management, M&E and reporting standards lies with the UNEP Task Manager, while management of the project reporting and M&E framework as established in the results framework and the M&E plan is the responsibility of the Project Coordinator and the Project Manager. Actual reporting and data gathering on the ground will be carried out by local project staff, and the local communities where appropriate.

Outcome 4.3 - A suite of financing mechanisms sustains the implementation of the Integrated Conservation Management Framework (ICMF) of the Socotra WHS in the long-term.

220. As stated in the Project Summary, the support by the GGoY and its partners and donors (including the GEF) to conservation and nature-based development in the Socotra Archipelago have been quite significant, relatively to economic context of Yemen and to the limited national budget. Tangible progress and results have been achieved since the first GEF-supported intervention started in 1997 (UNDP-GEF Socotra Biodiversity Project), and efforts are still ongoing. However the current level of support can only address the root causes illustrated above to a limited extent, because (a) the development of the necessary professional capacity and awareness has been slow in recent years, and is stagnant at a relatively low baseline level; (b) there continues to be a chronic lack of adequate financial resources to manage a WHS of this size and complexity; (c) the surrounding political and socio-economic context is difficult, and other development aspects are seen as priority (e.g.

healthcare, governance, education, water supply etc.); (d) donor support remains essential at these initial stages, but tends to be short-term, unpredictable and linked to political stability (i.e. most donor support virtually stopped in the period 2010-2012 during the 'Arab spring' in Yemen). Recent experience of GEF projects in the Socotra Archipelago WHS clearly shows how the development of adequate national capacity and financial sustainability mechanisms is an essential but costly and time-consuming effort that will require a consistent and much longer-term engagement by the GoY and its partners and donors. A continued effort will be needed of the coming generation, to help create the human and financial capital that can sustain the long-term management of such a remote and complex network of community-based marine and terrestrial protected areas.

221. The Socotra Archipelago WHS Integrated Conservation Management Framework (ICMF) requires significant investment in protected area design, development and management, invasive alien species control and management, sustainable land management, strengthening institutional and legal frameworks, managing knowledge and in sustainable financing. The major threats facing the areas of investment across the Archipelago have been analysed in Section 2.

222. The GoY in association with the donor and partner network around the Archipelago have already established and/or carried out several programmes and activities to respond to these threats. However, many of these programmes and activities do not achieve holistic and long-term results, largely due to the lack of sustainable financing mechanisms to ensure they continue beyond external donor investment. A significant barrier facing conservation across the Archipelago is the lack of reliable, adequate and targeted financial resources. Establishing and sustaining an integrated approach by putting in place legal frameworks, developing and maintaining capacity for enforcement of legal frameworks, and developing capacity in science-based assessment, management and monitoring, cannot be achieved in the absence of sustainable financing. A major objective of this project, therefore, is to establish sustainable finance systems and related policies that ensure sufficient resources to support the activities required to abate threats to the marine and terrestrial biodiversity and effectively manage the Archipelago.

223. The Project will provide comprehensive support to the establishment of the Socotra WHS Trust Fund and an endowment, as well as other local income generating mechanisms, to develop and resource the Archipelago's financial architecture. The Trust Fund will be built to serve as the main financing mechanism for the ICMF by working with GoY and other relevant stakeholders to raise donor funding. It will also focus on ensuring that donor and national budgets are consolidated to achieve efficient and effective results. The Trust Fund will further oversee the establishment of a long-term endowment fund that will perpetuate core ICMF activities, matching local, national and international partner commitments beyond the lifetime of the Project to leverage financial resource flows that will enable global environmental benefits whilst achieving the conservation targets as outlined in the present document. Furthermore, to gather momentum with ongoing efforts, the Project will provide specific on-the-ground preparatory activities and testing of approaches and incentives in identified activities across the Archipelago, as well as simultaneously developing the financial architecture and capital of the financing mechanisms. The project will provide a tested and sound framework for long-term action through the incremental investment of GEF and other local and international resources to the Socotra WHS Trust endowment.

224. The Project support will provide a working model and engage stakeholders to mobilise further interest and harness available resources, including GEF's incremental contribution, to meet the project goals and to provide significant global environmental benefits. Conservation strategies in the Archipelago face numerous controversial and challenging issues. Principal amongst these is the question of long-term mobilisation and effective targeting of resources, especially finance. Targeted finance for management of conservation action and the benefits accruing from conservation must be provided directly to those who bear the management burden as well as those who hold tenure over resources, or those who merely depend on them.

225. The capitalisation of the endowment for the Socotra WHS Trust Fund and other local financing mechanisms will provide a targeted, yet flexible and accessible source of direct finance for the programme's initiatives and projects, implemented by individual agencies and institutions, both Governmental and civil society, and in partnership with the communities at site-level. This Project will allow the Trust to launch its programmes and build its capacity to manage and disburse its funds. It is anticipated that the Project will provide an example of how a multi-agency programme can be run using an endowment trust fund and other local sustainable financing systems/mechanisms and serve as a focus for innovative conservation methods and technical expertise for the Archipelago. This is centred on community-based, locally driven conservation commitments, which require mechanisms for the delivery of targeted financial resources to the local level, scaled up across communities. This strategy recognises that in Socotra, grassroots engagement must deliver institutional strengthening, help develop finance and project management skills including granting and reporting procedures, and must encourage and coordinate conservation efforts over time. The conservation of habitats and species which occur in the areas targeted for management and protection will generate significant global environmental benefits, covering some of the world's most threatened species and habitats which will be managed through community-led programmes, in continuous land and seascapes that are of recognised global importance. This scenario is extraordinary and exemplary both in its scale and in the fact that it will be set up with permanent financial-resourcing instruments.

Output 4.3.1 - A comprehensive Socotra WHS sustainable finance plan is developed.

226. The Sustainable Finance Plan consolidates the costs, available funding, and remaining funding gaps for Socotra to achieve the conservation goals in a single WHS-specific plan. The total funding gap is then used to set a fundraising target for the ICMF. Included in the Plan is a Fundraising Analysis which will identify and prioritise potential sources to address this target. The Plan will recommend internal revenue generating strategies and identify international sources of funding for the remaining gap of the estimated costs that will be needed to sustainably finance the Socotra WHS activities. This gap will establish the ultimate amount of the required endowment. One of the key funding strategies will be to build a permanent endowment that can produce yearly disbursements large enough to cover the remaining funding gaps. The plan will also model how the endowment will be built over time, and how the funds from the plan can be disbursed. Finally, the plan will outline an integrated timeline for meeting the ICMF's financial goals.

227. This Project will present the Sustainable Financing Plan to the GoY and other key stakeholders (e.g. NGOs, CBOs, etc.) to garner support for recommended internal revenue generating strategies and securing international sources of funding for the

remaining balance of the estimated endowment that will be required to sustainably finance the Integrated Conservation Management Framework (ICMF) of the Socotra WHS. Project support may entail to assist relevant authorities in the formulation of respective legal prescriptions. Funding for this activity will also be used to develop, produce, and disseminate awareness and outreach materials to garner public support, with the expectation that both actions will result in the passing of all necessary enabling policy frameworks and legislation.

228. Upon passing of any necessary enabling legislation, the Project will work with the relevant authorities (i.e. Ministries of Finance, Water and Environment, Foreign Affairs, etc.) to implement strategies for internal revenue generation and to set securing international sources of funding for the endowment as a priority for the ICMF.

Output 4.3.2 - A Socotra Trust Fund is established.

229. It is pertinent that the project establishes a Socotra Trust Fund (STF) that will serve as the overall financing mechanism – representing an organisation/body – for the delivery of ICMF activities beyond the project funding. The STF will be responsible to raise funds for ongoing ICMF activities from donor organisations through a grants making and capacity development portfolio to local conservation agencies and organisations. The STF will also work with the authorities and other relevant stakeholders to build a long term endowment that allows perpetuating core activities of the ICMF.

230. The Project will need to ensure that the technical capacity of the Trust Fund's Board and staff to manage its assets (grants portfolio and endowment) meets international standards. To do this, the Project will assist Board and staff to complete capacity development plans identifying required skills and strategies to build those skills over the lifetime of the Project in order to fully support the governance and administration of the Trust's assets (e.g. accounting, grant administration, financial reporting, monitoring and evaluation, internal controls, etc.), aiming at a fully capacitated STF Board operation well before termination of the Project.

231. In order to build a track record, the STF will have to begin making grants to some pilot projects/programmes. It is necessary for the STF to show some early success in order to gain further local and international support. The Project will provide initial funds to seed the endowment and to leverage other donor funds to allow the STF to begin its grant-making portfolio. The Project will engage to raise additional seed funding to the endowment from other key donor by (a) regular and continuous fund-raising activities, and (b) announcing the seed funding, along with the conservation goals, at a high level event.

232. The latter could take the form of an announcement of the GoY commitment to meeting its CBD and Aichi Target goals in the Socotra WHS by i.e. setting aside a certain percentage of area into a protected areas network and sustainable land management, and by making a sustainable finance commitment (notably the GEF seeds) at a large international event that would be co-hosted by the Global Island Partnership (GLISPA) and the CBD Secretariat. The aim of the event would be to attract other interested donors which could pledge the same or higher amount of funding to the capitalization of the STF. This commitment will set an example and get some international attention. It is understood that GEF seed would only be effected in case of matching financial commitments from other donors.

233. The ICMF should, in any case, seek membership and support of the GLISPA in order to increase its international profile and to gain support from GLISPA members and supporters. Membership in GLISPA will expand ICMF ability to seek donor funding for the endowment and to link up with other international initiatives.

Output 4.3.3 - At least two local income generating mechanisms are developed

234. It is pertinent for the Project to establish at least two local income generating/financing mechanisms to help sustain activity beyond the life of the GEF Project itself and of other international technical and financial contributions. These two mechanisms will be independent and community-based to sustain a locally established programme and can thus be replicated in other communities across the Archipelago.

235. Once feasibility studies are completed and endorsed by the authorities and relevant stakeholders, the Project will support the legal establishment of the instruments. This will include development of all necessary paper work to legally register the mechanisms, or to develop them as components of the STF. It will also include the establishment of governance structures, as well as relevant guiding policy documents, strategic priorities, etc.

236. The Project will ensure to develop the technical capacity of the community-based financing mechanisms' governance structures to fully support the management and administration of the mechanisms' assets (e.g. accounting, grant administration, financial reporting, monitoring and evaluation, internal controls, etc.). The Project will provide ongoing capacity support until the mechanisms are fully functional.

