

THE SECRETARIAT OF THE PACIFIC REGIONAL ENVIRONMENT PROGRAMME

REPUBLIC OF THE MARSHALL ISLANDS – REVIEW OF ENVIRONMENTAL LAW

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SUMMARY

This legal review was prepared over March-May 2013 to update an earlier legal review carried out in 1992. It has been written to provide an overview of the legal aspects of environmental management issues facing the Republic of the Marshall Islands (RMI), steps that have been taken to tackle these issues and the weaknesses and gaps that remain.

Many underlying environmental management problems in the RMI are long-standing. The urgency in addressing these problems has increased with the advent of climate change. Themes that have been selected for review are those with particular relevance for adaptation to climate change, namely: waste management; water supply and sanitation; marine water pollution; land use planning, development control and soil conservation; coast conservation and environmental impact assessment; biodiversity conservation; and energy efficiency and renewable energy. Recommendations are made in relation to each theme under the headings of policy formulation and implementation (on the understanding that this will not necessarily require law reform), amendment at the level of statute and amendments to regulations.

These recommendations point to the need to adjust and further develop current legal and institutional arrangement so that they will be capable of supporting adaptation to climate change. It is suggested that institutional responsibilities be rationalized and streamlined, regulation and compliance be strengthened, environmental planning and management combine traditional and modern approaches, and that there be a greater emphasis on building community awareness and participation.

An overarching theme concerns institutional arrangements and opportunities for community engagement. Chapter 3 covers the allocation of environmental responsibilities amongst relevant institutions. Within the current institutional allocation of responsibility, a number of important functions set out in legislation remain unimplemented, including land use planning, coastal zone management and some permitting processes. Some compliance and enforcement functions are not effectively carried out. At the same time, other important tasks such as the control of non point-sources of pollution that may require technical or management solutions as well as changes in behavior have been sidelined.

It is apparent that the Republic of the Marshall Islands Environment Protection Authority (RMI EPA) has been overloaded with a complex regulatory role (including permitting procedures, environmental impact assessment and enforcement) as well as longer-term policy and planning functions. There is an urgent need to reconsider the alignment of environmental management functions to reduce the range of responsibilities allocated to the RMI EPA and allow it to focus on its regulatory role.

This could lead to the establishment of a new institution, such as a Ministry responsible for completing 'unfinished business' that appears on the statute books and undertaking new tasks, particularly relating to climate change adaptation. The new institution could be a center for research and a repository for data and information. It could build community relationships and play an advisory and coordinating role between all relevant government stakeholders. Creating a new institution is likely to require some realignment of responsibilities between existing Ministries; it could also open the way for systematic devolvement of management responsibilities to the local level and greater support for community-based initiatives in natural resources management.

LIST OF RECOMMENDATIONS

CHAPTER 3 - INSTITUTIONS FOR ENVIRONMENTAL GOVERNANCE

3.1 ENVIRONMENTAL INSTITUTIONS

Policy formulation and implementation

RMI EPA

- Identify where functions set out in the *National Environment Protection Act 1984* and *Coast Conservation Act 1988* have not been implemented by RMI EPA and the reasons why this has occurred.
- RMI EPA to indicate whether, in their view, they would be more effective if they were to shed some planning and policy-making functions to focus on their regulatory and compliance role and, if so, which policy and planning functions should be shed.
- Consider separating policy and planning functions from regulatory functions.
- RMI EPA to consider any additional regulatory roles that they could usefully undertake such as in relation to endangered species legislation or invasive species.
- Consider whether the independence of the RMI EPA needs to be strengthened.
- Obtain funding and create a full-time position for a legal enforcement officer within the RMI EPA.
- Consider whether the range of enforcement actions available to the RMI EPA is adequate.

OEPPC

- Identify areas of overlap between RMI EPA and OEPPC.
- Review the effectiveness of OEPPC to date, particularly in relation to climate change adaptation.
- Consider whether it needs to be replaced by an alternative institution, perhaps one that takes on some of the roles of the RMI EPA with a stronger focus on climate change adaptation.

Minister for Interior and Outer Islands (MI)

- Review MI's role in relation to land use planning in relation to functions allocated to the RMI EPA.

Environmental Advisory Council

- Reconsider the role of the Environmental Advisory Council.

Attorney-General

- Strengthen capacity within Attorney-General's office for environmental enforcement on behalf of both RMI EPA and MIMRA.

Courts

- Conduct legal education of judges in relation to sentencing for environmental offences (possibly through drafting sentencing guidelines).
- Prepare guidelines to clarify provisions in the *National Environment Protection Act 1984* in relation to civil enforcement.
- Clarify the standing of interested parties to bring enforcement proceedings.

Local Government

- Consider how national government agencies can improve their working relationship with local institutions, traditional owners and the community at large.

Statute

RMI EPA

- Amend or replace the *National Environment Protection Act 1984* in line with policies adopted above in regard to reallocated functions, additional functions, strengthened independence and refinement of enforcement powers.
- Amend or replace the *Coast Conservation Act 1998* in line with policies adopted above in regard to reallocated functions.

OEPPC

- If there is to be a reorganisation between RMI EPA and OEPPC, draft a statute to establish a new institution, possibly a Ministry that absorbs the functions of the OEPPC and takes on new roles that have been shed by RMI EPA. Options would be a Ministry for the Environment or an Environment Commission.

Minister for Interior and Outer Islands (MI)

- Statutory reform to be carried out in response to the analysis of reasons for lack of implementation of land use planning.

Environmental Advisory Council

- Reformulate the role of the Environmental Advisory Council.

Local Government

- Provide statutory support for, and recognition of, local government initiatives for community-based fisheries management, conservation management planning and coastal management planning to ensure their wider application into the future.

CHAPTER FOUR - WASTE MANAGEMENT

4.1 LITTER

Policy formulation and implementation

- Community education programs about the problems caused by litter and actions that can be taken at an individual and community level to make RMI litter free.

Statute

- The *Littering Act 1982* should be amended to bring it in line with other responsibilities of the RMI EPA whilst also clarifying the obligation of Local Government.
- Definition of waste and litter should be revisited so as to ensure a clear distinction between littering and depositing of waste.
- Consideration should be given to a definition of ‘aggravated littering’ for more serious littering such as dumping cars, metallic waste or tyres.
- Coordination between RMI EPA and Local Government needs to be clarified.
- More detailed provision needs to be made against the littering and depositing of waste on private land.
- An offence of littering near the sea should not entail proof that the litter could be ‘reasonably expected to be carried to land or into the lagoon’ rather is should be a simple prohibition.
- More user-friendly and wide-ranging enforcement provisions need to be devised, for example by including provisions to allow for the following:
 - spot fines imposed by Local Government, RMI EPA or an ‘authorised officer’ as defined by legislation;
 - authority given to Local Government, RMI EPA or an authorised officer to order removal or proper disposal and failure to comply as an additional offence;
 - civil penalties and ongoing penalties for the number of days where an order has not been complied with; and
 - removal and proper disposal to be carried out by Local Government or RMI EPA with this cost and any other related costs recoverable from the polluter.

4.2 POLLUTION AND WASTE GENERALLY

Policy formulation and implementation

- Conduct a review of the adequacy of the drafting of the enforcement provisions in *National Environment Protection Act 1984* pertaining to pollution and waste.

Statutes

- Re-draft enforcement provisions pertaining to pollution and waste in accordance with the findings of the policy review.

Regulations

- Regulations to be passed to establish the permit system under which a permit is required for the discharge of a pollutant and the conduct of any activity which results in the discharge of a pollutant – the Marshall Islands Pollution Discharge Elimination System (MIPDES).

4.3 SOLID WASTE

Policy formulation and implementation

- Coordinated community awareness campaigns about the growing solid waste management problem in both urban and outer islands should be launched by central and local government.
- A national waste policy should be prepared that introduces a co-operative approach to waste management with a focus on waste minimisation and resource recovery. It could cover domestic waste, hazardous wastes and substances, construction and demolition waste, and e-waste (but exclude nuclear waste).
- Encourage reuse, recycling and other initiatives through voluntary measures and community awareness programs. In doing so, involve local governments, community leaders, schools, churches, NGOs, women's groups and other community groups.
- Embark on research about prospects for composting in RMI.

Statute

- Clarify the distinction between littering and waste dumping.
- A prohibition on all new private landfills in certain areas should be considered.
- Community rights and duties of government to respond to complaints by the local community in relation to waste should be drafted.
- Allocate responsibility for raising community awareness to identified agencies.

Regulation

- Consider the imposition of import controls on Styrofoam and other plastics including import levies.
- Consider the banning of plastic bags across RMI – with the aim of making RMI a 'plastics free zone'.
- Provide for economic incentives such as container deposit systems for bottles and other containers.

4.4 HAZARDOUS AND TOXIC WASTE

Policy formulation and implementation

- A survey should be conducted to assess the extent and location of hazardous waste present across RMI and how it is being disposed of including sludge from raw sewage and septic tanks and waste oil.
- Develop a national strategy for the management of hazardous and toxic waste.
- Attention be given to appropriate methods for disposing of raw sewage sludge and septic tank pumpings and seeking financial assistance to enable these processed to be adopted.

Statute

- Given the seriousness of offences relating to hazardous and toxic waste, particularly where it is disposed of in proximity to the coast, the adequacy of enforcement provisions and the level of penalties should be reviewed with the goal of significantly strengthening the powers of the RMI EPA and penalties.
- Clarify the application of the offence provisions regarding by the intrusion of waste or foreign matter or by physical activity in the coastal zone.

Regulation

- Provide a separate regulatory instrument to cover hazardous and toxic substances.

4.5 PESTICIDES AND PERSISTENT ORGANIC POLLUTANTS

Policy formulation and implementation

- Any national strategy for the management of hazardous and toxic waste to include a strategy for the management of Persistent Organic Pollutants (POPs).

Regulation

- Consideration to be given to strengthening the enforcement provisions for POPs.

CHAPTER 5 - WATER SUPPLY AND SANITATION

5.1 FRESH WATER SUPPLY

Statute

- Legislative support be provided for community-based water resources management.
- Land use planning and development controls be prepared to ensure that future development will not impact on existing groundwater supplies.

Regulations

- The Building Code be amended to include mandatory water harvesting.
- Regulations be passed to support the introduction of water efficient appliances.

5.2 SANITATION

Policy formulation and implementation

- Identify an advocate for improvement of practices in relation to the operation of the sewerage outfalls.
- Identify an advocate for improvement of practices in relation to managing septic tanks and disposal of waste from septic tanks.
- Establish programs de-sludge septic tanks and deliver waste to a waste treatment facility using the combined efforts of Local Government, RMI EPA and the Minister for Public Works
- Conduct community awareness programs about the damage caused by direct utilization of ocean and lagoons as latrines and problem-solving activities to find solutions to changing behaviour in this regard.
- Conduct further research into, and trialling of, composting toilets in RMI.

Statute

- Provide statutory responsibility to the new advocate who is tasked with finding technical and management solutions to controlling pollution of freshwater and marine water resources as a result of poor sanitation.
- Stronger community rights provisions are needed to enable the community to take action where there has been a failure by the regulatory agency.

Regulations

- Responsibility for permitting and enforcement Type 2 and Type 3 facilities should be allocated to Local Government as the authorized representative of the RMI EPA.
- Allow for community complaint procedures.

5.3 ANIMAL WASTE

Policy formulation and implementation

- Conduct a census on the number and location of piggeries in urban areas.
- Investigate their system of waste disposal and research alternatives.
- Establish a system for the use of piggery waste as a fertilizer using a dry compost system.
- Introduce an education and compliance management program on proper waste disposal by piggeries and work with piggery owners to achieve cooperation in proper waste disposal.

Statute

- Acknowledge animal waste as a source of water pollution and an impact on sanitation.
- Allow for the passing of regulations to cover the management and control of animal waste.

Regulations

- Introduce prohibitions on causing pollution from piggery and other animal waste.
- Allow for enforcement by RMI EPA or Local Government.
- Allow for community complaint procedures.
- Introduce spot fines and prevention notices.

5.4 FRESHWATER QUALITY

Statute

- Obligations to be imposed on RMI EPA to make water quality monitoring results more widely available.
- Provide for water quality monitoring of groundwater by Local Government as well as the RMI EPA.
- Allow for groundwater monitoring for contaminants from human and animal waste and salt water intrusion.

CHAPTER 6 - MARINE WATER POLLUTION

6.1 MARINE POLLUTION FROM LAND-BASED SOURCES

Policy formulation and implementation

- Consider how to best allocate responsibility for
 - research and providing technical and management solutions for the control of pollution in marine waters from land-based sources;
 - fostering behavioural change to protect marine water quality; and
 - education and awareness programs.
- Make an inventory of all sites where there is runoff from industry, road infrastructure and other sources of pollution.
- Prepare policy to support businesses in voluntarily reducing their pollution loads.

Statute

- Allocate the responsibility mentioned above.
- Impose obligations to regularly collect data in lagoons and ocean side coastal areas on nutrient loadings and other sources of land-based pollution to systematically monitor water quality including around sewerage outfalls.
- Results of marine water quality monitoring to be publicly available and included with explanations as to the connection between land-based activities and marine water pollution levels.

Regulations

- Pass the anticipated regulations to establish the MIPDES permitting system.
- As mentioned above at 4.4 above pass a specific regulation on management of hazardous and toxic substances.

6.2 CONTAMINATION OF FISHERY WATERS

Statute

- Introduce minimum penalties for contamination of Fishery Waters.

Policy formulation and implementation

- Education and training for judges on appropriate environmental sentencing (possibly through sentencing guidelines).

6.3 OIL POLLUTION

Policy formulation and implementation

- Financial and institutional support for spill control kits and training at RMI EPA in spill control technology.

Statute

- Introduction of minimum penalties for oil pollution offences.

6.4 DISCHARGES FROM BOATS AND SHIPS

Marine sanitation

Policy formulation and implementation

- Monitor twice weekly the harbor for illegal discharges.
- Increase capacity for inspection of boats regarding sewage treatment systems and waste disposal.

Ballast water and quarantine

Policy formulation and implementation

- Build awareness of existing laws regarding oil spills, sewage disposal and water treatment facilities on board as well as control of release of ballast water.
- RMI EPA to take a more active role in monitoring compliance with ballast water management requirements.
- Increase coordination between related agencies, such as the Ports Authority, shipping agents and fishing ventures and RMI EPA.

Statute

- Provide for RMI EPA to take responsibility for ballast water control.

Regulations

- RMI EPA to develop regulations on ballast water management as part of the Marshall Islands Pollution Discharge Elimination System (MIPDES).

CHAPTER 7 - LAND USE PLANNING, DEVELOPMENT CONTROL AND SOIL CONSERVATION

7.1 LAND USE PLANNING

Policy development and implementation

- Undertake a review to identify why there has been a failure to implement the *Planning and Zoning Act 1987* and *National Environmental Protection Act 1984* in relation to land use planning.
- Identify the most appropriate institution to be responsible for land use planning.
- Acknowledge the urgency in implementing land use planning given current and prospective impacts of climate change including rising sea levels and drought.

Statute

- Provisions in the *Planning and Zoning Act 1987* and *National Environmental Protection Act 1984* to be combined to create a seamless statute setting out the content and process for land use planning and zoning.
- Zoning principles should refer directly to impacts of climate change.
- The process for preparing a Land Use Scheme should harmonise with the process involved in preparing the Coastal Zone Management Plan.

Regulation

- The role of local government, traditional leaders and local communities in formulating a Land Use Scheme to be set out with procedural detail that ensures full participation.

7.2 DEVELOPMENT APPROVAL PROCESSES

Policy development and implementation

- The land use planning review mentioned above to identify appropriate steps to be taken as development control measures.

Statute

- Development control to be provided for within an Act that provides for regulation-making power to detail the development control procedure.

- The *National Environmental Protection Act 1984* or its replacement to make specific provision for administrative law remedies where a proponent or objector (including an environmental NGO) is dissatisfied with either the decision or the process followed in making a development approval decision.

7.3 BUILDING APPROVAL

Policy formulation and implementation

- Review the current situation regarding building codes to identify reasons for failure to implement legislative provisions.

Statute

- Statutory provision for a national Building Code to include a range of new standards including:
 - water efficiency and water harvesting;
 - standards to handle flooding scenarios associated with sea level rises;
 - set-backs to avoid overcrowding, and
 - energy efficiency standards.
- Responsibility for enforcement of the Building Code to be allocated.

7.4 SOIL CONSERVATION

Policy formulation and implementation

- Soil conservation to be considered in the context of a wider strategy for food security.

Statute

- Institutional responsibility for soil conservation to be allocated away from RMI EPA to a new institution.
- Land use planning to provide for conservation of land for the purpose of agriculture.

CHAPTER 8 - COAST CONSERVATION AND ENVIRONMENTAL IMPACT ASSESSMENT

8.1 COASTAL MANAGEMENT

Policy formulation and implementation

- Review the reasons for the failure to implement CZMP.
- Consider allocating responsibility to a new institution, with responsibility to include assessing the vulnerability of coastal areas to the impacts of climate change, coordinating and implementing strategies for climate change adaptation and risk reduction.

Statute

- If line with the conclusions of the review, reallocate planning and management authority away from the RMI EPA to a Ministry.
- Harmonise the approach taken in land use planning and CZMP.
- Give new emphasis to the need to protect the coastline as part of climate change adaptation in view of rising sea levels and increased frequency of storm surges.
- Consider banning certain activities along the coastline.
- Provide more detail on the content of the CZMP including, for example, identification of suitable areas as resource collection areas and other areas as off limit areas
- Formally endorse the principle of community-based coastal management and provide for procedures to allow this to occur.

Regulations

- Develop procedures for building community-based coastal management.

8.2 COASTAL DEVELOPMENT CONTROL

Policy development and implementation

- Obstacles to implementing the development control provisions in the *Coast Conservation Act 1988* need to be identified and overcome.
- Consideration should be given as to how resources can be increased for monitoring and surveillance to detect failure to obtain permits and also to monitor compliance with permits and the effectiveness of permit conditions including active biological and sedimentation monitoring.
- Develop a policy solution to limit residential scale beach mining, yet provide affordable, alternative sources of aggregate to households and public projects.
- Public education about the extent of rights held by landowners who have property abutting the sea.

Statute

- Amend the *Public Lands and Resources Act 1966* to clarify duties that accompany the rights of landholders and obligations to comply with government regulation and control of development in coastal areas.
- The RMI EPA to be given strengthened functions in coastal development control.
- Provide more detail to 'long term stability, productivity and environmental quality' as criteria for determining categories of development that do not need a permit and determining whether a permit should be issued.

Regulations

- The regulatory function related to the development approval be given renewed emphasis on determining categories of development that do not require a permit, criteria for determining whether a permit should be issued and drafting regulations for the permitting process.
- Significantly increase the level of civil penalty for violation of the Earthmoving Regulations upwards from \$100/day.

8.3 ENVIRONMENTAL IMPACT ASSESSMENT

Policy formulation and implementation

- Review how adequately the EIA Regulations have applied to development control along the coastline.
- Identify how public participation processes within EIA can be activated taking into account dynamics and power relations within the Marshallese society.

Statute

- The *Coast Conservation Act 1988* to be amended to eliminate unnecessary duplication of provisions with the *National Environmental Protection Act 1984* and implementing regulations.
- Inconsistency between the *National Environmental Protection Act 1984* and implementing regulations should be removed.

Regulations

- The extent of discretion available to the GM in deciding whether a proposed development 'may have a significant effect on the environment' should be simplified. It is possible to prepare a list of activities that by their very nature are likely to have a significant effect on the environment thus triggering the need for an EIA.
- The exercise of discretion available to the GM in deciding whether to waive any of the requirements of EIA to be made more accountable by a listing of factors that must be taken into account by the GM and an obligation to make the reasons for the decision publicly available. Alternatively, this discretion should be removed.
- In relation to assessing the EIA, the Regulation should be amended to build in accountability measures such as listing of factors that must be taken into account in assessing the adequacy of the EIA.

Guidelines

- Guidelines should be prepared and made available on the RMI EPA website on when an EIA is required and how an EIA document should be prepared and its content.

8.4 BUILDING COASTAL DEFENSES

Policy formulation and implementation

- Review legislation on clearing native vegetation with a view to creating a regulatory regime to protect native vegetation and limit land clearing.
- Allocate responsibility for activating and coordinating voluntary community re-vegetation programs and public awareness about the importance of protecting native vegetation.
- Conduct landowner and developer workshops on proper techniques for seawall construction.
- Develop a national strategy for the sourcing of aggregate and management of aggregate mining in view of the need for reliable, affordable and non-environmentally damaging sources of rock, sand and fill materials for RMI's infrastructure construction and coastal protection programs.

Statute

- Provide for the protection of native vegetation and enforcement provisions.
- Allocate responsibility for:
 - protection of native vegetation;
 - the remediation of unsafe shorelines;
 - making an inventory of dredged areas in Majuro and throughout RMI to assess the rate of depletion versus the availability of aggregate; and
 - making an inventory of national and regional sources of aggregate.
- Establish a procedure for identifying where aggregate collection is permitted and prohibited.

CHAPTER 9 - BIODIVERSITY CONSERVATION

9.1 TERRESTRIAL BIODIVERSITY

Policy formulation and implementation

- Commence coarse-scale terrestrial conservation targeting for terrestrial biodiversity.
- Promote the importance of terrestrial biodiversity (fauna and flora) and its relevance for land use planning.
- Identify processes that threaten terrestrial biodiversity and implement plans to address these processes
- Explore the applicability of 'green fees' to support efforts to protect terrestrial biodiversity.

Statute

- Allocate responsibility for protection of terrestrial biodiversity.
- Incorporate terrestrial habitat preservation into statutory amendments that provide for land use planning
- Consider the drafting of legislation to protect native vegetation and terrestrial habitats related to endangered species.

9.2 NEAR-SHORE BIODIVERSITY

Policy formulation and implementation

- Promote community awareness of the interrelationship between issues related to the health of near-shore ecosystems and activities that are conducted on land.
- Continue support for locally managed fisheries and marine protected areas including capacity building.
- Explore the applicability of 'blue fees' to support efforts to protect marine biodiversity.

Statute

- Complete the drafting of statutory support for the Protected Area Network across RMI.
- Formally endorse community-based management and the role of traditional communities the conservation and ecologically sustainable use of biodiversity.
- Formally endorse the importance of preserving traditional knowledge about the use of local resources.
- Formally recognise that:
 - local government, local communities and landowners are directly responsible for conservation and sustainable use of their resources; and

- conservation areas may be fully owned by local communities with efforts led and endorsed by such communities based on their needs, values and cultural heritage.
- Develop incentives for privately initiated conservation projects.

Regulation

- Provide procedures to ensure that local communities are involved in conservation management.

9.3 OPEN SEAS BIODIVERSITY

Policy formulation and implementation

- Promote an accepted understanding of the meaning of 'near-shore' and 'open sea' biodiversity set out in a government policy document;
- Consider the feasibility of establishing marine protected areas in the open sea.

Statute

- Clarify the offence provisions that apply within the Tuna and Game-Fish Conservation Zone.

9.4 PROTECTION OF ENDANGERED SPECIES

Policy formulation and implementation

- Investigate the true status regarding endangered species in RMI including rare or endangered plants, reef fish and coral species.
- A review of the adequacy of the *Endangered Species Act 1975* should be carried out in light of a more complete assessment of the status of endangered species in RMI.

Statute

- Shift authority for protection of endangered species to a ministry with responsibility for biodiversity protection rather than regarding to such flora and fauna as 'resources'.
- Elaborate upon the enforcement provisions and allocation of authority to an environmental agency.

CHAPTER 10 - ENERGY EFFICIENCY AND RENEWABLE ENERGY

10.1 ENERGY EFFICIENCY

Policy formulation and implementation

- Increase training of personnel within government, MEC and the private sector in regard to energy auditing and energy management techniques.
- Continue public awareness campaigns on energy savings and link them to global warming awareness.
- Develop and implement a practical program to replace inefficient lighting (household, business, Government and street lighting) with efficient lighting on Majuro and Ebeye and throughout the RMI.
- Establish practical mechanisms for reduction of energy use within the government, with incentives for individual departments.
- Carry out energy audits on government facilities, with the departments each developing and submitting an investment plan for the capitalization of energy efficiency improvements.
- Require government departments to each name an energy manager who will develop and implement an energy management plan.
- Develop low interest loans, rebates and other innovative financing mechanisms through the banking system for energy efficiency investments by households and businesses.

Statute

- Revise import duties and taxes to encourage the purchase of energy efficient appliances and equipment (e.g. refrigeration, air conditioning, major appliances, lighting).

Regulation

- Require all new or renovated government buildings to incorporate energy-efficient designs.
- Develop energy efficiency standards for new buildings and renovations including homes, businesses and government premises.
- Establish and enforce codes for new construction with mandatory minimum energy standards.
- Develop a practical appliance labelling scheme and mandatory minimum energy performance standards (MEPS) for refrigerators, air conditioners and other electrical appliances to remove the poorest performing appliances from the market.

10.2 FUTURE RENEWABLE ENERGY SOURCES

Policy formulation and implementation

- Arrange wind measurements over 12 - 18 months and obtain an independent analysis of the wind energy potential for Majuro.
- Arrange independent assessment of the technical, environmental and economic feasibility of waste to energy conversion for Majuro.
- Develop and implement training-of-trainers programs covering photovoltaic system design, installation and management; develop training programs at the village level in operation and maintenance
- Develop and implement consistent mechanisms for the design and in operation and maintenance of photovoltaic systems of different ministries.
- Develop and implement a program for solar water heating, particularly in Majuro, Ebeye and the hotel sector.
- Arrange with donor support a pilot program to introduce renewable energy into existing grids to gain experience.
- Assess options for renewable energy development that do not require access to private land (e.g. at government facilities or reef-based installations).

Statute

- Clarify Ministerial responsibility and other roles and functions for the development and application of renewable energy and funding arrangements for the support of new technologies.
- Allocate responsibility for keeping Cabinet up-to-date regarding the capabilities of, and progress in adopting, renewable energy technologies.

Regulation

- Implement a mechanism for covering full user costs for outer island household solar energy installations through user fees and possibly a sustainable renewable energy fund.

ABBREVIATIONS

ADB	Asian Development Bank
AG	Attorney General of the RMI
CZMP	Coastal Zone Management Planning
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
HPO	Heritage Protection Office
MAWC	Majuro Atoll Waste Company
MEC	Marshalls Energy Company
MIMRA	Marshall Islands Marine Resources Authority
MIPDES	Marshall Islands Pollution Discharge Elimination System
MPA	Marine Protected Area
NCCPF	National Climate Change Policy Framework 2011
OEPPC	Office of Environmental Planning and Coordination
OTEC	Ocean Thermal Energy Conversion
POPs	Persistent organic pollutants
RMI	Republic of the Marshall Islands
RMI EPA	Republic of the Marshall Islands Environmental Protection Authority
SPREP	Secretariat for the Pacific Regional Environment Programme
USAKA	United States Army Kwajalein Atoll

CHAPTER 1 INTRODUCTION

1.5 BACKGROUND – PEOPLE, LAND AND ECONOMY

The Republic of the Marshall Islands (RMI) is a small island developing nation of approximately 53, 158¹ people situated on 5 islands and 29 atolls in the north Pacific. It is one of only four atoll nations in the world. The total land area comprises just less than 70 square miles (181 square kilometers) whilst the expanse of sea to the outer limit of its Exclusive Economic Zone exceeds 750 square miles (1,990,530 square kilometers). Its atolls and islands are situated in two chain-like formations, the eastern group known as Ratak (Sunrise or Eastern) and Ralik (Sunset or Western). The highest elevation on land is approximately 7 feet above sea level (2 meters).

Twenty two atolls and 4 islands are inhabited. The most populous atoll is Majuro, also the capital. It is estimated that 74% percent of the nation's population lives on Majuro and Ebeye in the Kwajalein Atoll.² The outer islands are sparsely populated due to lack of opportunities for economic development and employment.

RMI has few exploitable natural resources. The economy is essentially a service economy with some income from fishing and agriculture. Agricultural production is concentrated on small farms with the most important commercial crops being coconuts, tomatoes, melons and breadfruit. Industry is small-scale and includes handicrafts, fish processing, and copra. Imports far exceed exports and unemployment is high with many islanders living by subsistence farming.

Foreign exchange earnings come primarily from offshore fisheries. However, it is widely thought that income-generating opportunities in near-shore fisheries are hold significant potential. Aquaculture and mariculture could provide a means of attaining food security and income generation. RMI also sells fishing rights to other countries, and offers ship registrations under the Marshall Islands flag. Other options for economic development include tourism; the islands could be a base for scuba diving and sports fishing due to the pristine condition of many of its islands and its beautiful coral reefs.

The main source of income for the RMI government comes from the annual grants made pursuant to the Compact of Free Association between the government of the United States of America and the RMI that came into effect on October 21, 1986 ('the Compact'). Under the Compact, the Government of the United States has full authority and responsibility for security and defense of the Marshall Islands, and the Government of the RMI is obligated to refrain from taking actions that would be incompatible with these security and defense responsibilities.

The Compact was amended in 2003. As set out in the *Compact of Free Association as Amended (Implementation) Act 2004*, the grants are to continue over another period of 20 years until 2023. They are to be used for 'assistance in education, health care, the environment, public sector capacity building, and private sector development, or for other areas as mutually agreed, with priorities in the education and health care sectors'.³

¹ 2011 RMI Census of Population and Housing <http://www.doi.gov/oia/reports/upload/RMI-2011-Census-Summary-Report-on-Population-and-Housing.pdf>.

² Ibid.

³ Article 1, section 211 Annual Grant Assistance.

In 2013, the total amount payable is the sum of US\$ 57.7 million and, in 2014, \$US 62.7.⁴ In return, the government of the USA has the right to lease certain islands within the Kwajalein Atoll for the use of the United States Army Kwajalein Atoll (USAKA) Facility. The United States Army maintains the Ronald Reagan Ballistic Missile Defense Test Site on Kwajalein Atoll, which is the largest atoll in the world. The atoll's inhabitants have been moved to the tiny island of Ebeye, which now has a population density of 10,000 people in one seventh of a square mile.⁵

1.6 ENVIRONMENTAL LAW AND POLICY

a. Environmental law

The legal system in RMI combines a heritage from the US and English common law as well as some customary law and local governance ordinances. Statutes are drafted as framework laws with the implementing detail usually found in subordinate legislation. There has been very little environmental litigation to date or enforcement through the courts.

