MALDIVES PROTECTED AREAS SYSTEM PROJECT

PROJECT DESIGN DOCUMENT

Draft

11/12/98

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Attachments

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Map

Abbreviations

AMC	Australian Managing Contractor
ATL	Australian Team Leader
AusAID	Australian Agency for International Development
CRMS	Community Resource Management Specialist
DER	Department of External Resources
EPPA	Environmental Protection and Preservation Act (1993)
GEF	Global Environment Facility
GOA	Government of Australia
GOM	Government of the Maldives
IUCN	International Union for the Conservation of Nature
MATI	Maldives Association of Tourism Industries
MFA	Ministry of Fisheries and Agriculture
MOU	Memorandum of Understanding
MPHRE	Ministry of Planning, Human Resources and Environment
MRS	Marine Research Section
MSA	Memorandum of Subsidiary Arrangements
NCPE	National Commission for the Protection of the Environment
NDP	National Development Plan
NEAP	National Environment Action Plan
NGO	Non-government organisation
PA	Protected Area
PAS	Protected Area System
PCC	Project co-ordinating committee
PDD	Project design document
PM	Project Manager
PMT	Project Management Team
Rf	Rufiya
SIDS	Small Island Developing States
SOS	Scope of Services
TA	Technical Assistance
TNA	Training needs assessment
TOR	Terms of Reference
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Program

Exchange rate (September 1998)

US$1 = Rf11.77

A$1 = Rf 6.83

Executive summary

Project name: Maldives Protected Areas System Project.

Project goal: To contribute to the protection of biological resources in the Maldives and thereby support long-term sustainable development.

Project purpose: To establish a replicable and sustainable system for protected area management which has broad-based stakeholder support.

Project description: The project aims to build institutional and human resource capacity at government and community levels to support the establishment of a comprehensive system of marine and terrestrial protected areas within the Maldives. This will be achieved through improved systems of coordination between key Ministries, improving technical expertise in-country, development of appropriate mechanisms and approaches to support community involvement, establishment of protected area system guidelines and a public awareness/education campaign. Through the implementation of three pilot protected areas, the effectiveness of processes, expertise and materials generated will be reviewed and refined.

Project Components: The project has four components:

- ***Institutional strengthening*:** This component focuses on developing institutional capacity within government agencies responsible for planning and managing the protected areas system. Staff numbers, skills, management procedures, data collection and management systems, legislative regulations and financing mechanisms will be developed and supported.
- ***Protected Areas Establishment*:** The focus of this component is on supporting active community involvement in the planning, establishment and management of three pilot areas. Appropriate training will be provided and support given to the development of community based management systems. The pilot areas will provide lessons, and serve as examples, for the subsequent establishment of the entire protected area system.
- ***Education and Awareness*:** The focus of this component is to increase community awareness and understanding of the benefits and costs of environmental conservation and develop broad-based support for the establishment of protected areas. This component targets both the general public and school children and the specific communities who will be impacted by, and involved in, the establishment of the three pilot protected areas.
- ***Planning and Management Support*:** This component is included to provide a clear description of how Australian funded activities will be managed, coordinated with local implementing agencies and reported on to AusAID and the GOM.

The project Logframe matrix (Attachment 3) provides a concise summary of component objectives and outputs, suggested indicators for project monitoring and evaluation, and key planning assumptions.

Management: The lead implementing agency will be the Government of Maldives Ministry of Planning, Human Resources and Environment. AusAID will provide technical assistance, training and management support through the services of an Australian Managing Contactor.

Duration: The duration of Australian inputs is expected to be for three years. The preferred project start date is April/May 1999.

Cost: Total project cost is estimated at A$2.3 million, with the Government of Australia contributing some A$2.2 million.

Chapter 1 - Project preparation steps

1.1 Project Origin

1.1.1 The request

In November 1995 the Government of the Maldives (GOM) requested AusAID assistance to fund a project aimed at identifying priority areas for environmental protection and increasing the country's institutional capacity to establish and maintain a system of protected areas.

The request came in the form of a well-documented project proposal prepared by the Ministry of Planning, Human Resources and Environment (MPHRE).

1.1.2 Assessment and preliminary preparation

Following initial assessment of the proposal by the AusAID post and desk in 1996, an AusAID project design team visited the Maldives from 11 February to 4 March 1997. This team consisted of Mr. Gary Spiller (Marine Biologist and Mission Leader), Dr. Charles Meredith (Terrestrial Biologist) and Mr. Valentine Thurairajah (Socio-Economist and AusAID Environment Officer). Mr David Henry, Second Secretary, Development Cooperation Section, AusAID, Colombo, accompanied this team from 11-16 February.

The project documentation was finalised but the project was delayed for six months because of the unavailability of funds. In late 1997 AusAID entered into discussions with UNDP regarding the possible cofinancing and implementation of the project. UNDP subsequently prepared its own project document in early 1998, using material drawn from the AusAID PDD.

In mid 1998 a decision was then made by GOM that the project should be implemented directly through AusAID's bilateral aid program rather than through the offices of UNDP. This required further revision of the original AusAID document to prepare it for tendering to an Australian Managing Contractor (AMC) and to update the contents in light of appraisal comments made by the various parties in the preceding year.

1.2 Preparation of the revised PDD

1.2.1 Team and mission

This revised PDD was prepared following a one week field visit to the Maldives between 19 – 27 September 1998. The re-design team consisted of two consultants, Mr. Jonathan Hampshire (Team Leader and Project Design Specialist) and Dr. Leanne Fernandes (Coastal Zone Management Specialist). Mr. David Henry and Mr. Dunstan Fernando from the Australian High Commission in Colombo met with the team in-country.

Terms of reference for the Australian team are provided at Attachment 1.

Mr. Ahmed Lateef (Director of the Department of External Resources within the Ministry of Foreign Affairs) and Mr. Simad Saeed (Assistant Director Programmes within MPHRE) managed counterpart input while the Australian team was in the Maldives.

Ms. Kim Henderson and Dr. Marjorie Sullivan provided management support and technical input from AusAID Canberra.

1.2.2 Method

The preparation of the revised PDD involved:

- preliminary discussions with AusAID staff in Canberra on the scope of work;

- a review of existing documents in Canberra and the drafting of a revised project description and project Logframe matrix;
- a pre-departure briefing for the consultants at which the revised Logframe matrix was discussed and information provided on AusAID's country program in the Maldives and other AusAID policy issues;
- field work in the Maldives for eight days, including meetings with all key government stakeholders and a field trip to visit an inhabited island and two tourist resorts;
- submission of a revised draft PDD to MPHRE on the final day of in-country work; and
- preparation of a final draft PDD on return to Australia, including a Scope of Services for contracting an Australian Managing Contractor.

The team's in-country itinerary and a list of persons consulted are provided at Attachment 2.

1.2.3 Next steps

In principle agreement has already been reached between GOM and the Government of Australia (GOA) to fund the project. Next steps include:

- appraisal of the PDD by AusAID;
- appraisal and approval of the PDD by GOM;
- signing of an MOU/MSA between the GOA and GOM on respective commitments to the project; and
- selection of a contractor by AusAID to manage the Australian contribution to the project

Following discussions with MPHRE and other government agencies during the in-country re-design, May 1999 would seem to be a practicable and desirable start date for Australian technical assistance to commence work in the Maldives.

Chapter 2 - Analysis

2.1 Policy and program framework

The Government of the Maldives is well aware of the dependence of its main economic activities, fishing and tourism, on a healthy environment as emphasised in President Gayoom's 1997 speech to the World Tourist Organisation Conference in Male'. The Maldives has been a prime mover in Small Island Developing States conservation issues, especially sea level rise and global warming. The President has also raised the issue of general biodiversity decline on islands, the need to understand the causes and arrest the decline.

2.1.1 National framework

Policies and programs

Since the 1980s, the GOM has given a high priority to designing a comprehensive protected area system for the country (Kenchington 1991). The first and second National Environment Action Plans (NEAP), of 1989 and 1998, were developed through national workshops to address the environmental planning and management needs of the country. The National Development Plan also addresses environmental considerations. In 1996, a workshop was conducted by the Ministry of Fisheries and Agriculture of the GOM and the Bay of Bengal Programme and provided recommendations for the integrated management of reef resources (Nickerson and Maniku, 1997). These documents provide significant guidance on natural resource management issues and strategies to the GOM.

Legislation

The legislative framework for the conservation of biodiversity can be classified into two categories: customary law and formal legislation.

A number of traditional management systems are still practiced in the outer atolls that directly benefit biodiversity conservation. These are in place, for example, where reef systems near inhabited islands are used for economic activity, such as collection of cowrie shells, fishing of scads or horse mackerel schools, collection of bait fish, etc. (Nickerson and Maniku, 1997).

The two laws most relevant to the conservation of biodiversity are:

- the Fisheries Law of the Maldives, Law No. 5/87; and
- the Environmental Protection and Preservation Act of Maldives, Law No: 4/93.

The original Fisheries Law was reformulated to give the conservation of living marine resources a higher profile. The 10th Clause gives powers to restrict harvest of any living marine resource or to declare 'no-take' sanctuaries. Under this law, regulations have been developed to protect turtles, whales, dolphins and certain species of fish. However, poor enforcement capability has significantly reduced its effectiveness.

The Environmental Protection and Preservation Act (EPPA) 1993, is the single most important Act for the protection of biodiversity in the Maldives. It empowers the responsible ministry to formulate environmental policies and regulations and to identify and designate protected areas and natural reserves. The EPPA specifies that protected areas can be established by interested parties other than the government which constitutes the legal framework for community managed protected areas. Also, the EPPA provides for a penalty of up to 100 million Rufiya (US$10 million) for breaches of the law.

Under the EPPA, 14 marine protected areas were declared on World Environment Day, in June 1995. These are the first protected areas in the Maldives and are designed to protect tourist dive

sites. While an important first step, they do not constitute a comprehensive protected area system. They are centred around Male', cover relatively small areas, and do not adequately sample the diverse range of marine, terrestrial or littoral environments found in the Maldives.

2.1.2 International

Conventions and agreements

The GOM has become party to a number of international conventions and agreements:

- the United Nations Conference on Environment and Development (UNCED) (Rio de Janeiro, 1992) and it's Agenda 21 resolution;
- the United Nations Convention on the Law of the Sea;
- the United Nations Convention on Biological Diversity (1992) which makes the Maldives eligible to receive funds from the Global Environment Facility (GEF);
- United Nations Framework Convention on Climate Change;
- the Washington Declaration on Protection of the Marine Environment from Land-Based Activities;
- the Small Islands Developing States Program of Action; and
- the World Heritage Convention.

These agreements confer, upon the GOM, certain environmental obligations.

The Maldives is not currently a signatory to several other biodiversity-related conventions such as the Ramsar Convention on the Conservation of Wetlands of International Significance and the Convention on International Trade in Endangered Species (CITES).

Programs and projects

There are linkages which can be built with other international programs and projects to gain mutual benefits. Such projects and programs include:

- the Bay of Bengal Program's Fisheries Management Project is providing support in developing coastal fisheries management capacity in the Maldives. The project finishes in 1999 and initiatives it has started can be carried through in the development of the protected areas system;
- the Integrated Reef Resources Management program, co-sponsored by the Bay of Bengal Program and the Ministry of Fisheries and Agriculture;
- UNDP's funding of a National Agenda 21 Strategy and Action Plan;
- the Maldives obligations under the UN Framework Convention on Climate Change is being address through a GEF project;
- the GEF is funding a Biodiversity Conservation Strategy and Action Plan to be formulated in 1998. These two will support GOM commitments to the UNCED agreement and International Convention on Biodiversity;
- AusAID funded an Aerial Mapping Project with the GOM Ministry of Transport and Communications between 1994 and 1996. This project may have produced some reliable maps of marine and terrestrial environments relevant to establishing a protected areas system;
- Australian assistance through the Secondary Teacher Education Program (STEP) is being implemented by Macquarie University and has resulted in trained teachers who could contribute to environmental education and public awareness;

- the International Fund for Agricultural Development (IFAD) is funding a Southern Atolls Development project which has a focus on community development and income generation activities; and
- the GOM, with Asian Development Bank (ADB) support, is currently investigating options for an Atoll Development Project which aims to decentralise development to two regional centres in the north and south of the country.

It is important that those managing the implementation of the protected areas system project build on, and coordinated with, current and planned initiatives such as those listed above.

2.2 Situation analysis

2.2.1 Geography

The Maldives forms the central and largest section of the Lacadives-Chagos chain of atolls, which extends southwards from India to the centre of the Indian Ocean. The country consists of a series of 19 coral atolls and associated coralline structures. There are about 1190 islands of which 202 are inhabited. The majority of islands are small, with only nine being larger than two square kilometres. Around 80% of the total land area lies less than one metre above sea level.

2.2.2 Environment

The coral reefs of the Maldives are the structural basis of the nation. They have evolved in a stable oceanic environment (no tectonic activity, terrestrial influences, cyclones or large tides). A feature unique to the Maldives is *faros*, which are ring-shaped mini-atolls which appear in the centre of atolls proper. Diversity of coral increases to the south with 41 genera of hermatypic corals recorded from the northern and 55 from the southern Maldives. Over 1200 coral reef fish and 240 hermatypic corals are recorded. The Maldives may have the most diverse coral communities in the western Indian Ocean.

Very good mangrove thickets exist in lagoonal beaches of three atolls in the north and around small lakes, and together with swamps (*kulis*) in southern atolls. Little more is known of mangroves or swamps in the Maldives.

Extensive seagrass beds are rare but exist east of Thulhadhoo (Baa Atoll), east and south of Laamu Atoll and occur extensively in the lagoons of Addu atoll. Two species of prawns are found in these seagrass beds; both species of prawn are exploited (NIC, 1991).

There are 21 blue-green algae, 163 red, 83 green and 18 brown algae currently recorded for the Maldives.

Terrestrial vegetation which is unique to the Maldives could be more important than previously thought although only 5 unique species of *Pandanus* have been recorded so far. Five ferns, one cycad, two gymnosperms and 322 angiosperms have been recorded. Many of the latter are introductions.

Eleven, or possibly 14, species of seabirds are known to nest in the Maldives while 40 landbirds, 75 shorebirds and 45 seabirds have been recorded in the islands.

2.2.3 Demographics

The population of Maldives was 213,215 in 1990 and had an annual growth rate of 3.4%. Because of the present high rate of population growth 49% of the population is under 15 years of age.

The population distribution pattern of the Maldives can be described as a core-periphery. In 1990, 26 % of the population (55,130 people) lived in the capital Male'. Most of the population is concentrated around the central region (North and South Male' atolls) due to the location of the international airport, port facilities and tourist resorts. Only four islands have populations greater

than 4,000 people. Nearly half of the inhabited islands (90) have populations of less than 500 people. Migration to Male' from the atolls is a serious problem, with Male' growing at a rate of 7%. Male' does not have sufficient freshwater, sewage treatment, waste disposal, or housing to easily accommodate this rate of growth.