3.4. Intervention logic and key assumptions

237. Sustainability is the main benchmark of the intervention. This evidently requires a strong *Enabling Environment* that empowers the local stakeholders, both at the level of authorities and communities, to command the necessary political, administrative and technical capacities and resources by the time the Project is terminated. The Project aims at leaving a sustainable legacy with regard to managing the Socotra WHS at all levels: policy making, strategies and planning, and implementation. Strengthening institutional, organisational and individual capacities is therefore at the heart of the intervention logic and the respective Component 4 will form its backbone. The flow of *project inputs* must be organised almost exclusively through the existing (and evolving) legal and institutional framework and in collaboration with the respective national and local actors. The *demand* for these inputs needs to be responded to in a participatory and transparent manner. The accomplishment of the *outputs* shall to a large degree result from participatory planning exercises and community-based activities. The Project shall primarily act as mediator and facilitator, for the national and local actors taking full ownership and responsibility over the intervention; it must not be seen as an institution in its own right. The Project strives to match the capacitating investment afforded to the governmental and parastatal stakeholders with that afforded to non-governmental and community stakeholders. The long-term sustainability sought after shall result from inputs into both groups alike. Science and knowledge-based tools are accorded an important role especially in planning frameworks, monitoring and evaluation and shall be used in harmony with customary knowledge and socio-cultural traditions.

238. Two additional objectives are considered as especially critical, (a) the establishment of a continuous cross-sectoral environmental planning and assessment mechanism, and (b) the introduction of innovative sustainable financing tools. Firstly, the Project starts at a time of ongoing political and institutional reforms in Socotra and Yemen at large which present elements of uncertainty and opportunity both. In order to embrace this situation and to allow for a best possible integration of the Project's objectives and intervention approaches into the evolving administration of the Socotra Governorate and the combined national-provincial sectoral planning and regulatory processes, an inter-agency planning framework (ICMF) shall be instituted, adapting the logic of Institution-centred Strategic Environmental Assessments. The '*I-SEA of ICMF Socotra*' will be the central analytical and participatory approach facilitating the mutual consideration of strategic environmental, social and development concerns across sectors and actors. It will help mainstreaming the objectives of the Conservation Zoning Plan (thus of the Socotra WHS) into policy formation, and aiding the planning and integration of Project activities within the institutional and stakeholder landscape. The '*I-SEA of ICMF Socotra*' process is set to become instrumental in overcoming the prevalent lack of a common vision for the management of conservation and development in the Socotra WHS among key stakeholders. It will also serve as the overarching environmental and social safeguard mechanism of the intervention. Secondly, a key element of sustainability to be achieved is a continuous flow of funding that sustains at least core management processes of the Socotra WHS after termination of the intervention. Given the absence of sufficient public finances, the Project will set up a central mechanism to administer external WHS finances, the Socotra Trust Fund, and associated innovative income generating mechanisms.

239. The key assumptions related to the foregoing are that issues of overlapping mandates and competing responsibilities can be overcome; that sectoral agencies are willing to cooperate with the Project and each other, notably the EPA Yemen and the evolving administration of the Governorate; that they offer entry points to support the drafting of sectoral strategies, and that they welcome and mutually agree on the capacity development approaches; and, that they embrace the sustainable finance concepts and agree to manage them mutually to the better of the Socotra WHS.

240. Resting on this central strong Enabling Environment, the intervention sets out to technically address three principal baseline issues confronting the management of the WHS:

    a) The need to develop a Biodiversity Conservation and Protected Area Management strategy, including the revision of the Conservation Zoning Plan according to state-of-the-art methods in systematic, spatial and participatory conservation planning, and to operationalise the strategy in lifting the management of a network of protected areas into the 21st century.This basically assumes that the objectives of the WHS are still subscribed to by the majority of stakeholders, that institutional and community players agree on the need for CZP revision and that different expectations on the CZP and the BD-PAM strategy can be accommodated. It further assumes that local stakeholders understand the need for PAs, that reservations and concerns can be mitigated and eventually addressed through management approaches with strong capacity development components that meet local stakeholders' needs.

    b) The requirement to tackle – for the first time – Invasive Alien Species in a structured way by developing an IAS management strategy which encompasses

strong precautionary and mainstreaming elements, and to operationalise the strategy in a primarily community-based way, making the WHS fit to manage and to control already established invasive species and to counter the import of new ones.
The underlying assumptions are that IAS are a relevant topic or can be successfully mainstreamed as such for agencies and communities, resulting in their willingness to engage and collaborate in IAS management, and that conflicting local uses of established IAS can be resolved with the communities.

c) The demand to better manage the ever increasing pressures on the rangelands and forests, by ways of preparing a Sustainable Land Management strategy which incorporates food, water and energy insecurity as the three main factors driving the negative impacts of a growing population, and to operationalise this strategy primarily through community-based and partly novel activities.
The respective intervention Component rests on the assumption that most stakeholders are interested in collaborative efforts addressing SLM, that agencies and communities are willing to collaborate and consider both, innovative solutions or to re-consider traditional ways to better and more sustainably manage their land and the associated resources.

3.5. Risk analysis and risk management measures

241. Projects in the Republic of Yemen are inherently complex due to the specific socio-political situation. Project implementation therefore presents potential risks and challenges. However significant experience was gained in recent years in the specific context of the Socotra WHS, and the situation in Socotra is quite different from the rest of the country (i.e. with a far more secure and peaceful environment). Key risks envisaged during the implementation of the project include:

Table 8: Risk analysis and mitigation measures

Identified Risk	Risk Level	Proposed risk management measures
1. Weak coordination among ministerial bodies and lack of support from central national government	Medium	Building on the lessons from prior GEF projects in Yemen and specifically on Socotra, it will be critical to foster government ownership and develop capacity from the onset and at all levels (local and central/national). The cross-cutting capacity development and awareness Component 4 of the project will be critical in this respect. The project will also contribute to the institutional strengthening of coordination initiatives that serve as conduit among all government and non-government and donors involved in the Socotra WHS. The project will also nurture direct links with the highest levels in government (e.g. presidential office, Prime Minister Office, MWE/EPA Headquarters in Sana'a) to ensure close communication and continued support for the outcomes of the project.
2. Government turnover leading to changes in political direction	Medium	To counter this risk it is essential foster a sense of Return on Investment and demonstrate how the project benefits national interests. Particular attention needs to be devoted to sustaining government engagement through a combination of high level, public, and working level meetings in order to leverage maximum political commitment. All major agreements and key discussion should be clearly documented and signed off by any relevant government agencies.
3. Lack of understanding	High	The project will focus on further documenting, demonstrating and publicising the actual and potential positive socio-economic impacts of a well-preserved

Identified Risk	Risk Level	Proposed risk management measures
on the potential socio-economic importance of a well-preserved Socotra WHS for the whole of Yemen		Socotra WHS for the local people and for the whole of Yemen. Other potential economic and intangible values will also be highlighted and disseminated through project results, in terms of i.e. provisioning and regulating Ecosystem Services for the local population; awareness raising, cultural and educational values; demonstration values (i.e. providing examples for a “green economy” development pathway for islands and for other rural disadvantaged areas in Yemen and the region, Field Schools, etc.).
4. Capacity gaps	Medium	This is a critical consideration in the context of Yemen where technical and professional capacity, especially in the new fields covered by this project, is yet extremely limited in comparison to existing needs. A sound and well-designed capacity development programme under Component 4 will be developed based on an assessment of existing gaps and taking stock of lessons learned from prior GEF-supported efforts. This will be an essential aspect of the project and will underpin the foundation for project success and long term-sustainability of project results. In addition, the project will provide a platform for networking among PA practitioners in the region and with other islands and WHSs in the world.
5. Insufficient awareness of biodiversity conservation and climate change issues	Medium	With respect to biodiversity and climate change, several project partners (e.g. UNEP, GIZ, UNDP, SRI/BiK-F, RBGE, FoS network, GEF SGP Yemen, UNESCO) are already active on addressing these issues and working collaboratively with Yemeni authorities through synergistic parallel projects. The Project will build upon the above current and planned initiatives to support and enhance awareness raising and education efforts of the EPA in the target areas, highlighting the potential of a well-managed Socotra WHS to improve livelihoods, while ensuring biodiversity conservation and enhanced climate change resilience. Strategic communication campaigns are developed for IAS issues and stakeholder workshops have indicated strong willingness of public engagement on the issue.
6. Communities resident in areas surrounding target PAs are not supportive of conservation plans	Medium	This is a risk that can only be mitigated through continued, focused and well-targeted communication, consultation, education and involvement of local communities. This was the recipe for success during the formulation and first phase of implementation of the GEF-supported Conservation Zoning Plan (for which community support was of highest level). This effort will be revitalised and sustained throughout the new GEF project. A comprehensive communication plan will be operationalised as a first step at the outset of the GEF project, to engage local residents in the new initiatives and mitigate risks of misunderstanding or conflict. The project will also place emphasis on the generation of socio-economic benefits associated with the sustainable management and conservation of biodiversity in the WHS. Where applicable, priority in job creation and capacity development will be given to the disadvantaged social groups, including women, within the surrounding community. Support letters acquired for the project from local NGOs such as the Socotra Women Society show participatory engagement of the communities that will reduce the risk.
7. The needs	Low	This risk is fully acknowledged also on the basis of the review of the lessons

Identified Risk	Risk Level	Proposed risk management measures
and priorities of the more economically disadvantaged groups of society, including Indigenous groups and Women associations are not adequately taken into account by development plans		learned in previous UN and GEF projects at the global level. The experience in the Socotra WHS has been largely positive so far, and the positive lessons learned will be incorporated in project preparation. Therefore all aspects of the project's design, implementation strategy and monitoring and evaluation process will closely look at this important aspect and take this risk into account. This will inform the set-up of adequate stakeholder consultation and involvement mechanisms from project outset, with full support from all project partners, following existing GEF and UNEP guidelines and under the supervision of UNEP as the GEF implementing agency. Support letters acquired for the project from local NGOs such as the Socotra Women Society show participatory engagement of the communities that will reduce the risk.
8. Climate Change Risks	Low	The anticipated impacts of climate change on the marine, coastal and terrestrial ecosystems of the Socotra WHS are yet to be determined in detail. Some recent studies provide initial indications (e.g. Attorre et al. 2007) of possible scenarios with respect to the impact of climate change on the island's vegetation, and these are pointing to adaptation needs that may also underpin the revision of the design of the PA network. For marine areas and assuming that climate change has a negative impact on fish stocks, particularly in the coastal area of the gulf of and including Socotra, where subsistence and artisanal fisheries are still prevalent, this may also have a detrimental impact on local fish stocks through i.e. added fishing effort. While the real impact of climate change remains to be seen, this project will provide greater monitoring and assessment of populations and habitats to better identify changes, as well as to help identify and develop alternative livelihoods to local communities.

