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Nauru's Fifth National Report to the Convention on Biological Diversity



Cover Photo: Nauru's Buada Lagoon. Source: Nauru BioRAP 2013

Government of the Republic of Nauru
March 2014

Acknowledgement

We acknowledge with much appreciation the contributions made by the representatives of various government departments and corporations and community based organizations who took part in the preparation of Nauru's 5th report to the Convention on Biological Diversity.

This report establishes the baseline for future Nauru reports to the CBD and as such, the information and data provided, as well as views and insights, will be valuable assets for future assessments of the state and progress of Nauru's biological diversity, and the outcomes of actions to address issues of biodiversity loss and decline in Nauru.

It is Nauru's desire to continue to report on progress made and key achievements accomplished as part of Nauru's obligations to the CBD, and more importantly to provide guidance and direction to national priorities of government and its relevant programs and projects for the conservation and protection of Nauru's biodiversity and natural heritage.

Last but not least, I acknowledge the comprehensive guidance and support from SPREP to the Nauru government for its biodiversity programmes, and the funding assistance from the Global Environment Facility GEF in partnership with the United Nations Environment Programme UNEP, which have made this exercise a reality.

Tubwa Ouwak!

Mr. Elkoga Gadabu
Secretary
Department of Commerce, Industries & Environment

Foreword

This report fulfils Nauru's 5th reporting requirements to the Convention on Biological Diversity which is also Nauru's first national report to be submitted to the convention. In this regard, the report attempts to provide a comprehensive assessment of the status and trends of our island's biodiversity and threats to its survival and viability, and it also provides an account of actions that have been implemented to protect and conserve Nauru's biodiversity.

The impacts of hundred years of phosphate mining has brought almost total loss of native forests including flora and fauna that have once covered 80 percent of lands on the central plateau of our island. These were valuable natural assets for the traditional and cultural knowledge that our ancestors have developed and enabled them to thrive on the harsh realities of our island for more than two thousand years. The downturn of our country's economy in recent decades explicitly demonstrates our dependence on our island's limited natural resources, which resulted in our peoples reverting to inshore fishing, bird hunting, aquaculture and cultivation for food and livelihoods.

Recent surveys of our environment in particular the Biodiversity rapid assessment which was conducted in 2013 have provided clear evidence of the extent of the decline of these natural assets and the magnitude of the tasks that are now before us to save and rehabilitate our remaining biodiversity. This will require an immense level of capacity and commitments from all levels of society to urgently make this happen.

For so long we've toiled with noble ideas and methods of rehabilitating our lands to provide for the needs of present and future generations in a sustainable way. Numerous studies have been completed which have repeatedly recommended appropriate opportunities and practical options for developing the remaining mining potentials and rehabilitate our land in a more sustainable manner. The findings of the recent Biodiversity Rapid Assessment have further confirmed valuable biodiversity aspects of our island for priority conservation and protection.

A viable and functioning system of habitats and thriving biodiversity is the natural engine for generating the materials required to rehabilitate our island and make it liveable for future generations. Our population is growing and is expected to double in about two decades. Current developments based on finite sources of fuel and material extractions will not only decline, but extremely expensive to buy for the island in the future. Couple with increase flooding of the low lying lands from sea level rise that is predicted to reach at least a metre in this century; these will make it extremely impossible to sustain our growing population on the narrow and overcrowded strip of coastal areas we currently inhabit.

Inevitably, these would result in settlement shifting to the the central plateau of our island. To enjoy a meaningful and sustainable livelihoods on these lands, a development paradigm

based on a viable and well functioning system of natural habitats and thriving biodiversity is needed which is based on the utilization of readily available renewable and eco-friendly sources of energy such as solar energy and bio-fuel, and the production of living materials based on the sustainable utilisation of natural biodiversity, such as traditional agriculture and inshore fishing.

This scenario seems to be the most plausible given current developmental trends and environmental changes in the world that is affecting our small nation - a scenario that requires full awareness and commitment from us the present generation, to make it happen for our nation and our children's future.

Like other relevant reports such as the MDG reports on our country's sustainable development progress, this report has again echoed the need to continue to progress towards sustainable development that meets societal, environmental and socio-economical needs. Nauru's fifth national report help us to reflect deeply on the state of our biodiversity and to inspire us to appreciate the values of biodiversity and consequently increase our efforts to restore the potentials of the natural assets that underpin the future of sustainable development in our islands.

I commend the invaluable contributions from all national and local stakeholders that have substantively provided input into the preparation of Nauru's Fifth National report. I sincerely hope that the process for preparing Nauru's report and key findings that came out of it will add value to our concerted efforts to conserve our natural heritage for the betterment of our society and future generations.

Hon. Aaron Cook
Minister of Commerce, Industries & Environment
Government of Nauru

List of Acronyms

CBD	Convention on Biological Diversity
CITES	Convention on International Trade on Endangered Species
CMS	Convention on Migratory Species
DCIE	Department of Commerce, Industries & Environment
DE	Department of Education
DHA	Department of Home Affairs
GEF	Global Environment Facility
MEA	Multilateral Environmental Agreements
NAP	National Action Programme
NAPA	National Adaptation Programme of Action
Nauru BioRAP	Rapid Biodiversity Assessment of the Republic of Nauru
NBSAP	National Biodiversity Strategic Action Plan
NCBO	Nauru Community Based Organisations
NEMS	National Environmental Management Strategy
NFMRA	Nauru Fisheries and Marine Resources Authority
NIANGO	Nauru's Island Association of Non-Governmental Organisations
NLA	Nauru's Landowners' Association
NPBA	Nauru's Private Businesses Association
NRC	Nauru's Rehabilitation Corporation
NSDS	National Sustainable Development Strategy
PAD	Planning and Aid Management Division
RONPHOS	Republic of Nauru's Phosphate Corporation
RPCAS	Regional Processing Centre for Asylum Seekers
SOPAC	South Pacific Applied Science Organisation
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of Pacific Regional Environmental Programme
TTM	Taiwan Technical Mission
TTM-DCIE	Taiwan Technical Mission and Department of Commerce, Industries & Environment Projects
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNHCR	United Nations High Commissioner for Refugees
USP	University of the South Pacific

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Executive Summary

Nauru's 5th National Report to the CBD fulfils its reporting obligations, and its first ever national report to the Convention. As a first report it will serve as a baseline for Nauru's future reporting obligations to the CBD.

The report was prepared through national stakeholder consultations and the study of relevant literature on the state and trends of Nauru's biodiversity, persistent and emerging threats to its survival and the implications of these realities on the future of ecosystem services and social development on Nauru Island.

The report reveals key findings and concerns that require adequate attention by the government and communities of Nauru for improving the management of biological resources on land and on sea, and to strengthen the role of ecosystem services in the sustainable development of the society.

Importance of Biodiversity to Nauru

Biodiversity value and utilisation in Nauru is reflected in the following areas:

- Fisheries contribute to about 10%¹ of the country's Gross Domestic Product during the years of economic downturn in the last decade and can with sustainable measures remain a continuing source of revenue for the country.
- Traditional knowledge and practices for the cultivation and use of a limited range of plants and animals on land and inshore marine resources have proven valuable social assets for the populations survival on the harsh conditions of Nauru's environment in the past and have been revived as alternatives for food and livelihood during the downturn of the country's economy in modern times.
- Traditions such as toddy collection, bird catching, aqua-farming and traditional medicines and taboo lands still exists though much of the knowledge for many other uses of biological resources in these areas of livelihood and food security have been lost and will take considerable efforts in research, education and experience today to revive the practice of these valuable social assets.
- Although Nauru's range of flora and fauna species is limited to natives, with no endemic species of global value, yet the remaining native vegetative cover of shrubs and forests are important local materials for rehabilitating the islands degraded central plateau to make it liveable for future generation needs. The introduction of new species of trees for the rehabilitation program may further degrade this limited yet valuable and adaptable native biodiversity. On the marine front some rare species of corals in the world were found and the healthy conditions of the reefs underpin the importance of urgent sustainable use measures and conservation efforts.

- Lastly the soils of Nauru are thinly layered and nutrient poor and heavily depend on the regrowth and development of vegetation cover for its restoration and regeneration especially on mined lands. Hence the rehabilitation program's ultimate aim is the restoration of vegetation cover to improve soil fertility and water retention capacity for possible agriculture development.

Status & Trends of Biodiversity

- Phosphate mining and recent developments as well as limited socio-political capacity continue to drive the changes and threats to the management of Nauru's biological resources and ecosystem services in the foreseeable future.
- The terrestrial biodiversity on the island's raised plateau is largely removed and severely fragmented through century of mining operations costing immense loss of habitats and species populations.
- Marine biodiversity while limited in biota are largely intact and healthy but require urgent actions for putting in place effective management policy measures to address the emerging issues of pollution and overexploitation of fishery resources on inshore marine ecosystems.

Biodiversity Threats

The following are key threats to Nauru's biodiversity:

- Phosphate Mining and Limestone Industry
- Unstainable Population Growth
- Climate Change Impacts
- Over-exploitation of land and marine resources
- Introductions of Invasive Species
- In-effective Pollution Control and Solid Waste Management
- Loss of Traditional Knowledge

Implications for Ecosystem Services and Society

The following issues were considered key implications of continuing loss of biodiversity on land and unsustainable use of marine resources.

- Loss of opportunities for the rehabilitation and restoration of mined lands; the conservation water & maintenance of traditional knowledge and practices based on ecosystem services
- Increasing constrains and limitation for future food security in agriculture and fisheries and other livelihoods which depends on viable terrestrial and marine ecosystems

- Increasing costly reliance on overseas aid and assistance and continuing over exploitation of depleting and degrading natural assets to meet social needs that with mounting competition it could lead to social unrest and violent conflicts.

Nauru's Commitment to Biodiversity Action & Global Targets

- Nauru's NBSAP that was approved in 2013² is yet to be formally implemented and requires revision and updating to align with the CBD Strategic Plan and the Aichi Global Biodiversity Targets.
- Awareness and appreciation of the NBSAP, integration of biodiversity and human wellbeing, policies and agencies with mandates for biodiversity actions are weak and fragmented.
- Relevant and laudable initiatives have started but are inadequate, unsustainable, not formally linked to the NBSAP and lack a definite platform for effective coordination and integration at the level of community action where land and inshore resources are owed and stewarded.
- Eight case studies of relevant stakeholder biodiversity programs and projects included in this report reflect the country's commitments to conservation and sustainable development range from agriculture which promotes horticulture and soil improvement; conservation of marine resources; management of waste and pollution and biodiversity research, research and awareness.
- Biodiversity has been integrated into recently developed policies for the other two Rio Conventions (the NAP for the UNCCD and NAPA for UNFCCC respectively)
- Apart from Nauru's accession to and enforcement of offshore fisheries agreements in the Pacific region no other new national environmental legislations supporting conservation and sustainable use of biodiversity was developed or approved since Nauru became a party of the convention.
- Monitoring of biodiversity is unclear and seems non existence which is a reflection of the absence of any effective and systematic national monitoring system of natural resources in the country apart from the regular 5 year population census cycles.
- A prescribed monitoring system to track and evaluate progress for biodiversity action has been defined in the NBSAP but like the strategy it is yet to be implemented.

Priorities & Recommendations for Biodiversity Outcomes

- A whole of nation commitment to the rehabilitation of terrestrial ecosystems and urgent sustainable coastal and marine ecosystems management are the highest priorities for the country and the basis for aligning its efforts with the CBD Strategic Plan and the Aichi Biodiversity Targets.

- Strengthening the mainstreaming of biodiversity action requires building a strong platform for effective coordination and coherence implementation with other national priorities especially at the level of district community development.
- An initial major priority is to improve the district communities' awareness and support for the country's NBSAP and the work of institutions mandated to coordinate and resource its implementation. This can start with the pending exercise to revise and update the NBSAP.
- Capacity building will need to start small and aim at systematically mobilizing and supporting an increasing core pool of active participants in each district, who will commit to efforts for improving the conditions of their community, that will include the implementation of biodiversity action.

Conclusion

Nauru has demonstrated commitment to the CBD through the formulation of its first NBSAP combined with relevant governmental and community initiatives that have contributed to the conservation and sustainable use of limited and development threatened biodiversity of the island.

However the challenge of the phosphate mining on the country's remaining terrestrial biodiversity which underpins the long term rehabilitation of their lands still persists today with current plans for secondary mining and limestone industries.

Relevant national programs and projects have provided valuable learning, experience and capacities to build future actions. However fragmentation, duplication and gaps exist that requires the strengthening of coordination at a scale capable of holistic and coherent action, especially at the district community level, where natural resources are directly managed.

Introduction

1. While it fulfils the requirements of the CBD's 5th National Reporting cycle, this is Nauru's first ever national report to be submitted to the convention since it became a party. It therefore sets important baselines for the country's future reporting requirements to the CBD.
2. Due to limited time available to prepare and meet the submission deadline 31 March 2014 for including this report in the next Global Biodiversity Outlook, consultations were therefore limited to heads and staff of selected government agencies and community based organisations and the analysis of information and data that were collected from them³. It is important for future reporting to involve the participation of local indigenous communities of Nauru who own most of their land resources and are therefore prime decision makers of the use and development of their island.
3. Key relevant reports were also consulted to determine an adequate picture of the state of biodiversity in the country and what has transpired in the country in terms of biodiversity activities since Nauru ratified the convention on 11 November 1993⁴. The information gathered and analysed here will be used in the consultative process for revising and updating the country's National Biodiversity Strategy and Action Plan that is planned to take place immediately after the reporting exercise.
4. The format of the report is guided by guidelines for 5th National Reports to the CBD provided by its Secretariat⁵. Its preparation followed the steps below:
 - i. A consultant was hired to assist CIE with the consultations with national stakeholders, the literature review and drafting of the report
 - ii. Interviews with key government agencies involved in the formulation of the NBSAP and or are active in biodiversity related activities
 - iii. Collective consultations to review, clarify and confirm the content of the draft report
 - iv. National Stakeholders' final review and comments of the draft report.
 - v. Final report preparation and submission to Cabinet for endorsement.
 - vi. Submission of the Final Report to the CBD on 31 March 2014.
5. About twenty 20 national stakeholders that include governmental, non-governmental and community based organisations were consulted and a wide range of documents including a host of web searches were made to gather information and insights for the preparation of this report⁶. The following pages arranged in four content sections relate the results of national consultations on the current status, trends and threats of Nauru's biodiversity and the progress of actions by the government and the people of Nauru to address issues of biodiversity that are affecting their economic development and social wellbeing.

Section I: *The Social and Environmental Settings* provides a brief look at the conditions of Nauru's society and natural environment. An overview of the status of Nauru's landscape with brief summaries of the latest information on the status of the islands terrestrial and marine biodiversity obtained from the most recent study of these natural traits of the island last.

Section II: *Biodiversity Status, Trends & Threats* examines past and present status and trends of changes in the social and environmental value of Nauru's biodiversity, the threats affecting its viability and functioning; and the implication of those threats on the ecosystem services and social systems of the island and its population in the medium to the long term.

Section III: *The National Biodiversity Strategy and Action Plan* is on case studies of the government and people of Nauru's activities in the last five that have contributed to the conservation and maintenance of its native biodiversity.

Section IV: *Nauru's Contributions to Global Biodiversity and Development Targets* explores the linkages between Nauru's commitment to biodiversity action at home and its obligations as a party to the United Nation's CBD and Millennium Development Goals.

Section I: The Social and Environmental Settings

A. The Nauruan Society

A.1 The People

6. The origin of early settlement of the island of Nauru by their Micronesian ancestors (**Figure 1**) 'remains unknown'⁷ though it's estimated to have occurred around 3000 years ago⁸. The traditional society was matrilineal with 12 original tribes that are totemic in origin⁹. Like many independent Pacific Island Nations, Nauruan society entered the modern era through periods of colonization by several imperial powers in the first half to an independent democratic republic – one of the smallest in the world – in the latter half of the century¹⁰.



7. The impacts of European contact, foreign colonization and in particular the Second World War years which temporarily exiled their population to neighbouring Micronesian islands, caused severe suffering of their people and rapidly eroded their indigenous culture and way of life¹¹. Changes in culture from the tradition to a more Western lifestyle deepened with the economic and social impacts of the country's phosphate mining industry from when the country became independent¹².