The backdrop to environmental law in RMI is contained in Article VI of the Compact, whereby the governments of the United States and RMI have pledged to 'promote efforts to prevent or eliminate damage to the environment and biosphere and to enrich understanding of the natural resources of the Marshall Islands.' The United States has agreed to:

- Continue to apply the environmental controls in effect on the day preceding the effective date of the Compact to its continuing activities, until those controls are modified (s.161(a)(1));
- Apply the US *National Environmental Protection Act 1969* to its activities in RMI as if those activities were being carried out in the USA (s.161(a)(2));
- Apply environmental standards that are substantially similar to those required in 6 enumerated US environmental statutes taking into account the particular environment of the Republic of the Marshall Islands when conducting activities requiring the preparation of a US Environmental Impact Statement (s.161(a)(3)); and
- Develop, as agreed with the Government of the RMI, written environmental standards and procedures to implement the substantive provisions of the laws made applicable to U.S. Government activities in the Republic of the Marshall Islands.

The provisions that apply to environmental protection as a result of the Compact are set out in [Appendix 1](#). As part of its reciprocal obligations, the government of RMI has an obligation to continue to develop and implement comparable standards and procedures to protect its environment (s.161(b)).

⁴ Article 1, section 217.

⁵ The scope of the consultancy did not allow for an examination of RMI and US environmental law as it applies to Kwajalein. The consultant understands that due to the military operations on Kwajalein there is a possibility of ongoing contamination taking place on the atoll. The Government of RMI has authority to monitor contamination levels as shown in data provided by USAKA. There was an obligation in the first period of the Compact for this data to be presented in lay terms to enable ready understanding of its content. However, in the renewal of the Compact in 2004, this obligation was removed. Whilst remediation of contamination by the US government is required, uncertainty needs to be removed regarding the standards to be applied in relation to remediation and whether there is a requirement for independent monitoring of impacts on human health and the environment.

The key environmental statute is the *National Environmental Protection Act 1984*, which established the RMI Environmental Protection Authority. Regulations passed to implement this Act include the following:

- *Solid Waste Regulations 1989*
- *Earth Moving Regulations 1989*
- *Marine Water Quality Regulations 1992*
- *Environmental Impact Regulations 1994*
- *Pesticides and Persistent Organic Pollutants Regulations 2004.*

Relevant legislation arranged in chronological order is set out below:

Date	Statute	Regulation
1966	Public Lands and Resources Act	
1975	Endangered Species Act	
1980	Local Government Act	
1982	Littering Act	
1984	National Environmental Protection Act	
	Marine Zones Declaration Act	
1987	Planning and Zoning Act	
	Nuclear Claims Tribunal Act	
1988	Coast Conservation Act	
1989		Solid Waste Regulations
		Earth Moving Regulations
1990	Marine Mammals Protection Act	
		Toilet Facilities and Sewage Disposal Regulations
1991	Historic Preservation Act	
1992		Marine Water Quality Regulations
1993	Civil Liability for Oil Pollution Damage Act	
1994		Environmental Impact Assessment Regulations
		Public Water Supply Regulations
1996	Tuna and Game-Fish Conservation Zone Act 1996	
1997	Marshall Islands Marine Resources Act	
2003	Office of Environmental Planning and Policy Coordination Act 2003	
2004		Pesticides and Persistent Organic Pollutants Regulations
2007	All Atolls Access to Justice (Nuclear Claims) Act 2007	

Table 1 – List of environmental laws and regulations in chronological order

b. Environmental Policy

A number of important policy documents have been passed in recent years. In 2001, the Government prepared ‘Vision 2018’ as the first segment of the Government’s Strategic Development Plan to implement sustainable development. The Vision is spelled out with respect to long term goals, objectives and strategies and was developed through an extensive consultative process starting with the Second National Economic and Social Summit and then followed by extended deliberations by various working committees established by the Cabinet.

The second and third segments of the Strategic Development Plan consist of Master Plans focusing on major policy areas, and the Action Plans of Ministries and Statutory Agencies. These documents will show programs and projects together with the appropriate costing.

Since the adoption of Vision 2018, Master Plans have been developed in major policy sectors including: Human Resources Development, Outer Islands Development, Culture and Traditions, Environment, Resources and Development, Information Technology, Private Sector Development, Infrastructure, and Tourism. In addition, Action Plans of Ministries, and statutory agencies have been developed in order to state in detail the respective programs of action aimed at achieving the targets identified in the Master Plans. It is intended that all Local Governments develop Action Plans tailored towards the achievement of the National Vision.

Other important environmental planning and policy documents include the following:

- 2000, National Biodiversity Strategy and Action Plan
- December 2002, Jaluit Atoll Background Report Environmental Resource Management Plan
- January 2008, Coastal Management Framework
- May 2008, *Reimaanlok* Looking to the Future – National Conservation Area Plan for the Marshall Islands
- RMI Disaster Risk Management National Action Plan 2008-2018
- 2009, RMI National Energy Policy and National Energy Action Plan
- 2010, Climate Change Roadmap
- January 2011, National Climate Change Policy Framework.

These policy documents were reviewed in preparing this report. In particular, the *Coastal Management Framework 2008* contains a comprehensive account of the laws pertaining to coastal management in RMI. It reviews coastal conditions and activities including dredging and sand mining, seawall construction, reclamation and landfill, coral reef degradation, solid waste management, human and animal waste management, shipwrecks and natural disasters, and makes recommendations for policy development. This report has drawn on material from the *Coastal Management Framework 2008* and endorses many of its recommendations while seeking to investigate further how they can be implemented legally.

1.7 INTERNATIONAL AND REGIONAL COOPERATION

a. International Cooperation

The RMI was admitted to the United Nations in 1991.⁶ It belongs to the International Monetary Fund, the World Bank, and the Asian Development Bank. The RMI is a signatory to many international instruments related to international environmental law including the following:

- Treaty on the Non Proliferation of Nuclear Weapons 1968
- The Convention on Wetlands of International Importance 1971 ('Ramsar Convention')
- International Convention for the Safety of Life at Sea 1974

⁶ <http://marshall.csu.edu.au/Marshalls/html/politics/RMIAdmissiontoUN.pdf>.

- International Convention on Standards of Training, Certification and Watch keeping for Seafarers (or STCW), 1978
- United Nations Convention on the Law of the Sea 1982
- United Nations Framework Convention on Climate Change 1992
- United Nations Convention on Biological Diversity 1992

The RMI government has been particularly active in the international arena in regard to climate change. It signed the UNFCCC on 4 June 1992 and ratified it on 8 October 1992. It has established a climate change website that provides information related to RMI's implementation of the UNFCCC.⁷ The government has been an advocate internationally for the position of small island states that are particularly vulnerable to rising sea levels and the other effects of climate change.

b. Regional Cooperation

RMI is member of a number of regional Pacific organizations including the following:

- Pacific Islands Forum, a political grouping of 16 independent and self-governing states;
- Secretariat of the Pacific Community (SPC), an international organisation that provides technical support to the members for works in public health, water resources, disaster management, fisheries, and others;
- South Pacific Applied Geoscience Commission (SOPAC), a Division under the SPC involved in programmes related to development, management and monitoring of natural resources of ocean, islands, fresh water; and
- Pacific Island Forum Fisheries Agency (FFA).

RMI is a signatory to the following regional conventions:

- Convention for the Conservation of Nature in the South Pacific 1976 ('Apia Convention');
- Convention for the Protection of the Natural Resources and Environment of the South Pacific Region 1986 ('SPREP Convention');
- Convention to Ban the importation into Forum Island Countries of Hazardous and Radioactive Waste and to Control the Trans boundary Movement and Management of Hazardous Waste within the South Pacific Region 1995 ('Waigani Convention'); and
- Nauru Agreement Concerning Cooperation In The Management Of Fisheries Of Common Interest 1982 ('Nauru Agreement').

RMI is also a signatory member of a number of other regional conventions that regulate fisheries and trade.

The RMI government has been actively involved in Pacific initiatives for improved environmental and natural resources management. It participated in drafting the Pacific Regional Environment Program Strategic Plan 2011-2015. It is actively involved in the Micronesia Challenge Conservation Program, which is a commitment by the Federated States of Micronesia, RMI, Palau, Guam and the Commonwealth of the Northern Marianas Islands to preserve their natural resources by effectively conserving at least 30 percent of near-shore marine resources across the region of Micronesia by 2050.

⁷ See website: <http://unfccc.int/resource/ccsites/marshall/>.

The RMI government has been actively involved in regional initiatives on responding to the challenges being posed by climate change. For example:

- Pacific Islands Framework for Action on Climate Change (PIFACC) 2006-2015
- Pacific Adaptation to Climate Change Project (PACC)
- Green Energy Micronesia (GEM) 2010⁸

It participates in the Pacific Islands Climate Change Program (PICCAP) and the South Pacific Sea Level and Climate Monitoring Project through which eleven monitoring stations were established in the Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu, and Western Samoa, to provide a wide coverage across the Pacific Basin. Data has been collected from the Uliga, Majuro station for more than five years.⁹

1.8 APPROACH TAKEN TO THE REVIEW

a. Previous reviews and reports

This report seeks to draw together and update the aspects of previous reviews with a focus on the context of challenges being brought by climate change. As mentioned at 2.2, a comprehensive review of the laws pertaining to coastal management was carried out by the RMI EPA in 2008, the 'Coastal Management Framework Republic of the Marshall Islands'. Its recommendations have been incorporated into this review. In 2005, the ADB completed a country environmental analysis,¹⁰ containing a valuable appraisal of environmental conditions in RMI and necessary actions. Again, its findings and recommendations have been considered in drafting this review.

A review of environmental law in RMI was completed in 1992 by Elizabeth Harding entitled 'Strengthening Environment Capabilities in Pacific Island Developing Countries – Republic of the Marshall Islands Review of Environmental Law' ('the Harding review'). It was carried out as part of a Regional Environment Technical Assistance Project initiated in 1990 under the South Pacific Regional Environment Program (SPREP). This report has been prepared to update the Harding review. However, a number of aspects covered by the Harding review are not mentioned as it is considered that nothing further needs to be added. For example, the history of RMI's emergence as an independent constitutional democracy and the constitutional and administrative structures of government are not covered in this review. The traditional and statutory systems of land tenure are only briefly referred to in the context of land use planning. Other areas not covered are fisheries, cultural heritage, agriculture and agro- forestry, and tourism.

It should also be stated that this review does not consider ongoing concerns over the management of nuclear waste in the form of fallout from the US nuclear testing program that took place in RMI from 1946 to 1958. Over this period of time, the U.S. tested 67 atmospheric nuclear weapons tests in the Marshall Islands, including the largest nuclear test the U.S. ever conducted, known as 'Bravo' on 1 March 1954 at Bikini Atoll.

⁸ http://www.guamenergy.com/wp-content/uploads/2012/03/2012_Micronesia_Chief_Executives_Summit.pdf

⁹ <http://unfccc.int/resource/ccsites/marshall/activity/seaframe.htm>.

¹⁰ E Hay and Ellia Sablan-Zebedy, *Regional: Mainstreaming Environmental Considerations in Economic Development Planning Processes in Selected Developing Member Countries – Report of the Marshall Islands Country Environmental Analysis*, ADB Project Number: RETA6204, August 2005.

As stated in the President's Nuclear Remembrance Day Message on 1 March 2013:¹¹

In the 12-year period from 1946-1958, when the Marshall Islands was a United Nations Trust Territory administered by the United States, the United States conducted 68 atomic and hydrogen atmospheric bomb tests in islands, with a total yield of 108 megatons, which is 98 times greater than the total yield of all the U.S. tests in Nevada. Put another way, the total yield of the tests in the Marshall Islands was equivalent to 7,200 Hiroshima bombs. That works out to an average of more than 1.6 Hiroshima bombs per day for the 12-year nuclear testing program in the Marshall Islands. Over a tenth of that 12-year yield was delivered in a single day: March 1, 1954.

With the 1952 test of the first US hydrogen bomb, the island of Elugelab in the Enewetak atoll was destroyed. By 1956, the Atomic Energy Commission regarded the Marshall Islands as "by far the most contaminated place in the world".¹²

A key component of the Compact was the establishment of a compensation fund of \$150 million for loss or damage to property and persons resulting from the USA nuclear testing program (the section 177 agreement). The fund contained monies for the establishment of a Nuclear Claims Tribunal.¹³ Nuclear claims between the U.S. and the Marshall Islands are ongoing, and the full extent of the health effects from the nuclear tests remains to be determined. Whilst Enewetak has been partly decontaminated, Bikini Atoll is still uninhabitable.

As stated on the Nuclear Claims Tribunal Website:

With only \$45.75 million made available for actual payment of awards made by the Tribunal during the first fifteen years of the Compact and less than \$6 million of the initial \$150 million now remaining in the Nuclear Claims Fund, it has become clear that the original terms of the settlement agreement are manifestly inadequate.

In this regard, pursuant to a UN Human Rights Council Resolution, a Special Rapporteur on The Implications for Human Rights of the Environmentally Sound Management and Disposal of Hazardous Substances and Wastes completed a report following a mission to RMI and USA during March-April 2012.¹⁴ The report was adopted by the Council on September 12, 2012.

Two recommendations of the Special Rapporteur's report crystalize the concerns of Marshallese leaders over the years and should be taken up, namely:¹⁵

(1) Grant full access of the Marshall Islands to United States information and records regarding the environmental and human health ramifications of past and current United States military use of the islands, as well as full access to United States medical and other related records on the Marshallese, in accordance with the right to information and the principle of transparency; and

(2) Guarantee the right to an effective remedy for the Marshallese people, including by providing full funding for the

¹¹ Yokwe online: <http://www.yokwe.net/index.php?module=News&func=display&sid=3150>.

¹² Stephanie Cooke, *In Mortal Hands: A Cautionary History of the Nuclear Age* (Black Inc, 2009) 168.

¹³ Marshall Islands Nuclear Claims Tribunal: <http://nuclearclaimtribunal.com/>.

¹⁴ Calin Georgescu, *Report of the Special Rapporteur on The Implications for Human Rights of the Environmentally Sound Management and Disposal of Hazardous Substances and Wastes*, Addendum Mission to the Marshall Islands (27-30 March 2012) and the United States of America (24-27 April 2012) A/HRC/21/48/Add.1, 3 September 2012

http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session21/A-HRC-21-48-Add1_en.pdf [accessed 15 May 2013].

¹⁵ Ibid, Recommendations 64 (e) and (f) at 18. See also Yokwe online:

<http://www.yokwe.net/index.php?module=News&func=display&sid=3150>.

Nuclear Claims Tribunal to award adequate compensation for past and future claims, and exploring other forms of reparation, where appropriate, such as restitution, rehabilitation and measures of satisfaction (for example, public apologies, public memorials and guarantees of non-repetition); and consider the establishment of a truth and reconciliation mechanism or similar alternative justice mechanisms.

As stated by the President:

The way forward, in our view, is for the Government of the United States of America to declassify and make available the remaining documents in their secret vaults so that the Marshallese people, through the Changed Circumstances Petition before the United States Congress, can, close to 60 years later after Bravo, find peace and justice. I want to assure and remind all of us that the Government of the Republic of the Marshall Islands is steadfast in its determination to seek peace and justice. Again, I reiterate the official position of the Government that there can be no closure without full disclosure, hence, peace and justice. In remembrance of every Marshallese affected, and who will be affected, I make this our solemn pledge that we will not forget and we will continue to seek peace and justice. In pursuant to Public Law 1988, I have, by Executive Order, declared that where and during the hours they are flown on March 1, the flag of the Republic of the Marshall Islands shall be at half-mast. In closing, I wish to reaffirm that the Government will continue to be guided by its objective for timely action on nuclear issues.

b. Meetings in RMI

The consultant was fortunate to meet with personnel from the following government agencies:

- Office of Environmental Planning and Policy Coordination (OEPPC);
- Republic of Marshall Islands Environment Protection Authority (RMI EPA);
- Marshall Islands Marine Resources Authority (MIMRA); and
- Heritage Protection Office (HPO).

Particular thanks are due to informative discussions with the Minister in Assistance to the President, Tony De Brum; Director of OEPPC, Bruce Kijiner; Senior Climate Advisor, Steve Why; General Manager RMI EPA, Lowell R Alik; and Director MIMRA, Glen Joseph.

c. Goal of the review

This review has been undertaken as a contribution to identifying:

- gaps in the law and policy framework that hinder an effective response to long-standing environmental management issues; and
- aspects that need to be addressed to meet additional challenges being brought by the impact of climate change in the RMI.

The ADB has stated that best practice in ‘environmental road mapping’ involves the following sequential steps:¹⁶

- (i) identify critical environmental concerns, needs and problem areas;
- (ii) determine the current state of relevant environmental components and systems;
- (iii) specify a timeframe within which improvements in environmental performance and quality are to be achieved (typically by between five and twenty years);
- (iv) develop goals and targets for environmental performance and quality, consistent with national policies, strategic plans and objectives;
- (v) identify actions and activities that are required to meet the specified targets;

¹⁶ Hay and Sablan-Zebedy, above n 10, 30 [139].

- (vi) identify the implementers;
- (vii) identify and implement a system for changes in environmental performance and quality;
- (vi) review progress at pre-determined intervals; and
- (vii) feedback information from the review process into the implementation process.

In recent times, policy documents prepared by the RMI government have covered some of these sequential steps, particularly steps (i), (iv) and (v) mentioned above. It is hoped that this review will contribute to understanding the legal dimension of these steps, in particular, by identifying:

- critical environmental concerns, needs and problem areas (i)
- the current state of relevant environmental components and systems (ii)
- required actions (v)
- implementers (vi).

CHAPTER 2 ENVIRONMENTAL STRESS, CLIMATE CHANGE AND THE LAW

2.1 ENVIRONMENTAL STRESSES THAT PRE-DATE CLIMATE CHANGE

Even without the challenges of climate change, RMI faces significant difficulties in managing the quality of its environment. This is largely due to growing population density in urban areas where 74% of the population now reside having moved away from the outer islands.¹⁷ As stated in the *Coastal Management Framework 2008* prepared by the RMI EPA, the vast majority of the coasts throughout RMI are in pristine natural condition, however, environmental degradation is found in urban centers which have experienced rapidly increasing populations.¹⁸

Increasing population density brings with it increasing demands in the supply of clean potable water as well as water for other uses such as washing. At the same time, population pressures have led to deterioration in water quality in ground water resources, due to bacterial contamination from septic tanks and untreated sewage.

When land is in such short supply, simply managing where to house people poses major difficulties related to land use planning, that have yet to be tackled. This concerns planning the location of housing, commercial enterprises and infrastructure for the purpose of optimizing all beneficial uses from the land, for example, protection of vital groundwater supplies and areas used for food sources (bread fruit, coconut palms, pandanus and banana trees) and also providing for other needs such as recreation.

Land shortage has provided the impetus for land fill activities, particularly in lagoon areas. This activity requires management in terms of the content of land fill and where the fill comes from. There has been a tendency to use waste as a source of land fill with resulting water pollution problems from contamination and leachate. Where landfill is in the form of aggregate, there is a need to control the location of mining activity. In particular, beaches and coral reefs in lagoon areas should not be used as a source of aggregate for reasons related to protection of near-shore biodiversity and protection of the coastline against the effects of high tides and storm surges.

Increasing population accompanied by uncontrolled development has led to the clearing of vegetation including food bearing trees and a failure to replant lost pandanus, coconut trees and bread fruit trees. Additional food requirements have meant that near-shore fisheries that supply the primary source of protein have come under increasing stress and need to be managed so that they can provide a sustainable source of food.

Increasing population has led to a tendency for developments to encroach on the shoreline with clearance of coastal native vegetation such as mangroves, pandanas trees and salt bush. This has, in turn, led to loss of coastal defenses against the eroding effect of sea. The need for aggregate has meant that mining frequently takes place alongside the shoreline with resultant additional exposure of the shoreline to erosion both by taking away the shoreline defense systems such as coral reefs and active undermining of the strength of the shoreline.

¹⁷ 2011 RMI Census of Population and Housing <http://www.doi.gov/oia/reports/upload/RMI-2011-Census-Summary-Report-on-Population-and-Housing.pdf>.

¹⁸ RMI EPA, *Coastal Management Framework 2008*, 4.

Population pressure has also impacted on the level of biodiversity in terrestrial and near-shore ecosystems. This has impacted on the resilience of natural ecosystems to provide ecosystem services such as protection of the coastline and food sources. Scientists are only recently starting to understand the important interconnections between species and the implications that the loss of certain species may have for the ongoing function of ecosystems and the services they provide to humans.

Other stresses have come from external sources. For example, invasive species such as macro algae have degraded coral reefs by growing over coral colonies and blocking sunlight. Over fishing by commercial fisheries in the open sea have impacted on fish stocks with implications for future sustainability of fishing operations.

2.2 ADDITIONAL ENVIRONMENTAL STRESSES BEING BROUGHT BY CLIMATE CHANGE

The challenges being brought by climate change have already been identified¹⁹ as including rising sea levels, storm surges, changes in weather patterns with the prospect of drought, warming seas and ocean acidification. Understandably, the focus of much policy development in climate change adaptation in recent years in RMI has been on coastal management. Impacts are already felt by the people of RMI and can be seen by the level of coastal erosion found across RMI. Acidification of the seas is probably the change that can be most clearly separated out as a new environmental problem. As the most recently identified threat from increasing greenhouse gas emissions in the earth's atmosphere scientists are still researching possible impacts.

Stresses being brought by climate change bring new environmental management problems and exacerbate existing problems. Hence there is a need to tackle the existing issues whilst projecting to the future in an effort to anticipate future needs. RMI has almost nil emissions on a global scale; however, it is committed to achieving a low-carbon future. As stated in the Preamble to the National Climate Change Policy Framework 2011 (NCCPF):

RMI's peoples are among the most vulnerable to the impacts of global warming. Therefore, RMI firmly believes it has no choice but to implement measures to build resilience, reduce disaster risk, and support renewable energy and energy efficiency. We have no choice but to adapt to the adverse impacts of climate change.

The issues identified in the NCCPF are as follows:

- impacts on communities' livelihoods and infrastructure from sea-level rise, sea surge, typhoons and rainfall intensity;
- water and food security issues from changing rainfall patterns and ocean acidification;
- health issues from rising temperatures and prolonged drought; and
- increasing peak wind speeds and changes to ocean circulation patterns.

Five strategic goals have been identified as follows:

¹⁹ In 2004, the ADB prepared a *Climate Risk Profile* for RMI. The risks evaluated were extreme rainfall events (both hourly and daily), drought, high sea levels, extreme winds and extreme high air temperatures: *Climate Risk Profile for the Republic of the Marshall Islands - Mainstreaming Environmental Considerations in Economic and Development Planning Processes in Selected Pacific Developing Member Countries*, Project Number: 38031 December 2004
<http://www.adb.org/sites/default/files/projdocs/2004/38031-01-reg-tacr-05.pdf>.

1. Strengthen the enabling environment for climate change adaptation and mitigation, including sustainable financing
2. Adaptation and reducing risks for a climate resilient future
3. Energy security and low-carbon future
4. Disaster preparedness, response and recovery
5. Building education and awareness, community mobilization, whilst being mindful of culture, gender and youth.

A National Climate Change Committee (NCCC) has been established to oversee the development of a Climate Change and Disaster Risk Management National Action Plan for RMI (Joint NAP). The Joint NAP is to identify priority actions under each strategic goal and align these with actions already identified under the RMI National Action Plan for Disaster Risk Management 2008-2018.

If climate change impacts are divided into the categories of rising sea levels, changing weather patterns and ocean acidification, conclusions that may be drawn as to actions that will need to be taken include the following:

Rising sea levels

- *Potential loss of land*
Existing land shortages in urban areas of RMI in the face of possible land loss brought by rising sea levels give added urgency to introduce a system of land use planning.
- *Impact on coastal integrity*
Already frayed coastlines will suffer further coastal erosion. This, in turn could impact on coral reefs by creating additional sources of sedimentation possibly leading to a downward spiral of loss of protection along the shoreline. Hence, successful intervention measures to protect coastlines are needed.
- *Salt water intrusion into groundwater*
Precious groundwater supplies that are already contaminated from human waste are likely to also come under added pressure from saltwater intrusion. As a result, renewed efforts need to be made to protect groundwater quality.
- *Salination of soils*
Whilst soil quality is already poor, and vegetation clearance has led to loss of food bearing trees, it can already be seen that during high tides pools of salt water are left on roads and on the ground. This will further impact soil quality and affect the range of vegetation that grows successfully on already fragile atoll soils. This requires protection of existing vegetation and revegetation programs.
- *Undermining of infrastructure*
Flooding has already been experienced in storm surges and threatens existing infrastructure such as roads, bridges, airports and electricity supply lines. These pressures are likely to increase and will require exploring all possible alternatives for building shoreline defenses including both ecosystem-based and engineering solutions.

Changing weather patterns

- *Lower precipitation rates*
79% of occupied houses rely on rainwater collected from roofs of their houses and stored in water-catchment as their main source of drinking water.²⁰ If precipitation rates change this could lead to a loss of water supply in some areas of RMI. This will require greater attention to sanitation and protection of potable water quality. Less rainfall may also impact on food crops and this will require greater focus on soil quality and preserving alternative sources of water suitable for agriculture.
- *More frequent typhoons and extreme weather events*
Typhoons are not a regular occurrence but in recent years have become more intense. This will require greater preparedness by communities for such events.
- *Rising atmospheric temperatures*
Hotter weather will create increasing stresses for the community on hot days and increase the demand for energy to run air conditioning. This will be particularly important for government offices and businesses, hence underscoring the need for greater energy efficiency and locally-sourced renewable energy.
- *Warming seas*
The effects of warming seas are difficult to predict but could lead to changing locations of fish stock and loss of coral reefs. Coral reefs need increased protective measures to build their resilience against future warming.

Ocean acidification

- *Difficulties for marine calcifying organisms²¹*
It is possible that it will become more difficult for marine calcifying organisms, such as coral and some plankton, to form biogenic calcium carbonate, and existing structures could become vulnerable to dissolution. Thus, acidification of the oceans also poses a threat to food chains connected with the oceans. Hence, increased efforts are needed to build resilience of marine ecosystems to help them adapt to such changes.

2.3 LEGAL AND INSTITUTIONAL ASPECTS OF THE WAY FORWARD

An important finding of the Pacific Environment and Climate Change Outlook Report 2012 prepared by SPREP²² is that strengthened environmental institutions and effective community involvement are key elements to lifting the performance of Pacific Island nations. Hence, this review has considered environmental institutions and opportunities for community involvement.

The search for solutions should not distinguish between pre-existing problems in managing the environment and additional problems being brought by climate change as, in most instances, the new challenges cannot be met without resolving the old problems. Whilst the phrase 'climate change

²⁰ 2011 RMI Census of Population and Housing <http://www.doi.gov/oia/reports/upload/RMI-2011-Census-Summary-Report-on-Population-and-Housing.pdf>.

²¹ Jason M. Hall-Spencer, Riccardo Rodolfo-Metalpa, Sophie Martin, Emma Ransome, Maoz Fine, Suzanne M. Turner, Sonia J. Rowley, Dario Tedesco & Maria-Cristina Buia, 'Volcanic carbon dioxide vents show ecosystem effects of ocean acidification' (2008) 454 *Nature* 96-99; Great Barrier Reef Marine Park Authority: <http://www.gbrmpa.gov.au/outlook-for-the-reef/climate-change/how-climate-change-can-affect-the-reef/ocean-acidification>.

²² Pacific Environment and Climate Change Outlook Report 2012, SPREP http://www.sprep.org/attachments/Publications/PECCO_hr.pdf.

adaptation' is pertinent, failure to address lingering natural resources management issues will hinder attempts to respond to new challenges.

In 2005, in considering impediments to mainstreaming the environment, the ADB posed the question – 'Why is there such a shortfall between the potential for sound environmental management and the practical reality'? Their answer was that 'there are many reasons, most of which are interrelated, forming a complex web of causes and consequences'.²³ They advised that the focus should be on 'critical, systemic constraints and barriers'.²⁴

Decisions are sometimes made in the absence of sound advice and ADB has identified that this may be due to the following factors:

- such advice was not sought
- there was inadequate time
- there was inadequate expertise, equipment and funding available to acquire and analyse the required information and compile the advice or
- a lack of effective coordination of information between government agencies.

ADB also stressed that informed decision making requires a comprehensive knowledge base that is readily accessed by all stakeholders – the Government, the public and the private sector.²⁵

It has also been observed that an impediment to environmental performance is the 'substantial and growing, shortfalls in respect and cooperation between the Government and people of RMI'.²⁶ This lack of cooperation from land owners and leaseholders, and their perception that government is failing to respect their rights, could be overcome by increased efforts to advise, consult and inform them of the Government's intentions including the benefits and possible adverse consequences of the Government's actions.²⁷ As stated by ADB, '[a] best practice approach to awareness raising and consultation, using where appropriate traditional methods which underpinned respect and cooperation in the past, would go a long way towards giving greater effect to the existing environmental and related policies, laws, regulations and financial expenditures made by Government'.²⁸

These observations raise issues of institutional design and a question that emerges is whether present institutions are in a position to fulfill all the required roles including the role of providing timely advice, ensuring sufficient expertise, coordinating government agencies and developing the required knowledge base as well as community consultation and awareness.

²³ Hay and Sablan-Zebedy, above n 10,.21 [98].

²⁴ Ibid. This review will not consider issues related to land registration, which it is understood the Government has sought to introduce with the assistance of the ADB without great success.

²⁵ Ibid 21-22 [98].

²⁶ Ibid 22 [100].

²⁷ Ibid 23 [102].

²⁸ Ibid 23 [105]. Importantly, the ADB noted that these findings are not new.

CHAPTER 3 INSTITUTIONS FOR ENVIRONMENTAL GOVERNANCE

As mentioned in Chapter 2, strengthened environmental institutions and effective community involvement are considered to be key elements to lifting the performance in responding to climate change and there also needs to be a focus on ‘critical, systemic constraints and barriers’. Developing a comprehensive knowledge base is crucial as is effective coordination between government agencies and cooperation between the RMI government and its people. The question to be addressed here is whether RMI’s institutions need strengthening and, if so, how?

3.1 ENVIRONMENTAL INSTITUTIONS

Environmental institutions need to perform a range of functions which are usually spread between a number agencies and Ministries. Such functions involve environmental planning and policy making, which involves long-term strategic planning as well as the ‘here and now’ regulatory/compliance functions involved in ensuring that environmental obligations are met in particular instances. Other functions include community consultation and awareness programs, monitoring environmental conditions and providing a repository of environmental information.