3.6. Consistency with national priorities or plans

242. Sustainable development and conservation in Socotra are part of the national approach to protect Yemen's biodiversity, including community involvement, awareness and capacity development; IAS management in Socotra is further approached under a wider ecosystem context, reducing biodiversity loss, as outlined in the NBSAP (Zajonz et al. 2010c). The project forms an integral element of the Constitution and the National Environmental Legislation of Yemen, as expressed in ongoing programmes of the Ministry of Water and Environment (MWE) and Environment Protection Authority (EPA) of the Republic of Yemen, and is fully consistent with the mandate of the MWE/EPA and with all national strategies, plans and assessments prepared under the relevant conventions ratified by the Republic of Yemen.

243. Yemen ratified the Convention on Biological Diversity (CBD) in 1996. Its commitment to Biodiversity conservation is also testified by the signature of other relevant conventions such as the Ramsar Convention for the Conservation of Wetlands, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Migratory Species (CMS) and AEWA (African

Eurasian Waterbirds Agreement). The National Environmental Action Plan (NEAP, 1995), as well as the National Biodiversity Strategy and Action Plan (NBSAP, 2004), both clearly underscore the biodiversity conservation priorities addressed in this project. Core laws relevant to Biodiversity Conservation/Ecosystem Management include (SEA, 2010) Law No. (26) of 1995 ("On Environment Protection") and its by-law No. (148) of 2000, Law No. (16) of 2004 ("On Protecting the Marine Environment from Pollution"), Prime Minister's Decree No. (104) of 2002, "Concerning the Approval of the Regulations Protecting Endangered Flora and Fauna", protecting endangered species. Perhaps the most crucial Decree related to Biodiversity and Protected Areas on Socotra for this project is the Socotra Conservation Zoning Plan (2000; Presidential Resolution 275: "Concerning Socotra Archipelago"), the revision of which forms the central core of Component 1 (Section 3.3).

244. Existing IAS legislation and protocols are currently vague and remain poorly or not enforced. A basis is present in the existing legal frameworks that provides a good start for the prevention of the import of exotic species. For example, the EPA Law no. 26 of 1995 (and by-law 148 of 2000) state that protected regions, to which over 70% of the Socotran land surface can be considered (cf. UNESCO and Zoning Plan), should be *kept free from alien species*. Furthermore, the Cabinet Decree 48 (Article 2) of 2008 instructs MT in cooperation with MAI to establish an IAS prevention system in all key access points, which has yet to be done (Abul Hawa & Abdulhalim 2013).The CBD objectives, translated into the GEF-supported SCZP, which set the stage for an effective management of PAs in Socotra offer possibilities to expand existing legislation on the control of entry of alien species as well. For example, Article 10 in the SCZP forbids the import of seeds or seedlings in Socotra without prior approval of the EPA. The EPA, national focal point for the CBD, noted in the first national report on the CBD in 2004 that there is a *clear lack of monitoring and adequate legislative tools to control introductions of IAS* – training local personnel to manage invasives, introductions and strengthened quarantine control are listed as top priorities in Yemen's NBSAP. Article 8 (h) of the CBD calls on parties to prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats and species. The CBD and the 2020 Aichi Biodiversity Targets include: *"by 2020, IAS and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment"*. The project also contributes to one of the targets of the Global Strategy for Plant Conservation 2011-2020 and specifically: *"Effective plans in place to prevent new biological invasions and to manage important areas that are invaded for plant diversity"*. The project also directly contributes this way to the achievement of CBD Aichi Targets #: 1, 2, 4 - 6, 9, 11 - 14, and 18 - 20.

245. Exotic species are mentioned as urgent in the initial WH nomination of the Socotra Archipelago - in addition, the WHC requested GoY to ensure that IAS are effectively controlled (including monitoring at entry points), however the 2013 evaluation of the WHS (Abul Hawa & Abdulhalim 2013) concluded that "*no one is able to adopt a clear system for invasive or alien species control*", indicating again the need for intervention. Ditwah Lagoon on Socotra was the first Ramsar site listed in Yemen – since 2002, Ramsar parties are urged to identify problems posed by invasives, illustrating that IAS are a priority for protected areas. The fact that no specific national strategic IAS action plan has been formulated for Yemen, yet the threat from this form of biological pollution is widespread and expanding on Socotra, emphasises its necessity – the project aims to help fill this gap by developing an IAS Strategy and

Action Plan (Section 3.3, Component 2). Improved general policy and legal frameworks and the enhancement of institutional capacities (Section 3.3, Component 4) at different levels towards better policies, thus enforcement of the regulatory framework is the key to future management of IAS. In addition, capacity development is planned through involvement and training at all levels in IAS management and to involve communities to aim at long-term effectiveness. The project therefore fits with national priorities and plans in the protection of Socotra's ecosystems and links with the required management of protected areas, aiding the island's sustainable development.

246. Tied closely with activities defined in the other components, sustainable land management and combatting land degradation (Section 3.3, Component 3) can be interpreted as a priority in the context of national plans regarding cultural and environmental protection, defined as "*the process of preserving the environment's components, qualities, and natural balance... preserving its biodiversity; regulating its usage; and protecting its extinct-threatened animals"* (Law (26), 1995, Par 8, Art 2; SEA, 2010). Sustainable land management focuses exactly on the *natural balance* between human and environment from the human perspective, whereas Component 1 focuses on the same yet from the environmental perspective. Yemen ratified the United Nations Convention to Combat Desertification (UNCCD) in 1997, the sole legally binding international agreement linking environment and development to sustainable land management. The project is consistent with the priorities identified in Yemen's NAPCD (2000), which are also reflected in Yemen's latest PRSP (2003-2005). Yemen is a country severely affected by land degradation, drought and desertification. This situation is exacerbated by CC effects, jeopardising the natural resource base underpinning major elements of the local economy in rural areas, which is mostly of a subsistence nature. These issues have so far not been addressed in the context of the Socotra WHS (other than by selected ad hoc studies on soil erosion and land use, e.g. Pietsch & Morris 2010), therefore the project will support a first attempt in the country at the development of an integrated sustainable land management plan. The plan will aim at mitigating or preventing further land degradation and desertification in the Socotra WHS which is known to be very acute (Pietsch & Morris 2010), and at maintaining the delicate balance between the subsistence livelihoods and production systems of the local population, and the conservation of biodiversity (see Section 3.3, Component 3). This can be achieved through the preservation and restoration of traditional land use practices that have maintained a delicate balance between people and the archipelago's unique biodiversity for millennia, but that are currently being lost (Miller & Morris 2004). The SLM plan will be developed in a participatory fashion and in close synergy with Component 1. The plan will bring together conservation and sustainable land management approaches within the unique context of the Socotra WHS, addressing desertification, land degradation and biodiversity conservation - for the first time in Yemen. Several key laws related to land management (SEA, 2010), include Law No (21) of 1995, "On State Lands and Estates", which protects cultural (archaeological) heritage, and Law No (1) of 1995, "On Ownership for Public Interest". For the importance of cultural heritage: Law No (21) of 1994, "On Archaeological Heritage/Antiquities". Furthermore, the 2008 Cabinet Decree (48) urges the reduction of the foreseen impacts of uncontrolled grazing, for example by encouraging traditional rangeland practices (see Abul Hawa & Abdulhalim 2013), important national priorities that are addressed in detail under Component 3 (Section 3.3).

247. The project objectives are aligned with Yemen's Environment and Sustainable Development Investment Programme (2003-2009), and take stock of the findings of the National Capacity Self-Assessment (2007). All project components will contribute directly and indirectly to national priorities for sustainable development and poverty alleviation as identified in Yemen's Poverty Reduction Strategy Paper (PRSP 2003-2005, latest available)[17] and in Yemen's Vision 2025 document. The project will also contribute to the achievement of the MDG (see in Section 2.1), particularly with respect to: promoting environmental sustainability; supporting policy initiatives that enhance economic development, poverty reduction and social welfare; and strengthening good governance through promoting public participation and empowering people.

248. The project is being reflected in the UNDAF (2012-2015) and supports the following outcomes:
(i) Outcome One on Governance by providing mechanisms for public participation in decision-making
(ii) Outcome Two on Gender Equality and empowerment of women and ensuring that the project activities are consistent with national priorities on gender as set out in the PRSP; and
(iii) Outcome Four on pro-poor growth.

3.7. Incremental reasoning

249. A tabular summary of the incremental reasoning for the proposed project is presented below, based on the baseline analysis and the elaboration of the intervention strategy detailed in Sections 2 and 3 above. It compares the likely outcomes of the current baseline (business as usual scenario) with the expected outcomes of the alternative scenario (with project interventions), thus distilling environmental benefits at global and national levels that can be attributed to the project as its incremental contribution.

Table 9: Incremental reasoning

Baseline Scenario B (Business As Usual)	**Alternative Scenario A** (with project interventions)	**Increment** (A – B)
Component 1: Biodiversity Conservation and Protected Area Management **Baseline:** • Existing data largely outdated, or insufficiently consolidated. • Conservation Zoning Plan outdated and in need of revision. • No BD-Protected Area Management (PAM) framework/policy available • Current level of active PAM limited. • Present number of managed PAs within network low. • Current PA committees ill-capacitated	• Relevant baseline data collected, consolidated and readily analysed. • BD-PAM strategy developed • Revised CZP gazetted and broadly communicated. • All existing management plans revised and improved. • PA management options, needs and resource requirements	**Local/national benefits:** • Relevant BD data available and accessible • Local awareness on linkages between BD conservation, PAM and alternative livelihoods • Capacities for PAM and administration strengthened **Global benefits:**

[17] See Yemen Poverty Reduction Strategy Paper, July 10, 2002.