8. Nauru's Constitution establishes provisions for a unicameral Parliament, currently of 19 members that are elected every three years through universal suffrage from 14 district communities¹³. The district divisions have no local level of local administration apart from representatives appointed by MPs as community leaders. The traditional governing structures the indigenous population have evolved and functioned in the past are lost apart from their close associations as extended family clans the origin of their current district divisions.



Figure 2: An aerial image of Nauru in 2002 showing extent of mining on the central plateau. Source: http://en.wikipedia.org/wiki/Geology_of_Nauru

A.2. Social & Economic Development

9. Social and economic development of the Nauruan society since independence in 1968 was largely shaped by its phosphate mining industry which during its heyday it brought immense wealth and opportunities to their populations (**Figure 2**). At the time Nauru's population was dominated by foreign workers. At its height it was 70% foreigners to 30% indigenous Nauruan in 1992. This ratio declined steeply to 6% foreigners in 2006 when migrant workers returned to their home countries at the closure of the mine¹⁴.

10. In spite of out migration, the total resident population increases steadily to a total count of 10,048 in 2011, which is a 9% increase from 2006¹⁵(**Figure 3**). It is a young and fast growing population with the highest population density in the Pacific of 478 people per square kilometre¹⁶. Other important environmental population statistics include: 68% receiving freshwater from a dispatcher or a desalination plant, 29% used rain catchment with the remainder from a well and 99% connected to the national electricity grid. About 13% of households maintain vegetable gardening and simple food cropping, and about half of all households are engaged in fishing activities on the reef flats and in the 12mile zone for coastal fishing activities¹⁷.

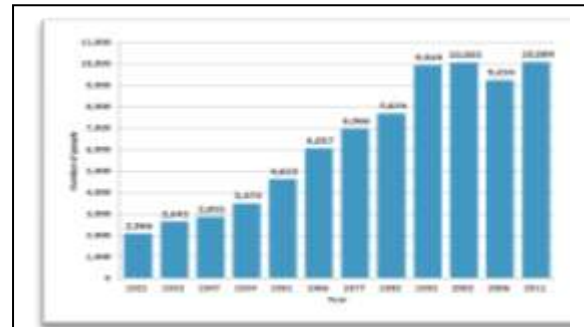


Figure 3: Total Population size, Nauru, 1921-2011. Source: Nauru's Bureau of Statistics, 2011

11. The closing down of mining operations at the turn of the 21st century combined with deep reverses in a series of investments abroad occasioned severe financial crises with serious adverse impacts on the functioning of government and the population's morale and wellbeing¹⁸. Current prospecting for a Secondary Mining Industry based on high quality phosphate¹⁹ and in particular the Australian government's Regional Processing Centre for Asylum Seekers (**Figure 4**) have breathed a new lease of active economic life into the country in recent years²⁰. Locals who held more than half of the posts in the public service have migrated to jobs in the Regional Processing Refugee Camps; flights have increases from once a week to almost twice daily, and the flow of Australians, other foreign workers and imported goods into the country seems to increase steadily²¹.

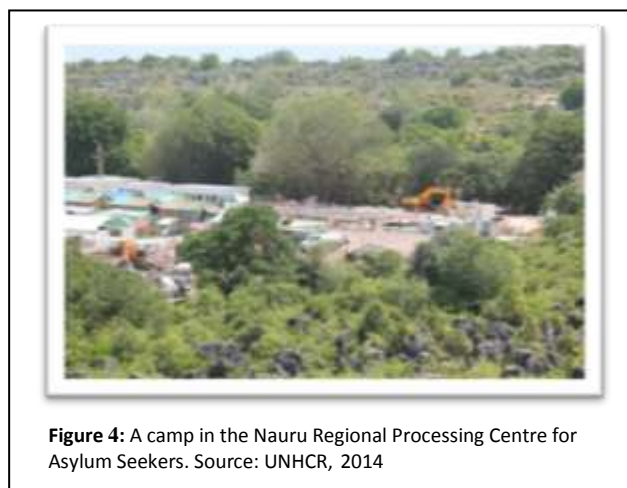
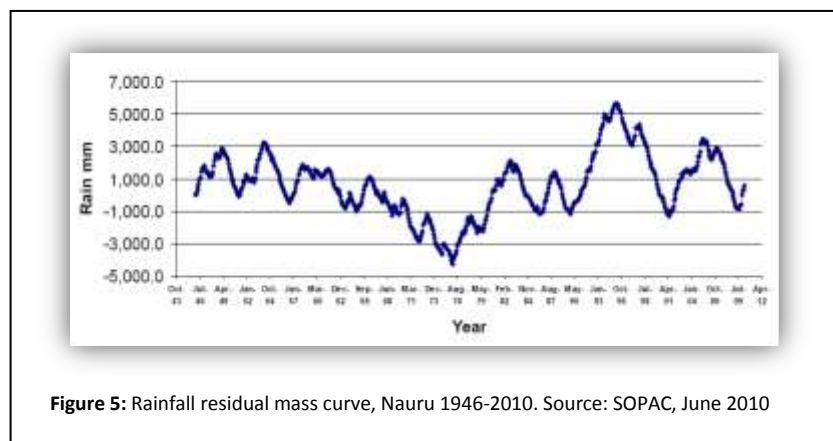


Figure 4: A camp in the Nauru Regional Processing Centre for Asylum Seekers. Source: UNHCR, 2014

B. The Environment

B.1 Geology & Soil

12. Nauru is a small oval shape uplifted atoll island located close to the equator at 166°56' E longitude. Its 300km west of Kiribati's Banaba island, 2000 km east-northeast of Papua New Guinea, 4450 km south-southeast of the Philippines²² and about equal distances to Hawaii in the northeast and Australia in the southwest²³. Geological studies demonstrated a raised atoll capping a volcanic seamount rising from the ocean floor depth of 4300m which was formed from about the mid-Eocene to the late Miocene periods²⁴.
13. The land area is about 22 square km²⁵ with a coast line circumference of 30km long²⁶. The landscape is comprised of a narrow coastal plain about 50 to 300m wide, encircling an upraised central plateau of limestone escarpment which cover about 80% of the total dry land of some 30m in elevation to a highest point of 70m²⁷. There are no rivers or surface freshwater bodies but an inland brackish water lake, the Buada Lagoon, on a fertile depression at the southwest; a few anchialine ponds on the north eastern and an underground lake at a Moqua Cave in the southeast coastal portions of the island²⁸.



14. The coastal soils of Nauru in general are of thin layers and very poor in the essential minerals for healthy plant growth and agricultural development. Soil fertility therefore depends highly on organic matter from shrub and forest vegetation cover, for nutrients and water retention. Only a few areas along the edges below the cliffs bordering the coastal areas and the topside upraised plateau and around the Buada Lagoon where fragments of shrub vegetations and few forests are found²⁹.
15. The central plateau soil layers are also extremely thin on top of limestone pinnacles to sandy phosphatic rock of over 2m deep between the pinnacles. Undisturbed plateau areas can be generally fertile, though with secondary mining, these will be altered and degraded. In general the soils of Nauru island are generally poor and require an intensive and committed rehabilitation of vegetation cover to improve organic matter and soil fertility for any agriculture or reforestation programme and consequently for any successful expansion of population settlement on the island in the future³⁰.

B.2. Climate & Climate Change

16. Climatically, Nauru is located in the dry belt of the equatorial oceanic zone, with mean daily temperatures ranging from 26 to 32° C (**Figure 5**). Annual rainfall is extremely variable, averaging 1500 mm per year with a range of 300 to 4572 mm. Patterns of prolonged droughts at times exerted severe stresses and death to coastal vegetation (**Figure 6**) and restricting native and exotic species cultivation³¹.



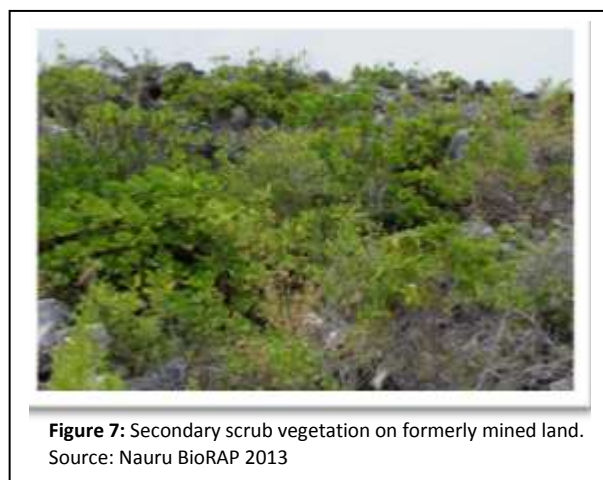
17. Predictions of rising seas and increasing atmospheric temperature due to climate change is assumed to increase flooding of the narrow and crowded low lying coastal areas and increases the frequency of severe droughts that may hampers the rehabilitation and re-vegetation of the islands central plateau.

B.3 Terrestrial Biodiversity

18. The most recent studies on the state of Nauru’s biological resources were conducted in 2013 under a UNEP-GEF funded project that was coordinated by the government of Nauru and executed by the Secretariat of the Pacific Regional Environment Programme SPREP the ‘Biodiversity Rapid Assessment’ of Nauru’s terrestrial and marine biodiversity³². The findings of this project are briefly outlined below.

Flora

19. The flora for Nauru is comprise of about 56 native species and 125 naturalized species with none of the native species endemic and many being extirpated or on the verge of being extirpated from the island. Many of the weeds found in previous assessments were absent but new weed species with a yet to be identified species of grass were recorded³³.



20. Seven plant communities were recognized:

- 1) *Littoral strand*;
- 2) *Limestone forest*;

- 3) Mangrove forest;
- 4) Freshwater marsh;
- 5) Managed land vegetation;
- 6) Secondary scrub; and
- 7) Secondary forest.

Most of the island especially the large central plateau is covered with secondary scrub community (**Figure 7**) and very little native forest³⁴.



Figure 8: A potentially new and endemic species of ground skink. Source: Nauru's BioRAP 2013

Invertebrates

21. The Nauru BioRAP 2013 sampled for the first time the terrestrial invertebrate fauna of Nauru on a very broad basis. Found were new records of 51 moth, 13 land snail, 17 ant and 6 dragonfly species. At least one new moth species and 3 land snail species are endemic and all ant species are exotic, including a population of the invasive yellow crazy ant found in one location. Forty percent 40% of moth and land snails and 100% of dragonflies are native and two of the 3 species of endemic land snails are feared extinct³⁵.
22. The large percentages of exotic moths, ants and snails in Nauru do not include the most damaging invasive species common in other Micronesian countries. However Nauru's indigenous biota is considered as generally low in terrestrial invertebrate species, high in the proportion of Pacific and worldwide insects and with a small proportion of island endemic insects and snails, which reflects the geologically young, isolated and limited land mass conditions of the island. This situation is similar to Nauru's flora.

Reptiles

23. The BioRAP 2013 recorded 8 species of reptiles comprised of 3 ground skinks, 4 geckos and 1 invasive snake. One of the ground skink species is potentially a new and endemic species to Nauru (Figure 8).

Birds

24. Thirty six 36 bird species were recorded with two species the masked booby (*Sula dactylatra*) and Audubon's shearwater (*Puffinus herminieri*) as new seabird records for Nauru. All species are seabirds with only two land birds Nauru's endemic reed warbler (**Figure 9**) and the Micronesian pigeon.



Figure 9: An adult Nauruan reed warbler. Source: Nauru BioRAP 2013

B.4 Marine Biodiversity

Coral Reefs

25. Coral reefs of Nauru have a low diversity of hard coral species, a total of about 51 species noted in surveys last year and of the total sites studied all except one are dominated by a single species of coral, *Poritesrus*. There were very rare colonies of the 5 species of *Acropora* coral known to be found in abundance in the past; and four IUCN Red Listed coral species *Pocilloporafungiformis*, *Montiporacaliculata*, *Helioporacoerulea* (blue coral) and *Pavonavenosa* were found. Of the 51 coral species 7 were recorded as representing extensions of their bio-geographic range, 4 may be locally endangered and all others are considered locally vulnerable.
26. The low diversity of Nauru's coral species is due to the small size of the island and isolation from neighbouring archipelagos (Solomon Islands, PNG, the Gilbertese, Micronesians and Vanuatu) of higher coral diversity, but not a sign of an unhealthy reef. In fact the last year's survey concluded that Nauru's 'coral cover is among the highest on the planet, at a time in which most reefs are in decline, indicating they are exceptionally healthy' (Figure 10).



Figure 10: Coral reef in Nauru. Source: Paul Hilton/Greenpeace, 2011

Invertebrates

27. Like corals Nauru also has a low diversity of marine invertebrates for the same reasons – paucity of habitat types, the island's small size and isolation from areas of high diversity. Seventy nine 79 invertebrate species were recorded last year, representing 43 families, 18 orders, and 11 class groupings. For macro invertebrates 248 including 207 species that have been recorded in previous studies were observed.
28. Two species of giant clams *Tridacna maxima* thought locally extinct in previous studies from the 1980s were found. *Tridacna maxima* were found during this study. These clams were previously thought to be locally extinct as they have not been recorded since the 1980s. No other giant clam species were observed. Of the socially targeted species 5 species of sea cucumber were observed, very little *Turbo* species and no *Trochus* despite habitat availability were found.

Reef Fish

29. Similar to its coral and invertebrate species Nauru also has a relatively low diversity of reef fish fauna of about 407 species dominated by Labridae (34 species), Pomacentridae (30 species), Acanthuridae (21 spp), Chaetodontidae (21 spp), Balistidae (12 species), Serranidae (11 spp) and Scaridae (10 spp). The abundance of reef fish 'is relatively high' but signs were noted of 'overfishing' such as the low numbers of large size fish (i.e. large Groupers and Snappers). The white tip reef shark is observed high in abundance, and the lack of early life stages for the majority of reef fishes observed may be due again to the isolation of the island from areas of high diversity.

Marine Plants & Algae

30. Apart from a few strands of the mangrove *Rhizophora* surrounding the anchialine ponds along the coastline in the district of Anabar, there are no other marine plants mangroves or seagrasses, found (**Figure 11**). Four major groups of algal species dominate the reef flats with brown algae dominating the high intertidal areas, green algae dominating the mid-intertidal areas and the red turf algae common in the low-intertidal to

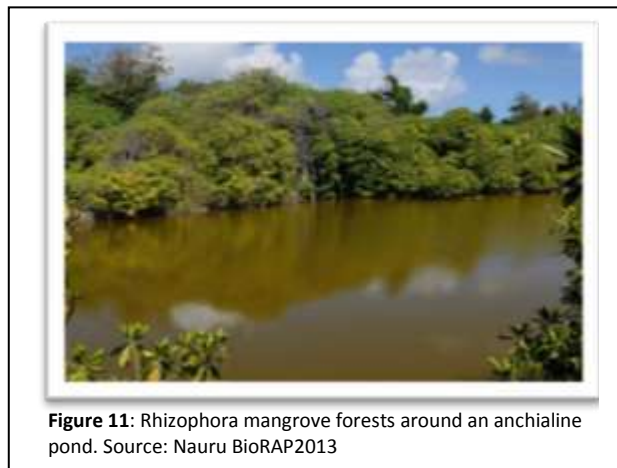


Figure 11: *Rhizophora* mangrove forests around an anchialine pond. Source: Nauru BioRAP2013

the reef crest area. Marine fouling organisms, algae and animals associated with wharves, ports and marine piling were noted as a concern and so were recently introduced marine species such as the fire-worms found mainly on abandoned structures on the reefs³⁶.

31. Nauru is also known to be a range state for at least seven (7) migratory species listed for protection under the CMS Appendices so it indicates Nauru as an important 'stop-over or re-fuel' site for these animals such as the whale shark, the blue whale (largest living animal) and the humpback whale (important tourist attraction). While Nauru isn't Party to CMS or Signatory to any of the daughter agreements, they have been engaged in the SPREP Regional Marine Species Action Plan which covers these animals.

Offshore Marine

32. The total Exclusive Economic Zone EEZ of Nauru is some 320,000 square kilometre in size and was known for its abundant in tuna stocks especially of skipjack and yellowfin and to a lesser degree is that of bigeye³⁷. However tuna stocks are heavily influence by the El Niño Southern Oscillation events with more during *El Niño* and less during *La Niña* periods³⁸.

