

Belize's Draft National Biodiversity Strategy and Action Plan (1998)

A review

October, 2014

DRAFT



Belize’s National Biodiversity Strategy and Action Plan (1998): A Review, submitted by the Forest Department, Ministry of Forestry, Fisheries and Sustainable Development, Belize

We thank all those participants who took part in the review process, both in Government agencies, in regional workshops and focal group meetings across Belize.

DRAFT

This report was produced under the
“National Biodiversity Planning to Support the implementation of the CDB 2011 - 2020 Strategic Plan in Belize (National Biodiversity Enabling Activities)”

With funding from the United Nations Development Programme – Global Environment Facility

Please cite as: Belize’s National Biodiversity Strategy and Action Plan (1998): A Review. Ministry of Forestry, Fisheries and Sustainable Development



CONTENTS

1. NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN (1998)	3
2. STRUCTURE OF THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN	6
3. OVERALL SUCCESS OF IMPLEMENTATION	8
3.1 ENVIRONMENTAL AND LAND USE PLANNING	12
3.2 FISHERIES, COASTAL AND MARINE RESOURCES	13
3.3 FOREST AND WILDLIFE MANAGEMENT	15
3.4 AGRICULTURE	19
3.5 TOURISM	23
3.6 MEDICINAL PLANT	25
3.7 LEGAL AND POLICY FRAMEWORK	27
3.8 INFORMATION AND GEOGRAPHICAL INFORMATION SYSTEMS	29
3.9 ACCESS TO GENETIC RESOURCES	31
3.10 EQUITY AND BENEFIT SHARING	31
3.11 HUMAN POPULATION	34
3.12 BIOSAFETY	35
4. SUMMARY OF RECOMMENDATIONS	37
4.10 EQUITY AND BENEFIT SHARING	40
5. BARRIERS TO NBSAP IMPLEMENTATION	41
SHORT TERM BARRIERS	41
MEDIUM-TERM BARRIERS	43

ACRONYMS

APAMO	Association of Protected Area Management Organizations
BAS	Belize Audubon Society
BCCC	Belize Climate Change Committee
BEST	Belize Enterprise for Sustainable Technology
BFD	Belize Fisheries Department
BSGA	Belize Shrimp Growers Association
BTFS	Belize Tropical Forest Studies
BTB	Belize Tourism Board
CBO	Community Based Organization
CCRE	Caribbean Coral Reef Ecosystems Programme (Smithsonian)
CGA	Citrus Growers Association
CZMAI	Coastal Zone Management Authority and Institute
DoE	Department of the Environment
ERI-UB	Environmental Research Institute – University of Belize
GDP	Gross Domestic Product
FAO	Food and Agriculture Organization
FCD	Friends for Conservation and Development
FD	Forest Department
IIED	International Institute for Environment and Development
IoA	Institute of Archaeology
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
MFFSD	Ministry of Forestry, Fisheries and Sustainable Development
MPA	Marine Protected Area
NBMF	National Biodiversity Monitoring Framework
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-Governmental Organization
NICH	National Institute of Culture and History
NPAPSP	National Protected Areas Policy and System Plan
NPAS	National Protected Areas System
PA	Protected Area
PACT	Protected Areas Conservation Trust
PFB	Programme for Belize
PPA	Private Protected Area
SACD	Sarteneja Alliance for Conservation and Development
SATIIM	Sarstoon Temash Institute for Indigenous Management
SI	Statutory Instrument
SIB	Statistical Institute Belize
SIRHI	Simplified Integrated Reef Health Index

TNC	The Nature Conservancy
TRIGOH	Tri-national Gulf of Honduras
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resource Institute

DRAFT

1. NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN (1998)

Background

The original National Biodiversity Strategy and Action Plan (NBSAP) was developed in 1998, but was never formally endorsed, and funding for implementation was limited in the five years following its development. It has, however, provided an informal framework for the guidance of biodiversity conservation in Belize, and has been used to some extent by the Government, NGOs and CBOs in the justification and prioritisation of biodiversity conservation activities. The original plan was framed by a number of overarching objectives, but did not incorporate national biodiversity targets, and has not been updated to support the global Aichi Targets.

Over the last five years, there has been a gradual increasing of recognition of the importance of the environment in Belize's national development, in its adaptation mechanisms for climate change, and the need for cross sectoral integration of the environment into mainstream policies and planning. The revision of the National Biodiversity Strategy and Action Plan is therefore being conducted under the National Biodiversity Enabling Activities, as part of the "National Biodiversity Planning to Support the implementation of the CDB 2011 - 2020 Strategic Plan in Belize" project, and in recognition of its commitments under the CBD.

This provides Belize with the opportunity to:

- strengthen the Plan through the incorporation of the new Aichi objectives, actions and targets, modified to the national context,
- integrate a framework for effective monitoring and evaluation of implementation,
- reinforce the importance of ecosystem services to national development
- address the issues of climate change impacts on ecosystems and biodiversity, and the need to build resilience

Belize will have an opportunity to use the process itself to improve mainstreaming of biodiversity across government and society, to strengthen Belize's commitment to maintaining its natural resources, ecosystem services and species diversity, and as a tool to ensure Belize moves forward with strategies that will assist in reducing poverty and increasing resilience and adaptation to climate change.