There is an argument for distinguishing between multifaceted, strategic policy and planning functions and more specific regulatory and compliance functions. Examples of the strategic planning functions are land use planning including zoning for specific land uses and coastal zone management planning. At another level, there is a need to allocate the law-making role itself, for example, who is to design the legal framework within which policy-making and planning activity is to occur and who is to design the rules for development control that will enable implementation of a planning system? If all these roles are allocated to one body it is likely that one or other role will be neglected. Each requires specialist skills and a different focus of attention. Where separation occurs, the regulatory body will still have peripheral policy-making functions particularly regarding regulation and compliance.²⁹

When a separation in functions occurs, it is also common for agency responsible for regulation and compliance to be established as independent statutory authority. The features that make it independent are that it is not to be the subject of direction from the executive regarding enforcement proceedings or in relation to recommendations contained in reports. There are also limitations on the situations in which a member of a board or the general manager can be removed from office.

The environmental institutions in RMI are described below. A table comparing existing roles and functions of the National Environmental Protection Authority (RMI EPA), the Marshall Islands Marine Resources Authority (MIMRA) and the Office of Environmental Planning and Policy Coordination (OEPPC) is found in **Appendix 2**. It can be seen that the RMI EPA is the key environmental agency with planning, regulatory and law-making functions. It is apparent that the RMI EPA has been allocated a wide array of very different kinds of roles and there are some overlapping functions between OEPPC and RMI EPA, which is likely to create uncertainty about who is to do what in particular situations.

²⁹ This has been achieved to a certain extent in RMI. ADB has said that this separation is ‘highly desirable’ but that the way this has been undertaken in the RMI is far from ideal, presenting many opportunities for improvement: Ibid 41 [155].

It is also apparent that none of the existing institutions have been allocated responsibility to focus on the impacts of climate change, for example, to carry out such tasks as assessment of vulnerabilities, coordination and implementation of strategies for climate change adaptation or disaster risk reduction.

a. Republic of the Marshall Islands Environmental Protection Authority (RMI EPA)³⁰

The National Environmental Protection Authority (known as the RMI EPA) was established pursuant to the *National Environmental Protection Act 1984* said to be modeled on the US *National Environmental Policy Act 1969*.

RMI EPA as an independent statutory authority

The RMI EPA is established as a statutory authority and consists of a Chairman and four other members appointed by the President (§106(2)). As set out in §106(1)), two members are to be persons ‘with adequate qualifications and experience in the subject of the environment; one member shall be ‘a person with adequate skill and experience in environmental management’; and one shall be ‘a person representing the general public’.

A query can be made about the extent of the RMI EPA’s independence. The President has wide discretion in removal or suspension of the Chairman or a member (§108). The General Manager is employed as an executive officer (§114) subject to direction of the President. Therefore, there are no limitations regarding grounds for dismissal and there is no provision to guarantee against non-interference, for example, in regard to the manner in which the RMI EPA carries out its enforcement role or the content of its reports and recommendations.

RMI EPA Officers

The RMI EPA has as an office in Ebeye, Kwajalein with four staff. In Majuro it has divisions known as Administration and Finance, Coastal and Land Management, Waste and Pollutants, and Education Awareness and Information. There is also a Water and Sanitation Coordination Unit with a Water Quality Monitoring Laboratory and a division for Integrated Water Resources Management (IWRM), Water and Sanitation Policy and Planning. In total, at the time of writing, there were 24 employees including the General Manager with three positions vacant. Four additional positions had been earmarked for financial support. In addition, there is a Legal Counselor, however, it is understood that he is frequently away from RMI as he also has duties at the United Nations. Hence, there is no full-time lawyer in a position to take carriage of enforcement matters.

Extent of functions

The role of the RMI EPA is set out in the *National Environmental Protection Act 1984* and the *Coast Conservation Act 1988* and will be covered in the thematic sections below. However, as indicated in **Appendix 2**, the RMI EPA has wide-ranging functions. Apart from its regulatory and compliance functions it has an advisory role to the President and Ministers, is involved in international liaison, has reporting functions, is to conduct surveys and research, is to collate information and carry out community liaison as well as policy and planning functions.

The RMI EPA has the key regulatory role to play in administration of environmental permits, development approval and environmental impact assessment (EIA). It follows that compliance and enforcement in respect to all subsidiary regulations is the responsibility of the RMI EPA. The RMI EPA’s

³⁰ RMI EPA: <http://rmiepa.com/>.

role goes beyond compliance and enforcement to include policy and planning functions in the areas of land use planning, management and conservation of natural resources, fisheries, soil conservation and the conduct of studies and research programs. The RMI EPA is also expected to play a key role in coastal management and its functions in this regard, as set out in the *Coast Conservation Act 1988*, include conduct of research in coast conservation, surveying the coastal zone, creating an inventory of coral reefs and so on. At the time of writing the position of Chief of Division, Coastal and Land management was vacant.

Enforcement provisions

The RMI EPA is the key environmental enforcement agency aside from an enforcement role for local government in relation to relatively minor environmental offences such as littering. Enforcement provisions are similarly drafted across the range of environmental law provisions. It can be seen that the main enforcement tools available to the RMI EPA are revocation of a permit, a cease and desist order, a civil penalty or, if provided for under statute, criminal enforcement. The following is an example from the *Pesticides and Persistent Organic Pollutants Regulations 2004* (cls.36-39)

Violations

- a) A person who commits any unlawful acts under Part II of these regulations or who violates any provision of these regulations or any permit, requirement or order issued thereunder, shall be subject to enforcement action by the Authority.
- b) The enforcement action may be any or all of the following:
 - (i) revocation of a permit issued under these regulations;
 - (ii) the making of a cease and desist order in relation to the subject matter of the violation;
 - (iii) the imposition of a civil penalty, fixed by the Authority, not exceeding \$10,000.00 for each day on which the violation continues; and
 - (iv) any other action authorized by the National Environmental Protection Act 1984 or any other law.

Public hearing

- a) When the Authority revokes a permit under Regulation 36(b)(i) or makes a cease and desist order under Regulation 36 (b)(ii), a public hearing shall be conducted by the Authority to determine authenticity of the facts upon which the order was made.
- b) Adequate notice of the hearing, and an adequate opportunity to appear and be heard at the hearing, shall be given to all interested persons.

Right to enter

For the purposes of enforcing the provisions of these regulations, the Authority or its authorized representative may:

- a) enter, at reasonable times, any establishment or other place where pesticides or POP stored, held for distribution or sale, or used, for the purpose of:
 - (i) inspecting any pesticide or POP, pesticide or POP container, labels and labeling, or application equipment;
 - (ii) collecting samples of any pesticide or POP, suspected pesticide or POP, or pesticide POP labeling;
 - (iii) observing operations involving the use or disposal of any pesticide or POP, or the disposal of any pesticide or POP containers;
 - (iv) investigating suspected misuse of any pesticide or POP.
- b) enter any premises at any time if there is substantial reason to believe that any pesticide POP used, stored, or otherwise present on such premises is, through accident, carelessness, or other circumstance, producing adverse effects on human health or the environment, for the purpose of taking such action as may be necessary to prevent or mitigate further adverse effects.

Penalty for lack of permit

Any person required to have a permit under these regulations and engaged in an activity without a permit shall be subject to a civil penalty of \$500.00 per day the activity is conducted without a permit.

Preliminary observations that can be made in regard to such standard enforcement provisions include the following:

- Enforcement rests on the expectation that there is an operational permitting system, which is often not the case in practice.
- The cease and desist order is an order to halt an activity (cease) and not to take it up again later (desist) or else face legal action. The requirement for a public hearing is likely to make this process particularly time consuming.
- Penalty rates are fixed in monetary terms rather than in units that can be adjusted by altering the correlation between the unit and the financial equivalent.

b. Office of Environmental Planning and Policy Coordination OEPPC

The Office of Environmental Planning and Policy Coordination (OEPPC) was established pursuant to the *Office of Environmental Planning and Policy Coordination Act 2003* within the executive branch of government (§403) to act as:

- an advisory body to the President, Cabinet, the Ministries and government agencies, on matters of environmental planning and policy generally (§403(1)(a));
- the focal point of contact in the coordination, management and implementation of all international environmental projects/programs and it ensure successful implementation of such projects (§403(1)(b)); and
- a national focal point of contact in all negotiations with external sources and lending institutions on programs and/or projects of assistance (§403(1)(c)).

Its functions are divided between an Environmental Planning and Policy Unit, the Program Coordination Unit and the Data Collection and Analysis Unit. As mentioned above, there are overlapping functions, particularly in planning and policy between the OEPPC and the RMI EPA, which is likely to create uncertainty about who is to do what in some situations.

c. Marshall Islands Marine Resources Authority (MIMRA)

The Marshall Islands Marine Resources Authority (known as the MIMRA) was established in 1988 with responsibility to manage all marine resources within the exclusive economic zone (EEZ). Pursuant to the *Marshall Islands Marine Resources Act 1997* it was given greater autonomy. Similarly to the RMI EPA, MIMRA is established as a statutory authority. However, it is not independent given that its Board consists of the Minister of Resources and Development, the Secretary of Foreign Affairs and the Attorney-General. Four other members are appointed by the President and are to have knowledge of and experience in the fisheries sector and in addition there is the Director who is a member of the Board ex officio (§113(1)). The Cabinet may give directions to the Board in relation to policy matters (§114). The Director is a full-time employee of the Authority.

The powers and functions of MIMRA relate to Fishery Waters, which are defined as the exclusive economic zone, the territorial sea and internal waters including lagoons, as described in the *Marine Zones (Declaration) Act 1984* and any other waters within the jurisdiction of RMI (§102(31)). The powers and functions include the following (§119):

- conserve, manage and sustainably develop all resources in the Fishery Waters and seabed and subsoil thereunder;
- establish management plans and programs to manage the resources in the Fishery Waters;
- issuance of licenses;
- issue licenses for the exploration and exploitation of the seabed and subsoil of the Fishery Waters;
- negotiate access agreements and fisheries management agreements;
- implement by regulation or otherwise as appropriate access agreements or fisheries management agreements;
- act as the Competent Authority for the purpose of implementing the international fisheries and related obligations of the Marshall Islands;
- coordinate and manage fisheries monitoring, control and surveillance and, in consultation with the Attorney-General, enforcement;
- cooperate in the conservation and management of highly migratory fish stocks as appropriate with other coastal States in the region and States fishing in the region and high seas area and participate in appropriate sub-regional, regional and international organizations or arrangements relating to fisheries;
- participate in the planning and execution of projects, programs or other activities related to fisheries or fishing, or the exploration or exploitation of the nonliving resources of the Fishery Waters, seabed or subsoil; and
- regulate the processing, marketing and export of fish and fish products.

MIMRA also has wide-ranging power to make regulations in respect to these matters including for the conservation, management and sustainable development of fish in Fishery Waters, pollution or the environmental quality of Fishery Waters and fisheries monitoring, control and surveillance (§120).

d. Minister for Natural Resources and Development

The Minister for Natural Resources and Development is the relevant minister for administration of the *Marshall Islands Marine Resources Act 1997*. Issues related to energy usage fall within the portfolio of this Minister as does soil conservation (managed by the Agricultural Division). Energy is relevant to efforts to expand the use of renewable energy and improve energy efficiency in RMI.

As mentioned below in Chapter 9 in relation to protection of endangered species the regulatory function does not lie with the RMI EPA but rather with the Minister for Resources and Development as does the inspection of ballast water in vessels entering RMI.

e. Minister for Interior and Outer Islands

According to the *Planning and Zoning Act 1987*, the Minister for Interior and Outer Islands (MI) is the minister responsible for planning land and water use, creation of zones in municipal areas, the regulation and control of the construction of buildings and the prevention of overcrowding of land. Therefore, it can be seen that MI has a significant role to play in land use planning referred to below in Chapter 7, which has largely remained unimplemented. However, as discussed, there appears to be an overlap in functions between the RMI EPA and the Minister in relation to land use planning.

f. Minister for Public Works

Minister for Public Works is responsible for construction of government funded infrastructure. This may be relevant for environmental management where the infrastructure is need to manage waste (e.g. sewerage) or other environmental issues. This ministry is also relevant for new projects regarding water supply (e.g. construction of a new reservoir) or electricity supply.

g. Environmental Advisory Council

An Environmental Advisory Council was to be established as a Ministerial Council pursuant to the *National Environment Protection Act 1984* (§140-§144). It was to consist of a Chairman and ten other members who are senior officers from:

- a) Ministry of Finance;
- b) Ministry of Foreign Affairs;
- c) Ministry of Public Works;
- d) Ministry of Transportation and Communication;
- e) Ministry of Education;
- f) Ministry of Interior and Outer Islands Affairs;
- g) Ministry of Resources and Development;
- h) Ministry of Social Services;
- i) Ministry of Health Services;
- j) one representative of private industry; and
- k) one representative of the general public.

The President was to appoint the members of the Council, which was to have the functions of advising the RMI EPA on matters pertaining to its responsibilities, powers, duties and functions; and on any matters referred to the Council by the Authority. To date the Council has not convened.

3.3 OTHER RELEVANT INSTITUTIONS

a. Attorney-General's Office

Prosecution of environmental offences is the responsibility of the Attorney-General's office. To date there have only been a small number of enforcement actions that have progressed to hearing.

The view was expressed to the Consultant that within the Attorney-General's office there is a lack of familiarity with environmental offences. There is also a shortage of qualified lawyers to take carriage of such matters and, consequently, they tend to be lost in the backlog of cases. In addition, there is the potential for conflicts of interest to arise should the EPA seek to prosecute a government agency or department that is also represented by the Attorney-General's office.

b. Local Government

Constitutional provisions

The right to a system of local government for people of every populated atoll or island that is not part of an atoll is enshrined in the Constitution (Art IX, s.1(1)). In many instances, local government will be the level of government that is closest to communities and, for this reason, it has an important role to play in environmental management. There are 24 local governments across RMI that operate on 23 atolls

and islands. The Kwajalein Atoll has two local councils, the Kwajalein and Rongelap Local Government Councils. In Majuro, there is one local government council.

The jurisdiction of local government extends ‘to the sea and the seabed of the internal waters of the atoll or island and to the surrounding sea and seabed to a distance of 5 miles from the baselines from which the territorial sea of that atoll or island is measured’ (Constitution Article IX s.1(5)). Under the Constitution, a local government may make ordinances for the area in respect of which it has jurisdiction, provided that such ordinances are not inconsistent with any Act, with any legislative instrument (other than a municipal ordinance) or any executive instrument (Art IX s.2(1)).

Role of Central Government vis-a-vie Local Government

As a matter of necessity, local governments is responsible for ensuring basic services such as water and energy supply as well as control over land use and securing public safety. However, it is said that to date there has been only limited monetary support from central government and fulfillment of these responsibilities has been difficult due to limited resources.

Under the *Local Government Act 1980*, the Secretary for the Ministry of Interior and Outer Islands is to maintain a continuing general oversight of the operation of the system of local government and of the individual local governments, and is to coordinate relations between each local government and the Government of the Marshall Islands. The Secretary is to arrange periodic training, seminars, and workshops, and also to provide supervision and submit annual reports on the needs, problems and achievements of each local government and of the system of local government, with appropriate recommendations (§138).

Local government initiatives in environmental management

Local governments and local communities are directly responsible for the conservation and sustainable use of their resources. It was noted in ‘Reimaanlok Looking to the Future – National Conservation Area Plan for the Marshall Islands, May 2008’ (‘Reimaanlok’) as follows:³¹

Importantly, within RMI local government and national resource management agencies, there is currently a “growth spurt” of capacity and intent to implement effective community-based conservation and resource management. The sector is in a phase of learning, testing new ideas, reflecting, sharing information and developing and documenting processes and procedures which may require a legislative foundation when more fully developed.

The following are some initiatives taken at the level of local government as a result of community/ atoll-level driven efforts:³²

- 1997: Bikini Atoll declared a protected area under local government ordinance.
- 1999-2003: Development of the Jaluit Atoll Plan of Management for conservation and sustainable livelihoods and, in 2004, declaration of Jaluit Atoll Conservation Area as a Ramsar site.
- 2003: Ailinginae, Rongelap & Rongerik declared as protected areas under local government ordinances.
- 2003: Fisheries management plans for Likiep and Arno Atolls drafted.
- 2003: Draft management plan for Mili Conservation Area prepared.
- 2005: Fisheries management planning for Majuro initiated.
- 2007: Fisheries and conservation management plan for Ailuk Atoll prepared.

³¹ Reimaanlok National Planning Team, *Reimaanlok: National Conservation Area Plan for the Marshall Islands 2007-2012*. (N Baker: Melbourne, 2008), 53.

³² Ibid 19.

As recorded in Reimaanlok, a 'stock-taking' workshop was held to consider the status and lessons learned from past resource management and conservation activities in the Marshall Islands. A Process for Community-Based Fisheries and Resource Management Planning was developed to assist communities in establishing and managing conservation areas and sustainable fisheries.

The process evolved from reflection on the experiences over the last few years in the RMI in the development of three related types of plans:

- Community-based fisheries management - a process led by MIMRA in which MIMRA responds to requests from local governments to assist them in developing a resource management plan focused on sustainable fisheries.
- Conservation management plans led by the RMI EPA, such as that prepared for Jaluit Atoll which focused on balancing conservation with sustainable livelihoods.
- Coastal management plans, led by RMI EPA, that have been written for atolls with the highest population and subject to the greatest development pressures.

During these many discussions it was determined that:

'atolls need an over-arching resource management framework that addresses fisheries, conservation, and coastal zone management. In order to implement this integration effectively, a multi-agency approach should be used in the development of the atoll management plans. This would be more effective than three different plans that intersect but are developed independently.

The underlying principles of this process are that resource management must be community-driven, while being supported with resources and expertise from national agencies.³³

It is suggested that these findings are valuable and should form the basis of approach for any future law-making efforts at the national level. Increased involvement of Local Government would need to be accompanied by provision of adequate resources and formal transfer of powers to plan and manage for good environmental outcomes.³⁴

c. The Courts

An effectively functioning court system is important in environmental enforcement through criminal prosecution and civil enforcement as well as in relation to actions for judicial review of environmental decisions such as development approvals.

There is an independent judiciary in RMI with judicial power vested in the Supreme Court, the High Court, a Traditional Rights Court, the District Court and 22 Community Courts. The Supreme Court is the Superior Court of record and has appellate jurisdiction with final authority to adjudicate all cases. It currently sits part-time and consists of an off-island Chief Justice and two associate justices of the High Court who sit on assignment. Other sitting or retired judges are appointed from time to time as needed.

The High Court has a trial jurisdiction, discretionary review jurisdiction and appellate jurisdiction for cases heard in subordinate courts. Majuro and Kwajalein Atolls have District Courts and other areas are served by Community Courts.

³³ Ibid, 40.

³⁴ Also see Hay and Sablan-Zebedy, above n 10, 43-46 [163-177].

Criminal enforcement

Criminal enforcement provisions apply to the major environmental offences. However, the formal court system generally suffers from delays and backlogs. When deciding whether or not to seek enforcement through the courts, this state of affairs likely to be a disincentive for the EPA and MIMRA and any person seeking judicial remedies. Furthermore, as mentioned at 6.2 criminal penalties imposed to date have been disproportionately low.

Civil enforcement

Provision has been made in the *National Environmental Protection Act 1984* for declaratory and equitable relief (§151). An action may be brought in the High Court by the Attorney-General, any agency or instrumentality of the Government of the Marshall Islands, a local government or any other person or body for declaratory or equitable relief against any person or body for the protection of the air, land, water or other aspect of the environment from pollution, impairment or destruction (§151(1)).

This would seem to allow ‘any person’ to bring such proceedings as a form of open standing. However, it has not been used to date and, therefore, there is no authority as to how it would be interpreted by the courts and neither is there any detail as to what form the declaratory or equitable relief could take.

There is some uncertainty as to how far this provision could be applied in relation to the government itself. Whilst it is stated in §151(2) that ‘[a]ny person or body of persons may maintain an action in the High Court for declaratory relief against the Government of the Marshall Islands, or any agency or instrumentality of the Government of the Marshall Islands for the protection of the air, land, water or other aspect of the environment from pollution, impairment or destruction’, it is further provided in §151(4) that this provision ‘does not apply with respect to a standard or requirement fixed or made by an Act, or by the Cabinet by virtue of powers conferred on it by an Act’.

Furthermore, additional uncertainty is created by the provision to the effect that the High Court may find that any relevant standard or requirement is unreasonable and order the adoption of a reasonable standard or requirement (§151(3)).

It is also possible to apply to the High Court for injunctive relief but not in proceedings against the government. It is stated in §153 that in an action under §151

‘the High Court may grant temporary and permanent relief including injunctive relief and may impose conditions on the defendant that are required to protect the air, land and water, and other natural resources, from pollution, impairment or destruction; provided, however, that no relief by way of a penalty, injunction or writ shall lie against the Government of the Marshall Islands’.

>>> Recommendations:**Policy formulation and implementation**RMI EPA

- Identify where functions set out in the *National Environment Protection Act 1984* and *Coast Conservation Act 1988* have not been implemented by RMI EPA and the reasons why this has occurred.

- RMI EPA to indicate whether, in their view, they would be more effective if they were to shed planning and policy-making functions to focus on their regulatory and compliance role and if so, which policy and planning functions should be shed.
- Consider separating policy and planning functions from regulatory functions.
- RMI EPA to consider any additional regulatory roles that they could usefully undertake such as in relation to endangered species legislation or invasive species.
- Consider whether the independence of the RMI EPA needs to be strengthened.
- Obtain funding and create a full-time position for a legal enforcement officer within the RMI EPA.
- Consider whether the range of enforcement actions available to the RMI EPA is adequate.

OEPPC

- Identify areas of overlap between RMI EPA and OEPPC.
- Review the effectiveness of OEPPC to date, particularly in relation to climate change adaptation.
- Consider whether it needs to be replaced by an alternative institution, perhaps one that takes on some of the roles of the RMI EPA with a stronger focus on climate change adaptation.

Minister for Interior and Outer Islands (MI)

- Review MI's role in relation to land use planning in relation to functions allocated to the RMI EPA.

Environmental Advisory Council

- Reconsider the role of the Environmental Advisory Council.

Attorney-General

- Strengthen capacity within Attorney-General's office for environmental enforcement on behalf of both RMI EPA and MIMRA.

Courts

- Conduct legal education of judges in relation to sentencing for environmental offences (possibly through drafting sentencing guidelines).
- Prepare guidelines to clarify provisions in the *National Environment Protection Act 1984* in relation to civil enforcement.
- Clarify the standing of interested parties to bring enforcement proceedings.

Local Government

- Consider how national government agencies can improve their working relationship with local institutions, traditional owners and the community at large.

Statute

RMI EPA

- Amend or replace the *National Environment Protection Act 1984* in line with policies adopted above in regard to reallocated functions, additional functions, strengthened independence and refinement of enforcement powers.
- Amend or replace the *Coast Conservation Act 1998* in line with policies adopted above in regard to reallocated functions.

OEPPC

- If there is to be a reorganisation between RMI EPA and OEPPC, draft a statute to establish a new institution, possibly a Ministry that absorbs the functions of the OEPPC and takes on new roles that have been shed by RMI EPA. Options would be a Ministry for the Environment or an Environment Commission.

Minister for Interior and Outer Islands (MI)

- Statutory reform to be carried out in response to the analysis of reasons for lack of implementation of land use planning.

Environmental Advisory Council

- Reformulate the role of the Environmental Advisory Council.

Local Government

- Provide statutory support for, and recognition of, local government initiatives for community-based fisheries management, conservation management planning and coastal management planning to ensure their wider application into the future.

CHAPTER FOUR WASTE MANAGEMENT

4.1 LITTER

The *Littering Act 1982* was passed prior to the *National Environment Protection Act 1984* and, unlike other environmental laws, does not give authority to the RMI EPA for its enforcement. Whilst there is no obligation to this effect, it seems that implementation of this Act is the responsibility of Local Government, particularly as enforcement can be carried out by a police officer or peace officer appointed under Section 151(1) of the Local Government Act 1980 (§205(1)).

The *Littering Act 1982* applies to 'unauthorised dumping, throwing away, placing or leaving of refuse of any kind, or any object or substance which tends to pollute, mar or deface, and includes a vehicle or part of a vehicle' (§202(a)). Hence it can be seen that it goes beyond dropping of minor rubbish such as scraps of paper or plastic wrapping to include dumping of solid waste. This would seem to indicate that there should be a role for the RMI EPA, contrary to current provisions.

There is a prohibition against littering in the following places (§204(1)):

- (a) in a public road or place
- (b) private land near or adjacent to any public road or place,
- (c) on or in a beach or the foreshore of a lagoon or
- (d) the sea, in such a way that the thing dumped, thrown away, placed or left can be reasonably expected to be carried to land or into the lagoon.

Therefore, the prohibition does not apply to private land as such unless the action fulfills (b)-(d).

The offence provisions involve court proceedings and can lead to a fine of 'not less than \$50 and not exceeding \$1000 or to a term of imprisonment not exceeding six (6) months, or both' (§204(1)). In addition, the court may order removal and proper disposal (§204(2)). As mentioned above, a police officer or peace officer appointed under Local Government Act 1980 may initiate the action. He/she may arrest without warrant 'any person who is committing or has committed an offence under this Act, and may seize and remove, or destroy or otherwise dispose of anything dumped, thrown away, placed or left in the commission of such offence' (§205(1)).

It can be seen that these provisions are impractical in relation to littering, particularly in light of the slow pace of court enforcement in RMI. Reliance on criminal enforcement through police action is too heavy handed when littering is more accurately regarded as a civil matter, particularly if comparison is made to other environmental offences in RMI which indicate that criminal enforcement is a matter of last resort.

>>> Recommendations

Policy formulation and implementation

- Community education programs about the problems caused by litter and actions that can be taken at an individual and community level to make RMI litter free.

Statute

- The *Littering Act 1982* should be amended to bring it in line with other responsibilities of the RMI EPA whilst also clarifying the obligation of Local Government.

- Definition of waste and litter should be revisited so as to ensure a clear distinction between littering and depositing of waste.
- Consideration should be given to a definition of 'aggravated littering' for more serious littering such as dumping cars, metallic waste or tyres.
- Coordination between RMI EPA and Local Government needs to be clarified.
- More detailed provision needs to be made against the littering and depositing of waste on private land.
- An offence of littering near the sea should not entail proof that the litter could be 'reasonably expected to be carried to land or into the lagoon' rather is should be a simple prohibition.
- More user-friendly and wide-ranging enforcement provisions need to be devised, for example by including provisions to allow for the following:
 - spot fines imposed by Local Government, RMI EPA or an 'authorised officer' as defined by legislation;
 - authority given to Local Government, RMI EPA or an authorised officer to order removal or proper disposal and failure to comply as an additional offence;
 - civil penalties and ongoing penalties for the number of days where an order has not been complied with; and
 - removal and proper disposal to be carried out by Local Government or RMI EPA with this cost and any other related costs recoverable from the polluter.

4.2 POLLUTION AND WASTE GENERALLY

National Environmental Protection Act 1984

Waste is included in the definition of pollution as set out in the *National Environmental Protection Act 1984* (§103(j)), which states that:

"**pollution**" means any direct or indirect alteration of the physical, thermal, chemical, biological or radioactive properties of any part of the environment by the **discharge, emission or deposit of wastes** so as to affect any beneficial use adversely or to cause a condition which is hazardous or potentially hazardous to public health, safety or welfare, or to animals, birds, wildlife, aquatic life or to plants of every description.

It can be seen that the provisions in relation to pollution also apply to waste. However, a more specific definition has been given to waste as follows (§103(j)):

"**waste**" includes any matter prescribed by regulation to be waste, and any matter whether liquid, solid, gaseous, or radioactive which is discharged, emitted or deposited in the environment in such volume, component or manner as to cause an alteration of the environment.

A function of the RMI EPA is 'to recommend to the President, national environmental policy and criteria for the protection of any aspect of the environment with respect to ... the extent to which the discharge of **wastes** may be permitted without detriment to the quality of the environment' (§126(a)).

Hence, proof of causing an alteration to the environment that is required to make out the definition of waste can be established by relying on such criteria.

As waste has been included in the definition of pollution, the provisions for the control of pollutants also apply to waste. It is stated in §123 that regulations passed to cover pollution (pursuant to §121(2)(c))

shall provide for:

- (a) a permit system under which a permit is required for:
 - (i) the discharge of a pollutant into the air or water, or on land; or
 - (ii) the conduct of any activity (including the operation, construction, expansion or alteration of any installation) which results in the discharge of a pollutant into the air or water, or on land;
- (b) the issuance, modification, suspension, revocation and termination of any such permits; and
- (c) the posting of appropriate bonds or other securities for compliance.

To the consultant’s knowledge this scheme known as the Marshall Islands Pollution Discharge Elimination System (MIPDES) remains to be implemented (as also mentioned in Chapter 6).

The following enforcement provisions will apply to the disposal of waste (emphasis added):

§146 Discharges of waste

- (1) When the Authority finds that:
 - (a) a discharge of waste is taking place, or is threatening to take place, **in violation of legal requirements as to discharges**; or
 - (b) the waste collection, treatment or disposal facilities of a discharger **are approaching capacity**, the **Authority shall require the discharger to submit for approval by the Authority a detailed time schedule of specific action to be taken by the discharger to prevent** a violation of the requirements as to discharges, and **the Authority may approve the schedule subject to such modifications** as it considers reasonably necessary.
- (2) When the Authority finds that a discharge of waste is taking place, or is threatening to take place, **in violation of the requirements as to discharges**, the Authority shall issue a **cease and desist order**, and direct that the discharger:
 - (a) comply forthwith with those requirements;
 - (b) comply with those requirements in accordance with a time schedule set by the Authority; or
 - (c) in the event of a threatened violation, take appropriate remedial or preventive action.
- (3) Where an existing or threatened **violation of legal requirements as to discharges** is in the operation of a community system, a cease and desist order under Subsection (2) of this Section may restrict or prohibit the volume, type or concentration of waste that may be added to the system by dischargers who did not discharge into the system before the issuing of the order.

§147 Pollutants

Any person who:

- (a) **discharges any pollutant** into the air or water, or on land in violation of this Chapter or of any permit, requirement or order issued or made by the Authority under this Chapter; or
- (b) **intentionally or negligently causes or permits any pollutant to be deposited** where it is discharged into the air or water, or on land, shall, on the order of the Authority, clean up the pollutant or abate its effects.