2.2.4 Economic development

The Republic of Maldives, with a *per capita* Gross Domestic Product (GDP) in 1990 equivalent to US$640, is recognised as one of the least developed countries (LDCs) by the United Nations (UNEP, 1992). Until the 1970s, the Republic of Maldives was rather isolated and its economy was dominated by the subsistence sector, with a relatively small international trade sector based on fishing, shipping and coconut products. The situation has dramatically changed with the development of tourism, the mechanisation of the traditional fleet exploiting offshore tuna and the commercialisation of reef species exploitation.

The economic development performance of Maldives has been impressive in the last fifteen years, with an economic growth rate of 9.1% recorded in 1992. This growth is only matched by the Asian 'tigers' (Singapore, Malaysia, Taiwan, Indonesia, and South Korea) for the same period, although the Maldives was starting from a lower economic base.

Marine resources underpin the economy. The present economy is based on two principal sectors, capture fisheries and tourism. The latter has grown from 1,097 tourists in 1972 to 338,733 tourists in 1996!

Income distribution and poverty

Reliable data on poverty is unavailable in Maldives. However, in 1993, the UNDP Human Development Report placed the Maldives in 112th position and classified it in the category of 'Low Human Development' (GOM 1994).

According to census data, the average per capita monthly income in Male' increased from about US$41 (Rf 450) in 1985 to US$126 (Rf 1,390) in 1990 and in the atolls from US$17 (Rf 190) to US$53 (Rf 580).

The benefits of development have not been shared equally between Male' and the Atolls, as shown by indicators such as access to electricity and access to latrines:

% Households

	Access to Electricity		***Access to Latrines***	
	1977	1990	1977	1990
Male'	59.3%	93.8%	61.9%	92.1%
Atolls	2.3%	63.3%	6.7%	18.4%

Employment

A feature of the Maldivian labour force is the preponderance of employment in occupations that require a relatively low level of education or skills. In 1990, 41.8% were workers in agriculture, fishing, construction, quarrying and industry. In 1990, professional or administrative occupations comprised only 8.4%.

In 1992, the 'official' unemployment rate was about 3.4% of the labour force. This unemployment rate was slightly higher for females than males and higher in the atolls than in Male'.

A considerable amount of local employment in the Maldivian tourism industry is seasonal. Unfortunately, the trough in employment in the tourist industry tends to coincide with periods when opportunities for employment in the fishing industry are lowest. This means that seasonal work in one industry cannot be easily supplemented by seasonal work in the other.

2.3 Stakeholder analysis

2.3.1 Government

The Maldives has been an independent republic since 1968. The country is headed by a president and has a constitution. Central administration is conducted through national ministries and departments based in the capital of Male'. Below this are 19 administrative units (roughly one per atoll) and each administrative atoll has an atoll chief. Each atoll is divided into smaller administrative units usually comprising an inhabited island surrounded by fishing areas and uninhabited islands. The atoll and island chiefs form committees, which handle day-to-day administration outside the capital. The chiefs are supported by advice from community elders, and public information is shared through formal and informal meetings often arranged to follow worship at the local mosque. Some traditional environmental management occurs at atoll level but can be thwarted by the intrusion of users from other atolls who do not respect local rules (Nickerson and Maniku 1997). All land is the property of the state, however uninhabited islands may be rented out by the government to private individuals or businesses.

The Maldivian institutional structure to protect the environment and conserve biodiversity is relatively young, having been developed in the last fifteen years. Today, the Environment Section is within the Ministry of Planning, Human Resources and Environment (MPHRE) and is the focal point for all environmental issues. However, the institutions involved in biodiversity conservation are relatively inexperienced and lack the capacity to deal effectively with some of the more powerful line Ministries such as Tourism or Public Works.

2.3.2 Community

Local communities on islands have indicated a desire to support management of their natural resources (Nickerson and Maniku 1997). Some local communities are undertaking formal conservation measures to protect biodiversity. The Addu atoll community recently declared the White Tern (*Gygis alba monte*) as a protected species under the EPPA.

Although environmental education has been given high priority, with regular radio and television programs and the production of various printed materials, there is a shortage of publicly available material related to biodiversity. Biodiversity interpretative material and awareness is mostly carried out by diving schools and diving instructors based in tourist resorts. This resort-based material is not generally available to the Maldivians.

Gender issues

In the traditional and informal economy, Maldivian women play an important role. The time spent by men at sea means that many land-based activities are the responsibility of women. These responsibilities included income generating activities such as fish processing, agriculture, handicraft production, cadjan weaving, coir rope making and childcare duties. The present participation rate of females in the Maldivian labour force (32.4% in 1992) is very low by international standards. In addition, the involvement of Maldivian women in economic activities has been on a downward trend, owing mainly to the displacement of women's traditional engagement in fish preservation and processing activities because of the country's shift in the main export of traditionally processed Maldive fish to raw fish. The concentration of development and economic activities in Male' and the resorts has not favoured women's employment. This is a result of cultural prescriptions that prevent women from leaving their families and islands to seek employment in Male' or elsewhere.

Education is not differentiated along gender lines. However, the proportion of females who go on to upper secondary schooling (grades 11-12) drops by almost 50% which is significantly higher than the drop-out rate for boys.

Women's groups have been formed under government mandate and are active in Male' and the

outer atolls when appropriate opportunities arise and support is provided.

2.3.3 Non-government organisations

Environmental awareness raising activities are carried out by Maldivian Non Government Organisations (NGOs), for example, Eco-Care Maldives and Bluepeace. Eco-Care's campaign to raise awareness of threats to the environment of the Maldives among community groups is noteworthy, and campaigns are planned for the protection of sea birds and sharks. Other NGOs include the Oceanographic Society, Volunteers for Environmental and Social Harmony and Improvement (VESHI) and Independent Researchers Association.

Most NGOs are staffed by volunteers who are often also government employees. While this has implications regarding the availability of NGO staff and the independence of their views, they remain a valuable resource in supporting community development activities.

2.3.4 Private sector

There are two main groups of private sector stakeholders, namely those involved in tourism and fisheries.

Tourist resorts are now established on some 73 islands, most of which are centred around Kaafu (Male') and Alif (Ari) atolls. During 1997 and 1998 they hosted over 250,000 visitors. Tourism overtook fisheries as the major sector in the economy in 1985 and its share of GDP was 17-18% in 1994 (National Development Plan, 1994). The tourism sector has a representative body called the Maldives Association of Tourism Industries (MATI) which is a key stakeholder in the Maldivian economy.

By contrast to tourism, the fisheries sector has declined from 16.4% in 1987 to 12.4% of GDP in 1993. The base of the fisheries sector has, however, broadened from the traditional tuna fisheries to encompass reef fisheries which has developed to meet new demands of the growing tourism sector and export markets (Nickerson and Maniku 1997).

Conflict sometimes exists between these sectors, as there is overlap in the resources they use. Bans on the capture of certain species and on fishing on dive sites creates an imbalance between the distribution of the management costs and benefits. This has the potential to create resentment among those who loose access to the resource.

2.4 Problem analysis

2.4.1 Causes

The current environmental problems that the Maldives is facing are largely caused by institutional, social and economic factors. The underlying problems are summarised below, before a more detailed discussion of how these underlying causes manifest themselves in the natural environment.

Institutional limitations

The history of serious environmental problems in the Maldives is not long, encompassing approximately the last 30 years. The growth of the population, concentration of the population in Male', expansion of the tourism industry and the fisheries all create threats to the environment. A lack of government knowledge in, and experience with, environmental problems limits their ability to generate solutions. More importantly, the level of institutional co-ordination required to address cross-sectoral and cross-jurisdictional environmental issues has never been necessary and thus, there has been no framework for this co-ordination to effectively occur.

Community capacity

The people of the Maldives have long exploited tuna as a staple food and source of income. The

relationship between a small human population and a large, pelagic fish stock is such that the fish remains an abundant commodity relative to local needs. Only recently have Maldivians turned to intensive use of reef resources for food, commercial sale and building materials. This ecological relationship is very different from that of the past and cannot be sustained at current levels of exploitation in many areas. Local communities thus have relatively limited experience of managing the intensive exploitation of reef resources that is now occurring as a result of external and internal pressures from, for example, population growth and economic development. These communities are, therefore, often ill equipped to address the environmental problems they are facing.

The conflict over resource use by residential and 'outsider' populations is a growing problem which will need to be addressed in the design and implementation of a protected areas system.

2.4.2 Pollution

Signs of pollution are clear in the boat harbour, outer breakwater and elsewhere around Male' Island. These are partly to do with overpopulation and insufficient infrastructure to address sewage and other waste problems. Male' has the only sewerage system in the country and discharges raw sewerage on both the lagoon and ocean sides of the island. Effluents from septic tanks and raw sewage are discharged directly into the sea from tourist islands and on beaches on some isolated islands. Fecal contamination is an increasing problem on outer islands. Symptoms of pollution include high algal cover, patchy coral death, and high populations of detritus feeding animals.

Another concern is toxic materials in reclamation material which could enter the freshwater lens beneath islands.

Fish processing factories, built on some islands, which discharge untreated waste, increased shipping traffic and inadequate solid waste disposal facilities are other concerns (Kenchington 1991, Pernetta 1993).

2.4.3 Tourism

Regulations in place should prevent use of coral and coral rock in construction and require resorts to provide for their own water, sewage treatment plants, garbage compactors and incinerators. A review of the degree to which these regulations have been successful in minimising environmental impacts has not been conducted.

If the development of the reef fishery continues unchecked, and if anchors are continually dropped at popular dive sites, an amenity issue could arise with tourist divers/snorkellers. This is complicated by the fact that much demand for reef fish to eat, and access to dive sites, originates with the visiting tourists.

2.4.4 Coral mining

Coral rock and aggregate mined from reefs has been the major building material for resorts, houses and other buildings, surfaced roads and coastal structures such as groynes and jetties. The shifting coral mining practice is destructive, adversely affecting reef fisheries and reducing natural coastal protection, leading to losses of marine biodiversity.

Brown and Dunne (1988) estimated that, at current rates of harvesting coral from North Male' Atoll, all shallow submerged reefs would be barren by the year 2014. The capacity of other atolls within the Maldivian chain to produce suitable substrate is linked to the atoll's structure. While northern atolls are similar in structure to Northern Male' Atoll, the Southern atolls are more closed and have little or no alternative to mining the outer reefs. These outer reefs actually protect the integrity of the islands against the erosive influences of monsoon storms.

2.4.5 Fishing and harvesting

Exploitation of reef resources has intensified in the last ten years (Shakeel and Ahmed, 1997). Although tuna still represented 93% of the total fish catch in 1994, it appears to be a sustainable fishery with the possible exception of the live bait fishery which fuels the tuna fishery. In recent times, other fisheries, including harvest of non-fish reef resources (e.g. beche-de-mer) have increased in scale and new ones have started. Reef fisheries, which remained subsistence for a long time, have now developed to a commercial scale. Some reef fisheries are considered under-exploited by the GOM. Anderson et al (1992) has estimated a total annual yield of all commercially valuable reef fish from the Maldives at roughly 30,000 t. Although only about 14,000 t is currently exploited, the poor reef fisheries management regime in Maldives has repeatedly failed to predict and control harvesting rates for targeted individual species and has recently lead to total collapse of species such as Giant clam and Sea cucumber.

Grouper fishery

In 1993, the grouper fishery began to be exploited in atolls close to Male', and is now rapidly expanding elsewhere. Live and chilled grouper is a popular marine food fish of high market value in many parts of the world. Currently, local fishermen can fish without restriction on numbers and sizes to fill the demand of foreign markets. Fishermen report catching smaller and fewer fish, indicating that this resource is being depleted. Grouper are slow growing and the commercial grouper industry is unlikely to be sustainable at current rates of exploitation.

Napoleon wrasse

At the beginning of 1995 the giant Napoleon or Hump-headed wrasse was starting to make an appearance in the chilled exports to Singapore. With fisherman receiving up to US$ 50 /kg for the napoleon, the big fish was hunted almost to extinction. The Government has now totally banned the export of Napoleon wrasse.

Shark

At the beginning of the 1990s, a number of serious problems affecting shark fisheries became known. The deepwater shark fishery started in 1980 and rapidly peaked at about 330 t in 1991, since then catches have declined. A preliminary stock assessment of shark fisheries was made by the Marine Research Section and concluded:

- Deepwater sharks are overfished (this fishery has now been completely banned in certain areas);
- Reef sharks are fished at maximum level (this fishery has now been completely banned in certain tourist areas);
- Whale sharks are possibly endangered; and
- Oceanic sharks are under-fished and an expansion of fishing effort could be encouraged.

The shark fishery had been a source of resource use conflicts between fishermen and the tourist industry. Shark viewing at major diving sites is important for tourist resorts and killing of sharks especially in the reef zones is scorned by the tourism industry.

Turtle

The numerous healthy reefs with ample food supply make the Maldivian waters an ideal environment for marine turtles. Of the eight species of sea turtles, five are known to occur in the Maldives and these are all listed as endangered.

The major threat to turtles in the Maldives is human exploitation. Persistent overexploitation of adult females and unregulated collection of eggs has caused major concern for the status of turtles (Zahir and Hafiz, 1977). Turtle shell is used for ornamental jewelry and is freely available in

tourist shops in Male'. The second major threat to turtles is loss of nesting beaches to resort development. Lights from the beaches of existing resorts and inhabited islands may also cause problems to the hatchlings by disorienting them in their race to the sea.

From June 1995, a Presidential Decree has banned the catching or killing of turtles from the territorial waters of Maldives for a 10-year period. However, collection of turtle eggs is not covered by the ban. There is no protection for nesting and feeding habitats of sea turtles.

Black coral

Black coral occurs in deeper water. It is used for jewelry and fetches high prices. Collecting black coral for jewelry has been banned from January 1, 1995. However, due to poor enforcement, black coral jewelry can be freely seen and bought in Male'.

Aquarium fishery

In 1994, more than 300,000 aquarium fish (100 species) were exported earning more than MRf 7 million. Of the 100 species being exported, 20 species comprise over 75% of the trade. Although a blanket quota of 100,000 was set in 1988, it is clear that this is not implemented. Some of the species that are being exported are considered to be rare (Adam, 1996).

With the continued expansion of the aquarium industry, it is expected that localised extinction of certain species will occur in the absence of any regulatory measures.

2.4.6 Island and reef lagoon degradation

Breakwaters, jetties, groynes, causeways and reclamation alter sediment, tidal or current flows. Alteration of sediment flows may inhibit island accumulation or even enhance or cause erosion processes. Alteration of tidal and current flows may disrupt movement of fish and nutrients and other animals. Obviously, reclamation occurring on reef lagoons destroys parts of the lagoon completely (Kenchington 1991)

Mangroves are under threat from land reclamation. The Ministry of Fisheries and Agriculture has no control over reclamation, and mangroves are sometimes looked upon as hindrance to development or a threat to health (Maniku, 1996). Because wetlands are looked upon as wastelands they are also often used as rubbish dumps. One species of mangrove (*Bruguiera cylindrica*) is used for boat construction in the northern atolls, but is not used as fuel wood as is done elsewhere.

Small lakes and marshes are rare environments in the Maldives, and bodies of freshwater are particularly uncommon. Such areas are important bird habitats and are generally associated with unusual vegetation types. They are being encroached by agricultural expansion and lost through reclamation or rubbish dumping.