Baseline Scenario B (Business As Usual)	**Alternative Scenario A** (with project interventions)	**Increment** **(**A – B)
Probable results: • PA Zoning Plan remains defective and does not take recent changes and intl. developments into account. • Local professional capacity (EPA and local government) remains well below the required levels to manage the PA and the WHS and is still largely reliant on sporadic international support, especially on more technically complex tasks such as IAS management, conservation finance, SLM, etc. • The UNDP/GEF SGBP medium-sized project provides some initial support and baseline studies for the mainstreaming of Biodiversity conservation, WHS management, and IAS management concerns into Local Governance. • There is no integrated management authority for the Socotra WHS • Local communities remain not engaged in PA management, cannot pursue alternative livelihoods and do not understand the linkages between BD conservation and their well-being • Traditional management practices disappear and become lost	are analysed • Additional PAs agreed on and taken into management. • PAM plans for all PAs prepared. • Options for an integrated conservation management framework (ICMF) are considered by the relevant authorities (see Comp. 4)	• Improved knowledge on threats for globally important species • Establishment of a closer linkage between economic and ecologic incentives for conservation • Revised Conservation Zoning Plan • Management for existing WHS improved (369,509 ha) • The sea/coastal surface area of actively managed marine Nature Sanctuaries will be expanded by at least 4,100 ha from presently approx. 1,140 ha (720 ha sea + adjacent coastal part), raising the number of presently 3 managed NSs to 8, including a lagoon and a mangrove • The land surface area of actively managed terrestrial Nature Sanctuaries will be expanded by at least 2,500 ha (from presently approx. 3,500 ha), raising the number of presently 2 managed NSs to 5-6
Component 2: Invasive Alien Species (IAS) Management **Baseline:** • Existing data outdated, or insufficiently consolidated.	• IAS management needs are analysed. • IAS strategy is documented, broadly	**Local/national benefits:** • Relevant IAS awareness and data available and accessible • Economic impacts of

Baseline Scenario B (Business As Usual)	**Alternative Scenario A** (with project interventions)	**Increment** **(**A – B)
• No IAS strategy/policy available. • Very limited IAS management capacities. • Insufficient enforcement of existing legal regulations **Probable results:** • IAS management is not yet effectively addressed in terms of professional capacity, legislative tools, or operational/management arrangements –the threat of IAS remains very high and is rapidly increasing in parallel with growing external influences and uncoordinated development. • Local communities continue to import and grow IAS, not being aware of their risk potential, nor being engaged in IAS awareness campaigns and management approaches	communicated, and is prepared for endorsement by the relevant authorities. • IAS strategy is fully operational and implemented on Socotra Island and initiated for outer islands. • Options for an integrated conservation management framework are considered by the relevant authorities (see Comp. 4)	IAS estimated and communicated to local stakeholders **Global benefits:** • IAS management framework and strategy fully operational • IAS management integrated into other sectoral policies and into PAM and SLM • Local communities contribute actively to IAS management • IAS management contributes to conservation of globally important BD
Component 3: Sustainable Land Management (SLM) **Baseline:** • Existing data and management concepts in need of updating and review. • No SLM strategy/policy available. • Very limited capacities for sustainable land management. • Insufficient local implementation of national strategies and policies in relation to SLM **Probable results:** • Collaboration between relevant entities of the GoY as well as among donor-funded projects remains sub-optimal and is hampering the development of an integrated sustainable land use plan for the Socotra WHS • EPA/GIZ “Conservation and Sustainable use of Biodiversity” program, addresses local community needs and promoting sustainable uses of Biodiversity (e.g. ecotourism), but does not cover land degradation, soil erosion, IAS management, PA management.	• SLM management needs are analysed. • SLM strategy is prepared for endorsement by the relevant authorities, documented and broadly communicated • SLM strategy is fully operational and implemented on at least 10% of agricultural land, at least 10% of grazing land and at least 5% of forest land • Options for an integrated conservation management framework are considered by the relevant authorities (see Comp. 4).	**Local/national benefits:** • Detailed information on SLM captured and made available locally and nationally **Global benefits:** • Community-based SLM strategy tested and implemented • SLM practices integrated into other sectoral policies and into PAM and IAS management

Baseline Scenario B (Business As Usual)	**Alternative Scenario A** (with project interventions)	**Increment** (A – B)
• Traditional management practices disappear and become lost		
Component 4: **Enabling Environment** **Baseline:** • Lack of adequate capacities to manage the Socotra WHS for conservation and sustainable development. • Insufficient coordination among governmental and parastatal agencies and other stakeholders. • Unsatisfactory environmental awareness among stakeholders. • Insufficient management of existing and new data and knowledge. • Missing access to and lack of analytical tools for data. • Insufficient governmental funding for Socotra WHS management across all involved agencies. • Failure of previous donor interventions to leave a sustainable foot-print, and to establish cost-recovery and financing mechanisms. **Probable results:** • Technical, managerial, administrative and institutional capacities for PA, IAS, SLM and integrated WHS management remain limited at local and national levels, albeit rising pressures on the island • Despite improved presence of GOY entities in the WHS, environmental concerns are losing out against developmental interests • Community stakeholders remain decoupled from environmental awareness and management efforts	• Capacity development strategy is fully operational. • An ecosystem services framework informs management and sustainable financing schemes • Main agencies agree on co-management plan (integrated conservation management framework (ICMF). • ICMF is considered by the relevant authorities • Database operational and analytical tools and interfaces available. • Awareness levels of critical stakeholders commensurate with the challenges. • M&E system operational. • Trust Fund (TF) management plan agreed upon • Initiatives launched for STF replenishment. • At least two individual financing schemes established	**Local/national benefits:** • Capacity needs assessed and capacity development plan agreed by all stakeholders • Awareness strategy and campaign for PAM, IAS and SLM • Administrative and technical training programmes, incl. on enforcement and academia • Increased data and knowledge on ecosystem services, tools and models • Two income generating schemes functional **Global benefits:** • Establishment of a closer linkage between economic and ecologic incentives for conservation • Ecosystem services methodologies support the project's strategies and sustainable funding mechanisms. • BD conservation, IAS and SLM are integrated into sectoral policies and strategies • Sustainable Finance Plan for the WHS adopted • Socotra WHS Trust Fund established, providing sustainable finances

Baseline Scenario B (Business As Usual)	**Alternative Scenario A** (with project interventions)	**Increment** (A – B)
		for its management
M&E and Project Management	• Effective cooperation to achieve project outputs in accordance with established standards of monitoring, evaluation and active participation of key stakeholders in project activities	**Local/national benefits:** • Improved stakeholder cooperation and awareness of cooperation opportunities **Global benefits:** • Integrated conservation framework with community-based approaches • Best case scenarios and examples of integrated resource management for scale-up and replication particularly in SIDS

3.8. Sustainability

250. Socotra is one of the few and probably the most prominent Natural World Heritage Site in the region, which was featured as one of the selected case studies in the recent 40th Anniversary Publication of UNESCO (Van Damme 2012). At the same time, Socotra is currently at the crossroads where the future course for a sustainable development has to be set, albeit the mounting pressures on the environment, among others through a steady population influx and unsustainable (infrastructure) development decisions.

251. Therefore, the integrated approach stipulated by the project, combining SLM, IAS management, community-based management of PAs, Conservation Financing Mechanisms, and the promotion of alternative livelihoods, is seen as the most promising strategy to firmly anchor an appreciation of the unique island ecology in policy and local decision making processes. Technically, the introduction of ecosystem services approaches and tools to valuate the island's ecosystems is one guarantor for mainstreaming the environment and it sustainable use and conservation into policy making. This will be supported by the community-based and participatory philosophy underlying the project's intervention strategy, which is intent to furthering mutual confidence and collaboration on environmental planning and decision making issues between government authorities and local communities.

252. The project is aware of the ongoing governance changes the recent creation of the independent Socotra Governorate will bring upon the island, and these are accounted for as an opportunity in the project strategy: Component 4 aims for the institution of an inter-agency planning framework (ICMF) as a central analytical approach facilitating the mutual consideration of strategic environmental, social and

development concerns across sectors and actors. It will help in mainstreaming the overall objectives of the Socotra WHS into policy planning and formulation, and in supporting the implementation and integration of Project activities within the institutional, legal and stakeholder landscape, both at island and national levels.

253. Capacity development figures prominently on the project agenda so as to ensure sustainability and also to counter the less than stellar rating of outcomes through development cooperation in the region. Capacitating and training a broad range of stakeholders – government bodies as well as communities and their representatives – to understand each other's concerns and limitations, and for trust-building, negotiating and collaborative decision making, will institute a coordinated and continued partnership among resource users and beneficiaries, to last beyond the limits of the project.

254. Financially, the sustainability of the project's intervention rests on two main pillars:
A) Establishing and sustaining an integrated approach by putting in place legal frameworks, developing and maintaining capacity for enforcement of legal frameworks, and developing capacity in science-based assessment, management and monitoring cannot be achieved in the absence of sustainable financing. A major objective in Component 4 (outcome 4.3), therefore, is to establish sustainable finance systems. The Project will provide comprehensive support to the establishment of a Socotra WHS Trust Fund and an endowment, as well as other local income generating mechanisms, to develop and resource the Archipelago's financial architecture. The project will thus catalyse and capitalise a strategic financing programme for the Archipelago. It will build incremental GEF finance with matching local, national and international partner commitments beyond the lifetime of the Project to leverage financial resource flows for achieving the conservation targets as outlined in the present document. Furthermore, to gather momentum with ongoing efforts, the Project will provide specific on-the-ground preparatory activities and testing of approaches and incentives in identified activities across the Archipelago, as well as simultaneously developing the financial architecture and capital of the financing mechanisms.
B) The broad range of partner institutions, donors and GOY bodies to be involved in the project will provide an innovative example that is expected to (a) generate important lessons for the management of other WHSs; (b) build new national expertise in fields and on professional skills not previously available in Yemen; (c) contribute to the conservation of other threatened island ecosystems all over the world. The Socotra experience has very good potential for scaling up both at the national level (Yemen has some other 220 islands along its >4,000km coastline), as well as at the regional level, through exchange programmes with neighbouring Arab-speaking countries. The existing linkages with the GLISPA and SIDS networks will also provide an avenue for international level exchanges of experience and capacity.

3.9. Replication

255. The main focus and strength of this project is the overarching approach to tackle major bio-cultural threats and management/capacity gaps in an integrated approach (Section 2.3), which allows a stronger capacity development of the main stakeholders, from users of ecosystem services to decision makers at all levels (local communities, environmental agencies, government authorities), using updated tools and models that are applicable in the long term. From the outcomes and activities of

this project (Section 3.3), it is envisaged that a model set up for sustainable financing and capacity development (incl. awareness and education), PAM of terrestrial and marine ecosystems and SLM and IAS management will be developed for replication at national and regional scale, which will be particularly applicable within an SIDS context.