§159 Criminal violations generally

- (1) A person who:
 - (a) discharges **pollutants** in violation of this Chapter or the regulations made under this Chapter;
 - (b) with respect to the introduction of **pollutants** into any publicly owned treatment works, violates any applicable **pretreatment standard or toxic effluent standard**; or
 - (c) violates any other provision of the regulations made under this Chapter or of any permit issued by the Authority, shall be guilty of a misdemeanor.
- (2) The penalty for an offense under Subsection (1) of this Section shall be:
 - (a) in the case of a first offense under that Subsection, a fine not exceeding \$25,000 for each day the offense continues to occur; or

(b) in the case of a subsequent such offense, a fine not exceeding \$50,000 for each day the offense continues to occur.

A comment that can be made in relation to these provisions is that they have rarely been applied. Apart from difficulties that arise from the court system mentioned in the previous chapter, consideration could be given to whether the drafting of these provisions could be made more ‘user-friendly’. For example, questions that may be asked are as follows:

- How adequate are the ‘legal requirements as to discharges’?
- How effective is it to have the RMI EPA prepare a schedule as to preventative action rather than they prepare one themselves?
- Are the requirements of proof of intention or negligence a hindrance in preparing evidence?

>>> **Recommendations:**

Policy formulation and implementation

- Conduct a review of the adequacy of the drafting of the enforcement provisions in *National Environment Protection Act 1984* pertaining to pollution and waste.

Statutes

- Re-draft enforcement provisions pertaining to pollution and waste in accordance with the findings of the policy review.

Regulations

- Regulations to be passed to establish the permit system under which a permit is required for the discharge of a pollutant and the conduct of any activity which results in the discharge of a pollutant – the Marshall Islands Pollution Discharge Elimination System (MIPDES).

4.3 SOLID WASTE

For years, the management of solid waste has been an ongoing problem in Majuro and Ebeye and increasingly it is a problem on the outer islands. Households produce substantial quantities of both biodegradable and non-biodegradable solid waste. Organic waste may make up 50% of household waste³⁵ but it is not separated from non-organic waste. In rural areas waste is usually managed by digging small inland pits and eventually covering them up or by small-scale burning.

There has been little effort to reduce waste generation or to introduce re-use or recycling. As in other countries, increases in levels of waste being produced are exacerbated by changes in the nature of waste towards more complex components such as electronic waste. Massive amounts of coastal dredging have been necessitated to cover the large dump areas containing solid waste. Many residents have adopted private landfill systems that are often mismanaged. On outer islands, management of solid waste is becoming more of a concern.

The urban areas of Majuro and Ebeye each have a land fill that is run as a state-owned enterprise. On Ebeye, conditions are said to have improved markedly in recent years due to assistance from USAKA. As at 2005, the ADB identified weak aspects in the management of solid waste as including:³⁶

- screening of waste for hazardous material
- provision of sufficient surface cover

³⁵ Ibid, 6 [23].

³⁶ Ibid 6[25].

- disease vector control
- gas control
- air monitoring
- facility access and security
- run on/run off control systems
- record keeping.

The ADB also identified the lack of a formal system of land use planning as a barrier that has impeded the performance of landfills.³⁷

To address the solid waste problem on Majuro, an inter-government agency task force (Solid Waste Task Force) comprising the Majuro Local Government (MalGov), the Ministry of Public Works, MIMRA, Marshall Islands Visitors Agency, the RMI EPA and OEPPC was established to develop policies and strategies to minimise waste production (including public education and recycling of aluminium cans, glass, tyres and green waste), selection and design of new long-term landfills, coordination of tasks, and advising Cabinet on measures and mechanisms to reduce waste production.³⁸

The land fill site in Majuro run by the Majuro Atoll Waste Company (MAWC) is presently filled beyond its capacity and as a consequence another waste facility is to be provided. A site has been selected on an expansive reef flat on the ocean side of the atoll. Landowners at the selected site are said to have agreed in principle with negotiations continuing. The RMI EPA has publicly stated that an EIA will be prepared by MAWC together with an environmental waste management plan.³⁹

It is estimated that at least 50 percent of solid waste is organic⁴⁰ and when this material goes to landfill it emits methane. This situation raises a number of issues. For example, could methane be harnessed for energy production? Alternatively, should this organic material be separated from the waste going to landfill and be used for compost? If so, how could it be done - on site or through separate systems of garbage collection? Separation at source would require a major and ongoing environmental awareness campaign within the community.

Other related questions are whether there would there be a market for compost⁴¹ or should it be provided free of charge to the community as part of a drive to encourage gardening? Another issue is whether compost is actually compatible with atoll soil and whether the cultivation of vegetables to supplement current dietary habits would be a step forward in terms of food security and dietary intake?⁴²

Solid Waste Regulations 1989

The *Solid Waste Regulations 1989* were passed pursuant to the *National Environmental Protection Act 1984*.

³⁷ Ibid 7 [28].

³⁸ Ibid 6-7 [27].

³⁹ 'Dump site moving', *Marshall Islands Journal*, 12 April 2013, 1.

⁴⁰ However, care needs to be taken with composting material as some material such as palm fronds contain allelopathic chemicals which will stunt growth of other plants.

⁴¹ Hay and Sablan-Zebedy, above n 10 noted that composting was unlikely to be economically self-sustaining, at 35.

⁴² Whilst Marshallese are said to have one of the highest rates of diabetes in the world (60-70%), the consultant was advised that vegetables tend to absorb calcium from atoll soils and can lead to excessive amounts of calcium intake

'Solid Waste' is defined as 'garbage, refuse, and other discarded solid materials including solid waste materials resulting from industrial and commercial operations, and from community activities but does not include solid or dissolved material in domestic sewage or other substances in water sources, such as silt, dissolved or suspended solids in industrial waste effluents, dissolved materials in irrigation return flows or other common pollutants' (cl.4(II)). It is also stated that '[t]his definition is intended to include liquid waste materials such as waste oil, pesticides, paints, solvents and hazardous waste (cl.4(II)).

The only prohibition in the regulations is the provision under the heading of 'Littering' to state that 'no person may deposit solid waste in, on or along a road right-of-way, street, trail, turnaround, drainage structure, water body, public recreational facility or any other public or private property unless

- the property is an authorized solid waste disposal facility; or
- the solid waste is deposited in a public litter receptacle' (cl.16).

The *Solid Waste Regulations 1989* provide minimum standards governing the design, construction, installation, operation and maintenance of solid waste storage, collection and disposal systems (cl.2). General requirements are imposed so that solid waste must not constitute a fire, health or safety hazard or provide food or harborage for vectors (cl.6(a)) and for storage of food wastes (cl.6(b)). Specifications for reusable waste containers are set out (cl.7). Solid waste collection is provided for from the aspect of safety, equipment, frequency and operations (cls.8-11). Responsibility is given to the person owning, operating or managing the property where solid waste is accumulated (cl.12). A permit must be obtained from the RMI EPA by anyone who establishes, modifies or operates a solid waste disposal facility (cl.18). On receiving an application the RMI EPA may hold a public hearing and impose any conditions or special requirements as it sees fit (cl.20).

Standards for solid waste disposal facilities are also provided (Part VI) and are divided into general operating standards, standards for permitted landfills, standards for reclamation facilities, standards for incineration, standards for transfer stations and standards for private waste disposal systems. Separate provision is made for standards for hazardous waste disposal as mentioned below (Part VII). The standard enforcement provisions that appear in other regulations can also be found in the *Solid Waste Regulations 1989* (see cls.35-37)

It is noted that the *Solid Waste Regulations 1989* provide the minimum for what can be expected in relation to managing solid waste and, indeed, it can be expected that requirements have changed over the last 24 years since they were passed. There is no mention of the concept of a waste hierarchy to prioritize avoidance and minimization of packaging waste, followed by reuse, recycling, recovery and finally disposal.⁴³ Furthermore, there is presently no policy to support a framework for management of consumer packaging and paper products or a focus on workplace and public place recycling and litter reduction.

The regulations do not allocate responsibility for raising community awareness about appropriate ways to dispose of domestic solid waste. This result of these weaknesses is apparent to the casual observer as there is still a lot of plastic, diapers and other waste along the shoreline; textiles and plastic can be seen snagged on coral even in areas beyond urban centers.

⁴³ The consultant was advised that there has been progress in sale of scrap metal to China by MAWC.

>>> Recommendations:**Policy formulation and implementation**

- Coordinated community awareness campaigns about the growing solid waste management problem in both urban and outer islands should be launched by central and local government.
- A national waste policy should be prepared that introduces a co-operative approach to waste management with a focus on waste minimisation and resource recovery. It could cover domestic waste, hazardous wastes and substances, construction and demolition waste, and e-waste (but exclude nuclear waste).
- Encourage reuse, recycling and other initiatives through voluntary measures and community awareness programs. In doing so, involve local governments, community leaders, schools, churches, NGOs, women's groups and other community groups.
- Embark on research about prospects for composting in RMI.

Statute

- Clarify the distinction between littering and waste dumping.
- A prohibition on all new private landfills in certain areas should be considered.
- Community rights and duties of government to respond to complaints by the local community in relation to waste should be drafted.
- Allocate responsibility for raising community awareness to identified agencies.

Regulation

- Consider the imposition of import controls on Styrofoam and other plastics including import levies.
- Consider the banning of plastic bags across RMI – with the aim of making RMI a 'plastics free zone'.
- Provide for economic incentives such as container deposit systems for bottles and other containers.

4.4 HAZARDOUS AND TOXIC WASTE

As mentioned above in the *Solid Waste Regulations 1989*, the definition of 'solid waste' includes hazardous waste. Separate provision is made in Part VII of the *Solid Waste Regulations 1989* regarding standards for hazardous waste disposal. Hazardous waste is defined as 'any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are non-degradable or persistent in nature, or because they can be lethal, or because they may otherwise cause or tend to cause detrimental cumulative effects' (cl.4(o)).

An obligation is imposed on any person desiring to dispose of hazardous waste materials to notify the RMI EPA (cl.33). The regulation states that infectious and pathological wastes shall be incinerated, sterilized or otherwise rendered safe before removal from these facilities for final disposal (cl.34(a)). Toxic, caustic, volatile and flammable chemical waste may also be incinerated or disposed of in a manner approved of by the RMI EPA. Provisions also apply 'in the event such waste is delivered directly to landfill' (cl.34(b)).

De-watered sludge from water treatment plants 'shall be mixed with other deposited solid wastes at the landfill to prevent localized leaching' but 'raw sewage sludge and septic tank pumpings are prohibited at

all solid waste disposal facilities' (cl.34(c)). This raises a question about where and how such sludges can be disposed of.

There is a provision that any person proposing a new activity or modification to an existing activity which may cause the generation of hazardous wastes shall submit a hazardous waste management plan to the RMI EPA before the activity begins (cl.34(d)). This raises a question about any unmodified existing facilities that may have received hazardous or toxic waste and obligation on them to prepare a hazardous waste management plan.

Finally, there is a provision to cover the generation of waste oil which imposes a generally expressed obligation to 'adopt all practical measures to reduce waste quantities and to reuse or recycle waste oil to the maximum extent possible' (cl.34(e)). This provision is too general to be enforceable. It is further stated that 'where it can be demonstrated that wastage is necessary, disposal methods shall be approved by the Authority. Spreading of oil on roads, airports, or other areas for dust control shall be limited to areas which prevent contamination of potable groundwater, surface waters, and areas under agriculture cultivation of food crops' (cl.34(e)). This provision needs to be elaborated further and broken down into respective obligations of the party seeking to dispose of waste oil and the steps to be taken by the RMI EPA to ensure that it is done so in such a manner as to minimize environmental impact.

In 2005, the ADB noted concern about amounts of toxic or hazardous waste associated with the importation of vehicles, particularly in urban areas and the lack of appropriate disposal of devices such as high voltage transformers and batteries.⁴⁴ The consultant was not able to confirm whether this is still an issue.

The disposal of medical waste by the Ministry of Health from the national hospital in Majuro has been an ongoing concern. It would appear that the *Solid Waste Regulations 1989* have not assisted in regard to an ongoing issue with the management of hospital waste despite the enforcement provisions available to the RMI EPA. As at the time of writing, it had been observed that hospital waste was littering the hospital's incinerator site and, indeed, the incinerator had not been working for two and half months and they had run out of storage containers. According to a newspaper report, the action taken by the RMI EPA was in the form of request to the Ministry of Health 'to resolve the matter immediately and look at other options for storage of the red bags until the incinerator is back in operational mode'. It is understood that a contract between the Ministry of Health and service provider had been approved, and funding provided to get incineration operations working again.⁴⁵

This situation raises issues about possible reluctance of the RMI EPA to take enforcement action where the party concerned is related to the government. It also leads to questions about the effectiveness of the enforcement provisions themselves.

The standard enforcement provisions that appear in other regulations can be found in the *Solid Waste Regulations 1989*. This means that in regard to hazardous and toxic waste, despite the potential seriousness of health and environmental impact, there is no distinction in the offences or penalties.

Where hazardous or toxic waste is located close to the coastline, additional concerns arise regarding potential water pollution caused through seepage into coastal waters. The *Coast Conservation Act 1988*

⁴⁴ Hay and Sablan-Zebedy, above n 10, 6 [24].

⁴⁵ 'Getting tough with ministry, *Marshall Islands Journal*, 12 April 2013, 3.

allows RMI EPA to give directions regarding activities associated with waste generation where the quality of water or the stability of the Coastal Zone is being adversely affected 'by the intrusion of any waste or foreign matter or by physical activity' (§320(1)). Such directions may be issued to a local authority or agency (§320(2)). It is stated that the RMI EPA can require corrective measures to be taken or for the relevant party to desist from the offending activity, but this is not elaborated further. However, the offence provisions in this Act do not relate to this section but rather to development activity within the Coastal Zone that is carried out without a permit.

>>> Recommendations:

Policy formulation and implementation

- A survey should be conducted to assess the extent and location of hazardous waste present across RMI and how it is being disposed of including sludge from raw sewage and septic tanks, and waste oil.
- Develop a national strategy for the management of hazardous and toxic waste.
- Attention be given to appropriate methods for disposing of raw sewage sludge and septic tank pumpings and seeking financial assistance to enable these processed to be adopted.

Statute

- Given the seriousness of offences relating to hazardous and toxic waste, particularly where it is disposed of in proximity to the coast, the adequacy of enforcement provisions and the level of penalties should be reviewed with the goal of significantly strengthening the powers of the RMI EPA and penalties.
- Clarify the application of the offence provisions regarding by the intrusion of waste or foreign matter or by physical activity in the coastal zone.

Regulation

- Provide a separate regulatory instrument to cover hazardous and toxic substances.

4.5 PESTICIDES AND PERSISTENT ORGANIC POLLUTANTS

Persistent organic pollutants (POPs) are a group of chemicals identified as posing the greatest dangers to human health and the environment. They are very hard to destroy and are resistant to degradation by chemical, physical or biological means and are bio accumulative in humans, animals and plants. They include organochlorine pesticides, hexachlorbenzene waste and polychlorinated biphenyls (PCBs) and dioxins. Disposal methods include high temperature incinerators but other alternative methods are available. The goal of any management strategy should be to ensure that levels remain low and, where feasible, are eliminated. International obligations are set out in the *Stockholm Convention on Persistent Organic Pollutants 2001*, which requires the elimination, destruction and safe disposal of some of the most dangerous POPs.

RMI is a signatory to the Stockholm Convention and promulgated the *Persistent Organic Pollutants (POPs) Regulation 2004* as a result. The purpose of these regulations is to (cl.2):

establish a system of control over the importation, distribution, sale, and use of pesticides by persons within the Republic of the Marshall Islands, and further, to ban or restrict the use of twelve of the world's most highly toxic persistent organic pollutants ("POPS"), nine of which are pesticides, one of which is an industrial chemical, and two of

which are unintentional chemical by-products, all targeted by the United Nations Stockholm Convention on Persistent Organic Pollutants.

POPs are defined as:

the twelve persistent organic pollutants set forth in Appendix B of these regulations, which are targeted by the United Nations Stockholm Convention on Persistent Organic Pollutants as posing a significant threat to health and the environment, and which share the properties of being highly toxic, persistent in the environment, evaporative and able to travel long distances through the air and water, and subject to bioaccumulation.

Schedule B lists and explains the following chemical names: Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene (HCB), Mirex, Hexachlorobenzene (HCB), Polychlorinated biphenyls (PCB), Dioxins and Furans.

The regulation also covers pesticides which are defined as ‘any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant’ (cl.4).

The regulation sets out the unlawful acts (Part II) which include importing, selling, distributing or receiving any pesticide or POP which is adulterated or misbranded and any banned pesticide or POP (cl.6). It also provides for the certification of applicators (Part III), a system for permitting the dealing in restricted use pesticides (Part IV) and record keeping (Part V).

Anyone desiring to import a pesticide or POP is required to submit a notice of intention to the RMI EPA who is then to issue instructions as to disposition. Upon arrival it must be inspected and absence of a notice of intention will lead to impoundment (Part VI cls.23-26). The RMI EPA is authorized to impose restrictions and ban (Part VII). The usual enforcement provisions apply (Part IX).

As noted by Harding in 1992, pesticides are not yet in frequent use but when they are, applicators are generally untrained in proper pesticide procedures. Furthermore, labels should be printed in English and Marshallese to make sure that instructions as to usage are properly understood. The POPs Regulation provides for the certification and training of applicators and also for labeling in both English and Marshallese (cl.33).

>>> Recommendations:

Policy formulation and implementation

- Any national strategy for the management of hazardous and toxic waste to include a strategy for the management of Persistent Organic Pollutants (POPs).

Regulation

- Consideration to be given to strengthening the enforcement provisions for POPs.

CHAPTER 5 WATER SUPPLY AND SANITATION

Water supply and sanitation has been the subject of RMI government policy making in recent years. A National Water and Sanitation Task Force was formed in 2010 consisting of stakeholders from government, agencies and community organizations. A National Water Summit in March 2011 highlighted the key sector issues and confirmed the urgency of water and sanitation improvement. It was agreed that the official policies, laws, regulations, plans and agreements developed over several decades need better coordination, that many significant gaps still exist and that there is a need for a specific and overarching national water policy.

It is expected that climate change will bring longer drought periods, which will exacerbate difficulties in water supply and sanitation. Indeed, at the time of writing, the RMI National Disaster Committee was considering whether to recommend that Cabinet declares a drought disaster affecting the northern atolls. Serious drought conditions were expected to continue into May 2013.⁴⁶

In March 2013, a draft policy document setting out the National Water and Sanitation Policy was completed. It states in the opening as follows:

‘The statement that “water is life” is an understatement in RMI where there is a chronic shortage of drinking water and the population is at a high risk of disease due to poor sanitation. Additionally water and sanitation’s strong connection to the health and quality of life and the risks associated with climate change make it one of the highest priorities of RMI. All of RMI’s 29 atolls and 5 islands are low lying with extremely limited freshwater resources, difficult sanitation challenges and vulnerability to weather and natural disasters.

The five strategic goals of the draft policy are as follows:

1. Reduce the occurrence of waterborne illness;
2. Ensure water resource sustainability;
3. Ensure water and sanitation utilities are financially solvent;
4. Target service improvements at the disadvantaged;
5. Be resilient to climate variability and extreme events.

The draft policy recommends that a 5-year Action Plan be developed for the period 2013-17. The Action Plan will develop projects and programs that will address the identified priority actions of the Policy. The outcome is to be ‘a comprehensive response to improve the resilience of the people of the Marshall Islands’.

This area of policy making is in a state of flux and hence only limited observations will be made here. For example, the draft policy proposes the establishment of a new institutional framework to guide water and sanitation policy across RMI based on the following structure:

⁴⁶ ‘Drought disaster to be declared’, *Marshall Islands Journal*, 12 April 2013, 3.

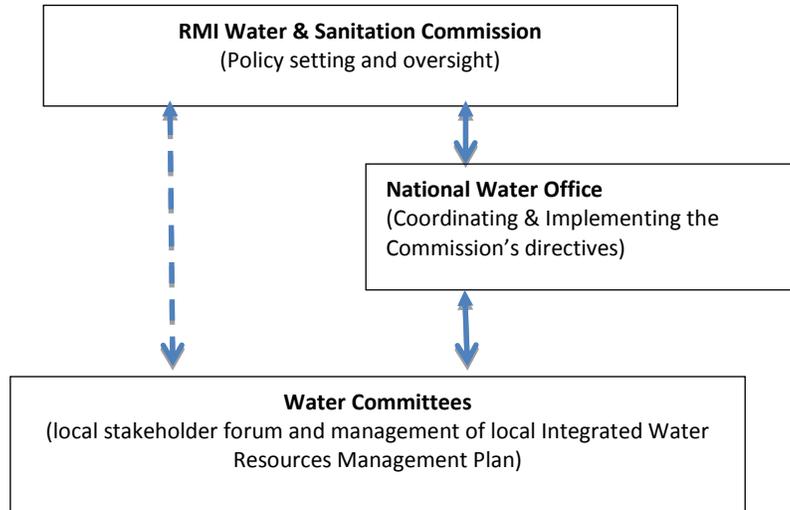


Table 2: Proposed Structure for Water Resources Management in the draft National Water and Sanitation Policy

It has been recommended that the Water and Sanitation Commission include representatives from elected officers and the general public and that it determine the appropriate representation for the Water and Sanitation Office and the Water Committees. No comment is made here in regard to these recommended institutional reforms that were, at the time of writing, before Cabinet.

5.1 FRESH WATER SUPPLY

The Ministry of Public Works is responsible for water supply utilities. In 1989, the Minister granted a water and sewer franchise to Majuro Water and Sewer Company (MWSC), which includes potable water, salt water and sewer systems. Whilst there has been an expansion of water supply facilities in Majuro, recent reports have described it as being on the 'verge of collapse'.⁴⁷ In Kwajalein, the Kwajalein Atoll Joint Utility Resources (KAJUR) manages the water and sewerage activities on Ebeye Island.

As stated in the draft policy:

“Improved water supply” coverage is high, at least 97%, yet still poses high risk to the population due to limited quantities, contamination and drought (DHS, 2007). The primary source of freshwater is rain mostly through rainwater catchments and in some favorable locations with groundwater lenses. In Majuro the water system is more than 75% rainwater collection (both municipal and household) with the remainder coming from Laura groundwater lens. In Ebeye the water supply system is based solely on desalination through expensive reverse osmosis filters. By 2006 approximately 60% of outer island water catchments were still unsafe and contaminated (EPA, 2006).

A goal of the draft water policy is ‘to ensure water resource sustainability’. The draft policy recommends that groundwater, as a common pool resource, be protected with collective and effective community-based management and that integrated water resources plans be prepared by community water committees.

⁴⁷ ‘Joseph Batol takes helm at MWSC’, *Marshall Islands Journal*, 12 April 2013, 2.

In 2005, ADB included in its recommendations that the following steps be taken:⁴⁸

- promotion of water efficient appliances;
- incorporating and enforcing rainwater harvesting into building design; and
- promotion of large-scale and household rainwater harvesting.

These recommendations address efficiency in water usage as well as rainwater. The ADB also said that improvements in water supply quantity will require major investment to develop policies and build capacity at the Local Government level with respect to land use planning and building regulation.⁴⁹ In this regard see recommendations made at 7.3.

>>> Recommendations:

Statute

- Legislative support be provided for community-based water resources management.
- Land use planning and development controls be prepared to ensure that future development will not impact on existing groundwater supplies.

Regulations

- The Building Code be amended to include mandatory water harvesting.
- Regulations be passed to support the introduction of water efficient appliances.

5.2 SANITATION

Human waste

Sanitation facilities in Majuro have been extended in recent times and in 2005 were said to ‘have significantly improved by removing environmental nuisances’.⁵⁰ A public sewerage system is available in urban Majuro and Ebeye and septic systems are utilized elsewhere.⁵¹ The public sewerage system consists of ocean outfalls and waste is not treated. Indeed, there appears to be an absence of any sewage waste treatment facility.

The sewerage outfalls at Majuro and Ebeye are said to function irregularly and need repair and maintenance. In Majuro, the consultant was told that the sewerage outfall is rusted at the shoreline and is emitting raw sewage within the intertidal zone. Funding is needed for its repair and to construct a longer sewage outfall. Responsibility for the carrying out of this work lies with the Minister for Public Works.

Where people rely on septic tanks, they are rarely pumped to remove sludge. As a result, contamination slowly seeps into the soil and, increasingly, pollutes the fresh water lenses that supply groundwater. Even if septic tanks are pumped, it is questionable whether they are an appropriate solution for small island atolls given their proximity to the shoreline and freshwater lenses.

⁴⁸ Hay and Sablan-Zebedy, above n 10, 27 [122].

⁴⁹ Ibid, 35.

⁵⁰ Ibid, 20 [88].

⁵¹ RMI EPA, above n 18, 21.

As at 2005, some 25% of homes were said to be still without adequate sanitation.⁵² In these circumstances, human waste is dealt with in small pits or directly input to lagoons or ocean waters. Technical solutions for rural waste (as alternatives to septic tanks and direct disposal) are available and international examples from countries such as Tuvalu have been trialed in RMI.⁵³ However, it is likely that community resistance to such technology will need to be overcome.

The *Toilet Facilities and Sewage Disposal Regulations 1990* were promulgated pursuant to the *National Environmental Protection Act 1984* to establish minimum standards for toilet facilities and sewage disposal to minimize environmental pollution, health hazards and public nuisance (cl.2). The regulations cover three types of toilet and sewage facility (cls.6-8):

- Type 1: a toilet that is flushed with water and connected to a sewerage system
- Type 2: a toilet that is flushed with water and connected to a septic tank
- Type 3: a privy – defined as ‘a structure and ground excavation for the disposal of human excreta by non-water carriage methods. Examples are a ‘water seal toilet’, ‘pit privy’, ‘outside benjo’, ‘outhouse’, ‘mon bwidej’, and ‘trench latrine’.

The choice between Types 1 and 2 are stated to depend on the availability of water from a public works division and the availability of a sewerage system (cl.10). It is stated that in the absence of water and sewerage system, toilet facilities shall be at least Type 3 (cl.12). No building construction is to take place without first obtaining a permit from the RMI EPA to ensure that the toilet disposal facilities comply with the regulation (cls.13-16). Standards are provided for each type of toilet and sewage facility.

It is notable that in regard to Type 1, requirements are imposed on ‘the person responsible for the operation of the sewage system’ to do certain things which seem to be frequently breached with no follow up action by the RMI EPA including the requirements to:

- safely operate, maintain, modify, inspect, clean and repair the system (cl.19(i));
- immediately clean up any surface leakage from the system (cl.19(vi)); and
- provide maintenance, inspection, repair and modification to the sewage outfall system, and as well make every available effort to record daily outfall (cl.19(vii)).

The RMI EPA is authorized to undertake enforcement action which includes revocation of a permit, making a cease and desist order, imposition of a civil penalty not exceeding \$10,000/day, institution of civil proceedings to restrain a violation and any other action authorized under the *National Environmental Protection Act 1984* (cl. 40). In the Consultant’s understanding, despite the failures mentioned above in relation to the Majuro sewerage outfall, no enforcement proceedings have been instituted.

In regard to Type 2, septic tank facilities the requirements for location are particularly important to avoid the possibility of seepage into groundwater. Express permission is required before a septic tank can be located within 15 feet from a water body or 100 feet from a well. A query arises in this regard as to how well this provision is applied. Furthermore, it is notable that there are no requirements on property owners to regularly de-sludge their septic tanks.

⁵² Hay and Sablan-Zebedy, above n 10, 21 [95].

⁵³ Secretariat of the Pacific Community – Applied Geoscience and Technology Division (SOPAC), ‘Marshall Islands trials Tuvaluan composting toilets’: <http://www.sopac.org/index.php/media-releases/1-latest-news/423-marshall-islands-trials-tuvaluan-composting-toilets>.

In regard to Type 3 privy standards, the standards are only generally expressed as ‘designed to minimize odor, environmental pollution, health hazards, and public nuisance’ (cl.30). It is also stated that ‘no Type 3 facility shall be located, constructed or maintained so as to contaminate any potable water supply, and in no case shall any Type 3 facility be located at a horizontal distance of less than 15 feet from any body of water (cl.32). Authority to enforce these provisions is given to the RMI EPA ‘or its authorized representative’, which leads to questions about its capacity to inspect and enforce at the local level. Further detail as to the meaning of ‘authorized representative’ is not available.

>>> Recommendations:

Policy formulation and implementation

- Identify an advocate for improvement of practices in relation to the operation of the sewerage outfalls.
- Identify an advocate for improvement of practices in relation to managing septic tanks and disposal of waste from septic tanks.
- Establish programs de-sludge septic tanks and deliver waste to a waste treatment facility using the combined efforts of Local Government, RMI EPA and the Minister for Public Works
- Conduct community awareness programs about the damage caused by direct utilization of ocean and lagoons as latrines and problem-solving activities to find solutions to changing behaviour in this regard.
- Conduct further research into, and trialling of, composting toilets in RMI.

Statute

- Provide statutory responsibility to the new advocate who is tasked with finding technical and management solutions to controlling pollution of freshwater and marine water resources as a result of poor sanitation.
- Stronger community rights provisions to enable the community to take action where there has been a failure by the regulatory agency.

Regulations

- Responsibility for permitting and enforcement Type 2 and Type 3 facilities should be allocated to Local Government as the authorized representative of the RMI EPA.
- Allow for community complaint procedures.

5.3 ANIMAL WASTE

There are an increasing number of piggeries which bring with them substantial amounts of waste. Currently, this waste is disposed of to the lagoon and ocean. This source of waste can be easily avoided.

>>> Recommendations:

Policy formulation and implementation

- Conduct a census on the number and location of piggeries in urban areas.
- Investigate their system of waste disposal and research alternatives.
- Establish a system for the use of piggery waste as a fertilizer using a dry compost system.

- Introduce an education and compliance management program on proper waste disposal by piggeries and work with piggery owners to achieve cooperation in proper waste disposal.

Statute

- Acknowledge animal waste as a source of water pollution and an impact on sanitation.
- Allow for the passing of regulations to cover the management and control of animal waste.

Regulations

- Introduce prohibitions on causing pollution from piggery and other animal waste.
- Allow for enforcement by RMI EPA or Local Government.
- Allow for community complaint procedures.
- Introduce spot fines and prevention notices.

5.4 FRESHWATER QUALITY

Shortfalls in sanitation will inevitably affect water quality – both fresh water and marine water. Hence, recommendations made in relation to sanitation also apply to freshwater and marine water quality.