The removal of mature island vegetation to supply fuel wood, construction timber and space for buildings or agriculture have been major contributing factors to the loss of vegetation and bird habitat in the Maldives.

Native birds are under threat not only from this habitat destruction but also from capture for trade or for pets in the Maldives.

2.4.7 Climate change, coral bleaching and Crown-of-thorns starfish

Changes in sea level or weather, coral bleaching, and Crown-of-thorns starfish outbreaks are all threats to the Maldivian environment which are largely beyond the control of the people and GOM. With this in mind, environmental management efforts should aim to reduce vulnerability to these risks and mitigate their impact by minimising negative anthropogenic influences which reduce the environment's natural capacity to recover.

Chapter 3 - Development options

The maintenance of the natural resources and values to sustain the economic and population growth in the future will be dependent on the adequate protection of key ecological functions, ecosystems and species against the threats identified above. A system of protected areas can help safeguard the biodiversity of the Maldives.

The need for a marine park in the Maldives was emphasised in the Corbett Action Plan (objective 3.3)(IUCN 1985). The GOM sought advice regarding this in the 1980s which confirmed the need to develop a marine park system including protected areas (Kenchington 1983, 1985). Munch-Petersen (1985) also recommended that a system of protected areas be put in place.

Article 8 of the Convention on Biological Diversity requires establishment of a system of protected areas and since 1986, the International Union for the Conservation of Nature (IUCN) has been recommending the establishment of a global representative system of marine protected areas of which the Maldives should be a part. In 1993, the establishment of a system of protected areas was written into law in the Maldives.

3.1 Lessons learned

Protected areas can have negative social and economic impacts if poorly designed or if planned without adequate community participation. The declaration of protected areas that cannot be adequately managed because of lack of institutional capacity, inadequate legislation or low levels of community support, will not achieve the desired conservation goals (White et al. 1994).

For example, 14 marine protected areas were declared in the Maldives in 1995 without consultation and involvement of all the local resources users, without any management planning, monitoring or proper enforcement. Some of these sites were important for shark fishermen. After their declaration as 'protected areas' divers reported a sharp drop in the number of grey shark sightings accompanied by an increase in the number of shark fishermen seen. Such a situation brings the protected area system into disrepute, creating, at best, local disinterest in the concept and, at worst, unfavourable perceptions.

In the Maldives, the intimate relationship between the inhabitants and their natural environment makes it essential to formulate management approaches which resolve resource use conflicts and address other community needs in developing a protected area system.

Establishment of well-functioning protected areas has been shown, throughout the world, to considerably enhance the attractiveness of an area to tourists, especially if the protected area is of National Park level.

Protected areas can also enhance local island economies through supporting the sustainability of the fishery and providing the potential for employment as rangers and guides.

Enforcing compliance purely by use of patrols and penalties versus facilitating voluntary compliance is usually prohibitively expensive. There are extremely few publicly owned protected areas in the world where a pure enforcement regime succeeds.

White (1997 In Nickerson and Maniku) says that fishing communities will not take the role of resource managers without encouragement and offers interventions which can strengthen community motivation. For example, legal instruments should be established that formalise community responsibility and local knowledge about the resources and their management should be documented.

The process of change towards conservation must be guided and monitored to achieve success (White 1997 in Nickerson and Maniku).

Management success should be measured via monitoring both process and ground results (White 1997 in Nickerson and Maniku).

Johannes (1997 in Nickerson and Maniku) warns that if natural resource managers fail to act in the absence of good data severe depletion or degradation of those resources can be inevitable. He emphasises that adequate scientific data will *never* be available to resource managers and that they should act in its absence.

3.2 Options considered and strategy selection

Various options and opportunities were identified and considered in the preparation of this project. This section summaries the options considered, whether they were recommended and the reasoning behind the recommendation.

3.2.1 Scope

The options. A nation-wide approach to the protection of biodiversity was considered important however required far more resources than this project could offer. Alternatively, this project could build a framework and guidelines which can gradually be implemented nation-wide by the people and the government of the Maldives.

The strategy. This project will develop, test and demonstrate the framework and guidelines using three pilot protected areas.

3.2.2 Biological inventory versus capacity building

The options. The biodiversity of the Maldives is poorly documented in many parts of the nation. More complete information on the diversity of ecosystems and species, on unique or endangered habitats or species would ensure representation of the entire biological diversity of the Maldives within a system of protected areas. Collecting such information would consume many resources: expertise; person-months; and time. If this project were to focus on collecting these data, few resources could be dedicated to building the capacity of the Maldives government and people to manage their natural resources. The latter reflects the stated objectives of the project more.

The strategy. A precautionary principle approach is recommended where management for sustainable use proceeds in advance of detailed information on the biology being available. Thus, institutional and community capacity building for implementing a system of protected areas are the focus of this project.

Data collection is still an important, but secondary, priority.

3.2.3 Use of external technical assistance for data collection

The options. To conduct surveys and analyse data requires a level of technical expertise. The depth of technical expertise that is required for data collection to support this project is not currently adequate within the Maldives. The project could chose to use foreign consultants to do the work, local government employees with some training or a combination of the two.

The strategy. By combining experts with trained government employees, the project would achieve a greater degree of technical exchange. The experts should provide a supervisory and training role in data collection more than a data collection role *per se*.

3.2.4 Focus of data collection

The options. Biological data is often seen as the priority in natural resource management. Management, however, is almost always about changing human activities and behaviour towards reducing damage to plants and animals. Given this focus of management, it is important to understand the social, cultural and economic factors which drive human behaviour and activities. This knowledge can then be used to reduce negative impacts upon these values and benefits both

by selection amongst proposed protected areas and by development of acceptable strategies by which to reduce any impacts.

The strategy. Data must be collected on social and/or cultural values and economic benefits associated with use (or non-use) of any proposed protected areas. Biological data collection will have the same priority as collection of these socio-economic data.

3.2.5 Role of Technical Assistance

The options. Technical assistance can be in the form of people who: directly implement activities; offer advice to governments and/or communities; supervise and train local counterparts; co-ordinate activities or motivate action. In the short term, the choice of role will impact on the pace of implementation. In the long term, the choice of role can affect the degree to which capacity and technical knowledge is transferred to local agencies and individuals.

The strategy. In this project there will be an emphasis on supervision and training and co-ordination of activities. Locally there is already some technical expertise which can be enabled if appropriate supervision is provided, and the government and local communities appear motivated already to implement a system of protected areas.

3.2.6 Top-down versus bottom-up

The options. For any protected area to be successful in its conservation objectives there should be: appropriate legislation in place; the political will to implement the legislation; and the resources made available so that implementation can occur. This top-down support for protected area management may not be sufficient, however, if the local communities and industry involved face loss of income, loss of access to culturally or socially significant locations or activities or have no understanding or willingness to comply with new regulations. For this reason, their needs and participation in the selection, design, management and monitoring of proposed protected areas is essential so their needs can be adequately accommodated and addressed.

The strategy. This project takes a two-pronged approach by facilitating both top-down and bottom-up support and involvement in selection and implementation of a protected area system.

3.2.7 Quantitative versus qualitative data collection

The options. Reliable quantitative surveys of both biological status and of socio-cultural and economic conditions is valuable both in terms of selecting appropriate sites for inclusion in a PAS and monitoring the success of achievement of management objectives. Collecting quantitative data frequently will, however, stretch the technical resources of the Maldives and be expensive in terms of both time and money. Collection of qualitative information regarding the status and trends of the biological and social systems associated with the protected area could be conducted locally. This could ultimately increase local involvement in and commitment to 'their' protected area and require less resources while providing data more frequently. Qualitative information is also essential to understanding processes and target group responses.

The strategy. It is proposed that technical experts offer two levels of guidance:

- supervision and training of qualified Maldivians to conduct quantitative surveys of biological and social conditions relevant to the protected areas perhaps once every two years; and
- supervision and training of local community members to conduct culturally appropriate, informal, qualitative surveys once every 6 months or so.

The Maldivians who will be conducting the more formal surveys should participate in the qualitative training as well so that this information can be calibrated as much as possible with quantitative data.

3.2.8 Preparatory phase versus immediate action

The options. There is much pressure on certain ministries in the Maldives to act quickly in setting up a system of protected areas, especially as this concept was approved by the government many years ago. Development pressures are advancing well ahead of conservation efforts. However, selecting and designation of protected areas without clear allocation of government responsibilities, co-ordination mechanisms, systems development and assessment of training needs would pre-empt sustainable institutional support for a system of protected areas. Local users stand to bear the main cost of a protected area system. Without giving them the time to adjust and provide input and advice as to their needs (including training needs) and concerns, local communities may not comply with new rules in a voluntary manner.

The strategy. A six-month inception phase is written into the project during which time:

- management and co-ordination roles of different government agencies and the AMC will be further discussed, clarified and agreed;
- project management systems and procedures will be established on the ground;
- awareness of the project and its scope will be developed through the conduct of one or more inception workshops and the production of appropriate informational materials;
- desired levels and kinds of local participation in PAS management will be defined;
- training needs of government officers and local communities to fulfill their roles in management of protected areas will be assessed and a training program prepared;
- short-term technical assistance requirements will be clarified, further specified and their input scheduled; and
- a detailed annual plan will be prepared for submission to, and approval by, the PCC.

This inception phase is considered crucial to allow stakeholders time to establish their respective roles, working relationships and 'ownership' of the content of the first annual plan.

3.2.9 A static management plan or dynamic management planning

The options. Providing a definitive and static management guidelines for designing and managing a protected area system is simpler to produce, legislate and implement. A static approach can also lead to serious mismatch of prescribed actions and local or changing conditions so that management may finally be completely inappropriate and therefore ineffectual. Dynamic management planning is not as rigid and therefore not as consistent across different conditions. Management planning, as a process, is flexible to different circumstances and changing conditions over time as well as adjustable to new and better information as it becomes available. A more flexible approach, however, is more difficult and requires more effort to legislate, enforce and implement successfully.

The strategy. A dynamic management planning approach is recommended. Conditions in the Maldives vary geographically and are changing quickly over time and new information is continually being collected. A dynamic approach, while more resource intensive, will match the needs of the country much more than a static approach.

3.2.10 Outer atoll to Male' focus

The options. By centering project activities around Male', the costs and effort required for project completion and for meeting milestones and outputs would be considerably less. However, this would send the message that a biologically representative protected area system can be achieved around Male', which is false. AusAID also has a program mandate to help alleviate poverty. People on outer atolls are demonstrably poorer than people on Male', and a project initiative on an

outer atoll with bring with it at least some resources and opportunities.

The strategy. The project will have at least one pilot area on an outer atoll.

3.2.11 The appropriate management regime within protected areas

The options. A protected area once implied a 'no-go' area. While all protected areas do control human occupancy or use of resources to some extent, considerable latitude is available in the degree of such control. IUCN offers eight different categories of protection each focused upon different management objectives.

The strategy. While the protected area system of the Maldives will probably encompass some 'no-go' areas, the particular management regime of any selected area will be site specific and will reflect the biological and human needs which prevail. This may include areas with seasonal closure to protect, for example, spawning grouper or nesting turtles. The option of having shifting 'no-go' areas should also be considered.

3.2.12 Product or process

The options. Technical assistance (TA) can be used to collect data and select locations for protected areas in the Maldives. TA can design appropriate management plans, monitoring systems and databases. Alternatively, TA can help create the institutional systems and processes so that this can be done by the Maldivians themselves with both horizontal and vertical coordination.

The strategy. Given the lessons learned regarding the importance of local community involvement and the challenge that institutional co-ordination offers in the Maldives, this project focuses on creating the processes and systems so that the project can be successfully continued after Australian assistance departs. Sustainability issues are addressed specifically in Chapter 6, Section 6.2, and a summary of the 'tools' that the project will leave behind are summarised in Section 6.3.

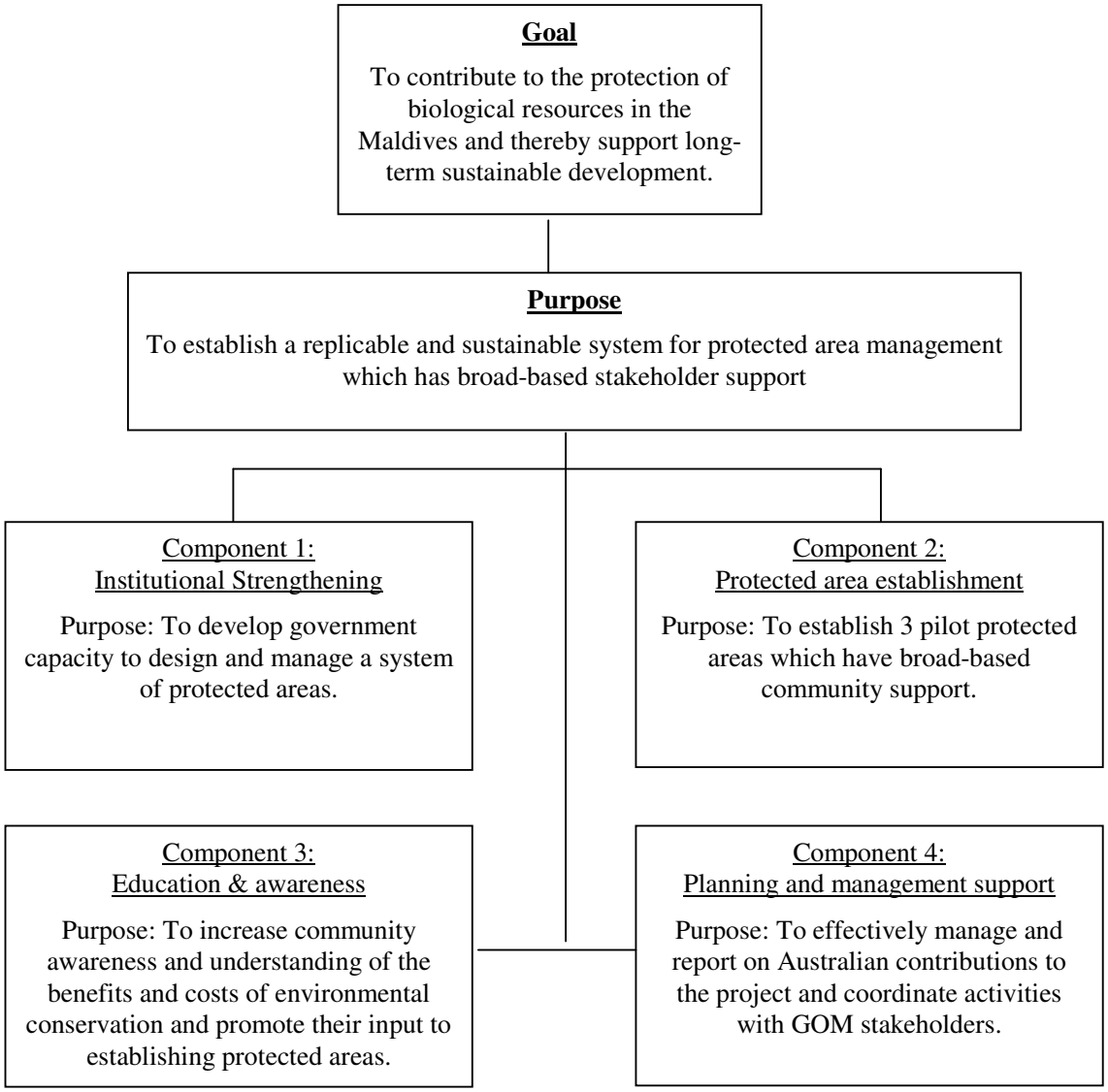
3.3 Strategy selected

In sum, the project will take the time support the development of local technical expertise and co-ordination and strategic processes which can address the multiple human and biological issues inherent in establishing a system of protected areas. These will be developed via establishment and implementation of 3 pilot protected areas, which will illustrate the means by which to address the diversity of biological and human needs throughout the Maldives. Each protected area can have a management regime which offers the level and kind of protection appropriate to the existing and likely threats and human needs. The guidelines, plans and monitoring systems as well as the processes put into place to complete the establishment of a protected area system will be dynamic to changing conditions and new information.