The following analysis covers Belize's success of implementation of the first National Biodiversity Strategy and Action Plan (1998), the current status of strategic activities, the barriers to implementation, and taking into consideration the following limitations and challenges:

1. The NBSAP has never been endorsed, nor formally implemented.
2. This assessment can only be considered as a snapshot of the current status
3. Few people surveyed (whether public or private sector) have heard of the 1998 NBSAP, and even fewer have read it.

4. Since the closure of the National Biodiversity Office, there has been no focal point coordinating implementation.
5. Strategies are not worded to facilitate evaluation, and often have no single discrete output.
6. In some cases, strategies have been successfully completed in the past, yet the outputs have not stood the test of time. The assessment has been conducted to reflect current status.
7. Whilst there was extensive stakeholder input into the assessment process, with validation from existing reports and follow-on focal meetings, the information spans many years, from many points of view, and does not claim to be able to track all the fluctuations in implementation over the 16 year period since it was developed.

Goal of NBSAP (1998)

To promote the sustainable use of Belize's biological and cultural resources by educating society to properly conserve biological diversity in order to maintain and enhance the quality of life for all Belizeans. This will be achieved by ensuring local participation and equitable access to benefits, through adequate institutional and human capacity building and collaborative research and development.

Objectives

1. Foster and enhance human and institutional capacity building to effectively plan and manage Belize's biodiversity resources.
2. Create an awareness of the importance of biodiversity resources to Belize's development and to the welfare of its people.
3. Promote community participation and decentralize the management and use of Belize's biodiversity resources.
4. Determine, document and monitor the status and value of Belize's biological resources.
5. Strengthen and consolidate in-situ conservation.
6. Promote ex-situ conservation of Belize's biological resources as a complement to in-situ conservation.
7. Promote the sustainable use, equitable access and distribution of benefits derived from Belize's biological resources.
8. Formulate policies on biosafety and intellectual property rights.
9. Amend legislation to ensure that Belize's biodiversity is developed and used sustainably.

Guiding Principles

1. Belize's biological and cultural resources are national patrimony and should be jointly conserved.
2. Baseline data on Belize's biodiversity resources is indispensable for long term monitoring and management.
3. Ecological and economic sustainability should be the driving forces in developing Belize's biodiversity.
4. Belize's biodiversity is best conserved in-situ.
5. Conservation should be community-based and targeted; each community can identify its own biodiversity resource interest.
6. Belize's biodiversity is best conserved when traditional knowledge is respected and benefits arising from the use of this knowledge are equitably shared,
7. Public education (bio-literacy) is required to improve and enhance the appreciation of biodiversity conservation at all levels, but should focus on youths.
8. Belizeans, in concert with global partners, are dependent on biodiversity and have a responsibility to contribute towards its conservation.
9. Belize's biological resources should be conserved in coordination with regional and global initiatives.

2. STRUCTURE OF THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN

Strategic and Thematic Areas

Twelve **Strategic Areas** were used to structure the National Biodiversity Strategy and Action Plan, and linked to the Convention on Biological Diversity articles (Table 1). Each Strategic Area is then sub-divided into twelve cross cutting **Thematic Areas**– eight key, cross cutting Thematic Areas, and a further four more specific areas with a total of 353 Strategic Actions (Table 3; Diagram 1).

Strategic Area	Number of Strategic Actions	CBD Article(s)
In situ and ex situ conservation	36	CBD: Article 8 and Article 9
Laws and policy	57	CBD: Article 6, Article 11, and Article 14
Human and institutional capacity for the conservation and sustainable use of biodiversity	57	CBD: Article 12, Article 13 and Article 18
Research, monitoring and sustainable use of biodiversity	81	CBD: Article 7, Article 10, Article 12, Article 14
Community participation	23	CBD: Article 10
Education and public awareness	28	CBD: Article 13
Institutional collaboration and coordination (national, regional, and international)	22	CBD: Article 17 and Article 18
Information management	21	CBD: Article 12, Article 17 and Article 16
Access to genetic resources	12	CBD: Article 15
Equity and benefit sharing	5	CBD: Article 8, 10, 15, 16, 20
Population and biodiversity	5	CBD: Article 10, Article 13
Biosafety	6	CBD: Article 19

Table 1: Strategic Areas of the NBSAP, Number of Strategic Actions, and links to the CBD

Key Cross-cutting Thematic Areas	Specific Thematic Areas
A. Environmental and Land Use Planning	I. Access to Genetic Resources
B. Fisheries, Coastal and Marine Resources,	J. Equity and Benefit Sharing
C. Forestry and Wildlife Management	K. Human Population
D. Agriculture	L. Biosafety
E. Tourism	
F. Medicinal Plants	
G. Legal and Policy Framework	
H. Information Management	

Table 2: Strategic Areas of the NBSAP, Number of Strategic Actions, and links to the CBD