C. Environmental Policies & Traditional Practices

C.1.National & International Policies & Legislations

33. National policies and regulations with relevant provisions to biodiversity conservation and protection were developed as early as the 1930s. These include recent environmental policies for climate, water, sustainable land management, renewable energy and biodiversity with both direct and indirect relevance to conservation and sustainable use of biodiversity, and also a host of legislations to compliment and enforce such polices. **Table 1** provides a synopsis of some of the key legislations and their relevance to biodiversity management in the country³⁹. And **Table 2** listed other related national legislations and as well as the key international agreements Nauru have ratified which have relevant conservation provisions⁴⁰.

Table 1: National Legislations with relevant provisions for biodiversity management in Nauru

Legislation	Relevant Purpose	Relevance to Biodiversity	Regulating Agency
Nauruan Antiquities Ordinance, 1935	Preservation of items and materials of ethnological, anthropological, historical or scientific value	Management of Nauru's biogenetic resources	Department of Justice.
Wild Birds Preservation Ordinance, 1937	Prohibitions and seasonal catching seabirds and protection of land birds.	Bird species conservation and management	Department of Justice.
Public Health Ordinance, 1925, Ammended1967	The promotion of environmental health.	Promotion of healthy environments and control of pollution of the environment.	Department of Health and Medical Services
Land Act 1976	Rehabilitation of mined lands and restoration of natural vegetation	Protection and restoration of terrestrial habitats.	Department of Lands
Marine Resource Act 1978	Regulation of inshore and offshore fishing and limits to fish & shellfish catches.	Conservation and sustainable use of marine species and habitats	Fisheries & Marine Resources Authority
Animals Act 1982	Regulation for dogs and the prohibition of live animal imports.	Prevention of animal invasive species introductions and impacts	Department of Customs & Police Department
Litter Prohibition Act 1983	Regulation prohibitions and penalties against illegal littering	Prevention of waste and pollution disposal into natural habitats	Police Department

34. Although this report may not have listed all the existing legislations which have bearing on Nauru's biodiversity, the point to stress here when looking at the two Tables above is that, a significant amount of legislations and frameworks are already in place to guide and enforce an effective system of conservation and protection for biological resources in the country. However there are no records of an ongoing enforcement of these valuable precepts by the institutions mandated to do this work in the country, nor is any ongoing campaign of media and public awareness to educate and promote the rights and responsibilities of the population that maybe explicitly enshrined in these guidance.

C.2.Relevant Traditional Conservation Knowledge & Practices

35. The development of the Nauruan society dates back 3,000 years ago before European contact. Much of the valuable knowledge and traditional practices based on the natural environment that enabled the Nauruan society to survive the harsh realities of their

island for those millenniums is lost. Some effort to retrieve those valuable social assets is currently being pursued by the Department of Home Affairs with limited success⁴¹.

Table 2: Other Relevant National Environmental Legislations & International Agreements for Biodiversity work in Nauru. Source: Government of Nauru, NBSAP 2013

Nauru Legislations	International Agreements Nauru has ratified
<p>1) Aerodrome(Acquisition of Land)Ordinance 2) Clearing of Lands Amendment Ordinance 3) Dog Importation Prohibition Ordinance 4) Nauru Royalties Trust Ordinance 5) Nauru Phosphate Agreement Ordinance 6) Roads Maintenance Ordinance 7) Sale and Purchase of Copra Ordinance 8) Salvage of Derelict Wreck Act 9) Sanitation Inspectors Ordinance</p>	<p>1) The International Plant Protection Convention, 1951 2) Treaty on the Non-Proliferation of Nuclear Weapons, 1970 3) Convention on the Prevention of Marine Pollution by dumping of Waste and other Matter, 1972 4) South Pacific Forum Fisheries Agency Convention, 1979 5) United Nations Convention on the Law of the Sea, 1982 6) Convention for the Protection of the Ozone Layer, 1985 7) South Pacific Nuclear Free Zone Treaty, 1985 8) Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, 1987 9) Protocol for the Prevention of Pollution of the South Pacific Region by Dumping, 1986 10) Protocol Concerning Cooperation in Combating Pollution Emergencies in the South Pacific Region, 1987 11) Convention for the Prohibition of Fishing and Long Driftnets in the South Pacific, 1989 12) United Nations Framework Convention on Climate Change, 1992 13) Convention on Conservation of Biological Diversity, 1992 14) Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to control the Trans boundary Movement and Management of Hazardous Wastes in the South Pacific Region, 1995</p>

Section II: Biodiversity Status, Trends and Threats

36. The previous Sections (B.3 & B.4) provided an overview of the status of Nauru's biodiversity as observed and examined in last year's Nauru BioRAP. This Section discusses the current trends in the value or use and threats affecting Nauru's biodiversity and the implications of those trends on the island's ecosystem services and the future development and wellbeing of the people of Nauru.

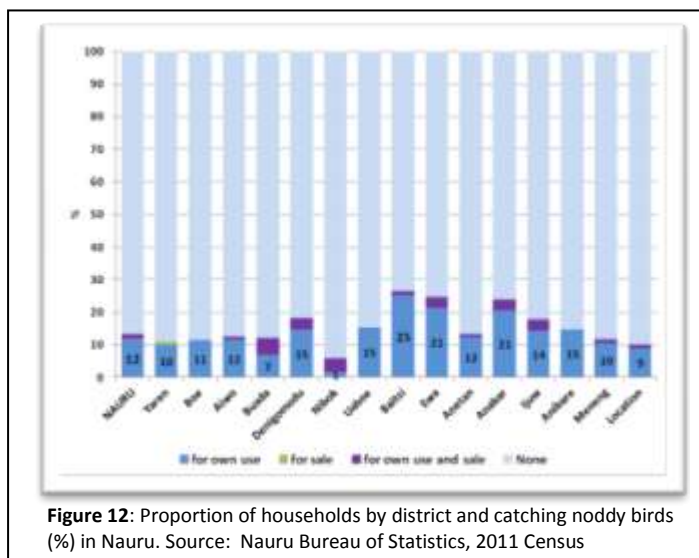


Figure 12: Proportion of households by district and catching nobby birds (%) in Nauru. Source: Nauru Bureau of Statistics, 2011 Census

A. Biodiversity Value: Past & Present

37. Traditional Nauruan before European contact depended solely on the produce of their lands and seas for the sustenance and development of their societies. The distinct language of Nauru attests to the development of a unique culture and way of life that was in harmony with the harsh realities of their island⁴². Accounts on the survival of their populations during the Second World War under severe deprivations of basic life necessities in neighbouring islands where they were exiled demonstrated the abilities of their people to survive on meager resources using traditional knowledge and practices⁴³.
38. Some traditional uses of terrestrial and marine biodiversity for food and livelihoods are still practice today. This includes toddy collection from coconuts, nobby and frigate bird catching and traditional fishing practices (Figure 12).

	FY2004	FY2005	FY2006
Fishing contribution to GDP (\$ million)	2.7	3.0	2.9
Nauru GDP (current prices) (\$ million)	29.7	24.5	28.5
Fishing share of GDP (%)	9.1	12.2	10.2

Figure 13: Fishing contribution to Nauru GDP. FY = Fiscal Year. Source: ADB (2007a)

39. Today biodiversity remains very important to the development of Nauruan society especially in recent decades with the demise of their mining industry. Offshore fishery licensing and royalties in the country's EEZ averages around 10% of the country's National Gross Domestic Product GDP in the last decade (Figure 13)⁴⁴. NFMRA stated that Nauru's capacities to exploit its EEZ fishing resources is only limited by its annual

fishing allocation under international tuna agreements and the challenging weather conditions⁴⁵.

- 40. Inshore fishing by local communities increases yearly⁴⁶ with the closure of the mines and has remained active since (Figure 14).
- 41. The long term needs of their growing populations and society which can only be possible on mined lands, underpins the importance of natural vegetation and forest ecosystems in the rehabilitation of those land areas to make human settlement and agriculture possible.

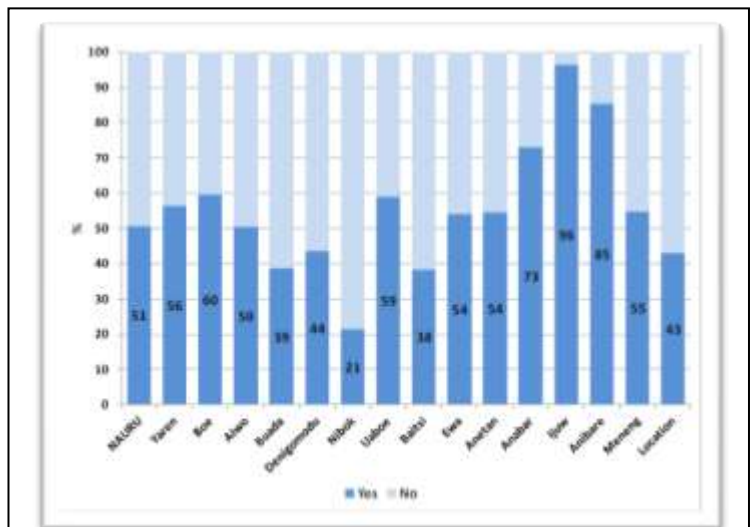


Figure 14: Proportion of households by district involved in any fishing activities, Nauru. Source: Nauru Bureau of Statistics, 2011 Census

B. Biodiversity Threats

B.1. Mining, Population & Climate Change

- 42. The mining industry is the single most powerful agent of change to the country's terrestrial biodiversity. It cleared ancient indigenous forests on the central plateau that comprised of about 80% of the island's total land area. The ongoing secondary mining operations will slow down the process of rehabilitating this landscape both through human intervention and natural processes in any time soon. It's removing the secondary scrub vegetation on formerly mined lands (Figure 15). Furthermore, the current mining and export of limestone pinnacles to the Marshall Islands and the start of a limestone cutting industry may reduce available boulders and aggregates for constructing the rock bases of the land rehabilitation program⁴⁷.



Figure 15: Secondary Mining operations in Nauru. Source: UNHRC, 2014.

- 43. The government's rehabilitation programme is based on advanced models of landscape engineering (Figure 16) and a 1994 land use plan (Figure 17) proposed to guide the soil restoration and facilitate the natural processes of re-vegetation of mined lands⁴⁸. However there are critical constraints in funding and human resources that have largely forestalled the full implementation of the

programme. The Nauru BioRAP survey of last year suggested a combination of rehabilitation and protected sites on the fields of limestone pinnacles both to restore forests for the conservation of native biodiversity and also to allow the possible development of unique ecosystems that are based on the landscape of limestone pinnacles⁴⁹.

44. The limitations in available water resources for the needs of the population and the rehabilitation program added further threats to the success of efforts to restore lands and terrestrial biodiversity. Nauru’s climate and annual weather patterns include prolonged periods of droughts. The potentials for rainwater harvesting to alleviate water shortages and the revival of effective traditional practices that have enabled the survival of the populations in the past under limited water on their environment are yet to be fully appreciated and exploited.

45. The situation could be exacerbated in the future with the most possible migration of the rapidly growing population up into the central plateau, as they ran out of space on the low lying coastal areas, due to overcrowding and flooding by rising seas, as the climate change deepens in this century (Figure 18).

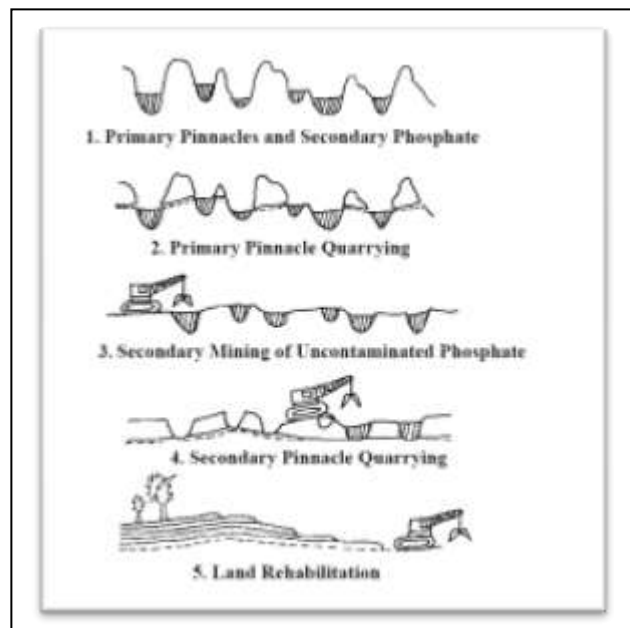


Figure 16: The new integrated industrial model of phosphate mining and land reclamation that is possible in view of the feasibility of a Nauruan limestone industry. In this model, the primary pinnacles (1) are cleared in a quarrying operation (2) and removed for processing, followed by mining of uncontaminated secondary phosphate (3). Steel plates are used to cover empty holes and produce a flat work surface (4). Intact secondary pinnacles are then quarried (4) followed immediately by rehabilitation of the reclaimed land (5).

B.2 Over-exploitation, Invasive Species and Pollution

46. Last year’s Nauru BioRAP gave a very positive outlook for the status and trends of marine biodiversity. Although due to the geology of its island Nauru has a low diversity of corals, vertebrate and invertebrate species, its reef are considered very healthy and high in the abundance of marine species stocks. However evidences of an emerging trend of overfishing and pollution on the narrow reef flats were identified that require urgent actions by the national government and local communities⁵⁰.

47. The establishment of locally manage marine areas and marine reserves; the promotion of education and awareness on sustainable fishing practices and the improvement of capacities for the monitoring and enforcement of fishing regulations are recommended for immediate implementation to ensure the maintenance and the continuing improvement of the good conditions of the marine ecosystems that are seen today⁵¹.

48. The threat of invasive species was also noted as increasing such as the yellow crazy ants

and the impacts of rats and domestic animals⁵². Nauru is highly vulnerable to the introductions of any of the damaging invasive species that are now common in its neighbouring island nations due to limited capacity and resources to prevent the introduction and combat the spread of invasive species on the island.

C. Implications for Ecosystem Services and Society

49. The following ecosystem services are considered to be under threats and require more adequate and urgent interventions by the government and the people of Nauru in the coming years:
50. The role of shrub and forest vegetation in the rehabilitation of Nauru’s lands, the maintenance of native flora and fauna, protection of potential endemic species of global value; the improvement of soil fertility and water retention; purification of surface water that percolates into the underground water lens; making lands on the central plateau liveable for the needs of future generations; and providing the natural material basis of their cultures and traditions for surviving the limited resources and strait conditions of their island.

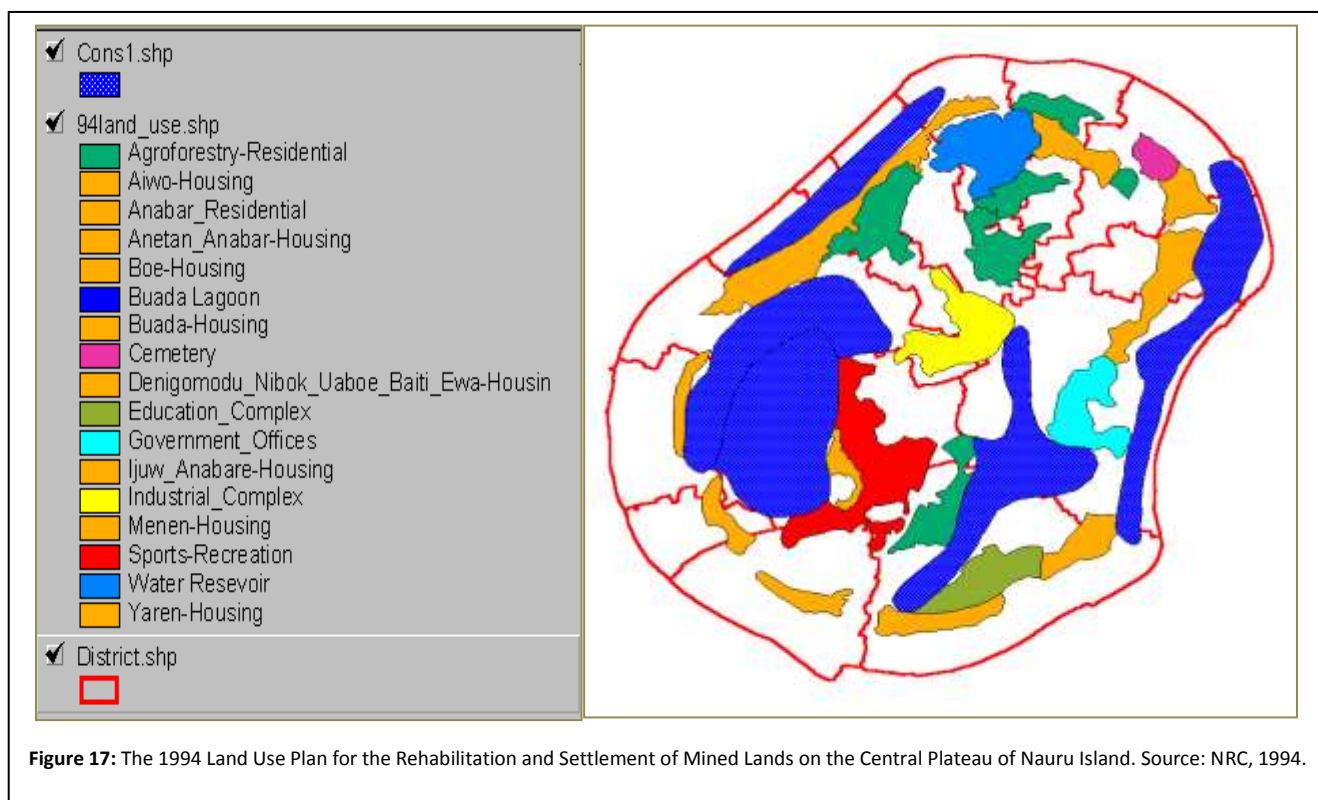


Figure 17: The 1994 Land Use Plan for the Rehabilitation and Settlement of Mined Lands on the Central Plateau of Nauru Island. Source: NRC, 1994.