Chapter 4 - PROJECT DESCRIPTION

This chapter presents the proposed project design and implementation arrangements. Reference should also be made to the Logical Framework Matrix in Attachment 3, the indicative output phasing schedule in Attachment 4, the summary of expected GOM inputs and costs in Attachment 5, draft Position Descriptions for Australian long-term Technical Assistance (TA) in Attachment 6, training program options in Attachment 7, and the draft Scope of Services for the Australian Managing Contractor in Attachment 8.

4.1 Project goal and components



The project supports the objectives of the current National Development Plan (NDP) and the National Environment Action Plan and contributes to the GOM meeting its international environmental obligations. These initiatives emphasise the need to establish: (i) appropriate environmental management and monitoring systems for biodiversity conservation, (ii)

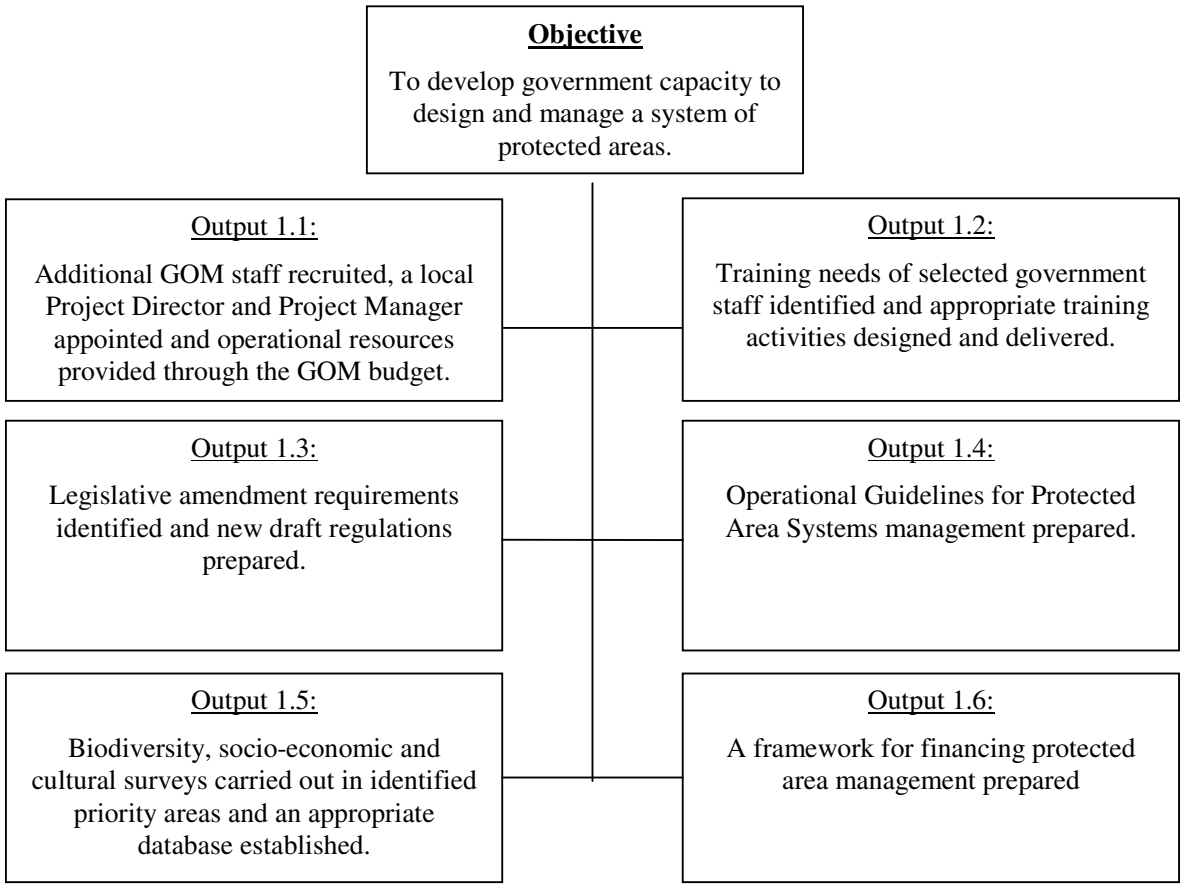
comprehensive national environmental legislation consistent with international agreements, (iii) strengthened national capability to establish and manage protected areas in cooperation with community and private sector stakeholders, and (iv) greater public awareness of, and participation in, environmental management and sustainability issues.

The project will thus provide support through four components, namely:

1. Institutional Strengthening
2. Protected Areas Establishment
3. Education and Awareness; and
4. Planning and Management Support

These are described in the following section, and summarised in the Logframe matrix at Attachment 3.

4.2 Component 1: Institutional strengthening



Objective: To develop government capacity to design and manage a system of protected areas.

This component focuses on developing institutional capacity within government agencies responsible for planning and managing the protected areas system. Support for developing the community's capacity to participate is provided through Components 2 and 3.

Output 1.1: Additional GOM staff recruited, a local Project Director and Project Manager appointed and operational resources provided through the GOM budget

Project success will depend significantly on the commitment of adequate staff, high level management support and operational resources by the GOM. In addition to the appointment of a Maldivian National Project Director and Project Manager, it is anticipated that an additional three (3) technical staff and one (1) administrative officer will be recruited by MPHRE to work full time on the project. Staff from the Marine Research Section of the Ministry of Fisheries and Agriculture (2), Ministry of Tourism (2), Ministry of Atolls Administration (1), and Education Development and Non-Formal Education Centres (2) will also be assigned to work on the project.

Operational resources will be required to cover the costs of:

- telecommunications services;
- local transport for duty and field travel and the transportation of field survey equipment;
- accommodation and allowances for field work;
- local costs for project staff training and attendance at management and consultative meetings; and
- office supplies, equipment and maintenance for use by project staff.

Effective interagency coordination is also crucial. The Project Coordinating Committee (PCC), the Project Management Team (PMT) and inter-ministerial working groups will provide the fora within which coordinated government action can be planned and reviewed. The proposed project management and coordination arrangements are described more fully under output 4.3 and in Chapter 5. The respective roles and responsibilities of each agency must be agreed and clearly specified from the outset.

Further details of GOM financial and staffing contributions are provided in Attachment 5.

Output 1.2: Training needs of selected government staff identified and appropriate training activities designed and delivered

Skills development for government staff is an important element of the project. Training participants are expected to include the core project team of 7-10 people plus others who will be identified and invited to participate in training activities.

Within the first six months of the project a training needs assessment (TNA) will be carried out to establish the scope of required training and a training program designed and approved (see also output 4.2). A review of past, current and planned training conducted through other programs and projects must be undertaken as part of this assessment.

It is expected that training will be provided in three main forms, namely:

- on the job (by the long-term Australian TA);
- short-term in-country (by both long and short-term Australian TA); and
- formal award training (eg, Diploma, MSc) in Australia.

Each training course will focus on developing specific competencies required to support the achievement of project outputs. In-country training courses will be designed and delivered by international consultants, working together with local staff. Designing appropriate and effective training/learning activities for local staff will require professional attention early on in the project.

Long-term overseas training will be planned in such a way that it will not interfere with project

implementation. It is expected to include training at MSc and Diploma level. MSc theses subjects should relate directly to the development of the protected area system.

Attachment 7 provides information on training course options previously proposed by the GOM.

Output 1.3: Legislative amendment requirements identified and new draft regulations prepared

The two most important Maldivian laws relevant to the conservation of biodiversity are the Fisheries Law No. 5/87 and the Environmental Protection and Preservation Act Law No. 4/93. Review of this legislation, other relevant Acts and regulations and drafting of new regulations is required in order that compatible and effective legislation is in place to support environmental management. Short-term technical assistance will be provided to support this activity.

Output 1.4: Operational Guidelines for Protected Area Systems management prepared

There are currently no operational guidelines for designing, selecting, planning and managing a Protected Areas System (PAS) in the Maldives. Guidelines will therefore be prepared to help provide structure and focus to the activities and operations of Government staff and agencies working on these issues. These Guidelines should aim to support structured learning and more consistent application of good practice rather than prescribe what must be done. To this end, they must also be easily updated as lessons are learned and better practice principles become evident.

The guidelines will include information on how to undertake/manage such tasks as:

- Identifying, categorising and mapping biologically homogeneous regions (bio-regions);
- Analysing trade-offs between cultural, social, economic as well as biological costs and benefits when selecting potential protected areas;
- Data collection, recording, analysis and use
- Protected area selection, planning and management;
- Selecting the appropriate categories of management (see IUCN categories);
- Stakeholder analysis and consultations, including the need to analyse the respective roles of women and men in making resource management decisions;
- Supporting community management capacity and promoting gender equity; and
- Addressing protected areas financing and legal issues.

The materials prepared as part of these guidelines should be both a product of, and input to, workshops and short-course training activities.

Based on the framework provided by these guidelines, a further set of informational materials for use by community members will be prepared (see also outputs 2.2, 3.1 and 3.2).

Output 1.5: Biodiversity, socio-economic and cultural surveys carried out in identified priority areas and an appropriate data base established

Surveys will be carried out to identify baseline biological (marine and terrestrial), socio-economic or cultural values and/or status within a number of identified priority areas. Threats to these values will be ascertained and the institutional and local feasibility of implementing protected areas at the identified sites also assessed. This will require a combination of survey approaches appropriate to information needs and how that information will be used. Principles of participatory rural appraisal should be incorporated into survey planning to support the collection and use of information by community stakeholders. Efforts should be made to collect social and

economic data disaggregated by sex.

The data collected will be used to help identify and select three appropriate pilot sites for detailed plan preparation and subsequently assist in monitoring and evaluating the biological and socio-economic impact of implementing protected areas. Some of this information will be entered into a central database to be established and managed within MPHRE. However, it is essential that this information also be available to other stakeholders (government, community and private sector) to support their informed decision making. Presenting this information appropriately will require specific attention and should be addressed as part of the short-term TA being provided to support the development of informational materials.

Survey techniques and tools will be designed by Australian TA in consultation with local counterparts and support provided in managing survey implementation. Principles of minimum information and appropriate imprecision should be applied. A mass of unused/unusable data must be avoided.

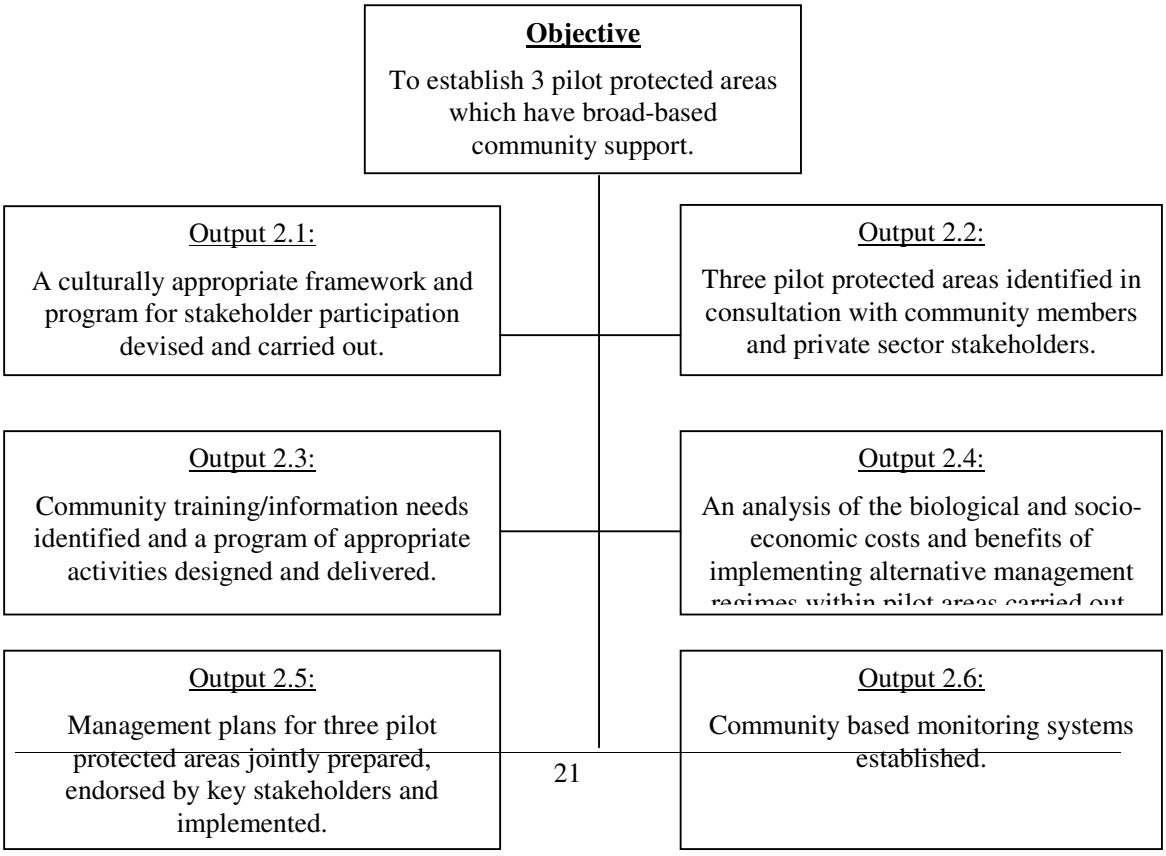
A short-term consultancy will be provided to help design an appropriate database management system and provide training in its use and maintenance.

Output 1.6: A framework for financing protected area management prepared

Potential, sustainable sources of funds for protected area management need to be investigated, scoped and decided upon early on in the planning process. Experience indicates that this is essential to support long-term sustainability. Financing is required to support both the government and community's costs of managing protected areas. Mechanisms are likely to include funding from multiple sources including access fees paid by tourists, license fees paid to exploit commercial resources in designated areas and community, government and donor contributions.

Extensive consultation will be required between project staff, other government agencies, community members and private sector interests to support the design of practicable and sustainable funding mechanisms. Short-term TA may be required to support this task.