Public water supply quality

RMI EPA carries out daily monitoring of the Majuro Atoll, Ebeye Island and Kwajalein atoll public water supply systems. They also carry out regular monitoring of schools, restaurants, and private catchment systems and wells on Majuro, Ebeye, and other atolls on request.⁵⁴ The results as at 2005 indicated that the number of contaminated waters sources had increased.⁵⁵ However, the RMI EPA has strengthened its water quality awareness and training programs.

The *Public Water Supply Regulations 1994* were promulgated under the *National Environmental Protection Act 1984* to establish minimum standards and requirements for public health and safety to protect public water supply systems against contamination and pollution (cl.2). They cover pre-existing, new and modified public water systems (Part II), bottled water production (Part III) and operation, maintenance and self-monitoring (Part IV). Quality standards are provided, for example, in regard to turbidity, inorganic chemicals and physical standards, organic chemicals and radionuclides. There are also provisions on approved laboratories, reporting, public notification, record keeping and rights of entry (Part V), the supply of drinking water during emergencies (Part VI) and enforcement (Part VII).

Groundwater quality

The consultant was not able to determine the extent to which monitoring of groundwater quality takes place. This is relevant given concerns about possible contamination of groundwater by failures in effective sanitation mentioned above. Another issue that may become more pressing in the future is salt water intrusion into groundwater resources, which has the capacity to degrade drinking waters sources, wetlands and agriculture (e.g.: taro patches).

⁵⁴ Elizabeth Harding 'Strengthening Environment Capabilities in Pacific Island Developing Countries – Republic of the Marshall Islands Review of Environmental Law', SPREP, 1992, 40.

⁵⁵ Hay and Sablan-Zebedy, above n 10, 26 [121].

>>> Recommendations:

Statute

- Obligations to be imposed on RMI EPA to make water quality monitoring results more widely available.
- Provide for water quality monitoring of groundwater by Local Government as well as the RMI EPA.
- Allow for groundwater monitoring for contaminants from human and animal waste and salt water intrusion.

CHAPTER 6 MARINE WATER POLLUTION

Pollution of coastal waters is reportedly serious near urban centers and other developed areas and is usually related to (i) discharges from fishing and other vessels (ii) leaching and/or runoff from landfill, grave sites and pig and chicken pens.⁵⁶ Majuro and Ebeye Lagoons have been found to have high levels of human and animal waste in parts. Declining quality of coral reefs and increasingly green waters are evidence of deteriorating marine water quality.⁵⁷ Sewage is said to have impacted on near-shore coral reefs, which show high levels of algal overgrowth and nutrient loadings.⁵⁸

Recommendations made in Chapters 4, 5 and 8 are also relevant to protecting marine water quality.

6.1 MARINE POLLUTION FROM LAND-BASED SOURCES

Marine Water Quality Regulations 1992 were promulgated pursuant to the *National Environmental Protection Act 1984* for the purpose of identifying the uses for which marine waters shall be maintained and protected, to specify the water quality standards required to maintain designated uses and to prescribe regulations for implementing, achieving and maintaining the specified marine water quality (cl.2).

The regulations establish a system for classifying marine waters according to their use, which is expressly stated not to involve zoning (cls.7-10). Certain areas are named and given their relevant classification such as in Majuro Atoll, the ocean side apart from the area closely surrounding the Majuro sewage outfall is to be Class AA, i.e. protected for oceanic research, support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation and aesthetic enjoyment. They are to 'remain in as nearly their natural, pristine state as possible with an absolute minimum of pollution from any source'.

Basic criteria for all marine waters are set out (cl.15) and specific water quality criteria are established for each class of waters (cl.16). In addition, the Marshall Islands Pollution Discharge Elimination System (MIPDES) for permitting point-source discharges is mentioned as being established by regulation (Part V). To the consultant's knowledge the MIPDES has not yet been established⁵⁹ and there is no reference to such permits on the RMI EPA website.⁶⁰

There is a requirement imposed on any person responsible for any point-source discharge to apply to the RMI EPA for a 'zone of mixing' unless it can be demonstrated that the point of discharge will meet the applicable water quality standards at the point of discharge (cl.22). All existing point-source dischargers were to apply to the RMI EPA for a mixing zone or demonstrate that one is not required within one year of the effective date of the regulations (cl.24).

⁵⁶ Ibid, 7 [33].

⁵⁷ RMI EPA, above n.18, 10.

⁵⁸ Jacobson D, Proceedings of the 12th International Coral Reef Symposium Cairns Australia, 9-13 July 2012.

⁵⁹ This system would appear to have been included in the regulations to follow the approach taken in the USA which has a National Pollutant Discharge Elimination System (NPDES).

⁶⁰ RMI EPA http://rmiepa.com/Coastal_Land.html

Uncertainty in this regard is created by the mixing zone application requirements that require evidence that an MIPDES permit has been applied for and will be obtained (cl.23). The regulation sets out matters to be considered in reviewing a mixing zone application and the procedure (cl.25).

Pollution control requirements are also established in the regulation to cover point-source and non point-sources of pollution (Part VII) with the effect that any person must first obtain written approval that the project will not directly or indirectly impair any beneficial uses of the affected marine waters (cl.27(a)). Conditions may be imposed on the construction or operation of the project (cl.27(b))

These regulations also cover **hazardous substances** in that they provide that storage, disposal or allowing the accumulation of any hazardous substances in such a way that they may enter marine waters is a violation of the regulations unless written approval is obtained from the RMI EPA (cl.30(a)). These substances include petroleum products, pesticides, radioactive substances, biological substances and toxic chemicals (cl.30(b)). In the event of an accidental spill or discharge, the responsible person shall notify the RMI EPA within 24 hours and taken 'reasonable mitigation measures'. Failure to do so constitutes separate offences (cl.30 (d)&(e)).

There is some overlap between the *Marine Water Quality Regulations 1992* and the *Coast Conservation Act 1991*. As mentioned **above at 4.4**, where the quality of water is being adversely affected, the Act allows the RMI EPA (Director of Coast Conservation) to give directions regarding various activities associated with waste generation (§320). Such directions may be issued to a local authority or agency. It is stated that the Director can require corrective measures to be taken, but this is not elaborated further.

>>> **Recommendations:**

Policy formulation and implementation

- Consider how to best allocate responsibility for
 - research and providing technical and management solutions for the control of pollution in marine waters from land-based sources;
 - fostering behavioural change to protect marine water quality; and
 - education and awareness programs.
- Make an inventory of all sites where there is runoff from industry, road infrastructure and other sources of pollution.
- Prepare policy to support businesses in voluntarily reducing their pollution loads.

Statute

- Allocate the responsibility mentioned above.
- Impose obligations to regularly collect data in lagoons and ocean side coastal areas on nutrient loadings and other sources of land-based pollution to systematically monitor water quality including around sewerage outfalls.
- Results of marine water quality monitoring to be publicly available and included with explanations as to the connection between land-based activities and marine water pollution levels.

Regulations

- Pass the anticipated regulations to establish the MIPDES permitting system.

- As mentioned above at 4.4 above pass a specific regulation on management of hazardous and toxic substances.

6.2 CONTAMINATION OF FISHERY WATERS

There is an important provision in the *Fisheries Enforcement Act 1997* that prohibits contamination of Fishery Waters. 'Fishery Waters' means the Exclusive Economic Zone, the Territorial Sea and internal waters, including lagoons, as described in the *Marine Zones (Declaration) Act 1984*, and any other waters within the jurisdiction of the Republic of the Marshall Islands - *Marshall Islands Marine Resources Authority Act 1997*(§102(31)). This provision does not seem to be specific as to land-based or maritime activities being the cause of the contamination.

The provisions provides as follows: (§524):

- (1) No person shall directly or indirectly contaminate the Fishery Waters in any way, including by the discharge of any substance or by any act or omission that is likely to cause damage to or deterioration in the quality of the marine resources.
- (3) Any person who contravenes Subsection (1) commits an offense and upon conviction shall be fined up to five hundred thousand dollars (\$500,000) and in addition the Court may order that such person shall be liable for the costs of any clean-up or damage arising from such contamination.

The following is presumed to cause damage to or deterioration in the quality of the marine resources: (§524(2)):

- (a) non-biodegradable trash or debris;
- (b) the discharge of a poison, chemical or noxious substance, including but not limited to oil, petroleum, solvents, metals or sewage; and
- (c) the introduction of disease to the Fishery Waters.

The most notable case that has been brought to date based on these provisions was the prosecution of Pacific International Inc. (PII) for pollution caused in Enemanet Island on Majuro's north shore after a ship ran aground a coral reef in 2007. According to the summary provided by the RMI EPA advisor to the press, PII was found guilty of three counts of marine pollution but the trial was followed up with additional hearings to gather evidence concerning coral damage, mitigation and cleanup efforts. The final result was an order by the High Court that PII pay \$3,000 while suspending the balance of a \$25,000 fine.

Justice Ingram pointed out that the marine protection laws do not require that the pollution was caused intentionally or by negligence when he said that 'it is enough that the discharge, contamination and pollution occurred.' In delivering the sentence, the court said that it took into consideration all the evidence, efforts by PII to clean and restore the lagoon area, the lack of evidence that PII intentionally caused the problem, and the laws that allowed for a maximum fine of \$500,000 for the incident.

PII was ordered to pay \$25,000 and reimburse the RMI government for the \$695 cost of producing a report on the underwater area at Enemanet. However, the judge ordered that \$22,000 was to be suspended provided that PII paid \$3,000 fine and \$695 reimbursement by March 1 and did not intentionally or through gross negligence violate marine pollution laws for the next five years.

At the time, the case was hailed as a 'great precedent' for future enforcement efforts.⁶¹ However, a number of observations to the contrary can be made including the low amount of the fine and that the condition for the suspension was predicated on PII not 'intentionally or through gross negligence' violating marine pollution laws over a period of 5 years even though the judge had pointed out that the components of the original offence did not require proof of intention or negligence.

Interestingly, the case took two years to be concluded and did not pass without incident. According to Andrew Finlay, the former RMI EPA advisor, during the trial, the Attorney-General, was forced to resign when the son of the CEO of PII became the Minister of Justice. The advisor's contract was terminated later in 2008 without reason after he testified as an expert witness. During the trial, a new EPA Board was appointed and chaired by a senior PII employee. Later the President overturned the Board and rescinded all its decisions including the termination.⁶² These difficulties point to the complications that can arise in a small country where criminal enforcement for environmental offences is attempted. It also points to the need to have a truly independent RMI EPA that is free from interference in carrying out its enforcement actions.

>>> **Recommendations:**

[See recommendations made in Chapter 3 regarding the Attorney-General's Office and the Courts]

Statute

- Introduce minimum penalties for contamination of Fishery Waters.

Policy formulation and implementation

- Education and training for judges on appropriate environmental sentencing (possibly through sentencing guidelines).

6.3 OIL POLLUTION

Oil pollution may result from onshore activities and offshore activities. There is the potential for maritime activities to impact on marine water quality, particularly in the coastal zone. Oil spills are said to frequently occur in urban lagoons, especially in times of heavy ship traffic and the rainy season.⁶³ Indeed, it has been observed that oil spills into the urban lagoons are almost a daily occurrence and many of them come from the larger vessels.⁶⁴ In the event of a major oil spill, the provisions of the *Fisheries Enforcement Act 1997* mentioned at 6.2 would apply.

Marine Water Quality Regulations 1992 cover oil pollution prevention measures from both onshore and offshore facilities (Part VIII). Owners or operators of onshore and offshore facilities that could reasonably be expected to discharge oil are required to prepare a Spill Prevention Control and Countermeasure Plan (SPCC Plan) (cl.31) that is submitted to RMI EPA. The requirements for the plan are set out (cl.32). Provisions are made regarding containment structures for both onshore and offshore facilities (cl.31) and for drainage onshore (cl.34). Special requirements are set out for bulk storage tanks (cl.35), facility transfer operations (cls.36-37), facility fuel barge loading and unloading (cl.37), security (cl.38) and spill prevention (cl.39).

⁶¹ Coral List, National Oceanic and Atmospheric Administration (NOAA): <http://coral.aoml.noaa.gov/pipermail/coral-list/2009-March/006917.html>.

⁶² Ibid.

⁶³ RMI EPA, above n 18, 10.

⁶⁴ Ibid 25.

There is a general prohibition against causing or permitting the discharge of oil in quantities that may be harmful to the public health or welfare including discharges that breach water quality standards, cause a film or sheen or discoloration or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines (cl.40(a)). Enforcement is the responsibility of the RMI EPA (cl.41). Should a spill occur, the *Civil Liability for Oil Pollution Damage Act 1993* also becomes relevant, allowing for actions for compensation if damage occurs from pollution from an incident covered under the *International Convention on Civil Liability for Oil Pollution Damage 1969*.

Due to weakness in capacity for monitoring and surveillance by RMI EPA, enforcement action usually relies on a complaint being made by a concerned citizen to the RMI EPA.

>>> Recommendations:

Policy formulation and implementation

- Financial and institutional support for spill control kits and training at RMI EPA in spill control technology.

Statute

- Introduction of minimum penalties for oil pollution offences.

6.4 DISCHARGES FROM BOATS AND SHIPS

Marine sanitation

The *Marine Water Quality Regulations 1992* cover **marine sanitation** devices that must be installed on all vessels with toilet facilities and set the fecal coliform bacterial count limits (cl.28). There is a prohibition against discharge of sewage, whether treated or not, from any vessel into marine waters (cl.29(a)) unless a 'Permit to Discharge' is obtained from the RMI EPA (cl.29(b)). A permit to discharge is only available for non-commercial vessels discharging treated waste (cl.29(c)).

>>> Recommendations

Policy formulation and implementation

- Monitor twice weekly the harbor for illegal discharges.
- Increase capacity for inspection of boats regarding sewage treatment systems and waste disposal.

Ballast water and quarantine

Ship's ballast water typically contains a range of biological materials, including plants, animals, viruses, and bacteria. This material can include exotic or nuisance species that can cause extensive ecological damage to aquatic ecosystems. In recent years, there has been increasing awareness of the impacts of failure to control the discharge of ballast water.

The *International Convention for the Control and Management of Ships' Ballast Water & Sediments* was adopted by consensus at the International Maritime Organization in 2004. The RMI acceded to the

Convention on 6 November 2009. The Convention has still not been ratified by enough nations for it to come into force.⁶⁵

As a result of acceding to the Convention, Marshall Islands flag vessels have to apply the IMO 'Guidelines for Preventing the Introduction of Unwanted Aquatic Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges' and establish a Ballast Water Management Plan (BWMPs).⁶⁶

However, RMI also needs to consider how it will ensure that foreign vessels entering its waters prevent uncontrolled discharges of ballast water. The consultant understands that the rate of violations by ships visiting RMI is not generally known.

Similarly to the US EPA, the RMI EPA will need to adopt some aspects of the Convention for the protection of its waters. For example in the US, Ballast Water Management is included in the National Pollutant Discharge Elimination System (NPDES) program.⁶⁷ Similarly, if RMI was to activate a Marshall Islands Pollution Discharge Elimination System (MIPDES) for permitting point source discharges (referred to above at 4.2 and 6.1) it could include a Ballast Water Management Plan (BWMP) as part of a General Vessel Permit. In the USA, the permit includes requirements for training and ballast water management plans. Management options include an effective ballast water treatment system; onshore treatment; use of public water supply; no discharge of ballast water; interim requirement for ballast water exchange until treatment required; and participation in US Coast Guard Programs on ballast water management.⁶⁸

At present, reference to ballast water can be found to inspections carried by agricultural quarantine inspectors pursuant to the *Animal and Plant Inspection Act 1966* where it is stated that 'all aircraft and vessels or their cargoes, including baggage, ship's stores and ballast, entering or moving within the Republic, are subject to inspection by agricultural quarantine inspectors for the purpose of enforcing controls, quarantines and regulations' (§106(2)). This role is carried out by the Chief of Agriculture within the Ministry of Resources and Development. No further detail is provided in this Act regarding ballast water. Infringement is only considered a misdemeanor.

>>> **Recommendations:**

Policy formulation and implementation

- Build awareness of existing laws regarding oil spills, sewage disposal and water treatment facilities on board as well as control of release of ballast water.
- RMI EPA to take a more active role in monitoring compliance with ballast water management requirements.
- Increase coordination between related agencies, such as the Ports Authority, shipping agents and fishing ventures and RMI EPA.

⁶⁵ 'Ships must kill off the beasties in the ballast water', *New Scientist*, 1 April 2013.

<http://www.newscientist.com/article/mg21729106.000-ships-must-kill-off-the-beasties-in-the-ballast-water.html>.

⁶⁶ Marine Notice No. 2-014-1, Office of Maritime Administrator Rev. 12/09 To All Shipowners, Operators, Masters and Officers of Merchant Ships, and Recognized Organizations Re: Ballast Water Management Plans. <http://www.register-iri.com/forms/upload/MN-2-014-1.pdf>.

⁶⁷ Presentation by Rear Admiral Robert C. North (USCG, Ret.) President, North Star Maritime, Inc 'Ballast Water Management in the United States' 10 October 2012 http://www.register-iri.com/userfiles/file/BALLAST_WATER_MANAGEMENT_IN_THE_UNITED_STATES.pdf

⁶⁸ Ibid.

Statute

- Provide for RMI EPA to take responsibility for ballast water control.

Regulations

- RMI EPA to develop regulations on ballast water management as part of the Marshall Islands Pollution Discharge Elimination System (MIPDES).

CHAPTER 7 LAND USE PLANNING, DEVELOPMENT CONTROL AND SOIL CONSERVATION

7.1 LAND USE PLANNING

Background on land use planning

The purpose of environmental planning is to introduce ‘order, a measure of certainty and security, and a principled framework against which applications to carry out development of land and access to natural resources may be assessed’.⁶⁹ Land use planning is often considered the most important means of ensuring environmental protection as it ‘cuts across all aspects of environmental management; influencing, for example, land degradation, biodiversity protection, pollution control, conservation of native vegetation and water quality’.⁷⁰

This section will consider efforts to introduce some form of land use planning in RMI. These issues are also relevant for coastal management. To date there has been minimal land use planning across RMI, where even on the island of Majuro there is no fully-fledged system of zoning land use. Without land use control, there will be ad hoc siting of activities and possibly conflicting land uses placed in close proximity to each other.

Reasons for lack of progress need to be fully explored and are beyond the scope of this review but can be at least partly attributed to a failure to reconcile efforts to introduce land use planning with the traditional land tenure system. It was noted by Harding in 1992 that custom still plays a very significant role in the life of Marshallese people. As she observed, a person’s land rights continue to be ‘closely guarded and hotly contested’.⁷¹

Article X of the Constitution states that nothing in Article II (the Bill of Rights) ‘shall be construed to invalidate the customary law or any traditional practice concerning land tenure or any related matter in any part of the Republic of the Marshall Islands, including, where applicable, the rights and obligations of the Iroijlaplap, Iroijedrik, Alap and Dri Jerbal’ (cl.1(1)). It also states that ‘it shall not be lawful or competent for any person having any right in any land in the Republic, under the customary law or any traditional practice to make any alienation or disposition of that land, whether by way of sale, mortgage, lease, license or otherwise, without the approval of the Iroijlaplap, Iroijedrik where necessary, Alap and the Senior Dri Jerbal of such land’ (cl.1(2)). The Traditional Rights Court has been established under Article VI to resolve land disputes.

It can be readily seen that efforts by the government to introduce land use planning are likely to encounter resistance in light of the fact that traditional management arrangements may be in place or, if they are not, traditional authority figures may see themselves as in conflict with authority that is sought to be asserted by government. Intensive consultation with traditional leaders and local communities will be needed.

Land use planning usually involves preparation of a planning instrument that identifies the physical locations where development consent will not be required, where certain types of development will be

⁶⁹ Bates G, *Environmental Law in Australia* 7th Ed, (LexisNexis Butterworths, 2010), [8.1-8.2].

⁷⁰ *Ibid* [8.15].

⁷¹ Harding, above n 54, 10.

prohibited, and where development consent will be needed for projects and activities before they are able to proceed. The importance of public participation in the preparation of land use plans is widely acknowledged as being crucial to their later acceptance and also to the quality of the plans themselves.

At the local level, land use planning schemes usually use 'zoning' to 'indicate the categories of activities that are permitted or restricted in certain areas, and on what general conditions' and as such zoning will 'set the ground rules' for future development and activities on land.⁷² When land is zoned, there will be a statement as to its suitability for particular uses, the uses that are prohibited and whether the local planning authority has discretion to decide in other cases whether a proposed development or use of land is permissible as being consistent with the purpose of the zoning.

Zoning also provides a system for recognizing locations where there are natural and cultural features of land that need to be protected. It is particularly relevant for protection of coastlines and can also acknowledge heritage areas, scenic features and important ecological habitats.

Current provision for land use planning

As will be shown below, current provisions for land use planning set up conflicting responsibilities between the RMI EPA and the Minister of Interior and Outer Islands, who is responsible for Local Government. To date, zoning remains largely unimplemented. It can be observed that small homes are being built in urban areas in an unplanned manner creating increasing urban density and loss of open space. These town areas would be particularly vulnerable in a typhoon or storm surge and already experience poor water supply and sanitation.

Planning and Zoning Act 1987

The Preamble to the *Planning and Zoning Act 1987* states that it is an Act to provide for planning land and water use, creation of zones in municipal areas, the regulation and control of the construction of buildings and the prevention of overcrowding of land. In this way, it is the key piece of legislation concerning land use planning. This Act allocates ministerial responsibility to the 'Minister in charge of the subject of Local Government' (§202(e)). It creates the position of a National Government Chief Planner (§203) and states that every local government Council 'shall establish a Planning Commission' that shall consist of the Mayor, two other members of the Council and two landowners from the Local Council appointed by the Council (§204(2)).

At the local level, all local government councils are also to have a planning office with a Director of Planning who has a duty 'to carry out and execute all matters relating to planning and zoning' and 'to grant, renew or revoke licenses for the construction of any buildings, houses or other structures in accordance with the law or ordinances' (§206(4)). In the event of a failure to appoint a planning commission, the Minister is able to appoint the Government Chief Planner to perform its functions (§207(1)).

Zoning has been specifically provided for in the *Planning and Zoning Act 1987* along with zoning principles (§211) and a list of types of zones which include (§212):

- Residential
- Commercial

⁷² Bates, above n 69, [8.32-8.34].

- Industrial
- Resort
- Public
- Watershed.

National Environmental Protection Act 1984

Earlier provisions in the *National Environmental Protection Act 1984* had provided for a Land Use Scheme. The RMI EPA is required in consultation with the National Environment Council and with the assistance of the Minister of Internal Affairs, to formulate and recommend to the Minister a Land Use Scheme consistent with the following objectives (§127):

- (a) to provide a rational, orderly and efficient system of acquisition, utilization and disposition of land and its resources in order to derive therefrom maximum benefits; and
- (b) to encourage the prudent use and conservation of land resources in order to prevent an imbalance between the needs of the nation and such resources.’

The scheme may include the following (§128):

- (a) a scientifically adequate land inventory and classification system;
- (b) a determination of present land uses, the extent to which land is utilized, under-utilized or rendered idle or abandoned;
- (c) a comprehensive and accurate determination of the adaptability of land for community development, agriculture, industry or commerce;
- (d) identification of areas having important historic, cultural or aesthetic value where uncontrolled development or exploitation could result in irreparable damage;
- (e) a method for exercising control by the Government of the Marshall Islands over the use of land in areas where environmental control is deemed necessary; and
- (f) a policy for influencing the location of new areas for the resettlement of persons and the methods for assuring appropriate controls over the use of land in and around such areas.

It is not clear how the two pieces of legislation are intended to work together. It is noted that the Land Use Scheme is to include a method for exercising control by the Government of the Marshall Islands over the use of land (§128(e)) but it does not refer to zoning. Possibly, the later legislation was intended to supplement these provisions. In any event, the RMI EPA has largely ignored these requirements.

Attention needs to be given to identifying the reasons for the lack of progress in land use planning over the last 30 years given that the need for this form of strategic planning has become more pressing in light of climate change. Implementation of the *Coast Conservation Act 1988* (mentioned below at 8.1) raises similar issues in relation to the Coastal Zone Management Plan.

According to Harding, any scheme that seeks to instruct land owners on what they can and cannot do on their land is likely to be unpopular in traditional circles and be seen as an ‘intrusion’.⁷³ She recommended agencies embark on ‘significant public education efforts designed to promote the

⁷³ Harding, above n 54, 13.

positive aspects of planned land development’ and that such efforts will require ‘an extended process of community consensus building’.⁷⁴

Steps that would be taken in implementing a bottom-up approach to land use planning may be required to be set out within legislation. Recommendations made in relation to working with local communities in coastal planning and management in documents such as *Reimaanlok* could be applied equally to land use planning.

>>> **Recommendations**

Policy development and implementation

- Undertake a review to identify why there has been a failure to implement the *Planning and Zoning Act 1987* and *National Environmental Protection Act 1984* in relation to land use planning.
- Identify the most appropriate institution to be responsible for land use planning.
- Acknowledge the urgency in implementing land use planning given current and prospective impacts of climate change including rising sea levels and drought.

Statute

- Provisions in the *Planning and Zoning Act 1987* and *National Environmental Protection Act 1984* to be combined to create a seamless statute setting out the content and process for land use planning and zoning.
- Zoning principles should refer directly to impacts of climate change.
- The process for preparing a Land Use Scheme should harmonise with the process involved in preparing the Coastal Zone Management Plan.

Regulation

- The role of local government, traditional leaders and local communities in formulating a Land Use Scheme to be set out with procedural detail that ensures full participation.

7.2 DEVELOPMENT APPROVAL PROCESSES

The *National Environmental Protection Act 1984* envisaged that the Land Use Scheme formulated by the RMI EPA would include ‘a method for exercising control by the Government of the Marshall Islands over the use of land in areas where environmental control is deemed necessary’ (§128(e)), which would seem to indicate a form of development control. However, it is difficult to go into further detail on development control without a system for zoning as one of the key criteria for assessing whether development approval should be granted is whether or not the proposed development complies with the zoning requirements.

The lack of development control mechanisms limits the capacity of government to control off-site impacts such as run-off that can affect coastal marine ecosystems as there is no instrument, such as the development approval, through which obligations can be imposed on developers. It also means that there is no assessment process through which it can be decided whether or not to impose conditions, for example, for elevated bases (stilts), a limited floor space ratio or reduced bulk of a building in relation to the site, or setbacks from the coastline or road, or design that favors vertical development.

⁷⁴ Ibid.

>>> Recommendations:**Policy development and implementation**

- The land use planning review mentioned above to identify appropriate steps to be taken as development control measures.

Statute

- Development control to be provided for within an Act that provides for regulation-making power to detail the development control procedure.
- The *National Environmental Protection Act 1984* or other relevant statute should make specific provision for administrative law remedies where a proponent or objector (including an environmental NGO) is dissatisfied with either the decision or the process followed in making a development approval decision.

7.3 BUILDING APPROVAL

Under the *Planning and Zoning Act 1987* the formulation of restrictions on buildings has been allocated to each local government Council (§209). For example, it states that every local government Council shall make ordinances with respect to ‘prohibiting any person or body from erecting or constructing any kind of house or building without having obtained a permit from the Commission’ (§209(1)(a)). Local government is also expected to pass ordinances, for example, on matters specifying requirements for rain water catchment or stipulating the minimum requirements in location and size of structures or providing for adequate light or air.

A permitting system administered by the local government Council or Government Chief Planner for construction, alteration, addition or extension of a house, building or structure is also provided for (§213-14) along with penalties (§215) and a certificate of conformity (§216).

Separate provision is made under the *Planning and Zoning Act 1987* for the adoption of a Marshall Islands Building Code by the Minister of Public Works. This is to include but is not limited to standards or requirements for the design and construction of buildings and other structures and materials to be used (§222(1)). The general purpose of the Building Code is set out and includes construction and construction materials consonant with accepted standards of engineering and fire prevention, provision of water supply and sanitation to buildings (§223(1)). It is stated that the Minister of Public Works is to designate a person within the Republic as the Building Officer to administer and enforce the Building Code (§225) and penalties for violation are set out (§226), however, there is no indication as to which government agency has responsibility for enforcement.

It is the Consultant’s understanding that the legislative provisions concerning the Building Code remains largely unimplemented. Reasons for this failure need to be explored further and are beyond the scope of the consultancy.

>>> Recommendations:**Policy formulation and implementation**

- Review the current situation regarding building codes to identify reasons for failure to implement legislative provisions.

Statute

- Statutory provision for a national Building Code to include a range of new standards including:
 - water efficiency and water harvesting;
 - standards to handle flooding scenarios associated with sea level rises;
 - set-backs to avoid overcrowding, and
 - energy efficiency standards.
- Responsibility for enforcement of the Building Code to be allocated

7.4 SOIL CONSERVATION

Soil conservation in RMI is highly relevant for food security, which is likely to become a more pressing concern as the impacts of climate change become more pronounced. As noted by Harding in 1992, the soil in RMI is nutrient poor, which frustrates agricultural production and food shortages are common.⁷⁵ It can be observed that most foods consumed in urban areas are imported.

Soil conservation is related to land use planning in that such planning allows for the identification of locations where high quality soil is found and a zoning system to prevent interference with the productive use of the soil.

The *National Environment Protection Act 1984* states that the RMI EPA shall, in consultation with the National Environmental Council and the assistance of the Ministry of Internal Affairs, 'recommend soil conservation programs, including encouragement of scientific farming techniques, physical and biological means of soil conservation, and short-term and long-term research and technology for effective soil conservation' (§131).

Soil conservation both in the context of preserving areas where higher quality soil is found and finding appropriate ways of boosting soil nutrients has become a pressing priority. In 1992, Harding's comment was that staffing and training limitations have prevented RMI EPA from assuming this role. It is the consultant's impression that this observation remains valid today. There also appears to be some overlap in functions between RMI EPA and the Agricultural Department within the Ministry of Resources and Development. Comments made at 4.3 regarding compost are relevant.

>>> Recommendations:**Policy formulation and implementation**

- Soil conservation to be considered in the context of a wider strategy for food security.

Statute

- Institutional responsibility for soil conservation to be allocated away from RMI EPA to a new institution.
- Land use planning to provide for conservation of land for the purpose of agriculture.

⁷⁵ Ibid, 29.