51. The role of Nauru’s coastal and marine resources in food and livelihood security and building coastal resilience and protection against the impacts of sea level rise and storm surges due to climate change.
52. The drivers of change are mainly attributed to the following:

a. Failure to rehabilitate and restore the mined landscape will undermine the very survival of populations and ecosystems and in particular the interdependence of the four elements – land, water, biodiversity and humans – that underpinned survival on the harsh conditions of the island. This can be further exacerbated by failures to address now the emerging threats of invasive species; illegal waste disposal and pollution and the adverse impacts of both climate change on the narrow coastal areas and future economic development shocks. In addition failure to immediately forestall the emerging trends in the pollution and over exploitation of inshore marine ecosystems will severely deplete stocks and undermine the long term viability of these resources which proved to supplement food and livelihood for local communities, in times of negative economic growth.

b. Failure also to educate and enforce regulations among the population to control overfishing of coastal and marine resources will undermine the abilities of these ecosystem services both to produce food material and to act as natural defences against the ravages of storm surges and rising sea as the climate change accelerates this century

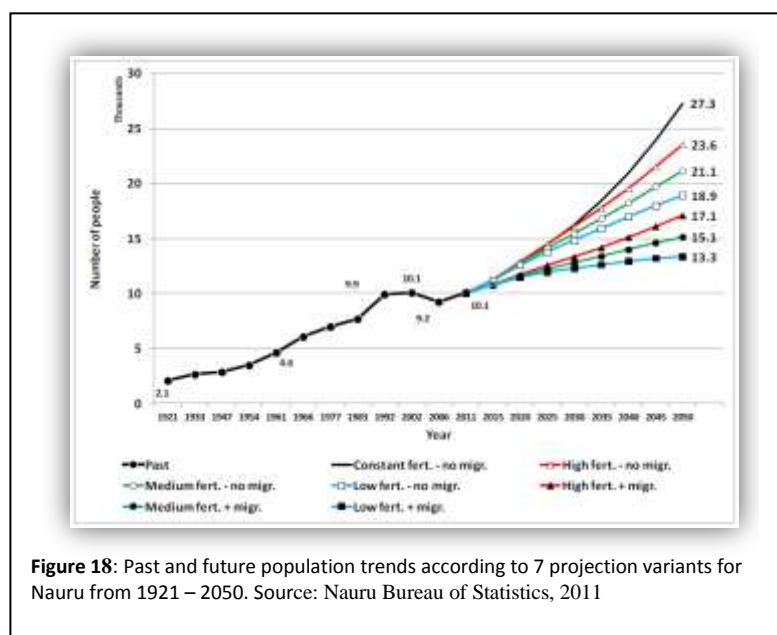


Figure 18: Past and future population trends according to 7 projection variants for Nauru from 1921 – 2050. Source: Nauru Bureau of Statistics, 2011

c. And lastly the demise of traditional knowledge for nature conservation, food security and traditional healing using native plants have limited records and is dying out with the demise of the older generations, although the taboo lands that are out of bound and out of sight still exist⁵³. This is partly a direct result of the impacts of Western civilization but also to a marked degree is part of an unwritten tradition of keeping such knowledge and information systems within family lineage. Today’s generations of families with such valuable social assets who are no longer interested in such matters have discontinued the passage of these family heritage into the future⁵⁴. Besides what being discussed in the previous section some historical documentation says that traditional Nauruan society even to the early decades of last century had knowledge of using tree barks and weeds on the island for food and have practiced aqua-culture for milks fish on their Buada lagoons and some of the coastal anchialine ponds⁵⁵. These

ancient information systems and practices are very important for surviving the harsh conditions of Nauru especially in time of modern economic downturn. More over these knowledge systems are valuable today in term of pharmaceutical research on the plant sources of traditional food and medicine for potential modern cures.

53. With severe constraints in resources on land and sea; the continuing harsh realities of their island make worse by rising seas and temperatures and compounded by the loss of traditional knowledge and skills for surviving these difficult natural realities; Nauruan will have no other recourse but to rely heavily on outside assistance and the exploitation of their remaining natural assets, to feed and sustain their growing populations. Experiences in recent decades have demonstrated this hard lesson very well. It is important therefore to fully exploit every potentials and opportunities – human and natural – on the island for raising the population’s capacities and commitment for improving the conditions of their society on a more environmentally sound and sustainable pathway. Some experience, observations and suggestions on capacity building to achieve this end are being examined in the next two Sections of the report.

Section III: The National Biodiversity Strategy and Action Plan

A. National Biodiversity Targets

54. Nauru's NBSAP was developed in 2009 and was endorsed by government in 2013 with the following vision: *Nauru's biological and genetic resources are protected, conserved and sustainably managed to emphasise the desired outcome of a future where individual, community, business and government partnerships contribute to a sustainable quality of life for present and future generations*⁵⁶. This vision will be revised to ensure it is aligned with the CBD Strategic Plan and the Aichi Biodiversity Targets. The process for revising the NBSAP is pending and expected to start immediately following the preparation of Nauru's Fifth National Report. As such, this report will not report on new targets the country has set for the Aichi Targets but will nevertheless focus on the current NBSAP.

55. For this reporting cycle therefore, efforts were made to examine national and local programmes and projects with relevant conservation interventions that took place in recent years (going back five year). Case studies on these relevant biodiversity initiatives are described briefly in the next section.



B. NBSAP Implementation

56. Eight (8) key national and community programmes and projects with important bearings on the biodiversity needs of Nauru as defined in its NBSAP are as follows:

- i. Rapid Biodiversity Assessment 2013
- ii. Grow and Green 2012-2014
- iii. Clean and Green 2012-2014
- iv. Sustainable Land Management 2008-2011
- v. Integrated Water Resources Management 2009-2014
- vi. Land Rehabilitation 1994-2014
- vii. Taiwan Technical Mission 2012-2014

viii. Community Coastal Fisheries Management 2012-2014

57. The general justifications for the recognition and inclusion of these biodiversity related initiatives are mainly because of their contribution to:

- a. knowledge and information that are valuable for planning and guiding conservation, protection and sustainable use of biological resources and ecosystem services
- b. natural and social conditions conducive to the conservation and maintenance of biodiversity and ecosystem services
- c. valuable experience and capacities for advancing future biodiversity efforts in the country

B.1. Case Studies of Relevant Programs & Projects

Case Study 1: Nauru's Rapid Biodiversity Assessment Project (Nauru BioRAP 2013)



Figure 20: Nauru BioRAP scientists sampling beach habitats at the District of Anabare. Source: E. Edwards, Nauru BioRAP, 2013.

58. The “overall goal of the Nauru BioRAP survey 2013 is to merge several biodiversity and State-of-Environment (SOE) elements in order to provide resource owners and communities with a coherent and integrated case for conservation”.

59. The BioRAP survey produced a comprehensive understanding of the state of Nauru’s terrestrial and marine biodiversity, assembled a wealth of baseline data and information for future management planning and monitoring purposes, and made recommendations for immediate actions to promote and establish a strong culture of conservation, protected areas (Appendix 3), and sustainable use of biodiversity resources in the island.⁵⁷

60. The survey also achieved the active participation of and trained a core group of government staff and local community leaders and gained a high level of support from the national government and district communities (**Figure 19**). The full project report will be made available soon this year. CIE is the main contact and coordinating agency of the project. (Contact: Mr Brian Starr at brian.starr@naurugov.nr)

Case Study 2: The Grow and Green Project (GGP)

61. Improving organic matter and improving soil fertility is essential to any efforts to restore green cover and consequently assist the re-establishment of forest cover and its associated native flora and fauna on the island of Nauru. Any initiative therefore to

promote a culture of tree planting and soil improvement in Nauru will contribute a long way to achieving these ends. Grow and Green is one such initiative.

62. The Grow and Green Project is a government funded initiative to promote the planting of local fruit trees in the communities for food security, soil fertility improvement and building local capacity in tree planting. Target tree species include lime, breadfruit, salsop and coconut. The project was successful in the production of planting materials; the setting up of family fruit tree plots; collaboration with the TTM Horticulture and raising awareness and providing training and technical support to individual households and schools in the planting and care of fruit trees. CIE is the coordinating agency and main contact for this project. (Coordinator: Ms Sharona Ephraim at leilaniniac@gmail.com)

Case Study 3: The Clean and Green Programme (CGP)

63. Poor waste management and uncontrolled pollution can exacerbate the degradation and hamper the restoration of both inland and coastal ecosystems on Nauru. Very few efforts have been carried out by local communities to address the issues of waste and pollution. Although a national waste collection system exists a huge percentage of wastes in Nauru does not make its way into the Public Dumpsite and ends up around homes in the coastal areas and invading the inshore reefs. The program Clean and Green which is government funded and community driven has proven highly successful at educating the public and facilitating the proper management and disposal of household wastes.

64. The Clean and Green Programme engage and train a contingent of about 140 of young workers who are fully employed selected from the 14 districts to help promote awareness and education on waste management and provide support services to facilitate the effective collection and disposal of household wastes by district communities. Nauru's Department of Home Affairs housed the coordinator and contact of the project – Ms Miniva Harris at miniva.harris@gmail.com.

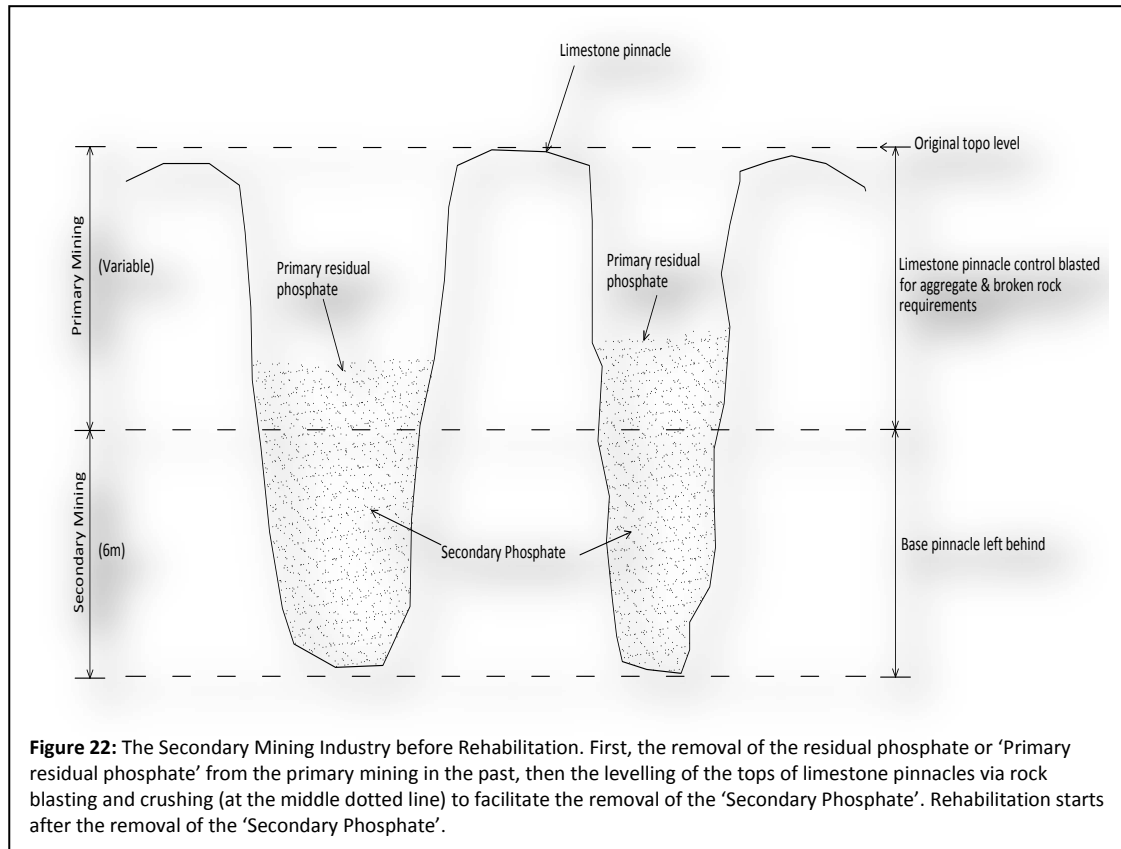
Case Study 4: The Sustainable Land Management Project (SLM)

65. The restoration of mine lands and the sustainable use of limited space and land resources of the settled narrow coastal areas of Nauru is very essential to the regeneration of biodiversity and ecosystem services that underpins the survival of the



Figure 21: An example of an improved system of water tank with a solar driven water pump. Source: Water Sanitation and Climate Outlook Nauru, SOPAC July 2011.

island's population in the medium to long term (10- 50 years and beyond). All efforts therefore to promote knowledge, raise awareness and build capacities for sustainable land management is very important in achieving this noble end. The SLM project therefore was developed as a government and community initiative for addressing issues of land degradation and droughts in Nauru in relation to the UN Convention to Combat Desertification, Land Degradation and Drought.