4.3 Component 2: Protected area establishment



Objective: To establish 3 pilot protected areas which have broad-based community support

This component will be implemented in parallel with much of component 1, after a preliminary phase of project establishment within government agencies. The focus of this component is on supporting active community involvement in the planning and establishment of the three pilot areas.

It is important that work currently being undertaken by the Marine Research Section (MRS) under the Integrated Reef Resource Management program be used as a base on which to build. Their experience of involving local communities in identifying potential protected areas on Vaavu and Meemu atolls should be extremely valuable.

The outputs listed below provide a description of the means by which the three pilot areas will be established.

Output 2.1: A culturally appropriate framework and program for stakeholder participation devised and carried out

The approach the government wishes to take to support community participation, and the appropriate level and type of community input required at different stages of protected areas systems (PAS) establishment, must be determined by the PMT and then endorsed by the PCC and NCPE. This will need to include an assessment of the means by which community input can be most effectively stimulated and supported (eg, workshops, seminars, regular site visits, village meetings, through local chiefs or women's groups, etc). Experience elsewhere in the world indicates that sustainable protected areas management must have both top-down and bottom-up support. The participation of both women and men needs to be specifically addressed.

The production of appropriate informational and awareness materials to support the development of community understanding and involvement is provided for under Component 3.

Output 2.2: Three pilot protected areas identified in consultation with community members and private sector stakeholders

As a result of (i) stakeholder consultations, and (ii) the analysis of available data on biodiversity, socio-economic and cultural values/needs at number of potential sites, it is expected that 3 pilot areas will be identified as suitable for proceeding to detailed planning and implementation. The three selected areas should ideally reflect the diversity of different bio-regions, however site selection should also be based on other criteria such as the urgency of need for protection, stakeholder interest/motivation to take action and the diversity of IUCN management categories. Guidelines for undertaking this work will be prepared under output 1.4.

Output 2.3: Community training/information needs identified and a program of appropriate activities designed and delivered

Planning and implementing protected areas will require that community members be adequately informed and skilled. An assessment will be made of community information and skill needs and an appropriate program of support designed and delivered. The initial assessment should be focused on community members within the pilot areas, and on specific target groups whose involvement is desired (eg, atoll and island chiefs, women, fishermen, tour operators, etc). Short-term technical assistance will be provided to support the design of an appropriate training/learning program and approach for identified target groups. The participation of local NGOs in designing and delivering training activities and information programs will also be supported, and, as

appropriate, their attendance as training participants sought.

Community training needs may include the development of skills in such areas as:

- stakeholder negotiations and conflict resolution processes,
- understanding legal rights and responsibilities,
- preparing plans
- information collection and use to support monitoring and enforcement,
- identifying risks and threats to effective protected areas management;
- addressing threats and risks (e.g. rules, zoning, education, permits and alternative income schemes);
- management of protected areas; and
- designing and managing sustainable financing options.

The informational needs of both women and men should be specifically addressed to ensure equal opportunities to participate are promoted.

The production of informational and awareness materials are provided for under component 3.

Output 2.4: An analysis of the biological and socio-economic costs and benefits of implementing alternative management regimes within pilot areas carried out

Using information collected through the surveys undertaken in output 1.5 and the community consultation program undertaken in output 2.1, a profile of the costs and benefits of implementing alternative management regimes to different stakeholder groups will be prepared. It is once again essential that this information be available to stakeholders in a form that they can understand and use.

It is also important that the respective costs and benefits are analysed in terms of their impact on both women and men to help ensure that management regimes are established which do not unequally/unfairly advantage or disadvantage either group.

Output 2.5: Management plans for three pilot protected areas jointly prepared, endorsed by key stakeholders and implemented

These plans draw upon all outputs of Components 2 and 3 of the project and outputs 1.4 and 1.5 of Component 1.

Output 2.6: Community based monitoring systems established

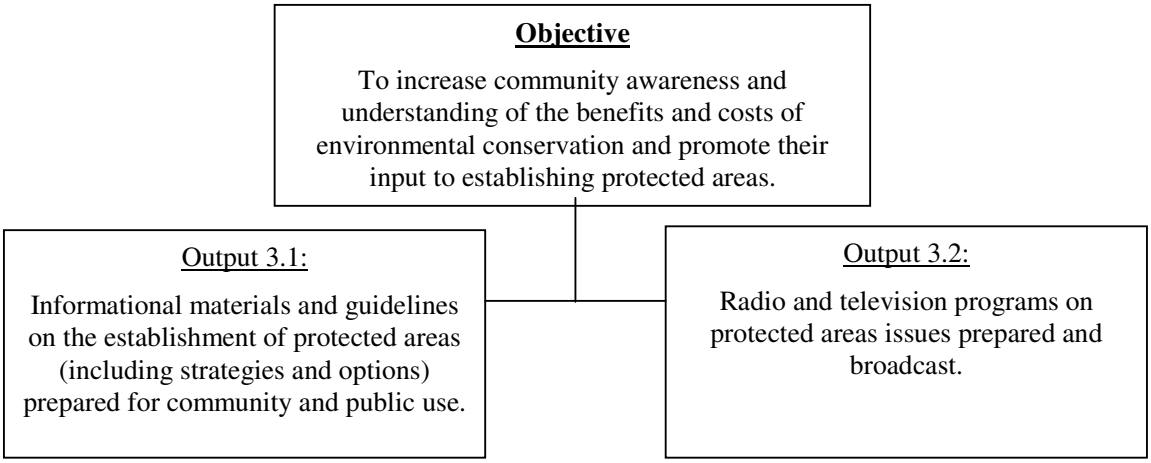
As indicated under the description of output 1.5, it will be important to support the development of a capacity to access, analyse and use relevant information at the community level. Information collection and management must not become a solely extractive activity.

Establishing a community based monitoring system and capacity within the pilot areas will require:

- the use of participatory approaches to help community members establish their information needs and the means by which this information can be collected, recorded and used;
- development of appropriate monitoring tools suitable for community use;
- training in the use of these tools;
- provision to the communities of relevant data and information collected by government and private sector stakeholders (in an appropriate format); and

- ongoing advice and support which promotes community motivation and an action learning approach.

4.4 Component 3: Education & awareness



Objective: To increase community awareness and understanding of the benefits and costs of environmental conservation and promote their input to establishing PAs

This component focuses on the production of appropriate educational, informational and awareness materials to support the implementation of Components 1 and 2. Promoting awareness and understanding of the issues and options at public, community and school levels is essential to the change process. It is expected that the Non Formal Education Centre and the Education Development Centre (EDC) of the Ministry of Education will play an important role in implementing this component using technical information provided by the project. Materials may also be produced using the services of local NGOs and private sector graphic design/publishing services.

Output 3.1: Informational materials and guidelines on the establishment of protected areas (including strategies and options) prepared for community and public use

These materials will be designed to have a two-fold purpose: (i) to provide general information on protected areas to the public, and (ii) to help targeted groups within identified pilot areas learn about the process, steps and systems required to support the establishment and management of particular types of protected area. The materials should be designed on the basis of information collected through community consultations (output 2.1) and training/information needs analysis (output 2.3).

Informational materials will be needed to support community consultations during both the protected areas identification and selection stages, and to help train/better inform targeted community members once implementation starts. The format and means of delivery of this information will need to be appropriate targeted, whether to community 'rangers', atoll and island chiefs, women's groups, commercial fishermen or local tourist operators. The Non Formal Education Centre within the Ministry of Education is expected to play a key role in supporting the development and production of these materials through their community awareness program. The project will also prepare a regular newsletter and media releases.

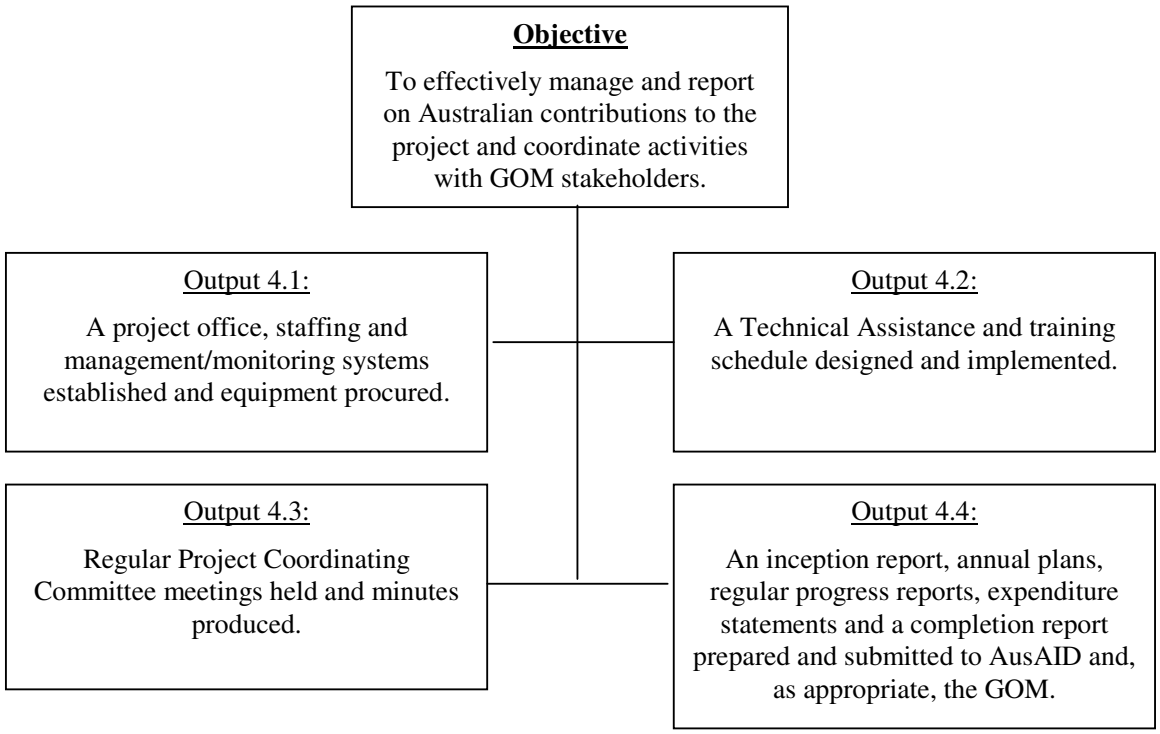
The EDC will also be provided with information developed by the project for possible inclusion in the school curriculum. This will help to promote the sustainability of systems and procedures put in place to manage protected areas.

Output 3.2: Radio and television programs on protected areas issues prepared and broadcast

The exact nature of these broadcasts will be determined through consultation with local community members, Voice of the Maldives, Television Maldives and media experts. Information may be incorporated into existing programmes e.g. children's shows, news or current affairs programs, weekly chat shows. In addition, new regular programmes or special shows may be prepared. Material should include both general and specific information about protected area systems, their purpose and how they are established and managed.

Information regarding proposed protected areas in the Maldives should be widely circulated and include specific reference to the community consultation process and means by which community concerns will be incorporated into decision making.

4.5 Component 4: Planning and management support



Objective: To effectively manage and report on Australian contributions to the project and coordinate activities with GOM stakeholders

This component is included to provide a clear description of how Australian funded activities will be managed, coordinated with local implementing agencies and reported on to AusAID and the GOM.

It is important to emphasise that Australian assistance is being provided in all components to ***support*** local agencies who are tasked with implementing the project. The AMC will not therefore be directly/solely responsible for achieving all project outputs. Achieving these outputs will occur through the collaborative efforts of many different parties, most of who have limited control over

the actions of others. A Scope of Services for the AMC, which specifies what the contractable deliverables or payment milestones will be, is provided at Attachment 8.

Output 4.1: A project office, staffing and management/monitoring systems established and equipment procured

This output is complementary to output 1.1 which requires that the GOM provide office space for both local staff and Australian TA and adequate resources for effectively running the office (eg, utilities, office equipment and maintenance, office stationary and supplies). Australia will also provide some cost sharing input to office running costs and the production of required publications.

Australia will provide two long-term advisory staff to help manage and monitor project implementation, both of whom will be located in the Maldives. A Protected Areas Specialist/Marine Biologist (Team Leader) will be provided for a duration of 24 months and a Community Resource Management Specialist (CRMS) for 33 months. The Team Leader will take primary carriage for supporting the implementation of Components 1 and 4, while the CRMS will focus on providing support to components 2 and 3. They will be supported by a number of short-term TAs as described below under output 4.2. Suggested responsibilities for the long-term TA are further detailed in Attachment 6, together with generic terms of reference for short-tern TA.

The AMC will be responsible for establishing an appropriate project information system which will collect, record, analyse and present information on project progress and initial impact. The PDD and annual plans will be the main yardsticks against which progress will be assessed. Both quantitative and qualitative data will be required. Monitoring the achievement of project outputs against plan, and evaluating how these are contributing to component purposes, will be the main purpose of this system. Financial monitoring will also be required. More specific targets will be included as part of the annual plan preparation process.

Australia will also procure a range of equipment required by the project, particularly that required for undertaking the biodiversity surveys and establishing the protected areas database. Suggested GOA inputs are detailed in section 4.7.

The AMC will also provide support services in Australia. The main purpose will be to provide logistical support with procurement, the contracting and mobilisation of short and long-term TA, and liaison with/reporting to AusAID.

A series of inception workshops will be run within the first 6 months of the project to provide information on project scope and invite/mobilise stakeholder participation in project planning and management.

Output 4.2: A Technical Assistance and training schedule designed and implemented

Short-term TA is expected to be required to support the following technical tasks:

- training needs assessment and training program design;
- review of existing legislation and regulations;
- database establishment and management;
- the design of an appropriate PAS financing framework;
- terrestrial biology surveys; and
- community development planning/participatory rural appraisal/participatory approaches to PAS management and monitoring.

The specific terms of reference for each TA, and a TA schedule, will be prepared by the Team

Leader and the Project Manager during the first six months of the project, and subsequently submitted to the PCC for their consideration. This should be carried out ***after*** a Training Needs Assessment of local staff has been carried out. This will help determine the degree to which training design and delivery will be required as part of each specialist's TOR.

The Australian Team Leader will then be responsible for mobilising and managing the TA, with support from Australian based staff.

Output 4.3: Regular Project Coordinating Committee meetings held and minutes produced

The PCC is the main forum for promoting interagency coordination and making high level decisions on issues of project scope, implementation arrangements and funding. Terms of reference for the PCC will need to be drafted and endorsed by PCC members once they have been appointed.

Further detail of project management and coordination arrangements are provided in Chapter 5.

Output 4.4: An inception report, annual plans, regular progress reports, expenditure statements and a completion report prepared and submitted to AusAID and, as appropriate, the GOM

This output is included to highlight the main reporting requirements that will be placed on the project, and the AMC in particular. An inception report will be provided within six months of Australian TA establishing an operational presence in the Maldives. This will provide an opportunity to plan activities for the rest of the first year in more detail, in consultation with counterparts and PCC members. The results of training needs analysis, the framework for community participation and short-term TA needs should all be established by this time and can therefore be incorporated into the report. This inception report should be in the format of a first annual plan.