256. Strongly focusing on direct monitoring of results from the onset of the project (e.g. using PAMETT for the PAs; see Appendix 15 on the GEF tracking tools and Component 1 under Section 3.3), additionally improving and developing locally adapted tracking tools and using direct bio-cultural demonstration activities with community involvement (Field Schools, see Component 4 under Section 3.3) both linked with IAS and SLM, each activity of the main components is directly scalable and has the potential for replication, both in the future on Socotra, as regional and even international. Reproducibility of results and outcomes are ensured by internal tools for monitoring, in coordination with and strengthening of local governance. In particular, directly focusing on increasing the strength of the balance between local communities and biodiversity, translated in sustainable resource use and a continuation of awareness, including revival of traditional laws, knowledge and culture, increases chances for peace and stability in the long term on Socotra, and can be replicated in other regions. This reveals a need for continuous efforts in bio-cultural conservation and revival within the region, aimed at sustainable use, to allow resilience during and after political turmoil.

257. Specific activities such as the development of spatial mapping tools (see Component 1 under Section 3.3), sustainable funding for long term capacity development, and tools for assessing values of ecosystem services, are aimed at application at ground level, and allow for replication at higher levels, both governmental and geographical. All these tools will be applied keeping replication in mind. The use of population genetics in PA planning and habitat- and species specific management plans, are local examples that will have high replication potential in the region.

258. All intervention and awareness/education activities (see Component 4) will allow for the monitoring of good practice and therefore lessons learned will help replication through communication at international level - this will be achieved through publications in high-level journals and books, conferences (e.g. FoS annual meetings, international meetings on island biodiversity, IAS, etc.), with the potential of examples to be replicated at international level in comparable cultural landscapes reaching far beyond the project.

259. The main replication of the project lays in forming communication and knowledge networks, creating bridges that allow a streamlining of data and translation to be used by local communities now and in the future. By connecting several international institutes through this project with local communities with a major input in the bio-cultural conservation of Socotra, replication for future projects that propose an integrated approach both on topics and on levels of governance, is envisaged. By combining progress in the field with actual revision of existing regulations and implementation, including a revival of traditional customs, constantly subjected to evaluation and improvement, the project will increase all opportunities for replication for the future and in the region. The focus lays also in adapting user-friendly tools that will enhance exactly this replicability.

260. Specific replication is envisaged in IAS, as very little has ever been achieved at a higher level within Yemen nor within the Arabian Peninsula, even though efforts

towards IAS remediation and strategies are part of the CBD. Therefore, even the smallest progress in IAS management and awareness on Socotra can be seen as a major example that will lead to replication, through attention and weight given to this specific challenge to biodiversity and livelihoods, and such activities will be disseminated and monitored with the aim of replication, especially in small island contexts.

261. This can be equally applied to the other components, each of which contains innovative approaches for both SIDS and arid regions, which are envisaged to be seen as important, useful case studies to repeat the overarching strategy. The fact that the project is investing in the future by forecasting events using all current data available to the local context, is a strength that has huge replication potential for projects on a wide diversity of topics, as most interventions arrive too late - this intervention arrives early/just in time and is therefore cost-efficient and replicable from a local context to a wider scale. For example, if similar interventions had occurred in the Galápagos in the 1980s, it would have saved a lot of issues (e.g. regarding IAS) and costs now. The proposed project is replicable in its timeliness and strategic design, which will be evaluated and monitored throughout, by locally applying tools that can and will be used beyond Socotra.

3.10 Public awareness, communications and mainstreaming strategy

262. The public awareness, communication and mainstreaming strategies for this project have been combined under Component 4 (Enabling Environment, comprising Capacity Development, Institutional Frameworks and Sustainable Financing), strongly cross-linked with the other components. The reason for separating communication and awareness activities from the more technical and sectoral approaches in Components 1 – 3 and lodging them in Component 4 lies a) in their cross-cutting and supportive character in achieving these outcomes, and also to avoid repetition per Component as the strategies for BD, IAS and SLM/LD are similarly structured. The integration of each Component into the public awareness and mainstreaming strategies of Component 4 is vital to the project. Furthermore, each Component also has its own embedded mainstreaming strategy.

263. Component 1 aims at developing and mainstreaming biodiversity conservation into policy and institutional frameworks, thereby including local community needs and interactions with PAs. Revision of the Socotra Conservation Zoning Plan (SCZP) in itself, developing and integrating spatial planning tools, is a major biodiversity mainstreaming vehicle that, together with the cross-sectoral management plans for PAs as well as for key species and habitats, allows policy makers to use and evaluate the status of PAs and to enhance community involvement. As this Component includes baseline analyses needed for updating the general PAM strategy on Socotra, part of the communication process and strategy will involve publications in scientific journals and books, which illustrate both credibility as well as coverage at an international level, e.g. at international fora (conferences, workshops, etc.) and through popular media, which allows feedback and interaction that can be further used during implementation. This communication strategy has proven successful in the past, strongly increasing Socotra's global status as a biodiversity hotspot, as well as the uniqueness of its cultural heritage (e.g. language). At all stages of PAM evaluation and the design of new PAs, community participation and

public awareness are crucial. This will be achieved by information sessions but also by direct involvement (in fact: lead) in management.

264. Component 2 will focus on establishing and mainstreaming IAS strategies into policy, based on local examples, comparison with case studies in other regions and direct actions. During the PPG phase, it became clear that IAS public awareness is an enormous gap in BD conservation on Socotra. This was illustrated by IAS strategies, after explaining the risks, being positively received by local communities, showing the willingness for participation and creating the basis for awareness (see Appendix 19, PPG Mission Report). Activities for IAS management are cross-sectoral and also go beyond the borders of the Socotra Archipelago itself. For example, awareness campaigns aimed at training local staff at entry points (seaports and airports), would expand to main entry points of origin (e.g. airports in UAE and mainland Yemen). Communication tools will be designed that ensure the IAS strategies are useful and applicable, and remain to have a lasting effect even after the project's duration. The Component includes a () dissemination strategy that is tested and approved in other regions to emphasise the importance of IAS threats and the need for participatory engagement at all levels. In particular Output 2.1.2 under Component 2, focuses on public engagement in the development for the SISSAP (Activity 2.1.2.1), and the dissemination of non-technical versions of the SISSAP as a major part of its communication and mainstreaming strategy (Activity 2.1.2.2). As Component 2 will be novel to Socotra, carefully executed communication strategies, aimed at all levels, are vitally important to its success.

265. Component 3 aims at linking the needs of SLM/LD strategies at grassroots level on Socotra to policy levels through mainstreaming from baseline studies to SLM management plans. In parallel to the previous component, Component 3 includes an SLM strategy and mainstreaming output (Output 3.1.2) which includes the establishment of inclusive stakeholder fora for SLM information and knowledge exchange, the participation of all stakeholders in developing the SSLMSAP and the use of exchange visits to enhance ideas and knowledge transfer. Public engagement and awareness is a large part of the SLM measures and interventions, on different aspects (traditional grazing, renewable energy, etc.), partly realised by Field Schools, which is a communication and education tool allowing direct knowledge transfer on major issues (see below under Component 4). All these activities will be communicated at the grass-root level, yet will be mainstreamed to higher levels in development of the SLM strategy and policy. The launch of this component, the tackling of land degradation at this scale and specifically the development of a specific SSLMSAP is relatively new to Socotra, and therefore communication strategies aimed at local communities and implementing agencies are vitally important to this component.

266. Component 4 includes the bulk of activities aimed at communication, mainstreaming and public awareness as part of capacity development and shaping the institutional framework. Well strategised communication and mainstreaming tools are vital to the links between local communities, scientists, policy makers and implementing agencies. In order to identify also the gaps in public engagement and in knowledge, a training needs analysis will be part of the capacity development plan allowing a detailed understanding of training and education needs (Output 4.1.1). The compilation of baseline data for ecosystem services (Output 4.1.2) is strongly linked with components 1 and 3, and translated into mainstreaming tools in the form of ecosystem services maps to develop cross-sectoral guidelines, recommendations

and planning support tools (e.g. risk and vulnerability assessments). The Integrated Conservation Management Framework (ICMF - Output 4.1.3) is another mainstreaming tool to coordinate between different stakeholders and to allow the translation of the needs in BD conservation, IAS and SLM issues into sectoral planning instruments, while establishing working groups or similar information exchange mechanisms to prevent “sectoral silos”. Under Component 4 several new tools will be introduced for Socotra, and tools that have been underdeveloped or not implemented in the past such as Rangers to enhance enforcement of environmental policies, enhancement of academic education and local study modules and the development of Field Schools. For all these activities, public engagement and communication will be crucial and realised through direct meetings and dissemination through local means, and translated into lasting activities through programmes and assisting authorities in launching such activities. The Field Schools (Output 4.1.6) are an example of participatory involvement that will contain programmes for all other components to ensure communication and knowledge transfer on different topics across all components and allowing feedback to the project.

267. Component 4 includes the project's Information Management and Communication Strategy (Outputs 4.2.1-4.2.2) across all other components. This includes the development of information, communication and awareness strategies for the project, by a) establishing a major information hub capturing traditional management information and knowledge and making this available to public, e.g. through an e-library and b) developing communication strategies and awareness for the project, including dissemination of education and awareness materials linked to the Project's components, organisation of study visits and the development and maintenance of a project website (in English and Arabic).

268. Besides the mainstreaming activities and specific communication strategies listed above, the overarching general public engagement/communication strategy will involve:

i) Informing and encouraging the public in a realistic way on new methods and requirements for involvement:

Logistic information on activities, openness and involvement;

Measures that raise communities’ awareness of reasons for activities (e.g. impacts of IAS, LD on livelihoods), e.g. discussion of issues related to all components through public hearings with community members to allow issues to be raised and discussed;

Educational tools aiming for the future by informing the next generation on environmental impacts related to BD/PAM, IAS and SLM/LD at both school and university level.

ii) Gaining public support for the main initiatives in the Project Components (BD/PAM, IAS, SLM/LD, and Enabling Environment).

iii) Stimulating knowledge transfer/awareness and enhance the profile of main elements of all four components, in particular "new" initiatives, e.g. IAS, FS, etc., including guest speakers and fresh know-how and knowledge transfer.

iv) Media campaigns (newspapers, advertisements, posters, etc.).

v) Continuous participation and involvement with national and international stakeholders to keep linkages with all interventions.

vi) Stimulation of scientific output and high impact publications, including participation at international conferences.

vii) Ensuring cross-sectoral communication and feedback (mainstreaming tools).