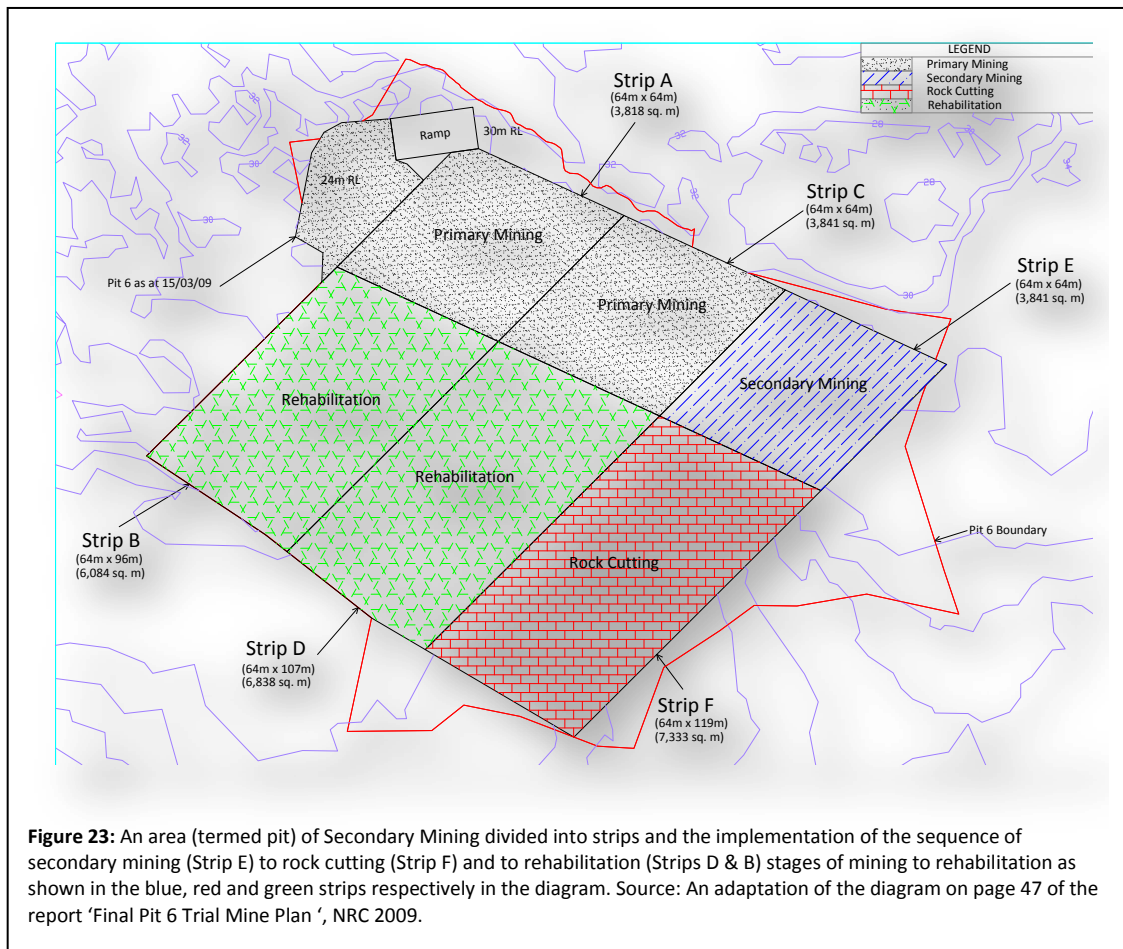


66. The purpose of Nauru's GEF funded SLM project was to create an enabling environment for improving ecosystem stability, integrity, functions and services while enhancing sustainable livelihoods. It was implemented from 2008 to 2012. It succeeded in providing further guidelines for land restoration, funded various capacity building trainings of government and non-governmental staff on Environmental Impact Assessments EIA, GIS and Beach Profiling, and produced a draft National Action Plan or NAP the overarching policy framework for financing future national and local sustainable land management actions. CIE is the coordinating agency and contact. (Coordinator: Mr. Bryan Starr at bryan.starr@naurugov.nr)

Case Study 5: The Integrated Water Resources Management Project (IWRM)

67. Water is a major limiting factor to the success of land restoration, agriculture and ecosystem rehabilitation on Nauru. Water is essentially scarce due to normal weather patterns of droughts and the lack of both natural and social means in Nauru to harvest and store rainwater. It brackish water lens is largely unsuitable for drinking. Due to these factors most of Nauru's water supply comes from water desalination plants. Nauru's

IWRM was designed to establish an enabling environment for effective water resource planning that will achieve a sustainable and reliable supply of safe and clean water for Nauru into the future.



68. The goals of Nauru’s IWRM includes community awareness raising and education on the conservation and wise use of limited water resources, increasing the means for rainwater harvesting and water storage, improving sanitation and reducing of waste water pollution (**Figure 21**). As an enabling project it succeeded at producing various studies on the state and outlook of Nauru water resources and sanitation the first Water and Sanitation Outlook for Nauru; the formulation of strategies for improving the availability of a clean, safe and reliable water supply; co-financing household water tanks and other water conservation measures and promoting a trial of affordable and environmentally friendly compost toilets that do not require water. CIE is the coordinating agency. (Coordinator: Mr. Haseldon Buramen at haseldon.buramen@naurugov.nr)

Case Study 6: The National Rehabilitation Programme (NRC)

69. Again there is no need again to over stress the importance of rehabilitating the already degraded mined lands for the long term development of Nauru. The establishment of the NRC signals Nauru’s commitment to make its mined land liveable for the needs of its

future generations and the survival of their nation. The schematic diagrams in **Figure 22** and **Figure 23** show the methodology and approach now on trialled for implementing this program.

70. The program has established a Nursery for the production of planting materials and started the development of the first rehabilitation site⁵⁸ with the development of a core group of local staff with the technical knowhow and commitment for the long term sustainability of the programme. Currently it's very far from achieving its set goals due to various difficult challenges in particular those to do with financing the program to become both environmentally and economically viable beyond the lifetime of the secondary mining industry⁵⁹. However it has taken some important steps to alleviate funding and capacity constraints that has seriously slowed down the program. The National Rehabilitation Corporation is the contracting agency that manages and implements the program under the government's Nauru Phosphate Authority. It is also the contractor for the Secondary Mining Industry.

71. (Contact is NRC's CEO Mr. Tekohi Rivera at admin@nrurehab.org)



Figure 24: TTM-DCIE Projects at training school children on efficient use of water in vegetable nursery. Source: TTM-DCIE World Water Day 2013.

Case Study 7: The Taiwan Technical Mission and the Department of Commerce, Industries & Environment's Horticulture and Livestock Breeding Project (TTM-CIED)

72. The overall goal of the TTM-DCIE projects is to promote horticulture (vegetable gardening and local fruit tree growing) and livestock (poultry and piggery) development in Nauru⁶⁰ to improve food security on the island in terms of greens and proteins. The government of Taiwan funded most of the project needs including materials, equipments, and overseas experts in horticulture and livestock development. The government of Nauru provides in kind support in terms of the land plots for the project's main cultivation and breeding stations and counterpart staff from the Division of Agriculture. The horticulture project collaborates with the Grow and Green project, helping each other with materials, technical and policy services. It has also developed methods of composting using manure from the livestock project that are combined with topsoil from the secondary mined areas, to improve soil fertility and organic matter.

73. While these projects deal mainly with agriculture, they do promote important enabling environments for supporting biodiversity conservation and rehabilitation programs of the country such as these: (1) The culture of cultivating and planting it promotes in the country's population will build a valuable social asset to exploit when it comes to designing and implementing effective campaigns for engaging the population in the planting of forests and green vegetation cover, based on readily available and adaptable species of native plants of the country. (2) The horticulture nursery and composting methods that were disseminated to local farmers are creating potential opportunities for including the cultivation of native species trees that are needed for reforestation programs. (3) The integration of the TTM-DCIE projects and the Grow and Green project could serve as another model of integrating sectoral initiatives with valuable contributions to the conservation and protection of biological resources.



Figure 25: The District Community Farmers of Ijwu's vegetable gardening and composting training by TTM-DCIE's technical experts. Source: TTM-DCIE 19 June 2013.

74. Started in 2009 for a full hand over to the government of Nauru this year, the TTM-DCIE was successful at setting up active vegetable gardens with 50 farmers and 3 schools; at supplying vegies to the Nauru School Feed Program for 800 school children and holding several vegetable cooking demonstrations for most of the district communities (**Figure 24**). The poultry and piggery projects have also achieved successes at establishing small piggeries and poultry farms with 30 local farmers. In last year alone, it supplied 1,500 egg-layers to local poultry farmers that have significantly increased local egg production. And in terms of composting from livestock manure it has successfully trained and engaged 10 households to establish their own composting pits which are still active to date (**Figure 25**).

75. The key challenges of the TTM-DCIE projects includes the scarcity of water available for both horticulture and livestock needs during the dry seasons; the increasing cost of chicken feeds; the lack of capital investments schemes for farmers in the country and negative cultural attitudes towards farming especially in the handling of livestock manure and wastes. The TTM-DCIE team is developing a step by step approach to try and resolve these issues or at least to define practical and appropriate solutions for

these matters, when the projects are wholly handed over to the government of Nauru this year.

Case Study 8: The Community Based Fisheries Management Program (CBFMP)

76. The CBFMP is a major grassroots fisheries management initiative that is supported by the Nauru Fisheries and Marine Resources Authority on behalf of the national government. Its overall aim is to empower local community populations to learn and practice the art of taking care of its coastline and inshore fishing resources, as a collective community undertaking, with the support of NFMRA and its national and international partners like SPC and FAO. NFMRA and its partners provides the information resources, the technical advisory services and some co-financing to inform, accompany and assist local communities, while local communities own and drive the policy and planning processes for the management of coastal fisheries.

77. Some of these policy and planning processes includes the implementation of policy measures for setting limits and controls on the use of inshore fisheries resources along their districts coastlines; and the setting up institutional arrangements to mobilize the flow of financial and information resources to increase awareness and build the capacities of their populations on sustainable fishing practices and successful fisheries



restocking and habitat restoration approaches. The frameworks for implementing this program are community based fisheries management plans which are gradually being explored and developed by the leaders of district communities. At the time of writing of this report, two draft district management plans were already completed and are undergoing revisions.

78. This initiative is at its early stages of development but it could not have come at a very opportune time. Because in the last decade as discussed earlier in this report, the populations have gone back to intensive inshore fishing for sustenance and earnings, when the economy of the country was on crisis mode. This led to the emergent of a pattern of unsustainable fishing and over exploitation which fortunately, the current resurgent in the economy of the country may be given it a respite. However, the decade's experience have shown that such a cycle of adverse patterns could repeat itself and maybe even on a greater scale of negative impacts on the marine environment if the economy of the country will falters again in the future, as this time, it will come with

a larger population pressure on the marine environment, than it was before in the previous cycle.

79. It is encouraging then to note the increasing number of district communities who have expressed their interests to participate in the program (**Figure 26**). And to participate in approaches that is driven by their capacities to understand and commitment to positive actions and behaviours, that will in the long term helps to strengthen the healthy conditions and productivity of their inshore fisheries and marine environments, as it was examined and recorded by the BioRAP's marine biodiversity surveys last year.

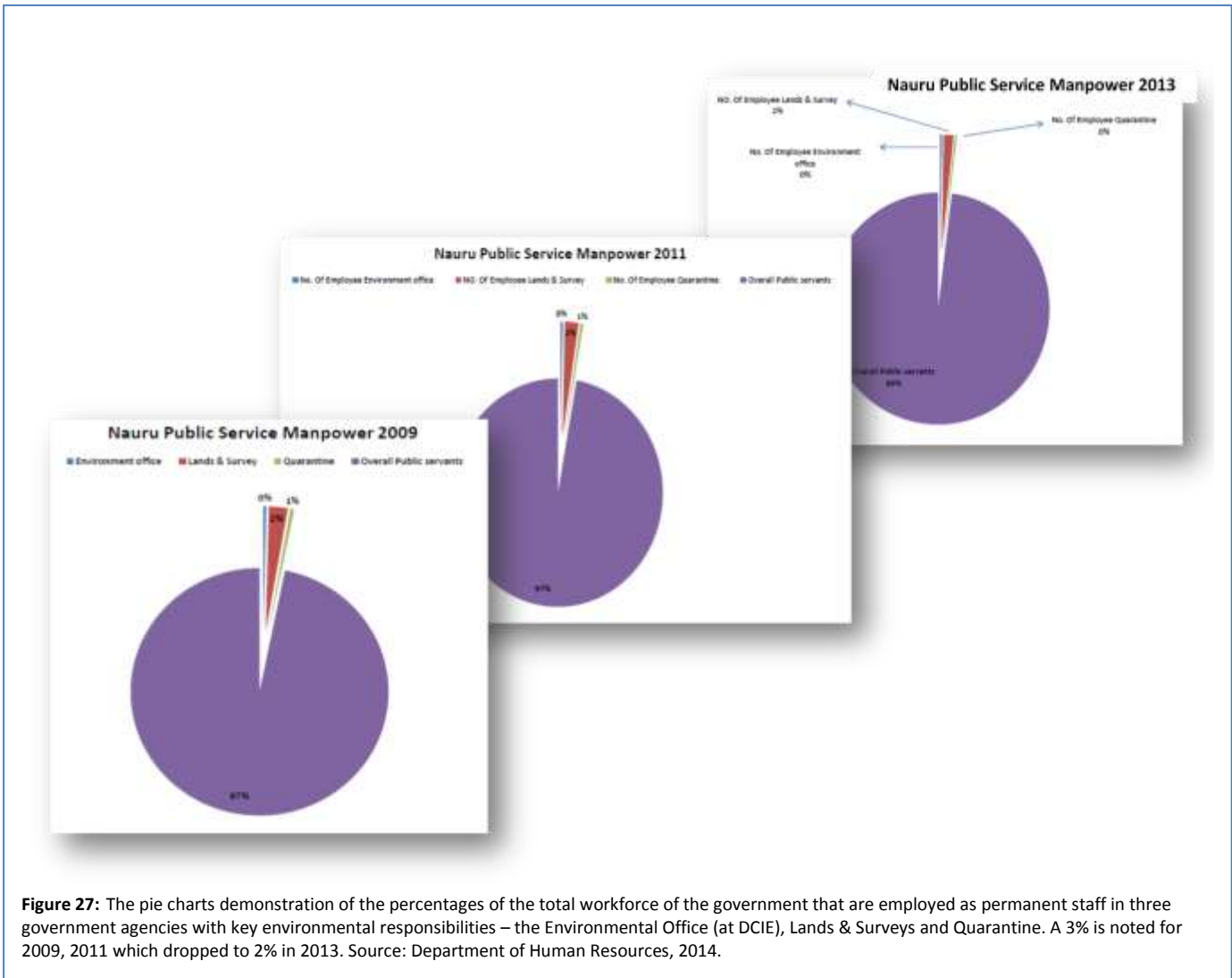
B.2. Biodiversity Mainstreaming

80. The Case Studies above demonstrate very well Nauru's commitment to actions which contribute to conservation, restoration, protection and the wise use of their natural resources by a wide range of participants from governmental, non-governmental agencies and the district communities. Even the policies and legislation (**Table 1, Table 2**) define for managing different aspects of Nauru's development have relevant provisions.
81. In addition to these Case Studies steps have also been undertaken by other sectors of development for mainstreaming biodiversity needs of the country. For example in education a whole series of lessons and instructions for conservation and pollution as part of the sciences curriculum⁶¹ are taught progressively from the basics to the complex from the preparatory years and continuing to the primary and secondary years of a child's academic training and development. In public health a national programme of environmental health education and training for local communities and families has been going successfully for several years.
82. However there are important barriers which were discussed with stakeholders during the preparation of this report⁶² (**Appendix 2**) that are hampering efforts and discouraging the population's long term commit to the required levels of effective and enduring actions. The following few paragraphs will explore and reflect on some of these key barriers which require urgent attention by the government and communities of Nauru in a holistic and coherent way.

B.3. Financial & Human Resources for Biodiversity Action

83. An important measure of a country's commitment of resources to support biodiversity conservation and related environmental work can be gauged from how much of its total workforce of permanent and fully government paid staff are working in key environmental agencies. **Figure 28** shows that for Nauru there was a consistent 3% of its total workforce of permanent staff that were employed in three key government agencies with environmental and for that matter biodiversity related mandates and roles – the Environment Office at the Department of Commerce, Industries and the Environment, the Lands and Surveys in its roles for land management and the office of

Quarantine in terms of its pest or invasive species control and prevention role – for the years 2009 and 2011. This percentage dropped to 2% in 2013. These low figures may have affected the ability of these three key environmental agencies to cope with the range of important responsibilities of the government they shoulder for biodiversity conservation and other related environmental management programmes. It would be interesting to also gather and analyse figures for other staff in these three agencies that are employed under externally funded projects of the government.



84. In terms of the mobilisation of financial resources to support conservation and related environmental management work in Nauru, **Table 4** gives some idea of how much project funding is acquired and expended by the government for environment related work, as gauged by the development fund projections for the most recently completed fiscal years of 2011-2012 and 2012-2013 for two key environmental agencies of the government – DCIE and NFMRA. The Table shows a constant figure of 13% of total annual income and expenditure of development funds of the country in the abovementioned fiscal years were projects for DCIE and NFMRA. Thirteen 13% of

financial resources for the environment is a much better figure than the 2% of human resources commitment that is shown above. More data and analysis would be needed to determine how much of workers and service providers in other national agencies of the government and non-governmental organisations and as well as in local communities, who are engaged in biodiversity and environmental management related services.

85. The next few paragraphs is an exploration of other key challenges and opportunities that of cross-cutting in nature that may further strengthen the mainstreaming of biodiversity and other important environmental needs of the country into its development planning and community building processes.

B.4. Challenges & Opportunities for Mainstreaming Biodiversity

86. The development planning processes of Nauru since independence have largely driven by the government with the population relying fully on the trust they give to the government in the running of the socio-economic affairs of the country. This was clearly demonstrated in the years of active phosphate mining when the government was in many respects the sole arbiter of how the country's earnings were being invested to benefit its peoples.