Annual plans will be the main mechanism by which lessons learned during implementation can be formally included in forward plans. These annual plans are therefore a key management and monitoring tool. When significant changes in project or component scope are required (as compared to the PDD), these need to be clearly indicated and justified. Annual plans also incorporate a review of the past year's experience and a summary of progress.

The AMC will be required to produce regular progress reports for the PCC and specifically for AusAID. It is suggested that progress reporting initially be carried out on a quarterly basis and that the volume of paperwork contained in such reports should be kept to the necessary minimum. These are management reports which should focus on a clear summary of progress, problems and action required. The Logframe provides the structure for reporting and provides suggested indicators against which to report.

The AMC will submit expenditure statements to AusAID in line with contractual arrangements.

A project completion report will be prepared by the AMC, with input from the GOM, which will focus on providing relevant information for PCC members and for AusAID's lessons learned database.

4.6 Location, duration and phasing

The project office will be located within the MHPRE in Male'. However, it is essential that adequate time is spent undertaking field work by both Australian and Maldivian project officers. Field work will have both a data collection and community development/support focus. Once the pilot protected areas are identified, a period of intensive field work will be required to support the development of community based management capacity.

It is expected that one of the pilot protected areas will be in a location remote from Male'. The purpose of this will be to ensure that: (i) more than one bio-region is included in the pilot phase; (ii) the piloting of the PAS allows lessons to be learned about the difficulties of working in remote locations, and (ii) poverty and equity considerations are incorporated into systems design.

AusAID funding for project activities will be provided for a period of three years.

The expected phasing of project outputs is summarised in a schedule format in Attachment 4. This indicates that identification of the three pilot protected areas is likely to occur after some 12 months of project implementation and that the detailed planning and design of PA plans may be complete by the end of project year two. Timing is nevertheless difficult to predict given the essentially experimental nature of this project and the importance of developing, and not forcing, a process of change. Adequate flexibility must therefore be incorporated into project planning and implementation.

4.7 Inputs and costs

The estimated cost of the project is A$2.3 million of which the GOA will contribute A$2.2 million and the GOM US$73,300.

A summary table of expected AusAID costs is shown below:

AusAID funded costs

	Cost A$ '000			Total
	Yr.1	Yr.2	Yr.3	Cost
Personnel	574	758	243	1575
Procurement	22	24.3		46.3
Training	110	150	50	310
Other	47.8	171.9	138.9	358.6
Total	753.8	1104.2	431.9	2289.9

The main Australian funded inputs are expected to include:

Input	Unit type	Quantity			Total
		Yr.1	Yr.2	Yr.3	units
Personnel					
Protected Area Specialist/Marine Biologist	person mnth	12	12		24
Community Resource Mgt Specialist	person mnth	10	12	12	33
Terrestrial biologist	person mnth		2		2
PAS financing specialist	person mnth	1	1		2
Database specialist	person mnth	1	1		2
Community Development Planning and PRA specialist	person mnth	1	1		2
Adult training/learning specialist	person mnth	2			2

Input	Unit type	Quantity			Total units
		Yr.1	Yr.2	Yr.3	
Environmental law specialist	person mnth		2		2
Procurement					
Computers	Pack	4			4
Printer		2			2
Software	Application	2			2
Field sampling gear (quadrats, tapes, clipboards)	Sets		10		10
SCUBA gear	Set		2		2
Camera	SLR		2		2
Underwater camera			2		2
Video camera and editor	Set		1		1
Mist nets	Net		4		4
Training					
In-country workshops (local support costs)	Lump sum	4	6		10
In-country 'formal' training sessions	Lump sum	2	4		6
Overseas training (MSc, Grad.Dip)	Lump sum	1	1	1	3
Other					
Brochures & awareness materials	Bulk	1	1	1	3
Publication of PAS concept & guidelines	Bulk	1	1	1	3
Publication of survey methods/results	Bulk			1	1
Management plan publication	Bulk		3		3
Signs			100	100	200
Office supplies, utility contribution, etc	Bulk	1	1	1	3
NGO public awareness/training contract	Year	1	6	6	13
Local support staff	person mnth	12	12	12	36
Surveys/field work					
Petrol	Litres	1000	4000	3000	8000
Casual hire (3 p @ 3 villages @ biol/socio)	person mo		28	28	56
Air for SCUBA	Fill		500	300	800
Boat rental	Day	20	50	20	90

GOM inputs and estimated costs are provided at Attachment 5.

Chapter 5 - Management framework

5.1 Stakeholders, roles and responsibilities

5.1.1 Government of the Maldives

The Ministry of Foreign Affairs, through the Department of External Resources (DER), provides the point of formal contact for bilateral donors operating in the Maldives. DER thus has an important role to play in facilitating AusAID's interaction with project stakeholders.

In addition to the DER, there are four government agencies which will be represented directly on the Project Coordination Committee, namely:

- The Ministry of Planning, Human Resource and Environment will be the lead implementing agency. A Project Director (part time) and Project Manager (full time) will be appointed by MPHRE to help ensure appropriate high level support. The MPHRE will participate directly in the planning and implementation of all aspects of the project.
- The Ministry of Fisheries and Agriculture (MFA) and the Marine Research Section (MRS) will play a lead role in organising the design and implementation of marine biodiversity and resource studies with the participation of staff from MPHRE. Fisheries officers have a wealth of past and current experience to contribute to the development of the PAS and will be a key partner in the process. They also have both the responsibility and authority to implement the provisions of the Fisheries Law.
- The Ministry of Atolls Administration will play a key role in facilitating and co-ordinating project activities in the atolls through the Atoll and Island Development Committees. In particular, they will contribute to the planning and implementation of an appropriate program of community involvement in protected areas management, and in the development and dissemination of educational and public awareness materials. Protected areas management must be built on, and integrated with, local decision making structures and systems.
- The Ministry of Tourism will help organise workshops on protected areas planning and management for tourist operators. These workshops will involve participation by other stakeholders and be designed to provide a forum for (i) informing the industry of issues and options and (ii) allowing the industry's views and interests to be effectively incorporated into the planning process. The Ministry will also initiate dialogue with the industry (through the Maldives Association of Tourist Industries) to determine, *inter alia* (i) an appropriate financing framework for supporting the management of a protected areas system, and (ii) how the tourist industry can participate in protected areas management and monitoring.

Some of the other Government agencies which will provide support to the planning and implementation of the PAS include:

- The Ministry of Education will support the production of appropriate information and educational materials for both the general public and for schools. The Non-Formal Education Centre and the EDC will be the main point of contact.
- The Ministry of Information, Arts and Culture through the Voice of the Maldives and Television Maldives.
- The Ministry of Public Works, which must be brought into the process of establishing the protected areas system to promote their understanding of the issues and help ensure their support. Given the nature of their work, Public Works have the potential to impact very significantly on either environmental protection or degradation.

The respective responsibilities of the GOM and the GOA will be specified in a Memorandum of Subsidiary Arrangements (MSA) which will be signed between the two governments prior to project implementation. This will be within the scope of the umbrella Memorandum of Understanding (MOU) between the two governments.

5.1.2 Private sector

The private sector will be a key stakeholder in the effective establishment of a PAS. In particular the interest and concerns of the Maldives Association of Tourist Industries (MATI) must be incorporated into decision making processes. Tourism is the main foreign exchange earner for the Maldives and depends on the protection of the environment for its continued success.

The commercial fisheries industry is the other main private sector interest group that must be involved in the process of establishing the PAS. Their short-term commercial interests are likely to be the source of most conflict with other resource users, particularly the tourist industry. There is nevertheless significant scope for a PAS to help protect the long-term interests of those involved in commercial fishing.

5.1.3 Community

The broader community of Maldivians, both those living in urban centres and outer islands, are stakeholders in the establishment of a PAS. While the Government must provide the regulatory and enabling environment for establishing the PAS, community based support will a key determinant of the system's effectiveness and sustainability. Atoll and Island Development Committees will be a key forum through which community views can be expressed.

5.1.4 Non Government Organisations

There are several environmental NGOs in the Maldives, staffed mainly by volunteers who are employees of different government departments during the day. Nonetheless, the NGOs have produced some very good public awareness materials on marine turtles, sea level rise and other environmental issues and have the potential to be important partners in the development of a PAS.

5.1.5 AusAID

As a provider of financial resources and technical assistance to support project implementation, the GOA, through AusAID, is a stakeholder in the establishment of the PAS. Australia plays an active role in global environmental issues and has an interest in seeing this project effectively implemented. AusAID will be responsible for contracting an appropriate service provider and monitoring their performance, providing the agreed scope of financial resources to support project implementation, and meeting domestic and international reporting requirements on the use of Australian aid.

Appropriate identification of Australia's contribution to the project is required by the GOA. Details will be included in the Memorandum of Understanding between the GOA and GOM.

5.2 Coordination arrangements

5.2.1 Project Coordinating Committee

The PCC is the main forum for promoting interagency coordination and making high level decisions on issues of project scope, implementation arrangements, annual plans and funding. The PCC will be chaired by the Project Director from MPHRE and include members from the Ministries of Planning, Foreign Affairs, Agriculture and Fisheries, Tourism, and Atolls Administration. The Government of Australia will also be represented on the Committee by an AusAID officer.

Other interested parties may also be invited to join the PCC, or participate in PCC meetings, as

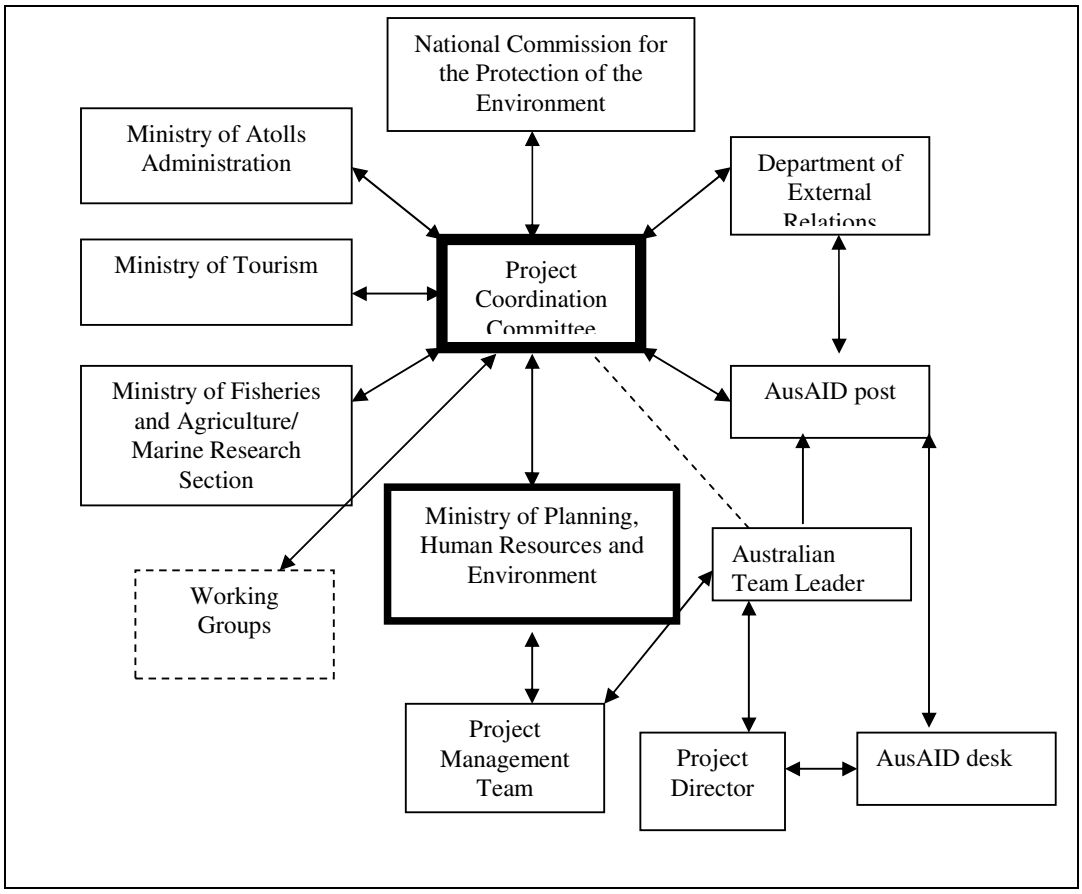
deemed appropriate by a majority of PCC members.

The Australian Team Leader will provide secretariat support services and should attend all PCC meetings. These services will include the preparation of progress reports, draft agendas and a record of PCC decisions which require implementation. This work should be undertaken in partnership with the Maldivian Project Manager.

It is suggested that the PCC meet on a quarterly basis during the first year of the project. This is considered necessary given the importance of coordinated decision making and action for effective development of a PAS. In subsequent years it may be appropriate to modify this schedule.

An organisation chart of the main government agencies is provided in Figure 5.1.

Figure 5.1 – Organisation Chart



5.2.2 Project Management Team

A PMT will be established to provide a forum for dealing with day to day project coordination, management and implementation issues. Institutional membership of the PMT is likely to reflect that of the PCC, but involve officers responsible for managing implementation on the ground. It will also include Australian long-term TA.

The Maldivian Project Manager from MPHRE will be the leader of this PMT, supported directly by the Australian Team Leader. The team will meet as required, however most contact between members is expected to be informal. The PMT will nevertheless need to meet formally at least once per quarter, before and after each PCC meeting to (i) prepare agenda items, progress reports

and issues papers for submission to the PCC, and (ii) review PCC decisions and prepare revised/modified implementation plans as may be required.

5.2.3 Working Groups

In order that agencies not directly represented on the PCC have a structured involvement in PAS development, working groups may be appointed by the PCC to address specific issues. For example, a working group on the development of information/awareness materials may be established which would involve the Ministry of Education and environmental NGOs. Similarly a working group on PAS enforcement issues might involve the MATI, the Ministry of Public Works and the Coast Guard of the Ministry of Defence and National Security. These working groups will be created and dissembled as need requires.

5.2.4 National Commission for the Protection of the Environment

The National Commission for the Protection of the Environment (NCPE) is a high-level policy making and review body to which the PCC will provide reports on project progress. The NCPE serves as a mechanism for cross-sectoral communication between line departments and has a multi-ministerial membership. It also includes members of Parliament and some NGOs.

Issues requiring their attention may include: amendments to environmental management regulations, the establishment of a financing framework, and systems to promote intra-governmental coordination.

5.3 Financial management arrangements

5.3.1 Government of the Maldives

The GOM will appropriate its financial contribution to the project through the recurrent budget. Funds will be allocated by the Ministry of Finance to the MPHRE and will be managed by the Project Manager who will need to establish appropriate ledgers to record and report on project specific expenditures.

The Maldives fiscal year runs from January to December. Expenditure requests/requirements for the following financial year must usually be submitted to MPHRE by the end of July. Requests are then appraised and prioritised during September/October in preparation for Parliament's main budget sessions in November/December. It is therefore important that annual GOM project budget requirements are submitted to the Planning Section within MPHRE by the end of July each year.

5.3.2 Government of Australia

AusAID's financial contributions to the project will be appropriated within the framework of the Commonwealth of Australia's planning and budgeting system. Funds have already been earmarked for this project within the AusAID forward budget. An Australian Managing Contractor will be selected through a competitive tendering process to deliver the services required by the project.