269. For the general communication strategy, the project will benefit and stimulate activities from agencies and organisations that have well-established means of disseminating project knowledge to the public and that have been successful in awareness campaigns in the past decade, and organise yearly conferences allowing all stakeholders, including Yemeni and Socotri participants, to convene and discuss progress (e.g. Friends of Soqotra). This way, existing mechanisms of community participation and awareness will allow introduction of important strategies (e.g. IAS strategy) and raise public engagement.

3.11 Environmental and social safeguards

270. The project is expected to generate positive and long-term environmental and social impacts (see Results Framework objectives and outcomes, Appendix 4). Progress towards these will be measured through the GEF Tracking Tools (Appendix 15), and indicators specified in the Results Framework, as well as under the project monitoring and evaluation plan (Appendix 7).

Environmental safeguards

271. The Project aims to produce positive environmental and social impacts under all its four Components. It will develop and improve the institutional, organisational and individual capacities of government bodies responsible for the environment, involve other government bodies in collaborative decision making processes for the sustainable development of Socotra, and enhance the capacities and the role of communities in the conservation and stewardship of protected areas, sustainable land management approaches and in managing invasive alien species. The Project seeks to improve habitat conditions within and outside protected areas, and will positively address the current trend of habitat and species loss. Furthermore, the Project will create opportunities for conservation action through increased awareness, capacity development and the identification of alternative livelihood options linked to enhanced stewardship and conservation management.

272. The project is expected to create indirect environmental benefits through improved ecosystem management, and the potential for enhanced carbon sequestration and linkages to relevant PES and REDD+ schemes through sustainable land management (see also the detailed description of Component 3 in Section 3.3).

273. Table 10 provides a list of potential harmful environmental impacts that are of concern to the GEF and UNEP, and summary responses to each as relevant to this project.

Table 10: Checklist for environmental issues

Issue	Response	Comment/explanation
- Are ecosystems related to project fragile or degraded?	Yes	Yes and the project will seek to improve habitat conditions within and outside PAs in the target areas
- Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure?	No	On the contrary, the project is expected to contribute to positively addressing this issue. However, there may be some need for infrastructure construction to support eco-tourism and other income generating activities. There may also be some minor ecological impact in order to provide boundary markers for protected areas. As both will be embedded in the project's integrated ecosystem management approach, negative impacts will be minimised and mitigated to the extent possible
- Will project cause impairment of ecological opportunities?	No	The project is expected to positively contribute by addressing this issue
- Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	No	N/A
- Will project cause air, soil or water pollution?	No	The project is expected to positively contribute by addressing this issue
- Will project cause soil erosion and siltation?	No	The project is expected to positively contribute by addressing this issue
- Will project cause increased waste production?	No	The project is expected to positively contribute by addressing this issue
- Will project cause Hazardous Waste production?	No	N/A
- Will project cause threat to local ecosystems due to invasive species?	No	The project is expected to positively contribute by addressing this issue
- Will project cause Greenhouse Gas Emissions?	No	The project is expected to positively contribute by addressing this issue
- Other environmental issues, e.g. noise and traffic	No	Site visits and M&E studies will have a temporary and marginal effect on noise pollution and increased traffic in specific areas

Social safeguards

274. The Project design and implementation strategy respects internationally proclaimed human rights including dignity, cultural and intellectual property and rights of indigenous people living on Socotra. The rights of local communities and indigenous people, including existing land tenure recognised by the existing laws, will be maintained in the design of any protected area and its establishment. Full stakeholder identification and consultation has occurred during the PPG phase, and a communication and outreach strategy will be developed during the project Inception Phase.

275. The Project is expected to significantly improve the capacity of targeted institutions and local stakeholders, and is expected to enhance other benefits arising from resource use and alternative livelihoods in the target areas in the long term. It is not anticipated for the project to cause dislocation or involuntary resettlement of people, or any forced or child labour. Recreational opportunities, indigenous people's livelihoods or belief systems, and critical cultural heritage will be maintained during the implementation of this project. These will be ensured by, among others, introducing EIA processes and procedures and maintaining these during project implementation, including its social dimension in any Project-sponsored investments such as eco-tourism, area demarcation, etc.

276. In order to ensure that there are no disproportionate impacts to women or other disadvantaged or vulnerable groups, appropriate involvement of all social groups was ensured during the PPG phase, and will be continued throughout the Project's implementation. Robust financial monitoring procedures will be implemented by the Executing Agencies (EPA and SGN) in order to provide for anticorruption measures.

277. Table 11 provides a list of potential harmful social impacts that are of concern to the GEF, and summary responses to each as relevant to this Project.

Table 11: Checklist for social issues

Issue	Response	Comment/explanation
- Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people?	Yes	Special attention is given to indigenous people living on the island; their knowledge, customs and conservation practices found entry into the project's strategy and results framework.
- Are property rights on resources such as land tenure recognised by the existing laws in affected countries?	Yes	Independent of the existence or non-existence of relevant laws, these land and property rights will be carefully assessed to ensure they are duly taken into account during consultation for PA design, or development of alternative livelihood options.
- Will the project cause social problems and conflicts related to land tenure and access to resources?	No	The rights of resident and indigenous peoples will be carefully assessed to ensure they are taken into account during consultation for PA design and establishment and development of alternative livelihood options
- Does the project incorporate measures to allow affected stakeholders' information and consultation?	Yes	A full stakeholder identification and consultation was carried out during the PPG phase, and a communication and outreach strategy will be developed during the inception phase. The overall implementation strategy is founded on community-based approaches to sustainably achieve positive environmental impacts
- Will the project affect the state of the targeted country's institutional context?	No	The project will target policy aspects related to the Socotra WHS management and aims at improving the mainstreaming of environmental concerns into policy planning and decision making processes. It seeks to develop the administrative and technical capacities of targeted national institutions. It will, however,

Issue	Response	Comment/explanation
		not affect the country's institutional set-up.
- Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)?	No	The project is expected to positively contribute by addressing this issue
- Will the project cause technology or land use modification that may change present social and economic activities?	Yes	The project is expected to contribute positively to change present social and economic activities around and within the selected target areas in the long term
- Will the project cause dislocation or involuntary resettlement of people?	No	N/A
- Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and possible overloading of social infrastructure?	No	N/A
- Will the project cause increased local or regional unemployment?	No	The project is expected to positively contribute by addressing alternative livelihoods
- Does the project include measures to avoid forced or child labour?	No	N/A
- Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	Yes	Rules and regulations of the host government will apply
- Will the project cause impairment of recreational opportunities?	No	N/A
- Will the project cause impairment of indigenous people's livelihoods or belief systems?	No	Appropriate involvement of all social groups will be ensured throughout the project's implementation
- Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	No	Appropriate involvement of all social groups and strata will be ensured throughout the project's implementation phase
- Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	No	N/A
- Does the project include measures to avoid corruption?	No	The involvement of a broad array of partner organisations and stakeholder groups will constitute a checks and balance system against corruption. This issue will further be addressed by including specific and tight financial monitoring procedures and measures as part of the project execution set-up

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

278. The proposed Project's implementation arrangements particularly take previous experiences with low-performing conservation and environmental projects in Yemen and the broader Arab region into account, as well as the STAP comments. The former is partly due to a chronically low level of administrative and technical

capacities at national and even more so at the island level. The latter prominently refer to difficulties in the Arab region with regard to inclusive approaches, as governmental authorities are not used to sharing information, decision making or even power and are often regarded as adversaries rather than partners in conservation by the local population.

279. The GEF Implementing Agency of the Project is UNEP, represented by its Division of Environmental Policy Implementation, Terrestrial Ecosystems Unit (UNEP/DEPI/TEU). The Project will be locally executed through MWE/EPA Yemen whereby an international agency or institution (main contractor) will assist MWE/EPA Yemen with the coordinated execution of all activities and will provide technical backstopping for the day-to-day international coordination of the Project. To this effect the Contractor will establish a Project Management Team (PMT). The PMT will be guided by a senior Project Coordinator (PC) and associated technical and administrative support staff at the headquarters of the Contractor who will also be responsible for overseeing the financial administration, reporting and M&E at Project management level. The PMT will further encompass an on-site Project Management Unit (PMU) composed primarily of a regional or junior international Project Manager (PM) and a team of local, national and regional experts and technical staff, which will be in charge of implementing the activities on the ground in close cooperation with the respective authorities (especially the local EPA branch and the GO administration) and local stakeholders.

280. For specific thematic or spatially delimited interventions, community-based coordination and management schemes will be set-up to ensure local ownership and responsibility (e.g. PAM committees, Field School committees etc.).

281. Project supervision for overall progress and success rests with a Project Steering Committee (PSC) the composition of which will be determined among the key partners during Project inception. Yet, representatives of the MWE/EPA, MPIC, the Governorate Council, the District Councils, and of societal stakeholders (CBOs, NGOs), the main contractor and UNEP will hold voting rights in the PSC, while the PMT will serve as its secretariat.

282. It is envisaged to form Technical Advisory Boards (TAB) assigned to the main field of intervention which may be composed of a pool of dedicated experts providing specialist input upon request.

283. In order to further structure coordination and policy mainstreaming of its objectives the Project will institutionalise a planning and coordination mechanism to be known as ‘Integrated Conservation and Management Framework’ (ICMF). The ICMF would involve key policy and technical agencies and represent an iterative and non-linear process which is comparable to an Institution-centred Strategic Environmental Assessment (I-SEA) and form the overarching conduit to mainstream Project objectives, to link to policy formulation processes and to direct capacity development. The ICMF will also represent the main environmental and social safeguard mechanism of the intervention.