CHAPTER 8 COAST CONSERVATION AND ENVIRONMENTAL IMPACT ASSESSMENT

8.1 COASTAL MANAGEMENT

The problem of coastal erosion exists throughout RMI. It is most acute in urban atolls where it is said that coastal erosion is largely caused by uncontrolled and unplanned reclamation.⁷⁶ However, coastal erosion is also starting to occur throughout the outer islands and is evident on nearly every atoll due to land clearing and removal of protective indigenous vegetation as well as storm surges and rising sea levels.

Controlling activities that lead to coastal erosion is fundamental to coast conservation; however, additional steps to bolster and strengthen the coastline will be a crucial part of adaptation to climate change, particularly to defend against rising sea levels. Eroding coastlines need to be reinforced, where possible through ecosystem-based approaches such as strengthening shore-line vegetation and preserving coral reefs. In some locations, land will need to be raised and sea walls constructed. Steps that can be taken to protect and bolster the coastline will be covered at 8.4.

Public Lands and Resources Act 1966

Rights of landowners along the coastline are quite strong in the RMI. According to the *Public Lands and Resources Act 1966*, all marine areas below the ordinary high water mark belong to the government but ‘the owner of land abutting the ocean or lagoon *shall have the right* to fill in, erect, construct and maintain piers, buildings, or other construction on or over the water or reef abutting his land and shall have the ownership and control of such construction; provided, that said owner *first obtains written permission of the Chief Secretary* before beginning such construction’ (§103(1)(c)) (emphasis added).

Such rights have been strengthened by an additional provision, which states as follows (§103 (1)(e)):

Nothing in the foregoing paragraphs of this subsection (1) shall withdraw or disturb the traditional and customary right of the individual land owner, clan, family or municipality to control the use of, or material in, marine areas below the ordinary high watermark, subject only to, and limited by, the inherent rights of the Government of the Marshall Islands as the owner of such marine areas. The foregoing Paragraphs of this Subsection (1) shall create no right in the general public to misuse, abuse, destroy or carry away mangrove trees or the land abutting the ocean or lagoon, or to commit any act causing damage to such mangrove trees or abutting land.

An amendment in 2008 clarifies the question of title to land-fill and land reclaimed from marine areas as follows:

Notwithstanding the provisions of any law to the contrary, title to new land created through “land-fill” or other land reclamation processes, from marine areas below the ordinary high water mark, by the government, or by any other person, corporation or other legal entity, for any purpose whatsoever, shall vest in the owners of the adjoining land or lands. (§105)

These provisions raise a number of issues for coastal management (and development control) including the following:

- They create a resistance to government initiatives to introduce coastal management which are likely to be seen as an attempt to interfere with the customary rights long recognised in statute.

⁷⁶ RMI EPA, above n 18, 15.

- There an incentive for land owners to fully develop land abutting the sea.
- The onus is placed on the government to limit such activity, which potentially sets up a situation of conflict between government and land owners.
- Where government capacity is weak, owners may feel entitled to go ahead with land fill activity and other operations without government approval.
- Government decision-makers need to be fully informed about environmental impacts in order to properly assess the appropriateness of proposed works along a coastline.
- As currently worded, there are no stated criteria or matters to be considered in the exercise discretion by the Chief Secretary in deciding whether or not to permit a proposed activity.
- Whilst there is a prohibition on the general public from clearing mangrove trees no such prohibition seems to apply to land owners. It is not clear whether the prohibition applies to vegetation other than mangrove trees.

These provisions also suffer from poor conceptualization. Firstly, the position of a municipality does not fall within the same category as an individual land owner, clan or family who holds customary rights. Secondly, whilst the overriding position of government is established, this would have been better expressed not in terms of 'rights' of government as the 'owner' but as the 'responsibility' or 'duty' of government as the custodian of such areas.

Coast Conservation Act 1988

The *Coast Conservation Act 1988* is the primary piece of legislation directed towards coastal management. It contains the following definitions (§302):

- 'coast' means the border of land which is adjacent to the sea and not covered by sea water
- 'Coast conservation' means the protection and preservation of the coast from sea erosion or encroachment of the sea, and includes the planning and management of development activity within the Coastal Zone'
- 'Coastal Zone' means the area laying within a limit of twenty five (25) feet landwards of the mean high water line and a limit of two hundred feet seawards of the mean low water line
- 'coastline' means the line of intersection of the plane of water at mean sea level with the coast.

The *Coast Conservation Act 1988* establishes the RMI EPA as the relevant authority and creates a position within the RMI EPA for a Director of Coast Conservation ('the Director').⁷⁷ The Director is to carry out a survey of the Coastal Zone, which is to include the making of an inventory of the following (§306(1)):

- a) an inventory of all structures, roads, excavations, dumping sites and other works in the Coastal Zone;
- b) an inventory of all coral reefs in the Coastal Zone;
- c) an inventory of all commercially exploitable mineral deposits, both proven and suspected, located in the Coastal Zone;
- d) an inventory of all areas within the Coastal Zone of religious significance or unique scenic value or of value for recreational purposes, including those areas most suitable for recreational bathing;
- e) an inventory of all estuarine or wetland areas within the Coastal Zone with an indication of their significance as fisheries or wildlife habitat;
- f) an inventory of all areas within the Coastal Zone areas of value for research regarding coastal phenomenon including fisheries and shell fisheries, sea erosion, littoral movements and related subjects;

⁷⁷ This position remained unfilled as at the time of writing.

- g) an inventory of all areas within the Coastal Zone areas from which coral, sand, sea shells or other substances are regularly removed for commercial or industrial purposes;
- h) an assessment of the impact of sea erosion on the Coastal Zone including a quantified indication, by geographical location, of the amount of land lost thereby, an estimate of the economic cost of such loss and the extent to which human activity has contributed to such loss;
- i) an estimate of the quantities of sand, coral, sea shells and other substances being removed from the Coastal Zone, together with an estimate of the extent to which such quantities can be supplied from other sources or other materials and an analysis of the economic practicability of doing so; and
- j) a census, classified by geographical areas, and by activity, of all workers currently engaged on a regular basis in the removal of coral, sand, sea shells or other substances from the Coastal Zone and a census of the dependents of such workers and estimate of the per capita income obtained from these activities.

The next step is the preparation of a Coastal Zone Management Plan (CZMP) by the Director. The CZMP is to include guidelines, proposals, a program and recommendations as follows (§307(1)):

- (a) guidelines to be used in determining the suitability of particular development activities in the Coastal Zone;
- (b) proposals which deal with the following subjects within the Coastal Zone:
 - (i) land use;
 - (ii) transport facilities;
 - (iii) preservation and management of the scenic and other natural resources;
 - (iv) recreation and tourism;
 - (v) public works and facilities, including waste disposal facilities, harbors and power plants;
 - (vi) mineral extraction;
 - (vii) living resources;
 - (viii) human settlements;
 - (ix) agriculture; and
 - (x) industry;
- (c) proposals for the reservation of land or water in the Coastal Zone for certain uses, or for the prohibition of certain activities in certain areas of the Coastal Zone;
- (d) a comprehensive program for the utilization of manpower displaced as a direct result of more effective Coastal Zone regulation; and
- (e) recommendations for strengthening Governmental policies and powers and the conduct of research for the purposes of coast conservation.

At the time of writing, the CZMP had not been completed. It would appear that the lack of implementation can be attributed to lack of RMI EPA resources. It needs to be kept in mind that many of the functions of the RMI EPA relate to regulation and enforcement. To expect them to also carry out long term strategic planning and management functions may be unrealistic.

>>> Recommendations:

Policy formulation and implementation

- Review the reasons for the failure to implement CZMP.
- Consider allocating responsibility to a new institution, with responsibility to include assessing the vulnerability of coastal areas to the impacts of climate change, coordinating and implementing strategies for climate change adaptation and risk reduction.

Statute

- If line with the conclusions of the review, reallocate planning and management authority away from the RMI EPA to a Ministry.
- Harmonise the approach taken in land use planning and CZMP.
- Give new emphasis to the need to protect the coastline as part of climate change adaptation in view of rising sea levels and increased frequency of storm surges.

- Consider banning certain activities along the coastline.
- Provide more detail on the content of the CZMP including, for example, identification of suitable areas as resource collection areas and other areas as off limit areas
- Formally endorse the principle of community-based coastal management and provide for procedures to allow this to occur.

Regulations

- Develop procedures for building community-based coastal management.

8.2 COASTAL DEVELOPMENT CONTROL

Coastal development can be divided into three tiers: major government-funded projects, smaller private sector projects, and poorly or non-funded residential projects. It has been said that a different scale of appropriate action should be taken in regard to each.⁷⁸ The greatest threats to conserving the coastline (in both urban and rural atolls) have been identified as:⁷⁹

- alteration to natural shorelines
- aggregate extraction such as beach mining and near-shore dredging
- expanding reclamation and
- direct construction impacts such as run-off and sedimentation.

The first three of these threats can be managed through the development approval process in deciding whether or not to grant approval. The fourth threat can also be addressed through the development approval process by imposing conditions in a development approval to limit run-off and sedimentation and ensuring compliance with such conditions.

Coast Conservation Act 1988

Pursuant to the *Coast Conservation Act 1988* there is a prohibition against engaging in any development activity other than a prescribed development activity within the Coastal Zone except under the authority of a permit issued by the Director (§309(1)). The RMI EPA, may prescribe categories of development that may be engaged in within the Coastal Zone without a permit having regard to the effect such activities may have in relation to 'long term stability, productivity and environmental quality' of the Coastal Zone (§309 (2)).

It is further stated that no permit shall be issued by the Director unless the proposed development

- (a) is consistent with the CZMP and any regulations made to give effect to it and
- (b) it will not have an adverse effect on the stability, productivity and environmental quality of the Coastal Zone (§310).

If the CZMP has not been prepared, the RMI EPA can prescribe criteria to be used in determining whether a permit should be issued (§308).

There are a number of practical obstacles to the application of these provisions. According to information available to the Consultant:

⁷⁸ RMI EPA, above n 18, 14.

⁷⁹ Ibid.

1. The position of Director of Coast Conservation within RMI EPA remains vacant;
2. Categories of development that do not require a permit have not yet been prescribed;
3. Criteria to be used in determining whether a permit should be issued in the event that the CZMP has not been finalised have not been formulated; and
4. There are no regulations to provide for a permitting process (apart from the *Earthmoving Regulations 1989* mentioned below).

*Earthmoving Regulations 1989*⁸⁰

The *Earthmoving Regulations 1989* apply to the following activities: (cl.3(f))

any construction or other activity that 'disturbs or alters the surface of the land, a coral reef or bottom of a lagoon, including but not limited to excavations, dredging, embankments, land reclamation in a lagoon, land development, subdivision development, mineral extraction, ocean disposal, and the moving, depositing or storing of soil, rock, coral or earth.

It can be seen that this definition is very broad. It does not distinguish between extraction of aggregate and placement of aggregate and it covers very different activities of land reclamation, subdivision development and storing of rock.

It is stated that 'any person who engages in an earthmoving activity' within RMI 'shall first obtain an earthmoving permit' from the RMI EPA except for earthmoving activity that involves plowing or tilling for agricultural purposes (cl.22(a)).⁸¹ Whilst it may only be a question of expression, a clearer signal would have been created by an outright prohibition against certain types of earthmoving activity unless they are carried out with a permit. Furthermore, there are some who argue that there is a need for a total ban on some activities such as lagoon side dragline dredging within 10 meters from shoreline.

The *Earthmoving Regulations 1989* set out the procedure to be followed in applying for a permit. The RMI EPA may hold a public hearing about a permit application (cl.24).

Application for approval for earthmoving activity may require an environmental impact assessment (EIA) discussed below. There is a provision in the regulations stating that the earthmoving permit application is stayed until the Preliminary Proposal is submitted and a determination of significant effect is made and, if required, the EIA is submitted by the project proponent and approved by the RMI EPA (cl.25 (a)).

The Earthmoving Regulations set out a number of requirements that apply to *any earthmoving activity* such as an obligation to 'design, implement and maintain erosion control, sedimentation control and cultural preservation measures which effectively prevent accelerated erosion, sedimentation and adverse impact on cultural resources' (cl.5(a)). These measures must be set forth in a plan kept on site and filed with the RMI EPA (cl.6(a)) and the factors that must be considered in the plan are set out (cl.8). Control measures and facilities are required such as sedimentation retention booms, containment areas or sedimentation basins (cls.10-12).

⁸⁰ These regulations were not passed pursuant to the *Coast Conservation Act 1988* but under the *National Environment Protection Act 1984*.

⁸¹ Upon coming into law of the coastal zone permitting regulations under the CCA, 'at the discretion of the EPA' an earthmoving permit will not be required for activities in the Coastal Zone if it occurs within the Coastal Zone and requires a permit pursuant to the CAA Regulation (cl.22(b)) (note: these regulations have not been passed).

Enforcement takes the form of the revocation of a permit, a ‘cease and desist’ order, a civil penalty, institution of civil proceedings or any other action authorized under *National Environmental Protection Act 1984* (cl.28). A civil penalty applies of \$100/day for carrying out activity without a permit (cl.30).

Clearly, the effectiveness of these obligations will depend on the capacity of RMI EPA to carry out regular surveillance of earthmoving activities going on across the RMI and then to follow up situations where it is suspected that the regulations are not being complied with. Where permits have been granted, there is still a need to monitor compliance with permit conditions as well as ongoing active biological and sedimentation monitoring to confirm whether or not conditions are adequate.

Where enforcement action is required, the effectiveness of enforcement provisions will depend on the capacity of the RMI EPA to readily undertake enforcement and the deterrence effect of any fines that are imposed. It would appear that the level of fine of \$100/day is an insufficient deterrent and should be significantly increased.

Residential-scale beach mining

Much earthmoving activity in RMI will be of a scale that the general public believes is not caught by the Earthmoving Regulations. Although the regulations apply across the board with no exceptions, there is a generally held belief that they do not apply to small-scale or residential scale beach mining or land reclamation. This perception is strengthened by the provisions of the *Public Lands and Resources Act 1966* mentioned above at 8.1.

Many outer islands have small-scale aggregate extraction sites where materials are collected by hand rather than dredging. According to a 2005 study quoted by the RMI EPA, nearly as much aggregate that is being extracted by commercial operations is being extracted by residents of Majuro for domestic purposes such as small home projects, sea walls and graveyards and this is likely to be the trend in other islands. As stated by the RMI EPA, the extent to which this is contributing to coastal vulnerability is unknown but it can only be negative.⁸² In order to limit these practices, a major behavioral change would be needed.

>>> Recommendations:

Policy development and implementation

- Obstacles to implementing the development control provisions in the *Coast Conservation Act 1988* need to be identified and overcome.
- Consideration should be given as to how resources can be increased for monitoring and surveillance to detect failure to obtain permits and also to monitor compliance with permits and the effectiveness of permit conditions including active biological and sedimentation monitoring.
- Develop a policy solution to limit residential scale beach mining, yet provide affordable alternative sources of aggregate to households and public projects.
- Public education about the extent of rights held by landowners who have property abutting the sea.

⁸² RMI EPA, above n 18, 17.

Statute

- Amend the *Public Lands and Resources Act 1966* to clarify duties that accompany the rights of landholders and obligations to comply with government regulation and control of development in coastal areas.
- The RMI EPA to be given strengthened functions in coastal development control.
- Provide more detail to 'long term stability, productivity and environmental quality' as criteria for determining categories of development that do not need a permit and determining whether a permit should be issued.

Regulations

- The regulatory function related to the development approval be given renewed emphasis on determining categories of development that do not require a permit, criteria for determining whether a permit should be issued and drafting regulations for the permitting process.
- Significantly increase the level of civil penalty for violation of the Earthmoving Regulations upwards from \$100/day.

8.3 ENVIRONMENTAL IMPACT ASSESSMENT

Environmental Impact Assessment will potentially apply in the development approval process of major government-funded projects and some smaller private sector projects. It was originally provided for in the *National Environmental Protection Act 1984* and has been detailed in implementing regulations. The few EIAs carried out to date in RMI have concerned development along the coastline.

National Environmental Protection Act 1984

The RMI EPA has authority for managing the environmental impact assessment (EIA). An environmental impact statement is explained as a detailed statement covering the following (§134(1)):

- (a) the environmental and cultural impact of the proposed action;
- (b) any adverse environmental effects which cannot be avoided if the proposal is carried out;
- (c) alternatives to the proposed action;
- (d) the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- (e) any irreversible and irretrievable commitment of resources which the proposed action will necessitate if it is carried out.'

Any decision made on the basis of an EIA must be explained in a statement of basis and purpose and shall include the following (§134(4)):

- (a) the environmental impact of the proposed action has been studied and considered by the responsible Ministry, Department, office or agency;
- (b) alternatives to the proposed action have been given consideration;
- (c) any adverse environmental effects which cannot be avoided by adopting reasonable alternatives are justified by other stated considerations of national policy; and
- (d) any short-term uses of the environment are consistent with maintaining and enhancing long-term productivity or usefulness.

Environmental Impact Assessment Regulation 1994

The *Environmental Impact Assessment Regulation 1994* ('the EIA Regulations') have narrowed the applicability of EIA to assessment of proposed developments and have shifted the onus of preparing the

assessment to the proponent. The EIA Regulations provide a detailed procedure for EIA which is briefly outlined below.

EIA Procedure

The EIA procedure applies to 'each and every development activity' starting from the preparation of a Preliminary Proposal at the inception of a proposed development activity (cl.5(a)). 'Proposed development activity' has been defined as (cl.4(p))

any plan, proposition or intention by any person to embark on at action, scheme, construction, project, development, or undertaking which is likely to alter the physical nature of the environment in any way, including, but not limited to, earthmoving and other activities pursuant to the *National Environmental Protection Act 1984*, and coastal zone activities pursuant to the *Coast Conservation Act 1988*, such as the construction of buildings and works, the deposit of wastes or other material from outfalls, vessels or by other means, the removal of sand, coral, shells, natural vegetation sea grass or other substances, dredging and filling, land reclamation and mining or drilling for minerals, but not including fishing or those activities specifically excluded in writing by the General Manager;

The onus is on the proponent to decide whether their development falls into the category of a 'proposed development activity'.

If the proponent concludes that they have a 'proposed development activity', a Preliminary Proposal is to be submitted to the General Manager (GM) of the RMI EPA (cl.5(b)). The content of the Preliminary Proposal is set out (cl.6) and the GM may request additional information, convene a meeting of relevant regulatory agencies and make a written determination regarding the proposal (cl.7).

The GM is to make a determination as to whether the proposed development will have a 'significant effect on the environment' and, if so, the proponent is notified that an EIA is required (cl.8). The regulations set out the meaning of 'significant effect' as an important, meaningful, or serious impact on the environment, either in the context of the setting of the proposed development activity, or in the context of the intensity of the proposed development activity's effect on the environment.

Criteria for determining significance include, but are not limited to (cl.4(f)):

- (i) the degree to which public health and safety are affected;
- (ii) the degree to which the unique characteristics of the geographic area are affected;
- (iii) the degree to which effects on the environment are likely to involve controversy;
- (iv) the degree to which unique or unknown risks are taken;
- (v) the degree to which a precedent for future action is made;
- (vi) the potential for cumulative environmental impacts;
- (vii) the degree to which the natural functioning of the ecosystem is likely to be inhibited;
- (viii) the degree to which a cultural, natural, scientific, or historic resource may be threatened;
- (ix) the potential to threaten the existence of rare or endangered species, or their critical habitats;
- (x) the degree to which fish and wildlife resources of ecological, commercial, subsistence, and recreational importance are jeopardized; and
- (xi) the extent to which one use of a resource may be incompatible with another use of that resource.

Interestingly, even if the GM considers that an EIA is required, the GM may, 'at his discretion, waive any aspect or aspects of the EIA requirements' ... 'upon sufficient showing that the fulfillment of certain requirements may be onerous or unnecessary' (cl.8(d)).

It may be noted here that there is wide discretion provided to the GM in deciding whether or not an EIA is required. However, guidance is provided by the EIA Regulations concerning factors that must be

considered in determining the potential of a proposed development activity to have a significant effect on the environment.

The procedure for preparing the EIA are set out in detail (Part III) including the scoping process and related public participation process (cl.11), consideration of the RMI EPA's guidelines (cl.13) and requests by the RMI EPA for further information (cl.14). Any interim action that may have an adverse environmental impact or limit the choice of reasonable alternatives to the proposed activity after being notified that an EIA is required is prohibited (cl.16(a)).

The EIA format and content are set out in detail (Part IV) including the summary, purpose and need for the proposed action, alternatives, the affected environment, the environmental consequences and the list of preparers. The EIA review and approval process (Part V) includes submitting the Draft EIA to the Environmental Advisory Council, advertising, opportunities for public comment and the possibility of the EPA convening a public hearing, EIA evaluation, revision of the EIA and finalization of the EIA. The Chairman of the EPA is to either approve or disapprove the EIA. Disapproval will lead to the EPA being prohibited from issuing any permits or permits in regard to the proposed development activity. The process after EIA approval is detailed (Part VI) including the permitting process, monitoring by the EPA and environmental audits. Penalties and enforcement provisions are also provided (Part VII).

EIA in practice

The Consultant understands that, in practice, EIA is still rarely carried out. The Consultant was not able to obtain a full picture of how closely the requirements to submit a Preliminary Proposal are adhered to or the number of Preliminary Proposals that have been submitted to date to the RMI EPA.

Controversial cases have involved approval of mining for aggregate in near-shore lagoon coral reefs. The first such case in 2008, arose when Pacific International Inc. in a project funded by U.S. Federal Aviation Administration (FAA) sought to use a suction dredger to mine the coral reef adjacent to the Majuro Fire Station site. In that case, the reef mining proceeded without an EIA or opportunity for public comment.

A second, which remains controversial, involves the EPA's approval of mining for aggregate in a near-shore lagoon coral reef for the extension of the airport runway at Imata Kabua International Airport in Majuro, also funded by the FAA. Again, the proponent was Pacific International Inc, who proposed drag line dredging of the adjacent coral reef to obtain the enormous amount of fill needed for the land reclamation.⁸³

It is asserted by some environmentalists and marine scientists who oppose the development that the EIA process did not allow for consideration of alternative fill sources despite the existence of rare ecological communities including colonies of blue and gold coral in the area proposed to be mined. A striking aspect to this development approval is that the project will destroy the last picnic and recreational bathing area in the densely populated side of Majuro. Zoning had not identified the importance of this land but neither did the public participation process lead to any community objection to the loss of their recreational area. This leads to questions about how to arrange public participation to ensure that the community is able to engage fully in the process and have their voices heard.

⁸³ For further information on these cases see:

<http://reefrelief.org/2012/09/action-alert-petition-to-stop-us-funded-coral-mining-in-the-marshall-islands/>
<http://ens-newswire.com/2011/06/23/u-s-taxpayers-funding-destruction-of-a-pacific-coral-reef/>.

In 2005, the ADB stated that there was ‘considerable uncertainty about when an EIA is required, how it should be prepared and how it should be judged’.⁸⁴ However, in many aspects, the detail in the regulations is quite explanatory. It may be that guidelines need to be prepared to complement the regulations and assist participants in the process.

Public participation

A member of a community affected by a proposed development or a person with an interest in the development, has rights to participate in the process of preparing and considering the EIA. These rights are set out below.

In the scoping process, the proponent is to consult and obtain comments from the public (cl. 11(b)). Therefore, members of the community may respond to any request made by the proponent to comment on the scoping document. In doing so, they may want to consider aspects such as following:

- Will the full range of alternatives be considered in the EIA?
- Has the Proponent covered the full range of scientific studies that need to be completed?
- Does the Proponent intend to consider all the mitigation measures that are available?
- Does the scoping document provide for sufficient public involvement during the EIA process?

When the draft EIA has been prepared it is to be made available to the public. The GM is required to publish in the Government Gazette (or if the Gazette is not published on a regular or timely basis, by notice published in one or more national newspapers) (cl.25):

- (a) the place and times at which the draft EIA is available for inspection;
- (b) the date, time and location of any public hearing; and
- (c) invite the public to make its comments, if any, within 30 days from the date on which the notice is first published.

This provides opportunities to consider aspects such as the following:

- Does the draft EIA adequately consider all the relevant alternatives?
- Is the description of the environment in the vicinity of the proposed development activity adequate?
- Does the draft EIA adequately describe the impact on a local community and the local environment?
- How sound is the analysis of the environmental consequences?

The community is able to participate in the public hearing called by the GM to consider the draft EIA. Adequate notice of the hearing must be given by the GM and adequate opportunity to appear and be heard, and adequate opportunity to provide written comment (cl.27). The GM must assess and consider comments received from the public (cl.29(b)).

In other countries, disputes about whether or not an EIA should have been required, whether or not required procedures were followed, the adequacy of an EIA and the factors taken into account in the final decision granting approval for a development are commonly the subject of judicial review proceedings that utilize administrative law. Where objection is made by a third party, such as an environmental NGO, the court will often require proof of standing as a preliminary matter. Availability of administrative law remedies is essential for securing accountability in decision-making that accompanies

⁸⁴ Hay and Sablan-Zebedy, above n 10, 23 [104].

the EIA process. At this stage, this sort of public interest litigation has not taken place in the RMI and open standing provisions have not been included in legislation.

Coast Conservation Act

As mentioned above, the controversial cases involving EIA have concerned mining of coral reefs for aggregate. Pursuant to the *Coast Conservation Act 1988*, the Director may require an EIA (§311(1)) and it is apparent that this provision invokes the provisions of the EIA Regulation mentioned above.⁸⁵ It is stated that the EIA is to be submitted by the Director to the Environmental Advisory Council for its comments (§311(2)) but as noted above at 3.1 (g), the Council has yet to convene. The *Coast Conservation Act 1988* also makes provision for public exhibition of the EIA and the invitation of comments (§311(2)). The final decision is to be made by the Director.

In the Harding review, it was stated that regulations under the *Coast Conservation Act 1988* are especially necessary to detail *the particular requirements* of coastal environmental impact assessments.⁸⁶ Harding suggested that EIA regulations under both Acts be drafted in concert so as to include identical provisions and this was done. However, it is not apparent that the EIA Regulations make specific provision for the *particular* requirements of coastal environmental impact assessment as recommended by Harding. The question remains as to whether they are adequate to protect the coastline against harmful development.

>>> Recommendations:

Policy formulation and implementation

- Review how adequately the EIA Regulations have applied to development control along the coastline.
- Identify how public participation processes within EIA can be activated taking into account dynamics and power relations within the Marshallese society.

Statute

- The *Coast Conservation Act 1988* to be amended to eliminate unnecessary duplication of provisions with the *National Environmental Protection Act 1984* and implementing regulations.
- Inconsistency between the *National Environmental Protection Act 1984* and implementing regulations should be removed.

Regulations

- The extent of discretion available to the GM in deciding whether a proposed development 'may have a significant effect on the environment' should be simplified. It is possible to prepare a list of activities that by their very nature are likely to have a significant effect on the environment thus triggering the need for an EIA.
- The exercise of discretion available to the GM in deciding whether to waive any of the requirements of EIA should be made more accountable by a listing of factors that must be taken into account by the GM and an obligation to make the reasons for the decision publicly available. Alternatively, this discretion should be removed.

⁸⁵ The EIA Regulations state that they were promulgated under both the NEPA (s.21) and the CAA (s.27).

⁸⁶ Harding above n 54, 19.

- In relation to assessing the EIA, the Regulation should be amended to build in accountability measures such as listing of factors that must be taken into account in assessing the adequacy of the EIA.

Guidelines

- Guidelines should be prepared and made available on the RMI EPA website on when an EIA is required and how an EIA document should be prepared and its content.

8.4 BUILDING COASTAL DEFENSES

Stable shorelines are essential to protect the land, local infrastructure and homes. There is already a pressing need to bolster the defense of the coastline against rising sea levels and storm surges that are predicted to worsen in the coming decades. This can be done through ecosystem-based approaches, which includes stabilizing and strengthening shorelines through increased vegetative cover and maintaining coral reefs. However, it also requires the effective construction and repair of sea walls alongside improved management of landfill and reclamation.

Ecosystem-based approaches

As stated by the ADB, ‘intact native vegetation is ideal for stabilizing shorelines since native plants have evolved to survive in tropical environments, tolerating tropical heat humidity, salt water, extreme sunlight, and storms. Native vegetation communities function as ‘soil binders, maintaining coastal berms and forests. These communities are part of the dynamic coastal process, well adapted to conforming to shifting shorelines.’⁸⁷ Loss of mangrove protection along the coastline is another reason for erosion and increasing vulnerability against high tides and storm surges. Coral reefs also function as buffers dispersing wave energy that would otherwise contribute to the erosion of coastal shorelines’⁸⁸ and protection of coral reefs are a crucial component of an eco-system approach to climate change adaptation.

The *Public Lands and Resources Act 1966*, includes a provision which states that there is no right in the general public to misuse, abuse, destroy or carry away mangrove trees or the land abutting the ocean or lagoon, or to commit any act causing damage to such mangrove trees or abutting land’ (s(3)(1)e)). However, this provision from nearly 50 years ago does not create a general prohibition against clearing mangrove vegetation and fails to mention of types of vegetation. It is apparent that there is currently no legislation that protects native vegetation either on land or along the coastline with associated penalties.

Engineering solutions

Sea walls

Around urban areas, where ecosystem-based approaches are not available and crucial infrastructure needs protection, the only option for bolstering the shoreline is likely to be through repairing existing sea walls. Sea walls are often the least desirable option. As pointed out by the ADB, seawalls are ‘static, immobile objects that do not conform to the ebb and flow of shorelines’.⁸⁹ Furthermore, they often

⁸⁷ Hay and Sablan-Zebedy, above n 10, 8 [39].

⁸⁸ Ibid.

⁸⁹ Ibid.

disrupt native vegetation communities. However, in urban areas sea walls exist along the shore particularly on the lagoon side. They have been described as ‘haphazard and potentially create more vulnerability than they help avoid in the case of a large storm event’.⁹⁰ Forms of sea wall or ‘coastal protection’ found along the lagoon in Majuro range ‘from riprap boulders, to engineers vertical sea walls to piles of vegetation to trash as pseudo barriers’ and another issue is the ‘amount of steel cars, trucks, and other machinery that is populating the Majuro shoreline’ which ‘leak oil, provide unsafe environments for RMI youth, and tremendously decrease tourism potential’.⁹¹

These sea walls need to be cleaned up, reinforced and made more aesthetically pleasing. Such operations are expensive and it is obvious that a planned and coordinated approach will be required to set priorities and find appropriate funding for a substantial increase in coastal defenses.