Australia's fiscal year runs from July to June the following year. This requires that expenditure estimates for AusAID contributions to the project for the forthcoming year be submitted by around March. The difference between GOM and GOA fiscal years will need to be accommodated by appropriate forward planning by both governments.

5.4 Monitoring, review and evaluation framework

During the first six months of the project the AMC, working in partnership with the Maldivian Project Manager, will design and establish a monitoring and evaluation (management information) system. This will include the specification of agreed indicators, data collection methods and responsibilities, reporting formats, who the information will be provided to and how it will be

used. An appropriate balance between quantitative and qualitative information is required given that much of the project is about establishing processes, which cannot be quantitatively measured.

Principles of minimum information should be applied with a focus on the needs and capacity of users. More information is not better information – quality not quantity should be prioritised.

The overall framework for project monitoring and evaluation is provided by the project's outputs, component purposes and goal. The Logical Framework matrix at Attachment 3 provides further detail of indicators and means of verification that can be used for monitoring and evaluating project progress (at the output level) and initial effect (at the component purpose level), and impact (at the goal level). Annual plans will provide more detailed specification of annual work programs and targets, and these too should be used to monitor physical progress. While these plans provide a valuable means by which progress can be measured and assessed, it must be remembered that this project is largely experimental in nature. It may well be, therefore, that as lessons are learned these initial plans will require substantial revision both in terms of scope and the expected timing of results.

5.4.1 Monitoring and review

Project monitoring is a management responsibility. The Project Manager, the Australian Team Leader and other members of the Project Management Team must therefore take primary responsibility for the associated tasks including preparation of progress reports.

The information collected though monitoring will have different uses and different users. For example, the scientific information required by the Marine Research Section on issues of marine biological diversity will not be required by all members of the PCC. Information must therefore be appropriately targeted, aggregated and presented.

At a 'whole of project' level, the main monitoring report will initially be a quarterly progress report to be submitted to the PCC. This fits with the MPHRE's current system of quarterly reviews. These may become six-monthly reports, depending on capacity and need. These reports should focus on providing relevant management information and provide an accessible and succinct summary of progress, constraints and action required.

Equally important will be informal systems of information collection and exchange based on personal communication, ad-hoc meetings and 'scanning' of the external environment. Effective monitoring cannot be judged alone by the preparation and presentation of written reports.

Based on the information collected through monitoring activities, the PCC should review project progress and decide on necessary revisions to future plans. In particular, the preparation of annual plans provides the mechanism to update and revise future work programs and integrate the flexibility that this project will require in terms of objective and target setting.

The AMC's reporting requirements to AusAID will be further specified in their contract.

AusAID may choose to appoint a Technical Advisory Group to support the monitoring function.

5.4.2 Evaluation

Evaluation is a periodic assessment of how well the project is contributing to the achievement of purpose and goal level objectives. It relies significantly on information collected through ongoing monitoring, but may also incorporate assessment by independent experts not directly associated with project implementation. Evaluation also asks broader questions than those usually incorporated in ongoing monitoring, such as "are/were the project objectives appropriate?" and "how might these be revised to bring about the desired longer term benefits?"

Depending on project progress and the quality of information provided through ongoing monitoring and review activities, the option of conducting a project evaluation early in the third year of the project should be considered. This evaluation would be undertaken by a small team of

Australian and Maldivian experts, led by a Team Leader who has had no direct involvement in project implementation. The timing of this evaluation should allow both the GOM and AusAID to assess the potential need for, and merits of, continued external funding (from AusAID or elsewhere) before the Australian contribution to the project is complete. It is important that the terms of reference for this evaluation (if conducted) should focus the team on substantive issues/problems that have arisen during implementation. The main purpose of evaluation is to capture lessons learned, and feed these back into forward planning.

Key indicators that could be used for evaluating the project include those specified in the project Logframe matrix at the purpose and goal levels. However, it should be kept in mind that this project aims to initiate a much longer term process, and that many of the expected longer-term benefits may not become evident until many years after Australian funding is complete.

Whether or not an evaluation is conducted before the completion of AusAID funding, the AMC will be required to prepare a project completion report for AusAID and the GOM at the end of the project. AusAID may also decide to conduct an ex-post evaluation of the project should this be considered a useful learning exercise.

5.5 Key assumptions and risks

5.5.1 Key Assumptions

Project success is contingent on several key assumptions. These include:

- continued GOM commitment, at the highest levels, to a coordinated approach to Protected Areas System establishment;
- the establishment of an appropriate framework for community involvement in PAS planning and management which has broad-based support within all of the main stakeholder groups;
- the appointment of a full-time Project Manager by MPHRE, the hiring of four other new staff and the appropriation of adequate resources to support operations;
- co-operation from the Marine Research Section, Ministry of Fisheries and Agriculture, to implement the biodiversity and resource studies and participate in other elements of protected areas planning;
- co-operation from the Ministry of Tourism to solicit and organise support from the private sector;
- co-operation from the Ministry of Atoll Administration and from NGOs in consulting with communities and promoting their active involvement in decision making;
- co-operation from the Ministry of Education and NGOs to ensure timely publication of environmental education and public awareness materials;
- co-operation with other key ministries as necessary, e.g. Public Works, Transport and Shipping, Information, Arts and Culture, etc.
- the development of an effective compliance system for protected areas;
- the establishment of an appropriate financing framework to support the long-term sustainability of PAS management;
- permission by GOM to allow communities to exert some control over, and generate income from, the protected areas that they establish; and
- the contracting of appropriately skilled and experienced Australian Technical Assistance by AusAID.

Assumptions specific to particular project outputs and component purposes are summarised in the

Logframe matrix at Attachment 3.

5.5.2 Risks and risk management

Building on the key assumptions outlined above, Table 5.1 provides a summary of the key risks associated with this project, the risk management strategies proposed and who should take lead responsibility.

Table 5.1 – Risk matrix

Risks	Level of Risk H / M / L	Management Strategy	Lead Responsibility
Institutional strengthening			
Maldivian Project Manager is not available to work full time on the project due to other demands from within the MPHRE	Medium	Recruit Project Manager on a contract basis and have him/her report directly to the Project Director	MPHRE
Staff assigned to the project are transferred or leave to work elsewhere	Low	Commitment by agency heads not to transfer key staff during project implementation. Provide staff with rewarding work and a supportive work environment through application of appropriate HRM strategies.	MPHRE
Staff sent for long-term overseas training do not return to work on the project	Low	Bonding agreement with trainees.	MPHRE
Training is not appropriate to project needs	Low	Appropriate Training Needs Analysis is conducted prior to training program design. Courses are designed and scheduled with a focus on supporting the delivery of project outputs.	AMC
Consistent political and policy support is not provided	Medium	NCPE is kept informed of project issues requiring political support/resolution and improved inter-agency coordination.	PCC
Legislative amendments/new regulations to support PAS establishment and management are not approved in a timely manner	Medium	NCPE is kept informed of progress with drafting new regulations and the implications of any delays are clearly explained.	GOM
Other Ministries do not effectively cooperate/coordinate in implementing project activities	High	Project inception workshops to invite and promote participation from the outset GOM agencies represented on the PCC all sign the Memorandum of Subsidiary Arrangements with AusAID. Reports to the PCC specifically highlight coordination issues and concerns and practical solutions are proposed. Public awareness materials include reference to the integrated nature of PAS planning and management and increase public pressure for a coordinated approach.	PM and AMC NCPE and PCC PM and AMC

Risks	Level of Risk H / M / L	Management Strategy	Lead Responsibility
The project is not established within a broader integrated framework for the management of natural resources.	Medium	Links with other national and donor financed programs and projects supported through the conduct of regular workshops on PAS which will promote interest, understanding and input from all stakeholders. Informal networking with other players	PM and AMC
Project activities are centred around Male' and do not adequately cover more remote areas.	High	Requirement that at least one pilot area is located in a 'remote' location. Allocation of adequate funds for travel and field work allowances. Position descriptions for project staff clearly specify requirement for field work in remote locations.	GOM and GOA
Protected Areas establishment			
Lack of interest/commitment at community level	Medium	Community participation framework established which empowers them to act. Provide concrete examples of PAS success and benefits elsewhere (e.g. Saba, Bonaire) through the public awareness program. Adequate time and resources committed to community consultation and field work.	PCC & NCPE AMC & PM
Lack of appropriate economic alternatives by which to ameliorate community incentives to violate PA regulations	High	Establish links with other rural development programs (such as IFAD Southern Atolls project) and dissemination of information on alternative economic activities that have been demonstrated to be viable elsewhere in the Maldives.	Atolls Admin.
Regulations pertaining to designated protected areas are not enforced; and Local PA initiatives are thwarted by resource users from other Atolls.	High	Participatory/inclusive approaches to the planning and management of PAs, which promote integrated stakeholder action and commitment to enforcing regulations. New legal regulations and strict penalties established which give clear authority to local communities to enforce compliance. Financing mechanisms established which provide adequate resources to monitor and enforce compliance.	PCC Coast Guard
Commercial pressures/incentives increase to harvest on an unsustainable basis (e.g. live reef fish export to lucrative Asian markets)	Medium	Enforce existing regulations. Introduce penalties sufficiently large to deter over-fishing/breach of regulations.	Coast Guard MFA
Lack of resources to implement and sustain management of the PAS	Medium	Establishment of sustainable financing framework.	NCPE

Risks	Level of Risk H / M / L	Management Strategy	Lead Responsibility
Planning and management support			
Australian TA is not appropriately experienced, skilled or sensitive to local needs and conditions.	Medium	Appropriate contractor selection criteria. Review of contractor performance AMC contract includes provision for contract termination if performance inadequate.	AusAID and (if used) TAG
Project initiated activities collapse once Australian funding/TA is complete	Medium	Australian TA focus on capacity building within local agencies. PAS financing framework receives priority.	AMC & PCC

This project remains relatively high risk given its experimental nature, the complexity of coordination arrangements and Australia's limited experience with such projects in the Maldives. The pilot nature of the project reflects this fact. Systems, approaches and tools are to be tested, and lessons learned reflected in future planning.

The high priority given to environmental protection within both GOM agencies and much of the private sector nevertheless provides a solid foundation for the successful establishment of a PAS.

Chapter 6 - Outcome of Design Issues

This chapter provides a brief concluding summary of feasibility and sustainability issues.

6.1 Feasibility

6.1.1 Technical

The GOM has some existing technical expertise in surveying and monitoring marine resources and socio-economic issues (in MRS and the Environment Research Unit of MPHRE). The project will build upon this existing capacity.

Specifically, this project will optimise the use of training resources by:

- supervising data collection projects which can be conducted largely by local technical experts;
- providing additional staff so that local technical expertise can be used more effectively by releasing them from less technical activities;
- building upon existing knowledge and skills; and
- developing specific technical expertise where none presently exists.

6.1.2 Financial and Economic

Financial: The project will support the establishment of feasible mechanisms by which to finance the management and implementation of an ongoing protected area system.

Economic: Some potential protected area sites are likely to create economic losses for one part of the community. If these losses are not addressed, those bearing the uncompensated costs of protection will either disrespect the management rules or suffer economic consequences. If economic losses are probable, alternative income generating options will be considered. If feasible options exist, these will be pursued and implemented as part of the protected area system project. If feasible options do not exist, the protected area site will be relocated. The status of a protected area should also be assessed over time – they do not need to be indefinitely fixed.

6.1.3 Institutional, Social and Cultural

Institutional. It has been noted by the GOM that sustainable use of the environment is a crucial issue for the Maldives. Key government players have recognised that a coordinated approach to multi-dimensional environmental issues and projects is essential. Thus, the motivation for pursuing a coordinated approach comes from within, which suggests that it is feasible for this project to seek institutional coordination.

Social. Work by MRS and discussions with people in the Maldives suggests that the society is ready and willing to contribute to protection of their natural environment. This aspect of the project has been identified as both essential and timely by local stakeholders.

Cultural. Traditionally, island and atoll chiefs wield much power in local decision-making. By encompassing traditional decision-making protocols within this project, it will maximise the feasibility of implementing protected area management at the local/community level.

This project will devote adequate time and resources to ensuring that participatory approaches are both socially and culturally appropriate and acceptable to both government and communities.

6.1.4 Environment

To be environmentally feasible, the Maldives must possess sufficient diversity of potential

protected area sites which have a reasonable level of ecosystem integrity. Based upon available information, this appears to be the case.

6.1.5 Gender

The project will actively promote the equal participation of women and men in training, decision making and management both within government agencies and targeted communities. This will be undertaken within the Maldivian socio-cultural context.

Currently more than half the staff in the Environment Section of the MPHRE are women, including one of the most senior staff, the legal adviser. Selection criteria for Australian funded training for government officers (both in-country and overseas) will target an equal proportion of women and men.

Women in the communities are often the best environmental stewards and are expected to be involved in the establishment and management of community based protected areas. Women's Development Committees will be actively encouraged to involve themselves in PA identification, planning and management.

More than 90% of primary school teachers are women and therefore their role in the environmental education and public awareness program will be pivotal.

6.1.6 Poverty

The Maldivian economy is based primarily on tourism and fishing, both of which depend directly on the integrity of the environment, particularly marine ecosystems. While this project does not have a direct poverty focus (i.e. it is not specifically targeting least advantaged communities), it has the potential to contribute significantly to sustaining (as well as generating) employment and income earning opportunities in these two core industries. Indeed, if there are no clear economic benefits derived by the community from the establishment of protected areas, community participation will not be sustained.

6.1.7 Overall Assessment of Feasibility

The project is considered to be feasible. There is a high probability that the Protected Areas System will be integrated as a core activity into the program of the MPHRE, with funding secured to allow the system to be further developed and monitored after the completion of AusAID's support.

6.2 Sustainability

The key issues of sustainability relate to institutional sustainability, economic sustainability and environmental sustainability.

Institutional sustainability is likely as:

- there is a stable political climate;
- there is recognition within key ministries that the protection of the environment is core to economic survival;
- although specific Ministries may be reshuffled, core staff responsibilities are unlikely to alter significantly and thus commitments are likely to be maintained; and
- the project will focus on building institutional capacity through systems development and training, and the local Project Manager and Project Director are expected to continue developing and coordinating the management of the PAS for many years to come.

Economic sustainability will be achieved by:

- the establishment of multiple financing mechanisms which are not dependent upon one another; and
- provision of acceptable alternative sources of income where the protected area may impact negatively upon people's earnings.

Environmental sustainability in the Maldives will be enhanced through this project which aims to create the capacity within the country to establish and effectively manage a network of protected areas.

6.3 End of project situation

The project aims to leave behind an enhanced institutional capacity to plan and manage a PAS and some specific 'tools' which the GOM can use to continue this work into the future. These tools will include:

- a database containing information on biodiversity and socio-economic indicators for different areas in the Maldives;
- appropriate legislated regulations to support protected areas management;
- operational guidelines for protected areas systems planning and management for use by government officers;
- community awareness and informational materials;
- a financing framework for protected areas management;
- an agreed framework for promoting community participation in, and management of, protected areas;
- tested and documented methods for analysing the biological and socio-economic costs and benefits of implementing alternative management regimes within proposed protected areas;
- tested and documented approaches to the establishment of community based monitoring systems;
- training materials to support short-course and workshop activities; and
- improved inter-agency coordination and communication mechanisms which support effective decision making on PAS management.