284. The project will be designed and implemented in close coordination with all key government and donor-funded programmes both at national and site level. Therefore, representatives of additional key stakeholders can be invited to join the PSC, not least based on the outcomes of the extended stakeholder analysis to be conducted once the ongoing governance changes are completed and additional GO administrative structures and agencies can be aligned with the Project. It is

suggested, though, to form a Stakeholder Advisory Board (SAB) that accommodates most satellite parties and allows the main PSC to remain lean and operationally feasible. The SAB will be the second main conduit for appropriate coordination and synergy among all the above ongoing initiatives, building upon the experience and lessons learned from earlier similar efforts in the period 2000-2004 with support from UNDP and Royal Netherlands Embassy (i.e. Socotra Coordination Unit). It will thus ensure synergy with parallel initiatives and close collaboration with all other Government bodies and donors involved in the conservation and sustainable development of the Socotra WHS and including: GIZ programme: “Conservation and sustainable use of biodiversity in Yemen” - (PN 2009.2231.0); UNDP Yemen / GEF and FFEM (“Socotra Governance and Biodiversity Project”); IFAD (Fisheries Investment Project), SRI/BiK-F (Germany, ongoing applied conservation and resource management research and Field Research Station in Hadiboh); FoS (range of field studies by FoS members including universities); University of Rome-DGCS (Italy; ongoing programmes including training for national staff of EPA); RBGE-CMEP (UK, ongoing botanical/terrestrial conservation research); University of Brno (Czech, ongoing research and development support to terrestrial resource management); UNESCO (support to the Socotra WHS through IUCN), WB/GEF project in support of PERSGA (Regional marine programmes including also the Gulf of Aden and Socotra) and all other partners and donors that are currently or will be involved in supporting the Socotra WHS in various ways. The project will also help consolidate EPA’s existing links with other major conservation organisations in the Arab region, and namely with RSCN (Jordan), BirdLife international Regional Office in Amman and PERSGA.

285. With regards to IAS Management, there are several regional/global GEF projects underway elsewhere, in various stages of development and implementation, with which linkages and exchanges of best practices will be sought, through the involvement of CABI as a key international partner in this GEF project. These include i.e. the recently completed UNEP-GEF Project, “Removing Barriers to Invasive Plant Management in Africa” (CABI was Executing Agency - EA) providing the opportunity to share experiences and lessons learnt during the implementation of this GEF project, on strengthening policy, developing capacity, and creating awareness. Other relevant UNEP-GEF initiatives include the regional project “Mitigating the Threats of Invasive Alien Species in the Insular Caribbean”, where CABI is also the EA; a project recently initiated in Cameroon: “Development and Implementation of a National Monitoring and Control System (framework) for Living Modified Organisms (LMOs) and Invasive Alien Species (IAS)” under the GEF/UNEP Biosafety Programme; “Prevention, Control, and Management of Invasive Alien Species in the Pacific Islands”; and “Removing Barriers to Invasive Species Management in Production and Protection Forests in SE Asia”, with CABI as the EA. Most of these projects focus on awareness creation, capacity development, strengthening of IAS policy and the development of best management practices for selected target species. CABI is involved in most of these initiatives or in close collaboration through its former GISP partners, IUCN and TNC. Other relevant projects in the region include the UNDP/GEF Seychelles “Mainstreaming Biosecurity Project” that may also generate useful lessons for the Socotra WHS.

286. UNEP, as the GEF implementing agency for this project, will provide adequate back-stopping and in-country assistance as required in close collaboration with the MWE/EPA, the main contractor, and UNDP, These arrangements will also be supported by UNEP’s regional office for Western Asia (ROWA), based in Bahrain,

and will (a) take stock of all prior experience of UN support for the Socotra WHS since 1996, and (b) develop operational synergies with other ongoing or planned UNEP and UNEP GEF initiatives in Yemen (including: Biosafety, Efficient lighting, Geothermal project)

287. The project is consistent with the following areas of UNEP's mandate in the GEF (as identified in the UNEP Action Plan on Complementarity, approved in May 1999 by the GEF Council): UNEP contributes to the ability of the GEF and of countries to make informed strategic and operational decisions on scientific and technical issues in programmes and project design, implementation and evaluation, through scientific and technical analyses. These include assessments, targeted research, methodology development and testing and structured programme learning projects. UNEP implements projects to promote specific technologies and demonstrate methodologies and policy tools that could be replicated on a larger scale by other partners. The project is fully consistent with and complementary to the objectives and expected outcomes of the ongoing UNEP Programme of Work for 2014-2015, specifically under the Ecosystem Management Sub-programme, Expected Accomplishment (EA) (a): Use of ecosystem management approaches in countries to maintain ecosystem services and sustainable productivity of terrestrial and aquatic systems is increased, Output 312 Tools, technical support and partnerships to improve food security and sustainable productivity in agricultural landscapes through the integration of the landscape approach.

288. Furthermore, the project is consistent and complementary to the objectives and expected outcomes of the UNEP Marine and Coastal Strategy, particularly the Ecosystems for Humanity strategy to 'enhance the understanding of the status, trends and key drivers impacting marine and coastal ecosystems and the services they provide for human well-being and poverty alleviation as a basis for informed and coherent policy making and governance' with expected outcomes of 'global marine and coastal biodiversity targets met by countries and regions through enhanced access to appropriate and timely scientific information', 'compatible tools, guidelines and frameworks developed for defining, assessing and valuing marine and coastal habitats and their ecosystem services', 'integrated and regular national, regional and global regular assessments of the status, trends and key drivers of marine and coastal ecosystems' and 'enhanced understanding and awareness of the role of marine and coastal ecosystem services for human well-being and climate regulation'.

SECTION 5: STAKEHOLDER PARTICIPATION

289. The mapping and analysis of the stakeholder arena, conducted during the PPG phase of the Project is briefly summarised in Section 2.5, and additional relevant information is analysed in the Sections 2.5, 2.6 and 3.1, and the preceding Section 4 on Institutional Frameworks and Implementations Arrangements. The latter rolled out the main participatory and decision-making mechanisms for the Project which provide the entry points for stakeholders and comprise the Project Steering Committee (PSC), Stakeholder Advisory Board (SAG), Technical Advisory Board (TAG), and not least the Boards which will be established to oversee the sustainable financing schemes. The below Table 12 characterises the specific entry points and different and complementary roles various stakeholder groups and political actors are expected to assume during project implementation. Given the present uncertainties with regard to the institutional and policy framework, managing the

consultative and participatory processes will be a dynamic exercise, and the below table does not intend to pre-empt the stakeholder set-up.

Table 12: Stakeholder project roles and contributions according to different categories

Category	Stakeholders	Roles and Contributions
Central government and sub-ordinate executive parastatal agencies (ministries, authorities (partly with local branches), boards etc.)	Environment Protection Authority, Ministries of Transport, Planning and International Cooperation, Finance, Agriculture and Irrigation, Water and Environment, Oil and Minerals, Local Administration, Interior, Public Works, Culture and Tourism, Fish Wealth, 'Education, Water and Environment Advisory Office to the President of Yemen	The central government represented by several key ministries and their subordinate technical (executive) agencies (i.e. their local branches which serve both the central and provincial level, see below) will play a major role in the Project. Besides EPA as EA, assisted in technical issues and the international coordination by SGN, a core group of them will partake closely in steering and overseeing the Project implementation and thus be members of the PSC. Others will be members of the SAG and the STF Boards (where appropriate) through which they can influence the Project's course. All of them will be concerned with issues of developing, implementing or mainstreaming policies and strategies through the regular vertical and horizontal governance procedures, which will be supported by the 'I-SEA of ICMF' process cycle (see Section 3.3, Output 4.1.3). All of them will significantly contribute to the baseline investment on which the GEF contribution will build upon. This will include, e.g.: Staff, infrastructure, equipment and operations (underlying most contributions per se); National and local level governance processes, e.g. on land-use and development planning, including relevant legal and policy expertise; National and local level data collection and analysis on environmental parameters, biodiversity and natural resources, social and demographic parameters etc.; National and local level executive and operational support.
Sub-central governmental bodies (regional, governorate, district, municipal)	Governorate of Socotra Council/Administration and Ministries'/Executive Agencies' local branches (Socotra, serving both the central and provincial level), Local Councils (Districts of Hadiboh and Qalansiyah), Regional Hadramaut Government (role to be assessed), Universities of Mukallah, Sana'a, Aden, Taiz, Dhamar.	The provincial/district government will play a major role in the Project and partake closely in steering and overseeing the Project implementation and thus be members of the PSC and the Boards of the STF. Local branches of certain executive/technical agencies (or of ministries, as appropriate, the pattern is inconsistent), and municipal and parastatal bodies, i.e. the academic institutions and corporations will assume a role according to their mandates and support capacities, and thus considered as members of the SAG, TAG and the STF Boards, through which they can influence the Project's course. Especially the provincial/district government will be concerned with issues of developing, implementing or mainstreaming policies and strategies through the regular vertical and horizontal governance procedures, which will be supported by the 'I-SEA of ICMF' process cycle. All of them will contribute (significant in terms of the provincial gov.) baseline investment including, staff, infrastructure, equipment and operations; Local level governance processes e.g. on land-use and development planning, including relevant legal and policy expertise; Local level political and academic data collection and analysis on environmental parameters, biodiversity and natural

Category	Stakeholders	Roles and Contributions
		resources, social and demographic parameters etc.; Local level executive and operational support.
Civil society organisations (CSOs, NGOs, CBOs including Women associations)	The Socotra WHS features, besides traditional societal and religious actors such as the Sheikhs and elders, a range of community based groups that were established in recent years, partly with GEF support. These include, inter alia (compare Appendix 19, PPG Mission Report) Environmental NGOs, Fishery Cooperatives and Associations, Eco-tourism CBOs, Socotra Women Association, and not least the Management Associations for the PAs.	Community participation in steering and overseeing the Project implementation will be ensured through appointment of representatives to the PSC, and of others to the SAG, and where appropriate to the Boards of the STF through which they can influence the Project's course. This may be organised on a rotational or otherwise democratically appropriate way. Additional representatives with an activity-/site-specific stake can be invited to partake in the consultation mechanisms temporally or as guest, including dialogues with EPA and local/central government authorities and working groups. The strong partnership between the EPA and local community groups has been a key asset GEF-supported work in recent years (eventually leading to the Conservation Zoning Plan in 2000 and the establishment of the WHS in 2008), and this will be taken up and revived by this GEF project. The possible contributions of community groups are very diverse and highly critical to the success of the Project, and will encompass, inter alia, active intellectual and physical engagement, provision of traditional knowledge, crafts(wo)manship, socio-cultural information and interaction, decision-making and moderation processes and societal cohesiveness, granting of local support, tenure rights, and availing land, premises, gears/tools, and commodities. The establishment of Field Schools will be an important participatory tool to engage local communities and resource users in evaluating, approving, implementing and discussing novel approaches for community-based conservation (see Section 3.3, description of outcome 4.1)
Private Sector	Small and medium enterprises comprise both, fully private or cooperative, actors from e.g. fisheries, agriculture/livestock, tourism and eco-tourism, transport, trade, construction, etc. Large enterprises at present comprise mainly actors from transport and construction, partly with vested interests from national and regional investors outside Socotra. The real estate sector attracts recently huge interest by regional investors, and the looming associated ecological,	The Private Sector will primarily be engaged in a dialogue to support the environmentally friendly objectives of this project and the establishment and funding of the Socotra Trust Fund and the associated income generating mechanisms (Outcome 4.3) as a pathway towards a model for green economic development for the Socotra WHS. Representatives may be invited, as guests or permanently, to the SAG, TAG, and e.g. the Boards of the STF. The possible involvement of the Private Sector in PAM will primarily focus on small and medium scale, community-based enterprises (SMEs – such as e.g. from artisanal fisheries, eco-tourism) active within the target areas. SMEs may also have a role and make active contributions in the fields of IAS (e.g. transport, trade) and SLM (e.g. marketing of products, improved supply and trade schemes) Larger investment groups at the national and regional (Arabian Gulf) level will also be involved in STF design and funding.