Landfill and aggregate mining

The current design of landfill has been said to be a factor contributing to coastal erosion due to the change in wave patterns. According to the ADB, all landfills in Majuro and Ebeye have been designed with the purpose of minimizing construction costs, which means that there was minimal assessment of the impact of designs on coastal and marine structures and ecosystems.⁹² Such impacts include run-off and sedimentation.

Land fill will usually require aggregate mining. Indeed, aggregate mining will be essential to provide the fill to build defenses of coastlines particularly in urban areas. This presents a dilemma for RMI as aggregate mining is potentially highly destructive to the environment. The negative impact on coastline stability, fisheries, degradation of coral reefs, aesthetics and decreased natural protection from storms and tidal events has been well documented. However, the complete picture of aggregate mining that is carried out by dredging areas in Majuro and throughout RMI is not yet available. An assessment of the rate of depletion versus the available area is required.

>>> **Recommendations:**

Policy formulation and implementation

- Review legislation on clearing native vegetation with a view to creating a regulatory regime to protect native vegetation and limit land clearing.
- Allocate responsibility for activating and coordinating voluntary community re-vegetation programs and public awareness about the importance of protecting native vegetation.
- Conduct landowner and developer workshops on proper techniques for seawall construction.
- Develop a national strategy for the sourcing of aggregate and management of aggregate mining in view of the need for reliable, affordable and non-environmentally damaging sources of rock, sand and fill materials for RMI’s infrastructure construction and coastal protection programs.

Statute

- Provide for the protection of native vegetation and enforcement provisions.
- Allocate responsibility for:
 - protection of native vegetation;
 - the remediation of unsafe shorelines;

⁹⁰ RMI EPA, above n 18, 15.

⁹¹ RMI EPA, above n 18, 16.

⁹² Hay and Sablan-Zebedy, above n 10, 27 [128].

- making an inventory of dredged areas in Majuro and throughout RMI to assess the rate of depletion versus the availability of aggregate; and
- making an inventory of national and regional sources of aggregate.
- Establish a procedure for identifying where aggregate collection is permitted and prohibited.

CHAPTER 9 BIODIVERSITY CONSERVATION

According to the information provided in its country profile to the UN, the biodiversity of the Marshall Islands includes 106 species of birds, 37 mammals, 1059 fishes, 728 crabs, shrimps and other crustaceans, 126 starfishes and 40 sponges. Threats to the conservation and sustainable use of biodiversity include the loss of traditional knowledge and skills caused by urbanization and migration, and the spread of invasive alien species.⁹³

In 2000, RMI was one of the first Pacific Island Countries to complete its National Biodiversity Report and National Biodiversity Strategy and Action Plan under article 6 of the *UN Convention on Biological Diversity*. The Plan⁹⁴ was prepared through a process of consultation with the communities in six representative atolls and islands of the Marshall Islands and with the various stakeholder groups in Majuro. These consultations culminated in a National Workshop, attended by representatives of 26 atolls and islands. The strategy was decided by the participants of the National Workshop. Goals were identified and followed with key actions to be taken to achieve the goals. By the conclusion, 16 goals were proposed that fell into six strategic themes as follows:

A – Conservation of Biodiversity and Biological Resources

- 1 – Activate traditional “mo” conservation sites
- 2 – Imposition of fines and penalties on those who destroy our resources
- 3 – People taking the initiatives in planting trees and crops

B – Protection of the Marine Environment

- 1 – Training and capacity building toward conserving our resources
- 2 – Sustainable fishing practices

C – Traditional Culture and Practices

- 1 – Apply traditional skills and knowledge
- 2 – Institute learning of the culture through the traditional way of passing knowledge from elders to the young, through schools, community meetings and workshops
- 3 – Move toward more use of local products

D – People and Biodiversity

- 1 – Self-reliance through traditional values and cultures
- 2 – Population awareness
- 3 – Working cooperatively and justly with one another
- 4 – Clean up the environment

E – Biotechnology and Biodiversity

- 1 – Conservation of genetic diversity
- 2 – Protection of intellectual property rights (IPR)

F – Biosafety and Biodiversity

- 1 – To have in place legislation and regulatory frameworks for biosafety
- 2 – Establish systems to implement new or revised legislation and regulation of biosafety

⁹³ Marshall Islands Country Profile, Convention on Biological Diversity:
<https://www.cbd.int/countries/profile/default.shtml?country=mh#status>.

⁹⁴ Marshall Islands Biodiversity Strategy and Action Plan 2000
<https://www.cbd.int/countries/profile/default.shtml?country=mh#status>

An excerpt from the strategy containing the goals and key actions is contained in **Appendix 3**. Many of these key actions remain relevant and have been incorporated into the recommendations below. Interestingly, they also identify the relevant party who should have responsibility for the action.

RMI has also signed the *1971 Convention on Wetlands of International Importance* (the Ramsar Convention). The Ramsar Convention provides a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources, which importantly for RMI include near-shore marine areas, mangroves and coral reefs. RMI has designated 2 sites as Wetlands of International Importance, namely Jaluit Atoll Conservation Area and Namdrik Atoll.⁹⁵

In 2006, the President signed the Micronesian Challenge, a commitment by Micronesian countries and territories “to effectively conserve 30% of near-shore marine and 20% of terrestrial resources by 2020.” A way needs to be found to finance the commitments made in the Micronesian Challenge. In this regard, RMI has been considering the introduction of new charges such as a ‘blue fee’ payable by fishing vessels for marine conservation and a ‘green fee’ payable at air ports as an additional exit fee by visitors for terrestrial and marine conservation.

These goals have been repeated in policy documents such as the ‘*Reimaanlok – Looking to the Future: National Conservation Area Plan for the Marshall Islands*’, May 2008 endorsed by the Minister for Resources and Development.

Conservation targets have been set out in *Reimaanlok* as pertaining to the following:

- a. Coarse-scale conservation targets/environmental units including broad categorisation of habitats and ecosystems
- b. Fine-scale conservation targets/special features – important areas for species targets, rare or imperilled communities, places of cultural significance
- c. Species conservation targets: threatened species, endemic/restricted range, flagship species, species of cultural significance and species of economic importance.

Coarse-scale marine conservation targets have been mapped (but not terrestrial) and steps taken towards identifying fine-scale conservation targets such as turtle nesting beaches and feeding areas, islands where birds nest or roost, special marine areas (such as areas with special coral or high density of giant clams), and areas known for coconut crabs. Within the *Reimaanlok* approach, the fine-scale targets are to be identified together with the community as an initial part of the process of planning for a community-based management plan.

9.1 TERRESTRIAL BIODIVERSITY

In the terrestrial environment biodiversity is impacted by increasing population density, particularly on the islands of Majuro and Kwajalein, and uncontrolled land use which has led to loss of trees and vegetation vital to sustain the full range of animal and plant life on land. Also, the loss of traditional knowledge has led to loss of biodiversity. For example, the preference for foreign pine trees (*casuarina*

⁹⁵ http://www.ramsar.org/cda/en/ramsar-documents-list-anno-marshall/main/ramsar/1-31-218%5E16519_4000_0
 Republic of the Marshall Islands Biodiversity Clearing House Mechanism RMI Office of Environmental Planning and Policy Coordination (OEPPC) http://biormi.org/index.shtml?en/threats_introduction.html
 [accessed 13 2013]

equisetifolia) over the traditional ‘konnat’ and ‘bob’ is said to have led to die off around the pine trees and a loss of habitat for sea turtles.⁹⁶

Observations made above in relation to land use planning and development control are relevant as are the recommendation concerning native vegetation protection. As stated above, coarse-scale terrestrial conservation targeting, which involves categorization of habitats and ecosystems has not occurred on land. The commitment in the Micronesian Challenge is to effectively protect 20% of terrestrial resources by 2020 and significant steps will need to be taken to achieve this target.

>>> **Recommendations:**

Policy formulation and implementation

- Commence coarse-scale terrestrial conservation targeting for terrestrial biodiversity.
- Promote the importance of terrestrial biodiversity (fauna and flora) and its relevance for land use planning.
- Identify processes that threaten terrestrial biodiversity and implement plans to address these processes
- Explore the applicability of ‘green fees’ to support efforts to protect terrestrial biodiversity.

Statute

- Allocate responsibility for protection of terrestrial biodiversity.
- Incorporate terrestrial habitat preservation into statutory amendments that provide for land use planning
- Consider the drafting of legislation to protect native vegetation and terrestrial habitats related to endangered species.

9.2 NEAR-SHORE BIODIVERSITY

Whilst there is reference to near-shore environments in policy documents, this term is not defined in legislation. In *Reimaanlok*, ‘near-shore marine resources’ mean ‘all those resources below the high water mark ocean ward to a depth of approximately 100 meters and including a lagoon’.⁹⁷ As stated above, coarse-scale marine conservation targets have been mapped and steps taken towards identifying fine-scale conservation targets in near-shore areas.

Near-shore marine areas include coral reefs where threats to biodiversity come from mining for aggregate on reef and lagoon shorelines through dredging, channel blasting and boat anchoring.⁹⁸ Land-based sources of pollution from run-off and failure to manage human and animal waste have been discussed above. In some areas it is thought that water pollution (sewage) has increased phytoplankton load enabling crown of thorn starfish larvae to survive and overwhelm coral reef ecosystems.

Over-fishing of coastal fisheries for subsistence and small-scale commerce has resulted in ecosystem imbalances in urban areas. MIMRA is conducting coastal surveys of fishing in Majuro and has instigated

⁹⁶ Republic of the Marshall Islands Biodiversity Clearing House Mechanism RMI Office of Environmental Planning and Policy Coordination (OEPPC) http://biormi.org/index.shtml?en/threats_introduction.html [accessed 13 2013].

⁹⁷ *Reimaanlok*, above n 31, 20.

⁹⁸ Hay and Sablan-Zebedy, above n 10, 7 [32].

locally-managed fisheries and marine protected areas. Leaders in outer islands are said to occasionally use the traditional 'mo' system for short-term protection.⁹⁹

The first formally established **marine protected area** (MPA) was the Jaluit Atoll lagoon where the Jaluit Atoll Conservation Area (JACA) was established in 1999 as a community-managed marine and terrestrial conservation area. Since then MIMRA has worked with a number of local governments to establish community-based management and protected areas such as in Arno, Likiep, Majuro and Mejetto.

As at 2008, the status of conservation area protection was said to be dismal with a definite lack of national recognition and coordination for conservation projects. However, this has now changed considerably, partly as a result of the need to implement the commitments made as part of the Micronesia Challenge. At the time of writing, legislation was being drafted to support a Protected Area Network across RMI, which is likely to require capacity building for local communities responsible for managing local conservation areas.

>>> Recommendations

Policy formulation and implementation

- Promote community awareness of the interrelationship between issues related to the health of near-shore ecosystems and activities that are conducted on land.
- Continue support for locally managed fisheries and marine protected areas including capacity building.
- Explore the applicability of 'blue fees' to support efforts to protect marine biodiversity.

Statute

- Complete legislative drafting to support the Protected Area Network across RMI.
- Formally endorse community-based management and the role of traditional communities in the conservation and ecologically sustainable use of biodiversity.
- Formally endorse the importance of preserving traditional knowledge about the use of local resources.
- Formally recognise that:
 - local government, local communities and landowners are directly responsible for conservation and sustainable use of their resources; and
 - conservation areas may be fully owned by local communities with efforts led and endorsed by such communities based on their needs, values and cultural heritage.
- Develop incentives for privately initiated conservation projects.

Regulation

- Provide procedures to ensure that local communities are involved in conservation management.

9.3 OPEN SEAS BIODIVERSITY

Conservation Zones

At present there are no marine protected areas beyond the near shore. In 1996, the *Tuna and Game-Fish Conservation Zone Act* was passed to establish a tuna and game-fish conservation zone within 50 miles from the base line of each atoll and island in RMI. This Act is related to the *Marshall Islands*

⁹⁹ RMI EPA, above n 18, 19.

Marine Resources Act 1997 (MIMRA Act) and, therefore, its administration is within the authority of the Ministry of Resources and Development. It does not appear to provide for outright prohibition but rather prohibits fishing within the Conservation Zone without a valid license with the exception of sport fishing or subsistence fishing activities (§304). The offence provisions from the MIMRA Act that are said to apply seem to have been repealed from the MIMRA Act and this needs attention. It may well be that the same general penalties would be imposed as for fishing without a license but they should be more severe given that it is a conservation zone.

Sanctuaries

In October 2011, the government declared a shark sanctuary across the total area of its Exclusive Economic Zone. This is particularly important as it has been estimated that reef shark populations in the Pacific have plummeted 90 to 97 percent from historic levels and that up to 73 million sharks are killed each year for their fins.¹⁰⁰

The shark sanctuary was declared by the *Shark Protection Act 2011*, key provisions of which include:

- a prohibition on the commercial fishing of sharks as well as the sale of any sharks or shark products;
- a zero retention stipulation requiring that any shark caught accidentally by a fishing vessel must be set free;
- a ban on the use of wire leaders, which is a longline fishing gear among the most lethal to sharks;
- monetary fines between US\$25,000 to US\$200,000, for anyone found to be fishing sharks or in possession of shark fins (violators may also be fined in an amount equivalent to the market value of the product in their possession); and
- monitoring and enforcement provisions which require all fishing vessels to land their catch at one of the RMI's ports, with bans on sea transfer.

The ability of RMI to enforce the zone was initially questioned. However, as at February 2013, it was reported that authorities had successfully prosecuted five shark sanctuary violations, resulting in total fines of \$235,000. As at the time of writing, in March 2013, enforcement proceedings had been again taken under the Act with the fine still being negotiated.

>>> Recommendations:

Policy formulation and implementation

- Promote an accepted understanding of the meaning of 'near-shore' and 'open sea' biodiversity set out in a government policy document;
- Consider the feasibility of establishing marine protected areas in the open sea.

Statute

- Clarify the offence provisions that apply within the Tuna and Game-Fish Conservation Zone.

¹⁰⁰ Pew Environmental Initiatives, 'Enforcing Laws of the World's Shark Sanctuaries'. <http://www.pewenvironment.org/news-room/other-resources/enforcing-laws-of-the-worlds-shark-sanctuaries-85899447434>. In March 2013, five additional species of sharks became subject to international trade regulation under the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) bringing the total number to eight. The additional species are the oceanic whitetip and porbeagle sharks and three species of hammerhead sharks.

9.4 PROTECTION OF ENDANGERED SPECIES

Legislation on endangered species in RMI was passed almost 40 years ago in the form of the *Endangered Species Act 1975*. This Act defines ‘endangered species’ as ‘any species which is in danger of extinction throughout all or a significant portion of its range’ (§302(c)). ‘Threatened species’ means ‘any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range’ (§302(m)).

The list of protected species can be found on the RMI Biodiversity Clearing House Mechanism within the Office of Environmental Planning and Policy Coordination

[http://biormi.org/index.shtml?en/protected_species.shtml#PORIFERA \(Sponges\)](http://biormi.org/index.shtml?en/protected_species.shtml#PORIFERA (Sponges)).

Species listed by common name are

- All sponges
- Commercial top shell
- Black-lip pearl oyster
- Hawksbill turtle
- Leatherback turtle
- Greensea turtle
- Loggerhead turtle
- Pacific Ridley turtle
- Ratak Micronesian Pigeon
- Offshore spotted dolphin
- Coastal spotted dolphin
- Eastern spinner dolphin
- Whitebelly spinner dolphin
- Costa rica spinner dolphin
- Common dolphin
- Striped dolphin
- Other species of small-toothed cetaceans
- Blue whale
- Sperm whale

Notably, this list of species does not include plants, reef fish or coral species. Information is not made available as to which of the species on this list are endangered and which are threatened. It is likely that information is lacking as to the true status of these species. It can also be noted that the categories that are used by the International Union for the Conservation of Nature¹⁰¹ of ‘least concern’, ‘near threatened’, ‘vulnerable’, ‘endangered’, ‘critically endangered’ and ‘extinct in the wild’ have not been adopted.

There is a prohibition against any person to taking, engaging in commercial activity with, holding possession of, or exporting any threatened or endangered species of plant or animal or parts thereof, so listed (§306). The exception is where the person or persons involved apply for and are issued a permit for such activity by the Secretary of Resources and Development in accordance with regulations governing the issuance of such permits (§307(1)). The maximum fine is \$10,000 or to a term of imprisonment not exceeding one year, or both (§312). Hence it can be seen that the regulatory function does not lie with the RMI EPA but rather with the Minister for Resources and Development.

¹⁰¹ International Union for the Conservation of Nature: <http://www.iucnredlist.org/> [accessed 30 May 2013].

Protection for turtles, sponges and oysters and trochus (commercial top shell) is set out in the *Fisheries Act 1997* along with offence provisions. The *Marine Mammal Protection Act 1990* sets up protective mechanisms for marine mammals. Vessels that 'fish tuna associated with marine mammals are to obtain a vessel operating permit' where their carrying capacity is more than 400 tons (§204). They must also participate in an international program designated by the government for protecting marine mammals 'providing facilities so that observers and scientific researchers can carry out data collection, monitoring, and research responsibilities on board the tuna vessels' (§205). They have to maintain and submit records of their fishing activities (§206) and there is an obligation to undertake certain maneuvers when marine mammals are captured in a tuna net (§208) including release and rescue. There is also a prohibition against making tuna sets associated with the listed marine mammals (§209).

>>> Recommendations:

Policy formulation and implementation

- Research the true status regarding endangered species in RMI including rare or endangered plants, reef fish and coral species.
- A review of the adequacy of the *Endangered Species Act 1975* should be carried out in light of a more complete assessment of the status of endangered species in RMI.

Statute

- Authority for protection of endangered species should be shifted to a ministry with responsibility for biodiversity protection rather than regarding such flora and fauna as 'resources'.
- Elaborate upon the enforcement provisions and allocation of authority to an environmental agency.

CHAPTER 10 ENERGY EFFICIENCY AND RENEWABLE ENERGY

The RMI government has recognized that a reduction in energy demand and diversification of energy supply is required and is also part of the nation's strategy to build resilience to climate change.¹⁰² In 2008, the Republic of the Marshall Islands experienced unprecedented increases in the cost of imported petroleum fuel and staple food items. This high level of inflation had serious impacts on the economy and people of the RMI and prompted the declaration of a State of Economic Emergency on July 3, 2008. After an ADB-funded rapid assessment analysis of key energy issues in September 2008, a National Energy Policy and Energy Action Plan was finalized in September 2009.

Broad goals for the development of energy services are stated as:

- electrification of 100% of all urban households and 95% of rural outer atoll households by 2015;
- provision of 20% of energy through Indigenous renewable resources by 2020;
- improved efficiency of energy use in 50% of households and businesses, and 75% of government buildings by 2020; and
- reduction in supply side energy losses from Marshalls Energy Company (MEC) by 20% by 2015.

Amongst the cross-cutting issues identified by the government is governance and capacity building.¹⁰³ In regard to *governance*, it is said that there is a need to develop transparent decision-making processes, appropriate legal tools and regulations, and consistent enforcement of regulations. Performance-based budgeting within the government is needed including energy criteria as performance measures for each government ministry and agency. In relation to *capacity building*, it is said that strengthening of a range of public, private, civil society and academic institutions is needed so agreed initiatives can be effectively implemented along with strengthened public/private partnerships. Key features of current energy use are set out in the National Energy Policy and Energy Action Plan and will not be repeated in this report.¹⁰⁴

10.1 ENERGY EFFICIENCY

Urban households in the RMI use excessive amounts of electricity for air conditioning and could probably reduce electricity use by 20% or more through relatively simple means. More generally, buildings in Majuro account for well over half of all electricity consumption mainly for cooling and lighting. Although the opportunities for saving are considerable, little has been done due to a generally low awareness of energy efficiency, relatively limited capacity to assess opportunities and provide advice, a lack of affordable finance, and other factors.¹⁰⁵

The issues identified in the National Energy Policy and Energy Action Plan are as follows:

- lack of adequate technical capacity within government to identify, appraise, develop and implement energy efficiency initiatives;
- limited capacity within the private sector to provide energy management services to government, businesses or households;
- import duties and taxes that do not encourage energy efficient appliances or equipment;

¹⁰² MRD Minister Mattlan Zackhras, Forward to the *National Energy Policy and Energy Action Plan*, 2009.

¹⁰³ *National Energy Policy and Energy Action Plan*, 2009, 7-8.

¹⁰⁴ *Ibid* 2-4.

¹⁰⁵ *Ibid*, 5

- relatively poor knowledge by the public about affordable ways to reduce energy costs;
- perception of high investment risks by financiers along with lack of affordable and accessible finance for energy efficiency improvements;
- no standards for energy efficiency in building design or building renovation;
- no mandatory labelling or energy efficiency standards for key electrical appliances; and
- no incentives within government for individual departments or officers to reduce the government's own energy use.

Objectives recommended in the policy are as follows:

- measurable and substantial improvement of energy efficiency by 2020, in at least 50% of households and businesses and 75% of government buildings; and
- an improved stock of more energy-efficient appliances and equipment within government, businesses, and private homes.

>>> **Recommendations:**

The following recommendations are drawn from the government's policy paper but have been divided into the categories adopted in this report.

Policy formulation and implementation

- Increase training of personnel within government, MEC and the private sector in regard to energy auditing and energy management techniques.
- Continue public awareness campaigns on energy savings and link them to global warming awareness.
- Develop and implement a practical program to replace inefficient lighting (household, business, Government and street lighting) with efficient lighting on Majuro and Ebeye and throughout the RMI.
- Establish practical mechanisms for reduction of energy use within the government, with incentives for individual departments.
- Carry out energy audits on government facilities, with the departments each developing and submitting an investment plan for the capitalization of energy efficiency improvements.
- Require government departments to each name an energy manager who will develop and implement an energy management plan.
- Develop low interest loans, rebates and other innovative financing mechanisms through the banking system for energy efficiency investments by households and businesses.

Statute

- Revise import duties and taxes to encourage the purchase of energy efficient appliances and equipment (e.g. refrigeration, air conditioning, major appliances, lighting).

Regulation

- Require all new or renovated government buildings to incorporate energy-efficient designs.
- Develop energy efficiency standards for new buildings and renovations including homes, businesses and government premises.
- Establish and enforce codes for new construction with mandatory minimum energy standards.
- Develop a practical appliance labelling scheme and mandatory minimum energy performance standards (MEPS) for refrigerators, air conditioners and other electrical appliances to remove the poorest performing appliances from the market.

10.2 FUTURE RENEWABLE ENERGY SOURCES

Sources of renewable energy need to be found to provide for security of supply into the future and also to reduce levels of greenhouse gas emissions. According to the National Energy Policy and Energy Action Plan, it is likely that solar and possibly coconut-based biofuel would be technically, economically and financially practical for the RMI. The following is a summary taken from the policy.

Solar energy - stand-alone photovoltaic (PV) systems

In 2009, it was anticipated that over the next five years, stand-alone photovoltaic (PV) systems would supply lighting to nearly all outer island households. There have also been plans to provide much larger PV systems for outer island schools, with installations in six schools completed by early 2010.

Biofuel

There have been some trials of coconut oil as a fuel for small-scale power production in outer islands and for vehicle use on Majuro, but these have not been technically or economically successful.¹⁰⁶

However, the National Energy Policy and Energy Action Plan stated that in 2008, the RMI produced 1.4 million US gallons (5.3 ML) of coconut oil, which could be used in place of diesel fuel or blended with diesel fuel to reduce imports for electricity generation or transport. There has been renewed interest among coconut producers and processors in exploring this option.

Large-scale solar

Large scale solar technology is mature and the local resource is adequately known but investment costs have been regarded as being too high unless supported in part by donor grants. Several small grid-connected solar PV systems have been installed in Majuro, the largest being a 60 kW system at the College of the Marshall Islands, and a larger system has been proposed.

Wind

There has been no assessment of the potential for use of wind energy. It is thought that commercial systems to match local requirements of relatively small size, low operating costs and long life under difficult atoll conditions may not be available.

Ocean Thermal Energy Conversion

Ocean Thermal Energy Conversion (OTEC) is a large-scale renewable energy source whereby energy is created due to the differential in temperature that arises with difference in sea depth. The process produces hydrogen and salt and thus presents prospects for the sale of hydrogen with substantial profit. It is said that OTEC has meaningful potential to assist small island developing states such as RMI.¹⁰⁷

As at the time of writing, the largest OTEC project development to date had recently been announced by the Reignwood Group in collaboration with Lockheed Martin where it is proposed to use OTEC to

¹⁰⁶ Ibid.

¹⁰⁷ Al Binger, Potential and Future Prospects for Ocean Thermal Energy Conversion (OTEC) In Small Islands Developing States (SIDS), SOPAC, http://ict.sopac.org/compendium-documents/CLR_201100149_20040428105917_OTEC_UN.pdf [accessed 2 June 2013].

provide electricity for a new resort on the coast of southern China.¹⁰⁸ The energy produced by OTEC is said to be available for base load power generation so that it can be produced consistently 24 hours/day, 365 days/year and would have the capacity to power a small city. The energy could be used for desalination plants and the hydrogen could be used to power electric vehicles. Whilst, the investment cost is significant,¹⁰⁹ there may be a market opportunity for OTEC. A number of projects are underway in Hawaii such as a 1-megawatt plant located at the Hawaii Ocean Science & Technology Park, which is overseen by the state's Natural Energy Laboratory of Hawaii Authority.

The issues identified in the National Energy Policy and Energy Action Plan in regard to renewable energy in RMI included the following:

- lack of information on Indigenous renewable energy resources, particularly wind and wave energy;
- inadequate training for those developing project proposals, those who manage outer island systems and household users in the proper operation and maintenance of solar installations;
- different and incompatible management systems for various government programs implementing rural renewable energy installations;
- high initial costs and, for some resources and locations, imprecise knowledge of likely energy production (e.g. kWh output per year);
- very limited experience with grid-connected renewable energy, with only two small grid-connected systems operating in mid 2009;
- outer island household electrification schemes have a “one size fits all” mentality but actual needs can vary widely;
- poor access to land suitable for Indigenous energy development; and
- promoters visiting the RMI sometimes advocate and try to sell unproven or untried systems or those of doubtful quality.

Objectives that have been recommended in the policy are as follows:

- improved capacity within the RMI to plan, develop, implement and manage renewable energy systems (small and medium-scale rural; large scale urban);
- provision of 20% of electrical energy through Indigenous renewable resources by 2020; and
- outer island energy development to be through Indigenous energy sources where technically practical and economically attractive.

>>> Recommendations:

The following recommendations are drawn from the government's policy paper but have been divided into the categories adopted in this report.

Policy formulation and implementation

- Arrange wind measurements over 12 - 18 months and obtain an independent analysis of the wind energy potential for Majuro.
- Arrange independent assessment of the technical, environmental and economic feasibility

¹⁰⁸ CleanBiz Asia, 'China Eco Resort to Pilot Ocean Thermal Energy Conversion: '<http://www.cleanbiz.asia/news/china-eco-resort-pilot-ocean-thermal-energy-conversion#.UXTI47VTDX4> [accessed 2 June 2013].

¹⁰⁹ Ibid.

of waste to energy conversion for Majuro.

- Develop and implement training-of-trainers programs covering photo voltaic system design, installation and management; develop training programs at the village level in operation and maintenance
- Develop and implement consistent mechanisms for the design and in operation and maintenance of photovoltaic systems of different ministries.
- Develop and implement a program for solar water heating, particularly in Majuro, Ebeye and the hotel sector.
- Arrange a pilot program to introduce renewable energy into existing grids to gain experience.
- Assess options for renewable energy development that do not require access to private land (e.g. at government facilities or reef-based installations).

Statute

- Clarify Ministerial responsibility and other roles and functions for the development and application of renewable energy and funding arrangements for the support of new technologies.
- Allocate responsibility for keeping Cabinet up-to-date regarding the capabilities of, and progress in adopting, renewable energy technologies.

Regulation

- Implement a mechanism for covering full user costs for outer island household solar energy installations through user fees and possibly a sustainable renewable energy fund.

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APPENDIX 1 - EXCERPTS FROM THE COMPACT OF FREE ASSOCIATION (AS AMENDED) 2003

Article VI
Environmental Protection

Section 161

The Governments of the United States and the Republic of the Marshall Islands declare that it is their policy to promote efforts to prevent or eliminate damage to the environment and biosphere and to enrich understanding of the natural resources of the Republic of the Marshall Islands. In order to carry out this policy, the Government of the United States and the Government of the Republic of the Marshall Islands agree to the following mutual and reciprocal undertakings.

(a) The Government of the United States:

(1) shall, for its activities controlled by the U.S. Army at Kwajalein Atoll and in the Mid-Atoll Corridor and for U.S. Army Kwajalein Atoll activities in the Republic of the Marshall Islands, continue to apply the Environmental Standards and Procedures for United States Army Kwajalein Atoll Activities in the Republic of the Marshall Islands, unless and until those Standards or Procedures are modified by mutual agreement of the Governments of the United States and the Republic of the Marshall Islands;

(2) shall apply the National Environmental Policy Act of 1969, 83 Stat. 852, 42 U.S.C. 4321 et seq., to its activities under the Compact, as amended, and its related agreements as if the Republic of the Marshall Islands were the United States;

(3) in the conduct of any activity not described in section 161(a)(1) requiring the preparation of an Environmental Impact Statement under section 161(a)(2), shall comply with standards substantively similar to those required by the following laws of the United States, taking into account the particular environment of the Republic of the Marshall Islands; the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq.; the Clean Air Act, as amended, 42 U.S.C. 7401 et seq.; the Clean Water Act (Federal Water Pollution Control Act), as amended, 33 U.S.C. 1251 et seq.; Title I of the Marine Protection, Research and Sanctuaries Act of 1972 (the Ocean Dumping Act), 33 U.S.C. 1411 et seq.; the Toxic Substances Control Act, as amended, 15 U.S.C. 2601 et seq.; the Solid Waste Disposal Act, as amended, 42 U.S.C. 6901 et seq.; and such other environmental protection laws of the United States and the Republic of the Marshall Islands as may be agreed from time to time with the Government of the Republic of the Marshall Islands;

(4) shall, prior to conducting any activity not described in section 161(a)(1) requiring the preparation of an Environmental Impact Statement under section 161(a)(2), develop, as agreed with the Government of the Republic of the Marshall Islands, written environmental standards and procedures to implement the substantive provisions of the laws made applicable to U.S. Government activities in the Republic of the Marshall Islands, pursuant to section 161(a)(3).