Table 3: Nauru's Development Fund Annual Projections for two Fiscal Years 2011-12 and 2012-13 shows a constant 13% projections for two environment related agencies the CIE (Environment) and NFMRA (Fisheries). Source: Division of Planning and Aids Management, Department of Finance, 2013.

DEVELOPMENT FUND ANNUAL PROJECTIONS FOR FISCAL YEAR 2011-2012			DEVELOPMENT FUND ANNUAL PROJECTIONS FOR FISCAL YEAR 2012-2013		
Department	FY 2011-2012 Income Projections (AUD)	FY 2011-2012 Expenditure Projections (AUD)	Department	FY 2012 -2013 Income Projections (AUD)	FY 2012-2013 Expenditure Projections (AUD)
CIE	\$3,795,923.00	\$ 3,795,923.00	CIE	\$3,697,474.00	\$3,697,474.00
NFMRA	\$765,367.00	\$765,367.00	NFMRA	\$804,662.00	\$804,662.00
TOTAL DEVELOPMENT FUND PROJECTIONS	\$34,458,081.00	\$34,458,081.00	TOTAL DEVELOPMENT FUND PROJECTIONS	\$34,086,831.00	\$34,086,831.00
% CIE+NFMRA OF TOTAL DEVELOPMENT FUND PROJECTIONS	13%	13%	% CIE+NFMRA OF TOTAL DEVELOPMENT FUND PROJECTIONS	13%	13%

87. Social developments in recent decades that have adversely affected the population have also brought about some changes in this situation with people taking more responsibilities of the country's development in addition to the government's efforts.

New community based and or non-governmental organisations such as the Nauru Landowners Association and the Nauru Business Association⁶³ have sprung up recently in which an increasing gathering of the population into interest groups are expressing collective insights and perspectives on the country's development discourse.

Opportunities with Community Ownership of the Development Policy Processes at the Local Level

88. This is a very positive development as it can, with proper and sustained support from government agencies and the country's leadership, lead to communities committing more and more into owning and driving the country's development policy and planning processes, thus increasing the collective exploration and appreciation of the country's social and environmental realities, which is a critical and necessary enabling social stage for developing an enduring level of commitment to more environmentally sound and sustainable but also difficult and more longer term development paradigm.

Opportunities in Decentralize National Programs into Local Development Activities

89. For government to capture and empower these emerging community yearnings for better understanding and increase participation in actions that will improve the conditions of their society the challenge is to improve the delivery of its public services and assistance by eliminating duplication and fragmentation, and developing effective modes of decentralizing its programs to increase the participation and utilization of the immense potentials of the population. A unifying and well integrated scheme of coordination may need to be developed soon for engaging communities to eliminate duplication and fragmentation, and providing communities with a more holistic and coherent presentation of government programs and projects.

90. It's only when communities are able to own the process of development in a more coherent manner will they be able to effectively utilize the various assistance from the national government. To help communities at cultivating this kind of collective process of development, the government may wish to consider and adopt some of key tools for environmental management and planning that will strengthen the coherence and acceptance of its approach to community development. The BioRAP survey is one such tool which Nauru have welcomed and used last year for assessing the state of its biodiversity, but there are others the government may need to seriously adopt today, three of them are discussed below.

The Value of the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) Processes in Conservation and Sustainable Development

91. The EIA and SEA are simple yet critically important tools for sustainable development that is being practised by many countries and populations of the world since their emergence in the last sixty or so years. EIA is a planning tool whereby those that are affected by a development project will be made to engage in investigating the positive and negative impacts of the project, and work together with the project proponents on

ways and means to either eliminate or minimize the negative and strengthen the positive effects of the development activity.

92. The SEA process is similar to the EIA process but it is applied proactively at the strategic policy and planning level. That is when a new development policy is being conceptualized or an existing one is being revised, it's important for the proponents and those affected to examine the effects or impacts of such a new policy or policy change to ensure its proper development, acceptance and fit into the scheme of things with minimal or manageable adverse effects.

The Value of a Culture of Collective Monitoring & Learning from Experience

93. A systematic pattern of reflecting and consulting together on the results and learning gained from actions as a community, as an agency or as an interest groups is a valuable assets for improving and ensuring that actions are being continually reviewed, informed and accompanied by the best available information and learning. This report has found the National Census of Nauru coordinated by the Nauru Bureau of Statistics as the best model and system to build such a pattern, since its taking place in a more regular and consistent manner. It was also worth to note that several important biodiversity indicators were included in the 2011 Census of the country such as indicators for bird hunting and inshore fisheries. It would be wise when approaching the development of an effective national monitoring system that will benefit the various reporting and planning requirements of the country, to seriously consider the potentials of the existing National Census Program as the most effective systems for achieving this end.
94. With the abovementioned reflections on the implementation and mainstreaming of the country's NBSAP, it is important now to examine how these relevant NBSAP approaches and activities links the country's efforts and achievements for biodiversity to the global targets for biodiversity and the related development targets of the world.

Section IV: Nauru’s Contribution to Global Biodiversity Targets

A. NBSAP & Global Targets (CBD & MDG)

95. Though yet to be updated Nauru’s NBSAP goals are relevant but are largely qualitative with the exception of the ecosystem management goal. Table 3 provides an analysis of the how Nauru’s NBSAP generic and thematic goals may relates to the Aichi Global Biodiversity Targets is a component of its National Sustainable Development Strategy NSDS 2005-2025 hence its timeframe for implement from approval last year is up to the year 2025. Nauru’s NSDS 2005/2025 reflects Nauru’s commitment to the UN Millennium Development Goals.
96. Although at this stage Nauru’s NBSAP is yet to be revised and updated to strengthen its linkage and alignment with the CBD Strategic Plan 2010/2020 and its Aichi Global Biodiversity Goals its already defined goals in the current NBSAP are largely relevant to the global targets. The NBSAP has 8 biodiversity thematic goals and 9 cross-cutting issues goals. **Table 3** shows the five main goals of the CBD Strategic Plan 2010-2020 and the corresponding Nauru NBSAP biodiversity thematic and cross-cutting goals. This can form the basis for developing national targets corresponding to the Aichi Targets⁶⁴ under each of the CBD Strategic Plan Goals during the revision of the NBSAP.

Table 4: Comparison of the CBD Strategic Plan Goals & Nauru’s NBSAP Biodiversity Thematic & Cross-cutting Goals. Source: Government of Nauru, NBSAP 2013.

CBD Strategic Plan 2010-2020 Goals	Nauru’s NBSAP Biodiversity Thematic Goals	Nauru’s NBSAP Cross-cutting Issues Goals
Strategic Goal A: Address the underlying causes of biodiversity loss by consolidating the mainstreaming of biodiversity across government and society	<p>Theme 1 Mainstreaming Biodiversity Strategy Goal: <i>The rehabilitation, conservation and sustainable use of biodiversity, which is vital to the development of Nauru, is integrated into national, sectoral and cross-sectoral plans, policies and programmes.</i></p> <p>Theme 8: Financial Resources & Mechanisms Strategy Goal: <i>To secure long term sustainability of all Conservation and Biodiversity related programmes by way of access to funding mechanisms from local and international sources.</i></p>	<p>Goal 1 Policies and Legislation <i>Nauru will continue to develop, adopt and implement sound national policies, legislations and plans, and support regional and international conventions, to monitor; protect; conserve and sustainably manage its biodiversity.</i></p> <p>Goal 4 Public Awareness <i>Public awareness and understanding of the importance of respecting and sustainably managing our biodiversity will be enhanced through educational programmes at all levels.</i></p> <p>Goal 5 Capacity Building <i>Human and institutional capacity at all levels of government, private sector, NGOs and communities will be improved and strengthened, to better achieve Nauru’s responsibilities to the environment and to ensure NBSAP objectives are fully achieved.</i></p> <p>Goal 9 Education <i>Education curricula at all levels will include integrated conservation and sustainable use of biological and genetic resources.</i></p>
Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use	<p>Theme 6: Bio-security Strategy Goal: <i>To protect Nauru’s native biodiversity from impacts of alien invasive species and imported earth materials, through effective border control, effective quarantine and eradication programmes</i></p>	<p>Goal 7 Prevention, Control and Eradication <i>Prevent, control and eradicate harmful native and alien species, which impede the restoration of endangered species and the sustainability of Nauru’s biodiversity</i></p>

<p>Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity</p>	<p>Theme 2 Ecosystems Management Strategy Goal: To commit to an annual increase of 2% to enhance, develop and manage current conservation and rehabilitation of biological diversity and ecosystems to increase the percentage of Nauru's protected and conserved areas from the existing 2% of total land, including coastal areas, to 30% by 2025.</p> <p>Theme 2 Species Management Strategy Goal: To promote the conservation of Nauru's native and other important species and provide mechanisms for their sustainable use</p>	<p>Goal 6 Protection of Genetic Resources Nauru's genetic resources will be protected from unsustainable exploitation, while benefits from their use are shared equitably to promote conservation and sustainable use of biodiversity.</p>
<p>Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.</p>	<p>Theme 5 Access & Benefit Sharing From Use of Genetic Resources Strategy Goal: Nauru's genetic resources are accessible for utilisation and benefits are equitably shared amongst the stakeholders</p> <p>Theme 7: Agro-biodiversity Strategy Goal: To conserve and sustainably use agro-biodiversity to ensure its contribution to national development, the preservation of traditional knowledge and practices, and food and health security</p>	<p>Social and Economic Development Social and economic development through the national rehabilitation programme and the utilization of biodiversity resources shall be guided by precautionary principles and sustainable measures.</p>
<p>Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building.</p>	<p>Theme 4 Community Strategic Goal: Empowering and encouraging the twelve district communities to protect, conserve and sustainably use and manage our biodiversity</p>	<p>Goal 2 Community Involvement The greater involvement of the local community in the conservation and sustainable management of Nauru's biodiversity will be encouraged and promoted.</p> <p>Goal 3 Co-operation and Coordination All stakeholders including the private sector shall cooperate in an integrated and cross sectoral manner for the protection, conservation and sustainable management of biodiversity. Nauru shall cooperate and coordinate with regional and international agencies on biodiversity matters.</p>

97. It was mentioned before that the NBSAP linkages to the United Nations' Millennium Development Goals is through Nauru's Sustainable Development Strategy in which the NBSAP is one of its main national implementation framework. The goals and activities defined in the existing NBSAP are all relevant to the biodiversity targets of the Millennium Development Goal 7 on Environmental Sustainability. Again its revision will brought about more explicitly defined targets for Nauru's NBSAP, that will establish the basis for a more quantitative monitoring and evaluation of Nauru's progress and contributions to Aichi Biodiversity Targets and the MDG7's biodiversity targets.
98. In terms of other biodiversity related Multilateral Environmental Agreements MEA, Nauru is exploring membership in the Convention on Wetlands or the Ramsar Convention, the Convention on Migratory Species CMS and the Convention on International Trade in Endangered Species CITES in collaboration with other member countries of the Pacific. SPREP is working closely with the government of Nauru on

these international fronts of global biodiversity work where the country can participate as a country party where and when it is appropriate.

B. Lessons & Priorities for NBSAP Updating

99. As discussed above, while the mining legacy of Nauru continues today with its consequence effects on the country's environment and biodiversity: there is a strong sense in the community to get more involved in its decisions and progress; and younger generations are increasingly engaged in work to earn their livings and make their own decisions more independently and will a lot more self-reliance that their forebears in the heyday of the mining wealth and affluence.
100. With effective education and support, this sea change in socio-economic development processes could be expanded to incorporate individual and collective commitment to the conservation and natural regeneration of their island's natural environment and ecosystem services.
101. Existing relevant initiatives are weakly interlinked to maximize synergies and complimentarily and above all to cultivate coherent thinking and action so essential to dealing with complex issues at increasing levels of difficulty at all levels of national and community actions.
102. And again, there is a positive change from the past days when mining was booming and the population were handed immense wealth to today's generation who are now working to earn their living and making their own decisions. This cultural change in work ethics has huge potentials for building in present populations a stronger foundation for owning and self-driving a more sustainable future for them and their future descendants.

Conclusion

103. Nauru has demonstrated commitment to the CBD through the establishment of its NBSAP and pursuance of government and community initiatives that are contributing to the conservation and sustainable use of their island limited and threatened biodiversity.
104. The mining industry on the central plateau of the island; the increasing population on the narrow coastal land areas; the unsustainable increase in pollution and waste generation; the threats of invasive species, climate change and the loss of valuable and relevant traditional knowledge and practices, are the main threats to the future of terrestrial and marine biodiversity of Nauru island, and consequentially the viability of ecosystem and social services, that underpins the possibilities for a sustainable future Nauru's population needs and wellbeing, on their one and only island.
105. The rehabilitation program and current initiatives in conservation, agriculture, fisheries, education and community involvement truly needs more urgently attention and commitment of the government and community, as they constitute the best hopes for advancing conservation, protection and sustainable use of the country's biological resources, in a more practical and community driven, bottom up development way.
106. Revising and strengthening Nauru's NBSAP to better guide and coordinate efforts in a more coherent, targeted and result oriented way, that also contribute to and aligns with global biodiversity targets, will enable a systematic development of individual and institutional capacities, for addressing biodiversity and environmental issues at increasing levels of difficulty and effectiveness.

Appendices

Appendix 1: Format and Guiding Questions for the Preparation of 5th National Reports to the CBD from the CBD Secretariat

Below is a summary of the main sections and their corresponding guiding questions for preparing the content of 5th national reports to the CBD based on guidelines from the Convention Secretariat:

Section Content

Executive Summary

Part I An update on biodiversity status, trends, and threats and implications for human well-being

- Q.1. Why is biodiversity important for your country?
- Q.2. What major changes have taken place in the status and trends of biodiversity in your country?
- Q.3. What are the main threats to biodiversity?
- Q.4. What are the impacts of the changes in biodiversity for ecosystem services and the socio-economic and cultural implications of these impacts?

Part II The national biodiversity strategy and action plan, its implementation, and the mainstreaming of biodiversity

- Q.5. What are the biodiversity targets set by your country?
- Q.6. How has your national biodiversity strategy and action plan been updated to incorporate these targets and to serve as an effective instrument to mainstream biodiversity?
- Q.7. What actions has your country taken to implement the Convention since the fourth report and what have been the outcomes of these actions?
- Q.8. How effectively has biodiversity been mainstreamed into relevant sectoral and cross-sectoral strategies, plans and programmes?
- Q.9. How fully has your national biodiversity strategy and action plan been implemented?

Part III Progress towards the 2020 Aichi Biodiversity Targets and contributions to the relevant 2015 Targets of the Millennium Development Goals

- Q.10. What progress has been made by your country towards the implementation of the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets?
- Q.11. What has been the contribution of actions to implement the Convention towards the achievement of the relevant 2015 targets of the Millennium Development Goals in your country?
- Q.12. What lessons have been learned from the implementation of the Convention in your country?

Appendices

Annexes

Appendix 2: Report of National Stakeholders' Consultations for Nauru's 5th National Report to the CBD

1. Purpose

Stakeholder consultations were held to engage them in a series of individual and collective reflections on situation of biodiversity on their island and the outcomes and implications of actions to promote the conservation, protection and sustainable use of these natural assets. Discussions were guided by the guidelines for preparing 5th national reports to the CBD provided by the convention's secretariat.

2. Results

Table 5 provides the list of all the individuals who took part in face to face and collective reflections and consultations for the preparation of this report. More than 40 individuals representing about 20 organisations which include government agencies, community based organisations and non-governmental organisations. Consultations took place on 10 to 28 of March 2014.

3. Consultations were guided by the following key questions:

- *What's your agency's mandate and work for conservation and sustainable use of biodiversity in Nauru?*
- *What's your view of the value of Nauru's biodiversity?*
- *What's your view of the current conditions of Nauru's biodiversity?*
- *What's your view of threats to Nauru's biodiversity?*
- *What's your view of implications of biodiversity threats to Nauru's environment and society?*
- *What are activities are your involve in that is contributing to preserving and improving Nauru's biodiversity?*
- *Are you aware of Nauru's NBSAP?*
- *What are your views on the implementation of the NBSAP?*
- *Is the NBSAP relevant to your work? Or does it matter to you?*
- *Are your aware of the Aichi Biodiversity Targets?*

4. Key Findings from Interviews

- Majority are not aware of the NBSAP and needs more information on biodiversity issues.
- Majority believe the priority issue is the rehabilitation of mined lands, forests and vegetation cover.