6.4 Australian Capability

Australia is in a unique position to provide technical assistance and training through this project. Several Australian institutions have been involved with the establishment of the Great Barrier Reef Marine Park and the design of a broadscale monitoring program for this, and other, marine parks. In addition, Australia has many diverse types of protected areas and has learned valuable lessons in developing effective management systems for them. The State Governments of Western Australia, New South Wales and South Australia also have extensive experience in establishing and managing both marine and terrestrial protected areas.

Academic, government and private sector agencies within Australia have extensive experience in planning and managing participatory natural resource management systems and in the design and delivery of competency/skills based training.

Attachment 1
Re-design team's terms of reference

Attachment 2
Itinerary and list of people consulted in-country

In-country itinerary

Date	Location	Activities
Sun. 20/9	Male'	Meeting with Department of External Resources, Ministry of Foreign Affairs.
		Joint meeting with MPHRE, Ministry of Tourism, Marine Research Section of Fisheries Department, Department of External Resources and AusAID Colombo
		Meeting with UNDP Resident Representative
Mon. 21/9	Male'	Meeting with Marine Research Section
		Meeting with MPHRE
		Meeting with Ministry of Tourism
		Meeting with Mr. Bill Allison, Marine Ecology Consultant
Tue. 22/9	Male'	Meeting with Ministry of Atolls Administration
		Meeting with MPHRE
		Meeting with Education Development Centre and Non Formal Education Centre, Ministry of Education
		Meeting with Philip Tortell, Environmental Consultant, Asian Development Bank
Wed. 23/9	Male'	Meeting with MPHRE
		Joint meeting with MPHRE, Ministry of Tourism, Ministry of Atolls Administration, Marine Research Section of Fisheries Department, and Department of External Resources
Thu. 24/9	Male'	Report writing
		De-briefing with Mr. David Henry, AusAID Colombo
Fri. 25/9	Kaafu Atoll	Visit to Huraa Island and Ihuru resort island. Discussions on environmental impact and management issues
Sat. 26/9	Kaafu Atoll	Visit to Bandos island resort
		Report writing
Sun 27/9	Male'	Report writing
		Wrap up meeting with MPHRE and Department of External Resources

List of people consulted during field work

Name	Designation	Agency
Simad Saeed	Asst. Director Programmes	MPHRE
Adam Hassan	Environment Officer	MPHRE
Hafeeza Abdulla	Asst. Environment Analyst	MPHRE
Mohamed Zuhair	Asst. Environment Analyst	MPHRE
Mohamed Khakeel	Dep. Director, Environmental Affairs	MPHRE
Abdullahi Majeed	Deputy Minister	MPHRE
Azima Shakon	Legal Officer	MPHRE
Aishath Faiz	Survey Officer, Environment Section	MPHRE
Ahmed Solih	Asst. Director, Trade Standards	Ministry of Tourism
Moosa Zameer Hassan	Environment Analyst	Ministry of Tourism
Maizan Hassan Maniku	Director-General Fisheries, Research and Development	Ministry of Fisheries & Agriculture, Marine Research Section
Hussein Zahir	Senior Reef Research Officer	Ministry of Fisheries & Agriculture, Marine Research Section
Ahmed Latheef	Director External Resources	Department of External Resources, Ministry of Foreign Affairs
Bill Allison	Coral Reef Ecology & Management Consultant	Private Consultant
Philippe Zysset	Deputy Resident Representative	UNDP
David Henry	Second Secretary, Development Cooperation	AusAID, Colombo
Dunstan Fernando	Projects Coordinator	AusAID, Colombo
Ahmed Shareef Nafees	Project Manager, Southern Atolls Development Project	Ministry of Atolls Administration
Mohamed Farook	Director	Ministry of Atolls Administration
Abdul Raheem Hasan	Deputy Director, Non Formal Education Centre	Ministry of Education
Mohamed Musthafa Hussain	Assistant Director, Non Formal Education Centre	Ministry of Education
Hassan Hameed	Director General, Education Development Centre	Ministry of Education
Jihad	Assistant Manager	Ihuru Island Resort
Philip Tortell	Consultant	Environmental Management Limited

Attachment 3
Logframe matrix

Attachment 4
Indicative output phasing schedule

Attachment 5
Indicative GOM inputs and costs

Budget representing the contribution of the Government of Maldives

a. Project personnel (including national counterpart)	MRf	615,000

i) National Project Director (part-time)

ii) National Project Manager (new)

iii) Three (3) new MPHRE technical staff

iv) One (1) new MPHRE administrative staff

b. Telecommunication services	MRf	245,000

i) Local and IDD telephone, facsimile as well as internet services within the office

ii) Telecommunication services while field surveying

c. Local transport	MRf	574,000

i) Local costs for fuel and transport during duty and field travel within the country

ii) Field survey equipment

d. Project staff training	MRf	12,000

Local costs for trainees including:

i) local transport

ii) foreign visas

iii) departure fees and taxes

iv) application fees

e. Equipment	MRf	300,000

Operational and office facilities such as:

i) Photocopy machine

ii) Overhead and slide projectors

iii) Software

iv) Miscellaneous office-use facilities

f. Miscellaneous	MRf	250 000

i) Accommodation

ii) Operation and maintenance costs

iii) Rentals

iv) Local transport for government staff

v) Sundry office supplies

TOTAL GOM CONTRIBUTION	**MRf**	**1,996,000**

Attachment 6

Position Descriptions for long-term TA
and
Generic TOR for short-term TA

Position description

Protected Area Specialist/Biologist and Australian Team Leader

Duration: 24 months

Location: The Maldives (Male', with field work in outer atolls)

Reporting to: The Australian Team Leader (ATL) will report to the Maldivian Project Director in the Maldives and through the AusAID post in Colombo to AusAID's Activity Manager in Canberra.

Responsible for: The ATL, together with the Maldivian Project Manager, will be directly responsible for managing the work of the Australian Community Resource Management Specialist, the four MPHRE staff dedicated to the project, and the performance of all short-term technical assistance. The ATL will also share responsibility for creating and dismantling issue-based working groups as need dictates and will support the functioning of the PCC.

Qualifications: Masters or Ph.D. in biology, natural resource management or related discipline.

Experience

The ATL must have substantial experience in:

- team leadership and management;
- planning and implementing integrated natural resource management projects or programs;
- designing and implementing marine and/or terrestrial biological surveys;
- implementing appropriate data gathering procedures within communities for local monitoring of management success;
- supervising research projects;
- human resource management and staff training; and
- management and technical report writing.

The Team Leader must also have some experience of living and/or working in a developing country and demonstrate good communication/inter-personal skills.

Special conditions

The ATL will be required to spend some time conducting field work in remote locations in the Maldives. Performance assessments will, in part, be linked to successful completion of this field work.

The Australian Team Leader must be able to transfer skills to local staff, particularly the Maldivian Project Manager.

Tasks

The ATL will be responsible for:

- effective consultation with government officials at all levels to determine: the appropriate mechanisms to facilitate intra-government co-ordination; the approach which the GOM would

like to take regarding community participation; and, training and skills needs within participating government agencies;

- developing and implementing tools and mechanisms by which the project will be managed and reported upon including design and use of project performance indicators;
- determining the type, level and amount of community participation that the GOM would like incorporated into the protected area system project;
- collaborating closely with, and guiding, Project Management Team members. The ATL will offer substantial support to the in-country Project Manager who will continue the establishment of protected areas after the Australian TA has departed;
- reviewing, collating and presenting existing information regarding biological, social, economic and cultural facts which may impact upon the design of a system of protected areas;
- production of protected area systems guidelines which should be both the product of, and input into, a variety of different training activities. These guidelines will encompass: identification and classification of bio-regions; protected area site selection tools; participatory management; management planning; legal and financial support mechanisms; and data collection and monitoring;
- on-the-job training and collaborative collection of biological data with trained people from the GOM;
- on-the-job training and collaborative collection of biological data with communities to be effected by the proposed pilot protected areas;
- mobilising and managing Australian short-term technical assistance;
- facilitating production of general information and curricula information regarding protected areas and environmental management;
- production of regular media releases, and a project newsletter, regarding the development of the protected area system;
- production of an inception report, progress reports and annual plans which incorporate assessment of project achievement against agreed performance indicators;
- providing secretariat services to the PCC;
- establishment and maintenance of a project office with sufficient equipment and supplies for the duration of the project;
- managing GOA funds in line with contract requirements;
- procurement of other equipment as necessary; and
- end-of-term hand-over of project to the Maldivian Project Manager and Australian Community Resource Management Specialist.

Position description

Community resource management specialist

Duration: 34 months

Location: The Maldives (Outer atolls and Male')

Reporting to: Australian Team Leader

Responsible for: Managing short-term TA during their field work, specifically when this requires interaction with the community.

Once assuming the role of Team Leader this TA will, together with the Maldivian Project Manager, be responsible for the 4 MPHRE staff dedicated to the project, creating and dismantling issue-based working groups as need dictates, and will support the functioning of the PCC.

Qualifications: Tertiary education in community-based natural resource management, economics, social or economic anthropology, social or economic geography, or related discipline.

Experience

The Community Resource Management Specialist (CRMS) must have substantial experience in:

- working with communities to implement natural resource management projects of programs;
- gathering quantitative and qualitative data on social, economic and/or cultural issues;
- designing and implementing appropriate data/information gathering procedures within communities for monitoring progress and impact;
- designing and delivering on-the job and short-course training activities;
- supervising field research activities;
- working in teams; and
- report writing to a high standard.

The CRMS must also have some experience of living and/or working in a developing country and must demonstrate good communication/inter-personal skills.

Special conditions

This TA will be required to spend significant amounts of time in remote locations in the Maldives. Performance assessments will, in part, be linked to successful completion of these field trips.

This person must be able to assume leadership of the project from the Protected Area Specialist at the end of the second year of the project.

Tasks

The CRMS will be responsible for:

- determining the type, level and amount of community input into the protected area system project which is desired by the community, including the fishing and tourism industry;

- developing a feasible framework for the participation of communities in the establishment and implementation of a protected area system. This framework must be acceptable to both the community and the GOM;
- contributing to the review, collation and presentation of existing information regarding biological, social, economic and cultural facts which may impact upon the design of a system of protected areas;
- contributing to the development of protected area system guidelines including identification and classification of bioregions; protected area site selection tools; participatory management; management planning; legal and financial support mechanisms; and data collection and monitoring;
- conducting a community training/information needs assessment (encompassing, for example, environmental awareness, data collection and alternative income generation skills);
- on-the-job training and collaborative collection of socio-cultural and economic data with trained people from the GOM;
- on-the-job training and collaborative collection of socio-cultural and economic data with communities to be affected by the proposed pilot protected areas;
- contributing to the production of an inception report, progress reports and annual plans; and
- production of a completion report.

Generic TOR for short-term TA

Short-term TA is expected to be required in the following areas:

- training needs assessment and training program design;
- terrestrial biology surveys;
- community development planning/participatory rural appraisal/participatory approaches to PAS management and monitoring;
- database establishment and management;
- review of existing legislation and regulations; and
- the design of an appropriate PAS financing framework.

Confirmation of this need, and a detailed schedule of TA inputs, will be prepared as part of the inception report/first annual plan which will be submitted within the first 6 months of the project.

The short-term TA will be expected to undertake the following generic tasks:

- Participate in a pre-departure briefing with the Project Director prior to their first visit to the Maldives and familiarise themselves with all relevant background information, including the PDD, annual plans and project progress reports;
- While in the Maldives, work under the direction of the Australian Team Leader and the Community Resource Management Specialist, as defined in their task specific TOR;
- Work collaboratively with identified Maldivian counterparts to ensure that local knowledge, interests, systems and capacity considerations are factored into all technical assistance activities;
- Undertake either on-the job, or short-course, training for identified counterparts (government, private sector and community) as specified in their TOR;
- Ensure that their work is undertaken in both a culturally and gender sensitive manner to promote equal opportunities for participation in project activities (and benefits) by both women and men;
- Clearly document methods, systems and procedures developed as part of consultancy work in a format that is clear and accessible to users, and which can be used as the basis for follow-up training activities; and
- Prepare clear and concise consultancy completion reports in a format to be specified by the AMC in consultation with AusAID.

Attachment 7
Training program options

Training needs assessment

The project design accommodates the fact that project training needs cannot be assessed *a priori* and require careful analysis of project needs and assessment of existing and available expertise. During the first phase of the project this assessment will be formally conducted.

In previous versions of this project design, proposals have nevertheless already been made as to the possible scope of training activities. These are provided below for reference.

Previously documented training proposals

The table below sets out an indicative training schedule as conceived during previous project planning work. This will need to be reviewed as part of the Training Needs Assessment. Careful attention must be given to ensuring that staff absence on overseas training programs does not compromise effective and timely project implementation.

Ministry/ Section	No. of Trainees	Existing Qualifi-cations	Upgrade/ New	Level of Training	Specialisation	Timing
MPHRE	3	BSc	U	MSc	management planning/natural resource assessment & management	Y3,Q1
	4	BSc, secondary	U	short-term, in-country	biodiversity inventory biodiversity databases protected area planning	Y3,Q1 Y1,Q2; Y2,Q2; Y3,Q3 Y3,Q2
	2	Secondary	N	Diploma	marine and terrestrial biodiversity survey techniques	1st - Y2, Q1, 2nd - Y3,Q1
MRS/ MFA	3	BSc, secondary	U	short-term, in-country	biodiversity inventory biodiversity databases	Y3,Q1 Y1,Q2; Y2,Q2; Y3,Q3
MOT/Pla n	2	BSc, secondary	U	short-term, in-country	protected area planning public awareness programs	Y3,Q2 Y2,Q3/4; Y3,Q3/4
MOE	2	BSc	U	short-term, in-country	curriculum development public awareness programs video production	Y2,Q1 Y2,Q3/4; Y3,Q3/4 Y1,Q4
MAA	1	BSc, secondary	U	short-term, in-country	protected area planning public awareness programs	Y2,Q3 Y2,Q3/4; Y3,Q3/4

The content of short-term in-country training might include:

1. Biodiversity inventory and database

- biodiversity inventory planning
- marine inventory techniques for corals, fish, turtles, key habitats
- terrestrial biodiversity inventory techniques for plants, birds, bats, insects, etc
- data analysis techniques

2. Protected area planning

- protected area planning and management
- protected area database development, data management and information provision
- community participation; and
- ecotourism planning

3. Public awareness programs

- public awareness program design and implementation
- environmental radio programs, and
- video programming.

Attachment 8
Draft Scope of Services

Attachment 9
Reference documents

Reference Documents

Kenchington, R.A. 1991. Managing Marine Environments. Taylor and Francis, New York.

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Sathiendrakumar, R. and C.A. Tisdell. 1988. Marine development and socio-economic conflicts (internal and external) of the Maldives. Working Paper 12, Economic Programme, Murdoch University, Western Australia.