(b) The Government of the Republic of the Marshall Islands shall continue to develop and implement standards and procedures to protect its environment. As a reciprocal obligation to the undertakings of the Government of the United States under this Article, the Republic of the Marshall Islands, taking into account its particular environment, shall continue to develop and implement standards for environmental protection substantively similar to those required of the Government of the United States by section 161(a)(3) prior to its conducting activities in the Republic of the Marshall Islands, substantively equivalent to activities conducted there by the Government of the United States and, as a further reciprocal obligation, shall enforce those standards.

(c) Section 161(a), including any standard or procedure applicable thereunder, and section 161(b) may be modified or superseded in whole or in part by agreement of the Government of the United States and the Government of the Republic of the Marshall Islands.

(d) In the event that an Environmental Impact Statement is no longer required under the laws of the United States for major federal actions significantly affecting the quality of the human environment, the regulatory regime established under sections 161(a)(3) and 161(a)(4) shall continue to apply to such activities of the Government of the United States until amended by mutual agreement.

(e) The President of the United States may exempt any of the activities of the Government of the United States under this Compact, as amended, and its related agreements from any environmental standard or procedure which may be applicable under sections 161(a)(3) and 161(a)(4) if the President determines it to be in the paramount interest of the Government of the United States to do so, consistent with Title Three of this Compact, as amended, and the obligations of the Government of the United States under international law. Prior to any decision pursuant to this subsection, the views of the Government of the Republic of the Marshall Islands shall be sought and considered to the extent practicable. If the President grants such an exemption, to the extent practicable, a report with his reasons for granting such exemption shall be given promptly to the Government of the Republic of the Marshall Islands.

(f) The laws of the United States referred to in section 161(a)(3) shall apply to the activities of the Government of the United States under this Compact, as amended, and its related agreements only to the extent provided for in this section.

Section 162

The Government of the Republic of the Marshall Islands may bring an action for judicial review of any administrative agency action or any activity of the Government of the United States pursuant to section 161(a) for enforcement of the obligations of the Government of the United States arising thereunder. The United States District Court for the District of Hawaii and the United States District Court for the District of Columbia shall have jurisdiction over such action or activity, and over actions brought under section 172(b) which relate to the activities of the Government of the United States and its officers and employees, governed by section 161, provided that:

(a) Such actions may only be civil actions for any appropriate civil relief other than punitive damages against the Government of the United States or, where required by law, its officers in their official capacity; no criminal actions may arise under this section.

(b) Actions brought pursuant to this section may be initiated only by the Government of the Republic of the Marshall Islands.

(c) Administrative agency actions arising under section 161 shall be reviewed pursuant to the standard of judicial review set forth in 5 U.S.C. 706.

(d) The United States District Court for the District of Hawaii and the United States District Court for the District of Columbia shall have jurisdiction to issue all necessary processes, and the Government of the United States agrees to submit itself to the jurisdiction of the court; decisions of the United States District Court shall be reviewable in the United States Court of Appeals for the Ninth Circuit or the United States Court of Appeals for the District of Columbia, respectively, or in the United States Supreme Court as provided by the laws of the United States.

(e) The judicial remedy provided for in this section shall be the exclusive remedy for the judicial review or enforcement of the obligations of the Government of the United States under this Article and actions brought under section 172(b), which relate to the activities of the Government of the United States and its officers and employees governed by section 161.

(f) In actions pursuant to this section, the Government of the Republic of the Marshall Islands shall be treated as if it were a United States citizen.

APPENDIX 2 - Roles and Functions of Existing Environmental Institutions

	Advisory role	International coordination	Reporting, surveys and research, information, community liaison	Policy and planning	Authority to draft regulations	Compliance and enforcement
OEPPC	<p>Advisory body to President, Cabinet, Ministers on matters of environmental planning and policy generally</p> <p>Advice on international conventions to which a party and may wish to consider being a party</p>	<p>Review international instruments to which a party and prepare position papers</p> <p>Focal point for coordination, management and implementation of international projects/programs</p> <p>Focal point for contact with external sources Liaise with Min of Foreign Affairs</p> <p>Technical training, advice, assistance re international environmental conventions</p> <p>Reports on International meetings to assist in preparing position papers</p> <p>Participate in regional and int'l meetings re implementation</p>	<p>Prepare annual reports on State of Environment Environmental reviews and assessments</p> <p>Collect and compile data on vulnerability assessments and GHGs</p> <p>Compile annual reports on GHGs</p> <p>Clearing house mechanism</p> <p>Liaise with other Ministries int'l and regionally for compiling comprehensive computer data bases and physical library.</p> <p>Educational awareness programs</p>	<p>Prepare strategies to mitigate climate change and prepare adaptation plans</p>		
RMI EPA	<p>Recommend to President – policy, criteria re uses and values to be protected, environmental quality, discharge of waste, long-range development uses and planning and any other factors</p> <p>Report to President on protection and management of</p>	<p>Liaison with other countries and international organizations</p>	<p>Surveys and investigations as to causes, nature, extent and prevention of pollution</p> <p>Research into environmental degradation</p> <p>Reports and information about environmental protection and</p>	<p>Specify standards, norms and criteria for protection of beneficial uses and maintaining quality of the environment</p> <p>Specify methods to be used in taking samples, carrying out tests Long-range planning Classify land, water and air according to</p>	<p>Primary drinking water Secondary drinking water</p> <p>Pollutants (discharge, conduct of activity, permits, bonds or securities for compliance) Pesticides, fungicides, insecticides,</p>	<p>Administer the provisions of the Act Information and education to the public</p> <p><u>Compliance:</u> Collect information and establish record keeping, monitoring and reporting requirements</p> <p><u>Compliance:</u> Investigations and</p>

	Advisory role	International coordination	Reporting, surveys and research, information, community liaison	Policy and planning	Authority to draft regulations	Compliance and enforcement
	environment Advise Minister as to need for new legislation		management	present and future uses Recommend a land use scheme in consultation with the Council and assistance of Ministry of Internal Affairs Recommend basic policy on management and conservation of natural resources Recommend system for rational exploitation of fisheries and aquatic resources Recommend soil conservation programs	rodenticides and other chemicals Discharge of hazardous waste (including nuclear and radioactive waste) Preservation of historical, cultural and natural aspects of the nation's heritage and other aspects of the environment, which in the opinion of the Authority require regulation	inspections to ensure compliance <u>Enforcement action</u> regarding provisions of the Act or Regulation made under the Act -order to cease & desist; - civil penalty; - civil proceedings to restrain; - any other action.
RMI EPA Coast Conservation			Conduct of research for coast conservation in collaboration with other ministries. Survey of coastal zone – inventory of all structures, roads, excavations, harbors, outfalls, dumping sites and other works Inventory of all coral reefs Inventory of all commercially exploitable mineral deposits Inventory religious significance, scenic value, recreational purpose Estuarine and wetland areas	Coastal Zone Management Plan	RMI EPA can prescribe categories of development in Coastal Zone that don't need a permit. RMI EPA can pass regulations on any matter for which regulations are authorized or required under the Act.	Formulation and execution of schemes of work for coast conservation. Issuing of permits by Director for development activity in Coastal Zones. Director can require EIA. Permits for occupation of foreshore or seabed. Give directions for prevention of intrusion of waste or foreign matter into coastal zone or request appropriate local authority or agency. Powers of entry. Enforcement for

	Advisory role	International coordination	Reporting, surveys and research, information, community liaison	Policy and planning	Authority to draft regulations	Compliance and enforcement
			Areas and quantities where coral, sand, sea shells regularly removed and census workers involved.			failure to obtain a permit for development activity including demolition orders
MIMRA		<p>Cooperate in the conservation and management of highly migratory fish stocks as appropriate with other coastal states in the region and high seas area.</p> <p>Participate in sub regional, regional and international organizations or arrangements related to fisheries.</p>		<p>Conserve all resources in Fishery Waters and seabed and subsoil thereunder</p> <p>Establish management plans and programs to manage resources in Fishery Waters</p>	<p>Pollution or Environmental quality of fishing waters</p> <p>Conservation o fish in Fishery Waters</p>	Fisheries monitoring, control and surveillance

APPENDIX 3 – EXCERPTS FROM THE RMI BIODIVERSITY STRATEGY AND ACTION PLAN

**Strategic Theme A –
Conservation of Biodiversity and Biological Resources**

GOAL A1 – Activate Traditional “Mo” Conservation Sites

This view was expressed to point out that caring for our resources has been neglected as the society goes through a transitional period from traditional systems of governance. When the modern system of government was established, it inherited some of the duties and responsibilities of the former governing system, but not all. Some functions, such as maintenance of “mo” have ‘fallen through the cracks’ during the process of shifting between the two systems.

Key Actions –

1 – An awareness-raising program to promote knowledge and awareness of “mo” among all stakeholders, especially youth. This would be part of the general program of awareness-raising on biodiversity through workshops on all atolls and islands, building on the atoll consultations during the BSAP process

2 – Collecting of information on knowledge and practices of “mo”. During the preparation of the National Report, the BSAP, and the atoll workshops began the task of collection information and knowledge about traditional practices of “mo”. However, a more extensive effort is needed to ensure that this information is comprehensive and complete.

This comprehensive information will need to be stored in a safe but accessible place. This will require a program to strengthen the Alele Museum to enable them to archive knowledge and information about “mo” and other traditional systems of conservation and resource management.

3 – Start a national consultation process to look at the relationship between “mo”, the sustainable use of natural resources, and land tenure systems. The result of this consultation would contribute to the revision of legislation and ordinances.

4 – Incorporate “mo” into legislation and ordinances so that those areas considered to be of biodiversity importance could be designated as conservation areas or “mo”. This would be done through a review and revision of existing legislation and ordinances (see goal A2) to identify those that impact on resource management and biodiversity conservation

GOAL A2 – Imposition of Fines and Penalties on Those Who Destroy Our Resources

This harsh statement was voice at the National Workshop to express the serious situation whereby there is a breakdown of enforcement of rules and controls for the sustainable use of resources at all levels – national, local government and traditional systems

Key Actions –

1 – Review and revise existing national legislation and local government ordinances. The review will look at how traditional systems can be incorporated into all legislation to do with resource management. The revision of legislation and ordinances would aim to bring together traditional systems and modern scientific principals of resource management.

2 – A program to review and revise enforcement procedures at the national and local levels. This would include ensuring that fines and penalties are adequate, the enforcing authorities are adequately resourced, roles and responsibilities are clarified, and training is provided for enforcement staff.

GOAL A3 – People Taking the Initiatives in Planting Trees and Crops

The National Workshop felt that people had neglected planting of trees and crops. They therefore emphasized that all individuals should take responsibility for planting of trees and crops to restore the original lush vegetation and replenish food crops.

Key Actions –

1 – A program to increase community awareness of the importance of planting trees and crops, and organizing communities to initiate community-based actions in Majuro and in the outer islands and atolls. This program would begin with families and involve young people, working through NGOs, church groups, women’s groups, and the land tenure system.

2 – Strengthen the existing Agriculture Extension systems so that they have an active presence in the outer islands and they are able to provide the community-based program with the necessary support.

3 – More research on indigenous crop species and farming systems to provide the community based program with plant cultivars suitable for the local environment.

**Strategic Theme B –
Protection of Marine Biodiversity**

GOAL B1 – Training and Capacity Building Toward Conserving Our Resources

Workshop participants conveyed the need for training in both traditional practices as well as the modern and scientific principles to help revive “mo”. This is necessary because many of the traditional practices and knowledge about management of marine resources are lost. The reliance on modern methods at the expense of traditional knowledge has led to unsustainable practices. The Workshop recognized that both systems are necessary, and training and education that bring together the knowledge and methods of the two systems are needed.

Key Actions –

1 – Incorporate principles of sustainable resource management, based on traditional and modern knowledge, into the education system. This will require curriculum changes at primary and high school levels, as well as a provision of education resources for students and teachers, such as the National Report. The government should encourage people to study resource management at the university level by providing scholarships.

2 – Encourage all university students to take courses in resource management practices in addition to the main areas of study.

3 – In-house training for all government staff and decision-makers in the principles of modern and traditional systems of resource management.

4 – Combine the program for community awareness with training for resource users in sustainable resource use practices. The trainers for this would include those having traditional knowledge as well as those with modern scientific knowledge. This will enable the training to combine the best practices from both systems.

GOAL B2 – Sustainable Fishing Practices

Since traditional fishing practices were not always effective, and because of pressure of increased population, they were abandoned in favor of modern fishing methods. These modern methods are more efficient, but unsustainable. The National Workshop recognized that there is a need to develop systems that bring together effective modern methods, while applying traditional concepts of sustainability.

Key Actions –

1 – A program of research on fishing methods that combine modern methods with traditional knowledge and skills about sustainable methods of fishing. This program would need to focus on local conditions so that the results are applicable to a particular environment and use of knowledge of local people.

2 – A program of community-based education and training in sustainable fishing practices. This could be combined with the community awareness and education program. The training would involve local people holding traditional knowledge, as well as fisheries staff from national agencies and other organizations.

3 – Improved enforcement of legislation and ordinances at the national and local levels. This would be done as part of the review and revision of legislation and ordinances in Goal A2. The emphasis would be on combining modern methods with traditional knowledge and skills about sustainable practices of resource management.

Strategic Theme C – Traditional Culture and Practices

GOAL C1 – Apply Traditional Skills and Knowledge

The National Workshop stressed that a number of areas needed to be addressed if traditional skills and knowledge are to be applied for the sustainable use of biodiversity resources. These include the education, empowering legislation, clear delineation of roles and responsibilities for resource management issues, and research to bring together traditional skills and modern scientific methods.

Key Actions –

1 – Support current systems of vocational and academic training to incorporate skill development in local house-building, canoe-making and handicraft made from local products.

2 – Support current NGO initiatives in promoting local canoe-building skills, and other traditional arts and craftsmanship.

3 – Revise school curricula to promote an understanding of the benefits of using local products.

4 – Review and revise resource management legislation to incorporate traditional concepts of resource management. (This would be done as part of the actions for Goal A2).

GOAL C2 – Institute Learning of the Culture Through the Traditional Way of Passing Knowledge from Elders to the Young, Through Schools, Community Meetings and Workshops

The National Workshop recognized that modern lifestyles means that young people no longer had contact with their elders. This was due to migration from the outer islands and rural areas to the urban centers for education and employment, resulting in a breakdown of traditional systems for passing on knowledge and skills from one generation to the next. The solution suggested was to bring in elders to help pass on their traditional knowledge to young people through the school systems, community meetings and workshops.

Key Actions –

1 – Strengthen the curriculum in elementary and high schools by bringing in elder men and women to pass on traditional knowledge about resource management and traditional use of biodiversity. These elders should be provided with training in classroom methods.

2 – Strengthen and support current NGO initiatives such as Youth to Youth and the Ministry of Internal Affairs Mobile Team to enable them to extend their activities to include resource management issues.

GOAL C3 – A Move Toward More Use of Local Products

Traditional skills for building of houses, boats and fishing gear are not used any more as new materials are being used instead. Imported tin roofing, plywood, and lumbers have taken the place of traditional thatch roof houses. Outboard boats have replaced outrigger canoes in much of the urban centers as well as outer island communities. Traditional fishing traps and other methods have been set aside for modern fishing methods. R & D is needed to make better use of local products by combining traditional knowledge and modern technology.

Key Actions –

- 1 – Research and development to make more effective use of local material to meet the country’s needs.
- 2 – Strengthen current government initiatives to promote more use of local products for food, handicrafts, housing, fishing boats and fishing gear.

**Strategic Theme D –
People and Biodiversity**

GOAL D1 – Self-reliance Through Traditional Values and Culture

The National Workshop felt strongly that the people of the Marshall Islands need to stand on their own two feet. Changes in lifestyle and values had resulted in consumerism and a dependency on outside resources. Reactivation of traditional culture, in partnership with modern technology, would help promote self-reliance.

Key Actions –

- 1 – Strengthen public awareness and education campaigns to promote understanding of traditional knowledge and skills. For example, suitable role models could be used to promote specific ideas. This would be done with actions under Goals A1 and A3.
- 2 – Support government to initiate policies on reduction dependency on imported food and materials. This would be done in consultation with all stakeholders (communities, traditional leaders, landowners, local governments, NGOs, churches, and the private sector).
- 3 – Strengthen research and development to develop and demonstrate practical benefits of using products and technologies that combine traditional knowledge and modern methods.

GOAL D2 – Population Awareness

Overpopulation was identified as the major problem affecting the sustainability of the biodiversity resources of the country. There is an urgent need to reduce the rate of both population increase and urbanization. The population policy needs to be revised and implemented so as to involve all sectors of the community through an intensive program of awareness-raising and education. This would enable all people to take responsibility for their own actions.

Key Actions –

- 1 – Revision and implementation of population policy, combined with allocation of adequate resources and monitoring. A more intensive public awareness campaign and education to ensure that all sectors of the community are involved.
- 2 – Improve employment prospects and services in the outer atolls and islands. This would require greater allocation of government funding and external aid, and promotion of private sector investment for outer island development to promote resource based industries such as agriculture, fisheries and handicrafts.
- 3 – Review the immigration policy to determine impacts on increases in the urban population

GOAL D3 – Working Cooperatively and Justly With One Another

Participants at the National Workshop felt strongly that there needs to be a bond in the community for it to function effectively. Leaders need to be trustworthy. All people need to respect each other. This would help to build unity and partnership so that people work together for the common good of the country as a whole. This is an issue that affects the system of governance and social structures. Actions in this area are part of a wider debate and therefore outside the scope of this BSAP. Possible areas for action would include:

*trust building at all levels of governance – traditional and community, local and national
accountability and transparency at all levels*

clarification of roles and responsibilities of different sectors and levels of government

(These could be developed into specific actions during the consultation phase).

GOAL D4 – Clean Up the Environment

People need to act right away to rid their environment of rubbish and harmful substances. They must start this process by cleaning their own immediate surrounding and to change their personal habits of carefree disposal of rubbish. All sectors, including government and private sector, must exercise greater efforts in addressing the degradation of the environment.

Key Actions –

- 1 – Strengthen public awareness and education programs for people to clean their immediate environment and reduce their dependence on imported food, non-disposable packaging and other pollutants.
- 2 – Strengthen current initiatives in the major urban areas to improve solid waste management.
- 3 – Government policy to discourage use of imported non-decomposable packaging materials.
- 4 – Allocate adequate resources to regulatory agencies to ensure enforcement of existing legislation and ordinances on pollution and waste disposal.
- 5 – All public and private sectors to work together to promote “reduce, reuse and recycle”.

**Strategic Theme E –
Biotechnology and Biodiversity**

GOAL E1 – Conservation of Genetic Diversity

The country has limited but significant genetic diversity which provides resources for the people. The diversity of species such as pandanus and coconuts, as well as marine species, provides both food as well as having cultural importance. These could easily be lost through the accidental or deliberate introduction of invasive species.

The country is not fully aware of issues such as the importance of genetic diversity and the impact of biotechnology. For example, there may be significant potential in many of the native species for scientific research for a variety of purposes. It is important that the existing genetic diversity is not lost. This requires research on conservation and the use of genetic diversity.

Key Actions –

- 1 – Research, including consultation with elders to document the genetic diversity of significant plant, animal and marine species. This will look at both the scientific potential and the cultural importance on the biodiversity.
- 2 – Establishment of “in situ” and “ex situ” gene banks of significant genotypes, of both scientific and cultural importance.

GOAL E2 – Protection of Intellectual Property Rights (IPR)

At the present, there is no legislation on IPR in the Marshall Islands. The issues to do with IPR concern the protection of traditional knowledge, the use of, and access to, indigenous sources of genetic materials for biotechnology purposes, and the sharing of benefits from bioprospecting. It is important that due attention be given to the protection of traditional knowledge and skills, particularly those that are likely to have a commercial potential, such as traditional medicines. There is also a need to ensure that access to the genetic resources and traditional knowledge is not denied for biotechnology purpose, but that provision is made for the equitable share of benefits of their use between the traditional owners and those developing the biotechnology potential.

Key Actions –

- 1 – Research to document traditional knowledge and skills on the uses of biodiversity. This research would be carried out with the informed and prior consent of the owners of this knowledge. The aim of the research would be to identify those skills and knowledge with a potential for further exploitation and application.
- 2 – Preparation of legislation on IPR that:

- a – protects the rights of indigenous owners of genetic resources and traditional knowledge
- b – provides access to that knowledge and resources with the prior informed consent of the owners and provided that these owners have an equitable share of the benefits from the use of that knowledge and genetic materials.

**Strategic Theme F –
Biosafety and Biodiversity**

GOAL F1 – To Have in Place Legislation and Regulatory Framework for Biosafety

The current legislation is outdated. It does not deal with the issues of biosafety such as the importation of GMOs or food products derived from GMOs. The legislation does not provide for either environmental or social impact assessments, nor does it clearly define roles and responsibilities of different government agencies.

Key Actions –

1 – Review and revise existing legislation on biosafety would include:

- a – Quarantine provisions for the importation of new or genetically modified organisms.
- b – Controls over the field testing of genetically modified organisms in the Marshall Islands by local and/or foreign organizations.
- c – Controls over the importation of food products from genetically modified organisms. This includes mandatory labeling requirements, or the banning of imported genetically modified foods as appropriate.
- d – Provisions for environmental impact assessments and social impact assessments as well as defining responsibilities so as to avoid conflicts of interest.

2 – Strengthen enforcement procedures for infringement of legislation and regulation.

GOAL F2 – Establish Systems to Implement New or Revise Legislation and Regulation of Biosafety

At the present, the system that is responsible for biosafety issues is not adequate for a number of reasons. There is a lack of capacity of accessing risks and dealing with technical issues, such as assessment of possible hazards from genetically modified organisms. This is aggravated by a lack of technical resources and of adequate financial resources. There is a conflict as regulatory functions are assigned to the agency also responsible for production. For example, MIMRA has the mandate for the development of marine resources, while at the same time, it is responsible for the quarantine of imported marine species.

Key Actions –

1 – Ensure that provisions for regulatory and productions are assigned to separate agencies and to different Ministers.

2 – Ensure that adequate training of staff is provided in risk assessment, risk management, environmental impact assessments and social impact assessments procedures.

3 – Awareness raising about biosafety issues for political leaders, relevant senior government officials, and the private sector.

4 – Ensure funding of biosafety systems through user pay charges or government funding.

5 – Establish linkages with national or regional organizations to supplement the technical know-how of biosafety in the Marshall Islands

ACTION PLAN

Key Result areas are –

- A – Awareness-raising and capacity building at the community level for resource users and owners.
- B – Strengthening the educational system.
- C – Review and revision of legislation and enforcement procedures
- D – Research and development

Key Result A

Awareness Rising and Capacity Building at the Community Level for Resource Users and Owners

Key Action	Responsibility
Goal A1 – Activate “Mo”	
promote knowledge and aware on “mo”	MIMRA, Agriculture, IA Mobile Team, EPA, local governments, NGOs
collect and document information on “mo”	CMI Library, Alele Library, MIMRA, Agriculture, EPA
consultation on “mo” and land tenure	Justice, Alele Museum, COI, Nitijela
Goal B1 – Capacity Building for Conserving of Resources	
training in sustainable resource management	MIMRA, Agriculture, IA Mobile Team, EPA, local governments, NGOs, NTC
Goal C1 – Apply Traditional Skills and Knowledge	
support NGO training in traditional skills	MIMRA, Agriculture, IA, Alele, CMI, NTC
Goal B2 – Sustainable Fishing Methods	
community based training in sustainable fishing practices	MIMRA, IA Mobile Team, EPA, local governments, NGOs, NTC
Goal D4 – Self-reliance	
strengthen understanding of traditional skills and knowledge	MIMRA, Agriculture, IA Mobile Team, EPA, local governments, NGOs, NTC
Goal A3 – Initiatives in Planting Trees and Crops	
awareness of the importance of the planting of trees and crops	MIMRA, Agriculture, IA Mobile Team, EPA, local governments, NGOs, NTC
strengthen agriculture extension system	Cabinet, MIMRA, CMI
Goal D2 – Population Awareness	
strengthen community education on population	Population Council, MOHE, NTC, IA Mobile Team, NGOs, churches, women’s groups
Goal C1 – Passing on of Knowledge from Elders to the Young	
strengthen NGO initiatives and IA Mobile team	Cabinet, MIMRA, Agriculture, CMI, Population Council
Goal D4 – Clean Up the Environment	
awareness and education to reduce dependence on imported foods	MIMRA, IA Mobile Team, EPA, local governments, NGOs, NTC
Goal F2 – Biosafety Systems	
awareness rising about biosafety and biotechnology for political leaders, government officials, private sector	MIMRA, EPA, Agriculture, MOFAT, CMI

Key Result B

Strengthen Education Systems for Principles for the Teaching of Sustainable Resource Management

Key Action	Responsibility
Goal B1 – Capacity Building for Resource Conservation	

revision of curricula to incorporate principle of sustainability	MOE, MIMRA, Agriculture, EPA, local governments, churches
provision of education resources	CMI, MIMRA, EPA, NTC
encourage resource management at college and university level	Cabinet, National Scholarship Board, CMI, MOFAT
in-house training for government staff and decision makers	NTC, MIMRA, Agriculture, EPA, CMI, USP
Goal C1 – Applied Training Skills and Knowledge	
incorporate traditional skills into vocational and academic training	NTC, MOE, CMI, community elders, NGOs, churches
revision of school curricula to promote the understanding of benefits using local products	MOE, local governments, churches, MIMRA, Agriculture, EPA, private sector
Goal A2 – Enforcement of Legislation	
training for enforcement staff	MOJ, AG, COI, local governments
Goal B2 – Sustainable Fishing Practices	
combine traditional and modern concepts of resource management in school curricula	MIMRA, CMI, MOE, community elders, NGOs, local governments
Goal D2 – Population Awareness	
require school curricula to include population issues	MOE, Population Council, local governments
Goal C2 – Passing on of Knowledge from Elders to the Young	
use elders in the community to teach traditional knowledge in the schools	community elders, local governments, CMI, MOE, NTC, churches
Goal D4 – Clean Up the Environment	
school curricula to include environmental studies	MOE, EPA, CMI, local governments, churches
Goal F2 – Biosafety Systems	
training for staff in risk and IA procedures	EPA, MIMRA, CMI

Key Result C

Review and Revise Legislation and Policies, and Strengthening of Enforcement Systems

Key Action	Responsibility
Goal A1 – Activate “Mo”	
review and revise legislation to incorporate “mo” into resource management and biodiversity legislation	Cabinet, Nitijela, COI, AG, MIMRA, Agriculture, EPA, local governments
Goal C1 – Applied Traditional Skills and Knowledge	
review and revise resource management and legislation management to incorporate traditional concepts	Cabinet, Nitijela, COI, AG, MIMRA, local governments
Goal A2 – Imposition of Fines and Penalties	
review and revise legislation national legislation and local government ordinances to incorporate traditional systems	Cabinet, Nitijela, COI, AG, MIMRA, Agriculture, EPA, local governments
bring together traditional systems and modern scientific principles of resource management	MIMRA, Agriculture, EPA, CMI, Alele Museum, community elders, NGOs
review and revise national ordinances and enforcement procedures	MIMRA, Agriculture, EPA, AG, Cabinet, COI, local governments

Goal B2 – Sustainable Fishing Practices	
improve enforcement of legislation and ordinances on national and local levels	MIMRA, Agriculture, EPA, AG, Cabinet, COI, local governments
Goal D1 – Self-reliance	
policy and legislation on reducing dependence on imported foods and materials	Nitijela, Cabinet, MIMRA, Agriculture, EPA, AG, local governments, Chamber of Commerce, private sector
Goal D2 – Population Awareness	
revision and implementation of population policy	Cabinet, OPS, MOHE, IA, NGOs
review of immigration policy	Cabinet, Nitijela, MOFAT, COI
Goal D3 – Working Together Cooperatively	
trust building at all levels of governance	Cabinet, Nitijela, COI, local governments, churches, NGOs
accountability and transparency at all levels	Cabinet, Nitijela, COI, local governments, churches, NGOs
Key Action (continued)	Responsibility (continued)
Goal C3 – More Use of Local Products	
government initiatives to promote more use of local products	MIMRA, Agriculture, EPA, private sector, local governments, COI, Chamber of Commerce
Goal D4 – Clean Up the Environment	
policy to discourage the use of non-decomposing packaging	Cabinet, EPA, local governments, private sector, Chamber of Commerce
allocate adequate resources for enforcement	Cabinet, EPA, local governments
Goal E2 – Protection of Intellectual Property Rights	
legislation to protect the rights of genetic resources and traditional knowledge	Cabinet, Nitijela, COI, AG, MIMRA, EPA, MOHE, Agriculture, COI, NGOs
Goal F1 – Legislation and Regulation for Biosafety	
review and revise the existing legislation for the importation of new or genetically modified organisms, including environmental impact assessments and social impact assessments	Cabinet, Nitijela, COI, AG, MIMRA, EPA, MOHE, Agriculture, COI, NGOs
legislation for field testing in the Marshall Islands	Cabinet, Nitijela, COI, AG, MIMRA, EPA, MOHE, Agriculture, COI, NGOs
legislation for importation of food products from genetically modified organisms	Cabinet, Nitijela, COI, AG, MIMRA, EPA, MOHE, Agriculture, COI, NGOs
Goal F2 – Biosafety Systems	
provisions for regulatory and production functions to be separated	Cabinet, Nitijela, AG

Key Result D
Research and Development

Key Action	Responsibility
Goal A1 – Activate “Mo”	
collect and document knowledge and practices of “mo”	MIMRA, Agriculture, EPA, Alele, CMI

analyze information on “mo” so as to contribute to the review of legislation	MIMRA, Agriculture, EPA, CMI
Goal B2 – Sustainable Fishing Practices	
research on fishing practices that combine modern methods and traditional knowledge	MIMRA, EPA, CMI
Goal D1 – Self-reliance	
demonstration of practical benefits of using products and technology that combine traditional knowledge and modern methods	MIMRA, Agriculture, NGOs
Goal A3 – Initiative in Planting of Trees and Crops	
strengthen research on indigenous crop species and farming systems	MIMRA, Agriculture, local governments, CMI, NTC
Goal C3 – Promote Local Products	
strengthen research into using local materials to meet country’s needs	MIMRA, Agriculture
Goal E1 – Conservation of Genetic Diversity	
research to document the genetic diversity of plant, animal and marine species	MIMRA, Agriculture, CMI, Alele, NGOs, local governments
establishment of gene banks for significant species	MIMRA, Agriculture
Goal E2 – Protection of Intellectual Property Rights	
research to identify skills and knowledge with the potentials for further application	MIMRA, Agriculture, CMI, NGOs