- All are keen to participate in the preparation of the report and welcome this opportunity to include case studies on their projects that are relevant to biodiversity issues and to participate in the revision and updating of the NBSAP.
- Several agencies are engaged in programs and projects that do contribute to conservation and sustainable use of resources.
- Several are not aware of CIE/environment's work and feels the government is solely responsible with issues of biodiversity loss and environmental degradation.
- All agree that mining is the main cause of environmental issues in the country.

Notes of interviews of individual interviews are in part 5 of this Appendix.

Table 5: List of participants in the consultations for the preparation of Nauru’s report to the CBD

NO	DEPARTMENT	NAME	POST	EMAIL	PHONE
1	Department of Commerce, Industries & Environment	Mr. Elkoga Gadapu	Secretary	elkoga28@gmail.com , elkogagadapu@naurugov.nr	
2	Agriculture Division - Department of Commerce, Industries & Environment	Ms Salodina Thoma	Director	salodina.thoma@gmail.com , salodina.thoma@naurugov.nr	
3	Agriculture Division - Department of Commerce, Industries & Environment	Ms Sharon Ephraim	Project Officer	leilaniniac@gmail.com	
4	Department of Education	Ms Maria Gaiyapu	Secretary	maria.gaiyapu@naurugov.nr	
5	Division of Planning and Aid Coordination: Department of Finance	Mr. Samuel Grundler	Director of Aid Management	samuel.grundler@naurugov.nr	
6	Division of Planning and Aid Coordination: Department of Finance	Ms Kay Brechtefeld	Assistant Sector Planner	kay.brechtefeld@naurugov.nr	
7	Department of Justice & Border Control	Ms Unaisi Daurewa	Senior Government Lawyer - Drafting	unaisi.daurewa@naurugov.nr	
8	Division of Quarantine: Department of Justice & Border Control	Ms Evalyne Detenamo	Acting Principal Quarantine Officer	evalyne.detenamo@naurugov.nr	
9	Nauru Fisheries & Marine Resources Authority	Mr. Charleston Deiye	Chief Executive Officer	cdeiye@gmail.com	
10	Nauru Rehabilitation Corporation	Mr. Tekohi Rivera	Chief Executive Officer	caves01@yahoo.com	(674)5573210

NO	DEPARTMENT	NAME	POST	EMAIL	PHONE
11	Nauru Rehabilitation Corporation	Mr. Daniel Diringa	Superintendent - NRC Nursery	-	(674) 5573227
12	Nauru Port Authority	Capt. Iti Aiaimoa	Deputy Harbor Master	iti.aiaimoa@naurugov.nr	
13	Public Service Commission	Ms Peta Gadapu	Director of Human Resources & Labor	peta.gadapu@gmail.com	(674) 5573025
14	TTM-CIE Horticulture Component	Mr. Bern Dowouw	Manager	tm.nauru@icdf.org.tw	(674) 5573305
15	TTM-CIE Horticulture Component	Mr. Tsai Ming Je (Benjamin)	Horticulture Specialist	tm.nauru@icdf.org.tw	(674) 5573305
16	TTM-CIE Livestock Component	Kuo Yu Liang (Johnny)	Livestock Specialist	tm.nauru@icdf.org.tw	(674) 5573305
17	TTM-CIE Livestock Component		Acting Manager	tm.nauru@icdf.org.tw	(674) 5573305
18	Clean and Green Project: Department of Home Affairs	Ms Miniva Harris	Project Coordinator	miniva.harris@naurugov.nr miniva.harris@gmail.com	(674) 5573305
19	Division of Tourism: Department of Home Affairs	Mr. Richie Halstead	Director	duggob@gmail.com director.tourism@naurugov.nr	(674) 5573305
20	Meneng Hotel	Mr. Aaron Ganon	Tour Guide	-	(674) 5563869
21	Department of Public Health Services	Ms Nerida Ann Hubert	Project Officer	annsteshia22@gmail.com	
22	Nauru's Fisheries & Marine Resources Authority	Ms Darlyne Harris	Fisheries Officer		(674) 5573138
23	Nauru's Fisheries & Marine Resources Authority	Being Yeeting	Fisheries Adviser	byeeting@gmail.com	(674) 5573733

NO	DEPARTMENT	NAME	POST	EMAIL	PHONE
24	Division of Youth Affairs: Department of Home Affairs	Ms Jocelyn Adam	Director	-	(674) 5573054
25	Division of Culture: Department of Health Affairs	Ms Jennie Solomon	Director	eaglenaroo@gmail.com	(674) 557319
26	TTM-CIE Programme	Mr Lee Ming Zing	Team Leader	tm.nauru@icdf.org.tw	(674) 5573305
27	Department of Commerce, Industries & Environment	Mr. Bryan Star	Director Projects	bryanstar007@yuahoo.com	(674) 5573117
28	NBCO	Mr. David Dowiyogo	Director	ddoiyogo@yahoo.com	(674) 5573059
29	Department of Commerce, Industries & Environment	Mr. Bern Dowouw	Officer	-	(674) 5573184
30	Department of Commerce, Industries & Environment	Ms Christine Reiytse	Officer	creiyetsi@gmail.com	(674) 5563977
31	Department Public Health Services	Mr. Vincent Scotty	Director	vscotty2004@yahoo.com	(674) 5573147
32	Department of Education	Mr. Ralph Hiram	Officer	ralph.hiram@naurugov.nr	(674) 5579279
33	National Rehabilitation Corporation	Ms Elka Buramen	Officer	nrcpro5452@gmail.com	(674) 5573223 / +674 (7) 3223
34	Department of Commerce, Industries & Environment	Ms Claudette	Former GEF/Nauru funded SLM Project Coordinator	-	

NO	DEPARTMENT	NAME	POST	EMAIL	PHONE
33	Department of Commerce, Industries & Environment	Mr. Haseldon Buraman	IWRM Project Coordinator	haseldon.buraman@naurugov.ws	
34	Menen Community Council	Ms Isca Kam	Menen Community Rep	kamsca@yahoo.com	+674 (6) 9527
35	Meneng Community Council (MCC)	Mr. Doneke Kepar	Menen Community Rep	-	(674) 5583422
36	Nauru Bureau of Statistics	Mr. Lindsay Thoma	Statistic Officer	lindsay.thoma@naurugov.nr	(674) 5586252
37	Department of Commerce, Industries & Environment		Nauru PACC Project Coordinator	-	
38	Department of Commerce, Industries & Environment	Ms Erana Aliklik	NBSAP Project Coordinator	eranalik12@gmail.com	(674) 5569376
39	Department of Commerce, Industries & Environment	Mr. Reagan Moses	Climate Change Officer	reagan.moses@gmail.com	
40	Nauru Landowners' Association (NLA) & Nauru Private Business Sector Organization (NPBSO)	Mr. Douglas Audoa	President of the Nauru Private Business Sector Organization	dogurabb@gmail.com	(674) 556 6243

5. Notes of Interviews with National Stakeholders on 10-25 March 2014

1. Ms Salodina Thoma

Director of Agriculture

Salodina.thoma@naurugov.nr

Salodina.thoma@gmail.com

&

Ms Leilani Niac

Project Officer

leilaniniac@gmail.com

The basis of agricultural operations in the country is the NSDS 2005-2025 and Agriculture Sector Plan which aims at *“increasing the level of domestic agricultural production aimed at addressing food security and healthy livelihood”*.

Currently working on 2 projects 1] Grow & Green and 2] Taiwan Technical Mission

Grow & Green Project:

- Started in 2009 and will end on 2013
- A government initiative to help communities develop food security
- Funded by the Government
- To promote growing of local fruit trees – salsop, breadfruit, banana, mangoes, etc. – in local communities
- 2 monthly community hands on assistance with setting up plots of fruits and providing technical support for plots maintenance
- Received support from SPC
- Winding down this year

2. Mr. Samuel Grundler

Director Aid Management

Samuel.grundler@naurugov.nr

Ms Kay Brechtefeld

Assistant Sector Planner

Kay.brechtefeld@naurugov.nr

- Consulted on programs and projects that were either completed, ongoing or started in the last five years which directly or indirectly contribute to the conservation, protection and sustainable management of biological resources.
- NSDS sectors discussed for relevant programs and projects include the environment (climate, biodiversity, waste, POPs, ozone, SLM, etc.), agriculture, fisheries, land management, water resources, environmental education and community affairs. The aim is to present in the report trends in resources mobilized and committed to biodiversity actions.
- Agreed to focus information analysis on climate, biodiversity, waste, POPs, SLM, agriculture, and fisheries.
- Do have some awareness of the NBSAP.

3. Ms Maria Gadabu

Secretary

Department of Education

Maria.gayapu@naurugov.nr

- Have started implementing a new school curriculum from last year which have incorporated in the science syllabus environmental studies that is organised into conservation and pollution. Conservation includes the water and electricity conservation, as well as the impact of human activity on coral reef, ocean and bush ecosystem.
- Schools have mainly involved in public awareness campaigns of various environmental issues especially the environmental commemoration days such as the International Biodiversity Day.
- Other than these there has been very little contact between them and the environment agencies and are not aware of the NBSAP.

4. Mr. Tekohi Rivera

CEO Nauru Rehabilitation Corporation

Caveso1@yahoo.com, 5573210

- NRC is a state owned enterprise SOE of the Nauruan Government task with secondary phosphate mining and rehabilitation of mined areas.
- Rehabilitation programs has started some 17 years ago but as of today the NRC rehabilitation program has achieved very little of its set targets from that time.
- Target restoration of already mined areas using its existing soils and rocks and local planting materials.
- Has established a nursery; a demonstration site and started storing top soil from the secondary mining areas.
- NRC has sufficient guidelines for implementing rehabilitation, but lack the levels of funding and political will to carry it out at the required levels.
- Rehabilitation is not economically viable unless it's related to a definite land-use plan to target it effectively and economically to desired ends, e.g. agriculture production. Different restoration designs will serve different development ends. A definite land-use plan will enable rehabilitation to be more effectively and economically target to the appropriate ends defined in the plan.
- NRC are using the same equipments and employees in the secondary mining to do rehabilitation work which is not effective and efficient. In fact the same equipments and staff are employed at times in the other coastal and inland infrastructural works such as roads, clearance and reclamation for other government projects such as seawalls and preparation of areas for the Australian Refugee camps.
- AusAID funding for the operation runs out in October 2015 and new sources of funding needed to fill the gap.

- Showed several land and soil rehabilitation designs and felt that its only economically viable for NRC to implement only the soil and land restoration stages but not the re-vegetation stage.
- NRC have identified 4 potential areas for coastal land rehabilitation but again lack the necessary funding to do anything.
- NRC has considered a limestone industry based on limestone pinnacles from the secondary mined areas and links to new funding sources such as the GEF Reef to Ridge Project in the pipeline for sustaining the program beyond 2015.

5. Mr. Bern Douwouw

Vegetable Gardening Project Manager

Taiwan Technical Mission TTM

- Includes a 0.15 hectare nursery for cultivating and producing planting materials and mobilizing resources and expertise to stimulate and support local community gardening in lettuce, cabbage, tomatoes, water melon, cucumber, green pepper and others.
- It has composting component that uses chicken and pig manure combine with top soil from the mines to produce natural organic matter for enriching gardening soils.
- TTM provides farmers with planting materials, tools, fertilizers, organic matter from compost and technical advice free of charge.
- It also provides space for the Grow & Green Project to produce its planting materials using both local cuttings and tissue cultures from SPC Fiji.
- It has successfully engaged more than a 100 farmers and all schools with the result of close to 10 active farmers and several schools.

6. Mr. Charleston Deiye

CEO – Nauru’s Fisheries & Marine Resources Authority

cdeiye@gmail.com

- Operates on the Fisheries & Marine Resources Act?
- Fishing was a key livelihood that declines during the mining years and have increased both for offshore and inshore in recent decades when the mining stopped in the ‘90s.
- Currently offshore fishing constitutes 30% of the country’s GDP. Annual landing is 60/70 metric tonnes limited by Nauru’s annual allocation of 2,000 fishing days/100 vessels. Earnings are around 6,000AUD/day, with licensing fees of 700-10,000 AUD annually.
- Currently there are no regulations enforced on inshore fishing (12mile zone) but the agency have introduced FADs and provided other support to encourage locals to move away from already over exploited reef flat areas.
- It has recently started a program of community coastal management planning for local communities to establish and enforce sustainable measures for their own fishing practices and establish replenishment fishing grounds or no take zones.

- The community coastal management planning program will link to the upcoming Reef to Ridge Program for more funding support and for integration to relevant land ecosystem maintenance and restoration objectives.

7. Captain Iti Aiaimoa

Deputy Harbor Master

Iti.aiaimoa@naurugov.nr

- Operates on the Ports Authority Act ?
- At this stage they are not enforcing any specific regulations covering marine pollution and conservation.
- Do collaborate with other agencies of government – fisheries & quarantine.
- Not aware of the NBSAP

8. Ms Evalyne Detenamo

Acting Principal Quarantine Officer

Justice & Border Control

Evalyne.detenamo@naurugov.nr

Operates on the Quarantine Act

- Checks all incoming travels, ships and airship vessels for pests and illegal introductions of animals and plants in cargo and waste
- Not party to CITES, CMS
- Regulates quarantine & destruction of condemned materials
- Not aware of the NBSAP

9. Mr. Daniel Diringa

Superintendent – NRC Nursery

557-3227

- Uses shoots and cuttings of both native & exotics plants (ornamentals, shrubs & trees) that are locally available
- No importation of planting materials
- Main aim of the nursery is to support the rehabilitation demonstration site
- Do sell materials to interested farmers/locals
- Current stocks: tomano 115, red bean 158, eteter 21, yayo 96 & coconut 114 plus several ornamental seedlings and plots

10. Ms Unaisi Daurewa

Unaisi.daurewa@naurugov.nr

- Is a legal drafting adviser to the Legislative Assembly was consulted on data and information on legislations enacted/enforced in the last 5 years for conservation, protection and sustainable use of biological resources – terrestrial, marine, invasive species, quarantine, etc. Will compile and provide. Not aware of the NBSAP

11. Ms Peta Gadabu

Peta.gadapu@gmail.com

557-3025

- Consulted on data and information on permanent public service staff employed in the field of biodiversity conservation, protection and sustainable use – environment, fisheries, agriculture, quarantine and lands – to give an idea of national commitment of human resources to biodiversity in the last five years.
- Haven't got much link to the environment and aren't aware of the NBSAP.

12. Ms Mary Tebouwa

Secretary

Department of Home Affairs

Mary.tebouwa@gmail.com

Ms Jennie Solomon

Director of Culture & Language Division

The department's divisions includes: Culture & Language, Women, Family & Community, Tourism, Clean & Green and Post Office

- Culture & Language deals with district communities directly. MPs organises Community Leaders in their respective constituencies
- Established a Language Commission assisted by UNESCO to assist with language development and preservation
- Traditional knowledge for nature conservation and healing using native plants have limited records and is dying out with the demise of the older generations, although the taboo lands that are out of bound and out of sight that still exist. These lands form include fragments of forests around the coast and on the central plateau and are thought to be places of sacrifices and worship in ancient times.
- A key challenge with retrieving and recording traditional knowledge is an unwritten tradition of keeping such knowledge within family lineage. Today's generations of families with such valuable social assets who are no longer interested in such matters have discontinued the passage of these family heritage into the future.

13. Ms Miniva Harris

Coordinator

Clean and Green Project

miniva.harris@naurugov.nr miniva.harris@gmail.com

557-3170

- The Clean and Green is fully funded by government and involves all district communities. It employs group of 140 young boys selected from the communities who educate and facilitate the proper collection and disposal of household wastes.
- So far so good with active participation of communities.
- She also coordinates Nauru's Seasonal Workers Programme.

Appendix 3: The Aichi Biodiversity Targets

Below is a summary of the 20 Aichi Biodiversity Targets that was established in the CBD's Conference of the Parties in 2010 for each of the 5 Strategic Goals the CBD's Ten Year Strategy 2011-2020

Strategic Goal A: Address the underlying causes of biodiversity loss by consolidating the mainstreaming of biodiversity across government and society.

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Target 4: By 2020, at the latest, governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.

Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building.

Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan 2011-2020 from all sources and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties.