Category	Stakeholders	Roles and Contributions
	social and political effects can be severely detrimental to the WHS objectives.	
Donor agencies (and their programmes and projects); international conservation CSOs/NGOs & science partners	This includes international and bilateral development partners of Yemen such as UNDP, UNEP, UNESCO WHC, IFAD, Germany/GIZ, Italy, to name only the presently most active, and a broad and diverse national and international network of "Friends of Soqotra" and other partners that have been instrumental in developing the capacity of the EPA, undertaking all prior GEF projects and in achieving WHS status. These groups continue to engage mainly in research and awareness, and support to conservation and sustainable development efforts and are key stakeholders, including – inter alia - representatives from: SRI/BiK-F, CMEP/RBGE, BirdLife International, CABI and other research institutions (e.g. University of Rome, Mendel University, Sana'a University, etc.).	Participation in steering and overseeing the Project implementation will be ensured through appointment of representatives of e.g. UNEP, UNDP, FoS, and SRI/BiK-F to the PSC and the STF Boards, and of others to the SAG (and also the TAG where appropriate) through which they can influence the Project's course. This may be organised on a rotational or otherwise democratically appropriate way. Additional representatives with an activity-/site-specific stake can be invited to partake in the consultation mechanisms temporally or as guests. Thematically, these stakeholders will be involved in various biodiversity conservation elements of the project including e.g.: biodiversity and ecosystem monitoring and field research (marine and terrestrial), training and capacity development, development of incentive-based mechanisms, conservation policies and legal instruments, community involvement, outreach and awareness programmes; assessment and evaluation of the ecosystem services provided by the target protected areas; climate change modelling, land degradation/ soil erosion mapping, etc. All such contributions will be defined in detail during the Project's inception phase, and will encompass material, financial and in-kind contributions to the baseline investment (partly through staff, infrastructure, equipment and operations), as documented in Appendix 2 (Co-financing). Part of these contributions will be reciprocated by the Project through in-kind support as well as contracts for technical support pertinent to project activities. UNEP and its specialised partner agencies will, in addition to the oversight functions as GEF Implementing Agency, provide a wide range of technical in-kind contributions to the design and implementation of the project, including e.g.: linkages with parallel UNEP programmes of national and global nature and focusing on related issues; protected areas, conservation planning, environmental policy and climate change-related expertise; biodiversity databases, data analysis, decision-support tools and GIS systems; coastal zone management, wetlands and natural resources management, etc. The contributions of each division and UNEP partner organisations will be defined in detail during inception and when need arises during implementation of the Project. The UNDP Country Office in Yemen has accumulated significant expertise in supporting GEF and non-GEF projects in the Socotra Archipelago and mainland Yemen since 1996, and is currently engaged in the SGBP and the GEF SGP. As such the UNDP CO team will be a key partner in the design, implementation and facilitation of the Project.

Category	Stakeholders	Roles and Contributions
		The UNESCO WHC is set to provide support for the development of an education, awareness and visitor centre in Socotra in collaboration with EPA and project partners. The GIZ has extensive experience in development cooperation in Yemen, and is funding a new initiative on the conservation and sustainable use of biodiversity in Yemen with a focus on Socotra. This initiative is implemented with MWE/EPA, therefore the Project is designed and will be implemented so as to maximise synergy and coordination with the German-funded initiative. CABI will provide specific expertise on IAS management and linkages with other parallel IAS management initiatives in other parts of the world, and link up species assessments and specific experiences in Socotra to its global data management portal. CABI's century-long work on invasive species has contributed to biodiversity conservation through policy support, innovative information products, and research on biological control.
International Agreements, Conventions, Programmes and Platforms (MEAs)	Yemen has ratified and acceded to most relevant international agreements and conventions, which can be accessed to provide support, complemented by other related initiatives, (see Appendix 18) for example the Global Islands Partnership (GLISPA), SIDS networks, UN-REDD, or IPBES.	These partners will provide linkages with relevant international processes; guidance, training, awareness raising and educational materials to support the work of the EPA and assist in showcasing, sharing and disseminating the experience and achievements of the project in international fora.

SECTION 6: MONITORING AND EVALUATION PLAN

290. The project will follow the UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarised in Appendix 8. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agency and UNEP.

291. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in Appendix 6 will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarised in Appendix 7. Other M&E related costs are also presented in the M&E Plan and are fully integrated in the overall project budget.

292. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities

vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop.

293. Day-to-day project monitoring is the responsibility of the Project Coordination Team but other Project Partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Coordinator to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

294. The Project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility of the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the Project Partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

295. At the time of project approval an estimated 70% of baseline data is available. The main aspects for which additional information is needed are consolidated biodiversity distribution data, and on-site data on species distribution (limited), conservation genetics, IAS, land and sea use and management practices and changes, erosion risk, vegetation cover, and carbon sequestration potential in the respective sites, as well as demand-supply data of ESS, targeted socio-cultural and socio-economic data, and opportunities and gaps in local governance frameworks (Socotra Governors' Office) as entry points for engaging local authorities and for mainstreaming conservation objectives.

296. Project supervision will take an adaptive management approach. The Task Manager will fine-tune the project supervision plan (Appendix 8) at the inception of the project which will be communicated to the Project Partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Project Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by Project Partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

297. UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The Project Manager and partners will participate actively in the process. The project will be reviewed or evaluated at mid-term (around month 24 of project implementation, as indicated in the project milestones). The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools.

298. The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an

implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EO) of UNEP. The EO will determine whether an MTE is required or an MTR is sufficient.

299. An independent terminal evaluation (TE) will take place at the end of project implementation. The EO will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

    (i) to provide evidence of results to meet accountability requirements, and

    (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners.

300. While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions.

301. The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the EO in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme. The final determination of project ratings will be made by the EO when the report is finalised. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process.

302. The direct costs of reviews and evaluations will be charged against the project evaluation budget.

303. The GEF tracking tools are attached as Appendix 15. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. The mid-term review and terminal evaluation will verify the information of the tracking tools.

SECTION 7: PROJECT FINANCING AND BUDGET

7.1. Overall project budget

304. In addition to the table below, please see appendices 1, 2 and 7 (project budgets for GEF-funds, Co-financing and Monitoring and Evaluation)

	Project preparation	Project	Total
GEF financing	$150,000	**$4,854,566**	$5,004,566
Co-financing	$51,000	**$15,042,521**	$15,093,521
Total	**$201,000**	**$19,897,087**	**$20,098,087**

7.2. Project co-financing

Breakdown of co-financing by source	USD	% of budget
Cash		
		0.0
Sub-total	*0*	*0.0*
In-kind		
GIZ, Germany	7,500,000	37.69
EPA, Yemen	4,500,000	22.62
Royal Botanic Garden Edinburgh (RBGE/CMEP), UK	1,015,000	5.10
Local District Councils Socotra	500,000	2.51
Governorate of Hadramaut, Yemen	500,000	2.51
UNEP/DEPI/TEU	300,000	1.51
Senckenberg Society for Nature Research(SGN), Germany	200,000	1.01
Institute of Evolutionary Biology (CSIC-UPF), Spain	181,151	0.91
CABI	150,000	0.75
La Sapienza University, Rome, Italy	116,370	0.58
Mendel University, Brno, Czech Republic	80,000	0.40
Total	**15,042,521**	**75.60**

7.3. Project cost-effectiveness

305. The Project will work closely with existing government structures at national and archipelago level, as well as local stakeholders, including communities and community-based organisations, to better address direct and indirect drivers of ecosystem change and to jointly develop locally adapted and relevant measures that combine conservation aims with livelihood issues. More efficient and better coordinated policy responses will be developed and implemented, in order to address the prevalent challenges to the Socotra WHS.

306. In doing so, the Project will also link up with and build upon ongoing and relevant global initiatives and platforms. This approach is adopted to generate greatest possible synergies at the local/national and global levels, and therefore maximise cost-effectiveness. This approach will generate global benefits in terms of (a) positively contributing to the enhanced conservation status of globally important biodiversity, improved land management and ecosystem stability at large, and (b) positively contributing to the ongoing international dialogue on sustainable development challenges for SIDS. The coordinated approach among project

activities at the local/national and global level, facilitated by UNEP/DEPI, the Project Steering Committee, and contributing partner organisations, will avoid duplication of activities and investment, maximise synergies with other relevant initiatives and further improve cost-effectiveness.

307. Cost-effectiveness measures include:

- Building on existing programmes and grassroots efforts at the local, national and international level;
- Building on prior experience, data and knowledge generated through the broad consortium of project partners;
- Targeting an extensive range of stakeholders, including through existing local, national and international networks, so as to maximise impacts at various governmental and societal levels;
- Employing a capacity development approach that targets both local stakeholders so as to improve the notion that conservation efforts can contribute to improved and diversified livelihoods, thus instilling sustainability; and that aims at enhancing the capacities of local authorities to integrate local stakeholders in decision making processes, hence increasing policy relevance and cohesiveness;
- Forming communication and knowledge networks which create bridges between local needs and realities, translation into relevant and applicable policies. as well as uptake and replication opportunities through international fora and networks;
- Investing in pre-emptive measures, e.g. to prevent and manage the introduction of invasive alien species, rather than late and expensive solutions;
- Installing sustainable financing mechanisms that aim at ensuring that the cost associated with conserving the Socotra WHS will be met in the long term.

APPENDICES