Appendix 4: Recommended Species and Sites for Conservation and Protection of Biodiversity in Nauru from the Rapid Biodiversity Assessment of the Republic of Nauru Project in 2013⁶⁵

Recommended Terrestrial Plants for Priority Conservation:

Below are extracts from the Nauru BioRAP on plants species that ‘should be considered for some kind of protective status’ due to their rare status on Nauru island and value to Nauru’s indigenous knowledge and traditional practices:

(1) *Aidia racemosa (enga)* — This limestone forest tree is an extremely rare species known from only two localities on Nauru, possibly now from only one, on the escarpment above Anibare Bay. A population size, now very small indicates this species is close to extinction, and requires urgent conservation measures.

(2) *Bruguiera gymnorhiza (etom)* — This mangrove tree is restricted to a few coastal (“anchialine”) ponds and soaks in Meneng, Ijuw, Anetan, and Anabar. These areas were used to raise milkfish in the past and now contain large populations of *Tilapia*, a fish that could serve as an important protein source. The presence of the *etom* tree assists by its production of leaf litter and ability to act as a water purifying agent. The species therefore needs to be carefully conserved and further clearing restricted in the vicinity of the ponds.

(3) *Cordia subcordata (eongo)* — This littoral tree was recorded from seven localities in Aiwa, Buada and Nibok in the 1980s and 90s, but as of 2009 is now known in only three or four locations, in all cases as single trees, mostly in urban areas. It was seen only once during the present survey and is probably rare because of the loss of coastal habitat (littoral forest) everywhere on the island. The timber is possibly the most highly prized in the Pacific.

(4) *Erythrina variegata (eora)* — This littoral forest tree is less restricted now than it was in the 1990s, but is still threatened, and needs to be protected to survive in Nauru. It was seen only once during the present survey, and is probably rare because of the loss of habitat (littoral forest) all the way around the island.

(5) *Hernandia nymphaeifolia (etiu)* — This littoral forest tree has been recorded in only four localities on Nauru, where it grows naturally in the forests near the base of the escarpment. The timber was formerly prized for canoe hulls. It was found in only one location during the present survey.

(6) *Ochrosia elliptica (eoerara)* — This small, attractive tree with bright red fruit can also be planted as a shade tree in coastal situations. It is currently restricted to five to seven localities in five Districts. It is also found as an understory species in relict forest on topside and on the more gradually sloping parts of the escarpment.

(7) *Pisonia grandis (yangis)* — This littoral forest tree is severely restricted in the wild to four to five sites at present, three of which are on the upper, steepest parts of the escarpment, and two in relictual areas on topside. It occurs as an emergent in the forest dominated by

Calophyllum inophyllum and *Ficus prolixa*, and is known throughout the Pacific to be a favorite nesting site for noddies. An examination of each locality indicates that the species is not regenerating naturally through seedlings. This situation is observed elsewhere where reproduction occurs through the rooting of fallen branches. In the Nauruan situation however, the presence of large numbers of *Adenanthera pavonina* seedlings in the understory suggests that this species may possibly interfere with the competitive ability of the *Pisonia* to regenerate, but this needs further clarification.

(8) *Rhizophora stylosa* (*dadongo*) — This mangrove species was a new record for Nauru in the 1990s, and was observed at two localities on the edge of the ponds at Ijuw and Anabar. As such, its distribution is extremely restricted by availability of the right habitat, which makes it all the more important to conserve these mangrove areas.

(9) *Thespesia populnea* (*itira*) — This littoral forest tree is now uncommon along the coastal margins of mangroves in Anetan, in a number of coastal sites in Meneng and Aiwo, and occasionally in houseyard gardens. It is considered the best wood for traditional house construction, woodcarving, furniture and canoe outriggers, and is one of the best trees for replanting and coastal reforestation.

Recommended sites for Terrestrial Conservation:

Figure X shows the priority sites recommended in the Nauru BioRAP for the conservation and protection of threatened native species of invertebrates.

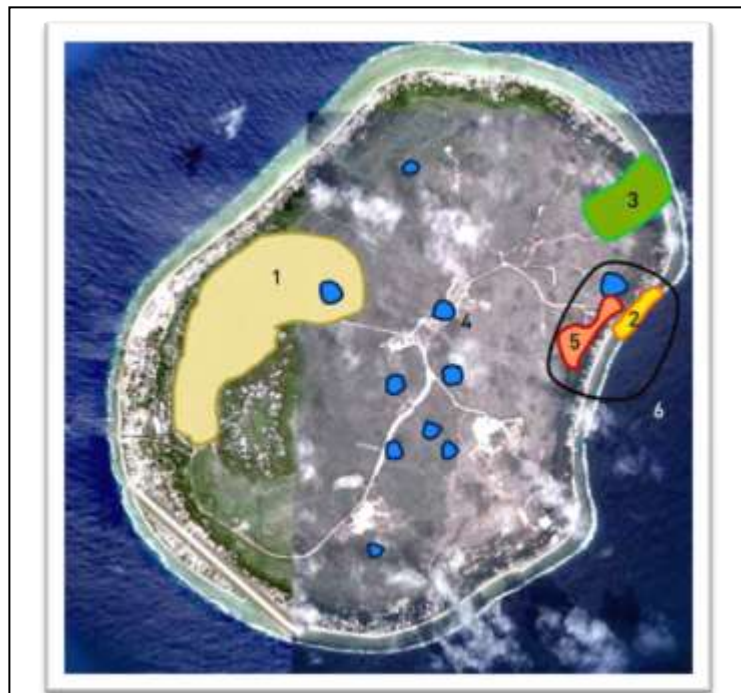


Figure 28: Recommended areas for conservation protection proposed for terrestrial invertebrates. Numbers correspond to the following:

1. Topside core area of spectacular and highly representative scenic, historic and biodiversity values. These appear to have the best history and longest recovery time since mining.
2. Northern Anabare Bay. Possibly the most celebrated and distinctive scene in Nauru. Tide-washed hard dolomite columns where the ocean pours across the rock platform to the beach. Importantly, harbours indigenous and rare Nauru marine pinnacle bug, *Coralloporis nauruensis* as well as other intertidal, and shore line biodiversity of reasonable natural character.
3. Tibinor Ponds –Topside to the sea. Combines multiple biodiversity values in one conservation area. The shore has not been damaged by sea protection works. The ponds are almost unique and include coastal plains rubble forest and rocky scarp to pinnacle transition.
4. Non-coastal pre-mining pinnacle areas (blue sites). High value as remnant biodiversity areas and important landform scenes.
5. Anabare topside phosphate soil remnant. One of few representative examples remaining. Forest cover is exotic but the ‘seabird –tree –enriched soil ecosystem’ is highly representative for Nauru, threatened around the Pacific and deserving of conservation.

Source: Government of Nauru, BioRAP Report 2014

The following are extracts from the Nauru BioRAP of sites of threatened terrestrial habitats recommended for priority conservation areas⁶⁶:

- (1) The entire Anibare Bay area from the Meneng-Anibare District boundary to the Anibare-Ijuw District boundary, and including the Meneng Hotel and extending up the escarpment to the edge of current mining.
- (2) The east and west coast escarpment forests (this would include the Anibare escarpment, which, as stressed above, has special significance) are proposed because they are important aesthetically as green buffers to topside, as important bird habitats, as refuges for rare and endangered species of plants, and for potential recreational purposes.
- (3) The Ijuw-Anabar-Anetan mangrove and wetland area because of its unique ecological importance, stands of mangroves and scenic beauty.
- (4) Buada Lagoon (a unique landlocked freshwater or slightly brackish central lagoon) and suitable portions of the remaining forest in the Buada basin. As stressed by Hassall (1994) the Buada lagoon forest and soils surrounding the lagoon have the greatest potential for agro-forestry and food production.
- (5) Selected un-mined rocky outcrops as wildlife habitats and examples of pre-mining ecosystems. This would include the remaining forest areas behind Buada Lagoon). There remain very few such areas, but consideration should be given to their protection
- (6) Command Ridge and the railway zone of Topside as a possible focus for historical and environmental-based ecotourism, once mining has ceased. This area contains the deepest mining, about 20 meters deep, and the “Grand Canyon” of Nauru, and the most advanced natural regeneration in mined sites. Because it was hand-mined at a very early stage of mining, there is probably less residual phosphate and less reason for re-mining (Thaman et al. 2008a).
- (7) Selected nobby nesting sites (rookeries) and tree groves along the crest of the escarpment.
- (8) The coastal littoral zone in which all mature coastal trees and forest remnants within 50m of the mean high tide line should be protected (this would include the implementation of an active program of coastal reforestation and enrichment planting with endangered or culturally-useful salt-tolerant trees, which is discussed below). These areas and their trees should be protected immediately and, where possible, enriched with the planting of appropriate indigenous and introduced species.

Appendix 5: Taiwan Technical Mission and the Department of Commerce, Industries & Environment's Horticulture and Livestock Projects

Implement Start Date: 2009/1/1

Implement End Date: 2014/12/31

Taiwan Technical Mission Projects Specialist:

Team Leader: Ming Zing Lee

Horticulture Specialist: Tsai Ming Je (Benjamin)

Livestock Specialist: Kuo Yu-liang (Jonny)

TTM-CIEAD Horticulture and Livestock Projects Performance:

2011-2014

- CIE Agriculture Division
- Capacities Building CIE Horticulture Project Farm Manager Mr. Bein in Buada Farm.
- Capacities Building CIE Livestock Project Farm Manager Mr. Geogre in Anaba Farm.
- ADF revolving fund established and operation.
- Started vegetable farmer competition in World Food Day.2012
- Extension system set down and practice.
- Direct imported layer and pig feed to reduce project cost.

Horticulture project Current Progress: To the end of December 2013, the following activities have been completed:

- Increased yields to 9000 kg of green vegetables; provided extension services to 50 farmers to establish home gardens.
- Provided per week 40kg vegetables to Nauru School Feed Program for 800 students..
- Held six Vegetables Filed Training Workshops for communities.
- Held five cooking demonstration for communities.
- Establish 3 school vegetables garden.
- Completed the fourth quarterly evaluation of CIE's project manager.

Project

Performance:

- Expand the beneficiaries of School Feed Program to 800 students per week and promote toward a balanced diet and attitude.
- Improve the quality and quantity of locally produced vegetables, thereby reducing the need for imports.
- Extend home gardening into communities so that households have a ready source of vegetables.
- Arrange field management and cooking courses so that local citizens can cultivate and prepare vegetables with skill; promote a balanced diet to reduce rates of obesity and diabetes.
- School vegetables garden increase student knowledge.
- Build capacity among project managers to help the government of Nauru to conduct its National Sustainable Development Strategy smoothly.

Livestock Project Current Progress: To the end of December 2013, the following activities have been completed:

Current Progress:

- Provided extension services to 30 chicken farmers and 30 pig farms to run livestock businesses.
- Provided 1,500 hens to farmers, yielding 19,000 dozen eggs during 2013.
- Provided 80 heads of piglet for extension.
- Supported pig-rearing activities among 10 households and helped them to build compost sites at which to recycle resources.
- Held a veterinary services tour, organized 6 training workshops and engaged in capacity building with project coordinators.

Projected Benefits:

- The project will establish the foundations of a livestock industry in Nauru, particularly for swine and poultry production.
- Supplying and then producing high quality breeds of swine and poultry will replace pork and egg imports and reduce associated expenditure, and per week provide 1500 eggs to school feed program.
- Project participants will learn how to produce compost, which will improve soil fertility and reduce environmental pollution.
- Developing the livestock industry will increase incomes, employment and improve the quality of life of Nauruan citizens.

The current challenges of Horticulture project:

- Dry season don't have water to offer the home garden.
- After RPC established farmer no more interest to do home garden.
- Climate change, people do not raining will be coming.

The current challenge of Livestock project:

- The chickens feed increased price at Capelle supermarket.
- Chickens waste impact the environment.
- Layer Micro-loan project still none progress.
- Every year in Christmas season to Feb would shortage of feed.

What we are lessons from those projects:

- To understand Nauru culture.
- Step by step to training new knowledge and concept.
- Demonstration after practice.

Report by

Lee Ming Zing

Team Leader, Taiwan Technical Mission to Nauru

Annexes

- Annex 1** Nauru's National Biodiversity Strategy and Action Plan (2013)
- Annex 2** Government of Nauru's Official Cabinet Endorsement Document of the Nauru's NBSAP (2013)
- Annex 3** Rapid Biodiversity Assessment of the Republic of Nauru (2014)
- Annex 4** The Feasibility of a Nauruan Limestone Industry and its Linkage with Rehabilitation (2010)
- Annex 5** Final Mine Plan – Pit 6 (2009)
- Annex 6** Nauru's Sustainable Development Strategy (2005-2025)

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- ² Refer to Annex 1 and Annex 2 of this report.
- ³ See Appendix 2 of this report.
- ⁴ Website for the Convention on Biological Diversity:
<http://www.cbd.int/information/parties.shtml>.
- ⁵ See Appendix 1 this report.
- ⁶ See Appendix 2 of this report.
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²¹ Ibid

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²⁹ Ibid

³⁰ W. Jackson Davis, Ph.D. The Feasibility of a Nauruan Limestone Industry and its Linkage with Rehabilitation, The Environment Studies Institute, August 2010

³¹ Government of Nauru's Department of Commerce, Industries & Environment, Nauru's National Biodiversity Strategy and Action Plan, 2013

³² Sheila. A. McKenna et.al. *Rapid Biodiversity Assessment of Republic of Nauru*, SPREP, 2014

³³ Government of Nauru's Department of Commerce, Industries & Environment, Nauru's National Biodiversity Strategy and Action Plan, 2013

³⁴ Ibid

³⁵ Ibid

³⁶ Ibid

³⁷ Peter Jacobs, *Nauru Tuna Fishery Report*, p. 1, Nauru Fisheries & Marine Resources Authority, August 2004

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³⁸ Ibid

³⁹ Government of Nauru's Department of Commerce, Industries & Environment, Nauru's National Biodiversity Strategy and Action Plan, 2013

⁴⁰ Ibid

⁴¹ See Appendix 2 of this report on the consultations with the Division of Culture of the Department of Home Affairs of Nauru.

⁴² Ibid

⁴³ Yuri Tanaka, Asia Pacific Journal: The murder of Australians, the massacre of lepers and the ethnocide of Nauruan

⁴⁴ Robert Gillett, *Fisheries in the Economies of Pacific Island Countries*, p. 97, Table 7.3, ADB 2009

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⁴⁵ See Appendix 2 of this report.

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⁴⁷ W. Jackson Davis, Ph.D. The Feasibility of a Nauruan Limestone Industry and its Linkage with Rehabilitation, p. 406, The Environment Studies Institute, August 2010

⁴⁸ Ibid. p. 524

⁴⁹ Sheila. A. McKenna et.al. *Rapid Biodiversity Assessment of Republic of Nauru*, SPREP, 2014

⁵⁰ Ibid

⁵¹ Ibid

⁵² Ibid

⁵³ See Appendix 2 of this report, Interview with the Secretary and Director of Culture of the Department of Home Affairs.

⁵⁴ Ibid

⁵⁵ See Appendix 2 of this report.

⁵⁶ Government of Nauru's Department of Commerce, Industries & Environment, *Nauru's National Biodiversity Strategy and Action Plan*, Government of Nauru's Department of Commerce, Industries & Environment, 2013

⁵⁷ Sheila. A. McKenna et.al. *Rapid Biodiversity Assessment of Republic of Nauru*, SPREP, 2014

⁵⁸ Yanjol Isaccs. The Planning Engineer of Nauru Rehabilitation Corporation, *Final Mine Plan – Pit 6*, Nauru Rehabilitation Corporation, 15 April 2009

⁵⁹ See Appendix 2 of this report on the interview with the CEO of NRC p.

⁶⁰ See Appendix 5 of this report which provides a brief report on the progress and performance of the TTM-DCIE Projects.

⁶¹ Government of Nauru's Department of Education, *Nauru's Teachers Guide: Science Prep-Year 6/ Year 7-10/ Year 11-12*, Government of Nauru's Department of Education, 2012

⁶² See Appendix 2 of this report where interviewees discussed important obstacles that are in the way of raising and empowering commitment to biodiversity actions in the country.

⁶³ See Appendix 2 on consultations with community based organisation leaders.

⁶⁴ See Appendix 3 of this report which provides the summary of the Aichi Biodiversity Targets.

⁶⁵ Sheila. A. McKenna et.al. *Rapid Biodiversity Assessment of Republic of Nauru*, SPREP, 2014

⁶⁶ Ibid