Inter-relations between Thematic Areas and Strategies Thematic Areas	STRATEGIC AREAS											
	In situ and Ex Situ Conservation	Law and Policies	Human and institutional capacity	Research and Monitoring	Community Participation	Education and Public Awareness	Institutional collaboration and coordination	Information Management	Access to Genetic Resources	Equity and Benefit Sharing	Human Population	Biosafety
THEMATIC AREAS												
Environmental and Land Use Planning												
Fisheries, Coastal and Marine Resources												
Forest and Wildlife Management												
Agriculture												
Tourism												
Medicinal Plants												
Legal and Policy Framework												
Information and GIS												
Other												

Table3: Inter-relations between Thematic Areas and Strategic Areas

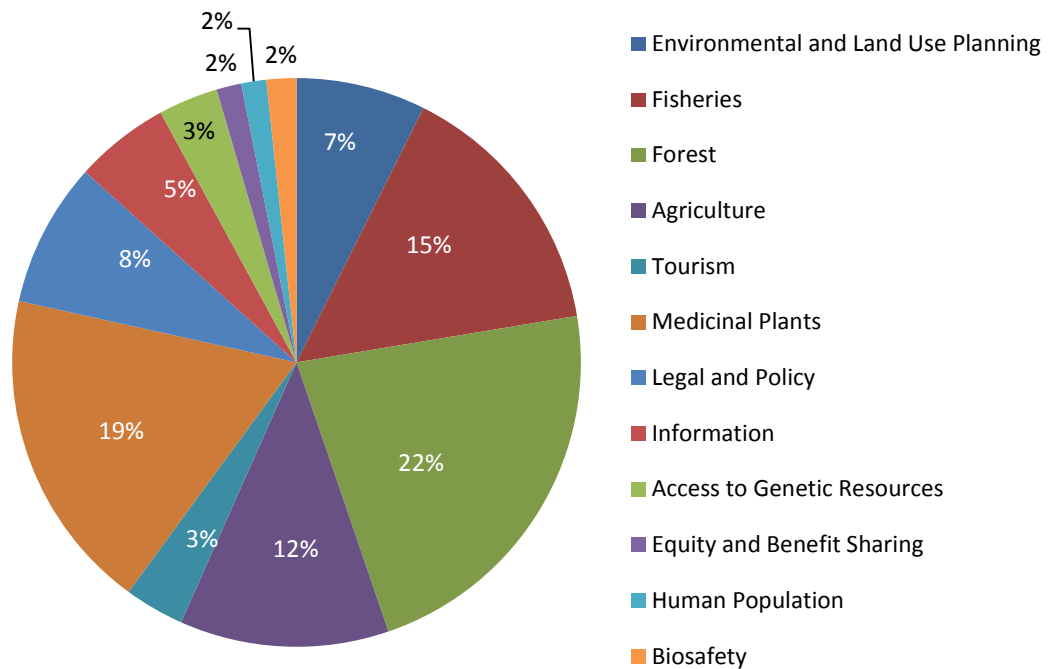


Diagram 1: Relative distribution of strategic activities across Thematic Areas

3. OVERALL SUCCESS OF IMPLEMENTATION

Analysis of the level of implementation of the actions identified in the NBSAP (1998) shows that it is poor: of the 353 activities, 60% have a score of only 1 or 2 out of 4 on the scale:

1. No long term output
2. Limited success of output
3. Largely successful output
4. Fully successful output

...based on the current status.

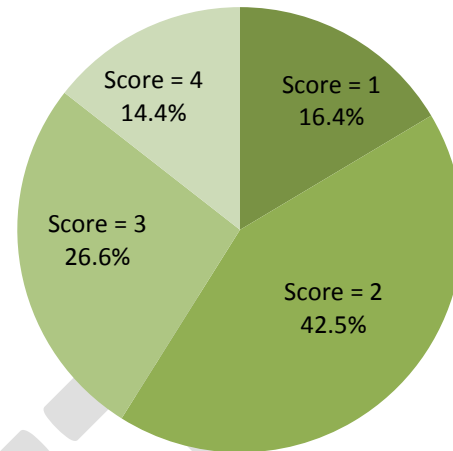


Diagram 2: Implementation scores for all 353 activities identified in the NBSAP (1998).

16.4% of strategic activity outputs have an output success rating of 1: they are not considered to have been achieved in the long term (no visible outputs in 2014)

42.5% of strategic activity outputs have an output success rating of 2: Partial Success of Outputs

Much has changed since 1998. Some activities are tied to legislation, plans and strategies that are not being implemented in today's context or were very specific to activities ongoing in 1998 – for example “Amend the Land Utilization Act to address the definition, establishment process and management of Special Development Areas” and “Explore agreements with private landowners to obtain access for game hunting in areas adjacent to protected areas or 'buffer zones'.

Some activities are not achievable without changes to the legislative framework – game farming, for example, requires changes to the Wildlife Protection Act, which have been discussed at length since 1998. These changes have been included in the draft amendments to the Wildlife Protection Act, but are still to be passed by Cabinet before game farming becomes a legal option.

The thematic area of Medicinal Plants, in particular, appears to be weak in terms of implementation, with over 87% of strategic activities rating as either 1 or 2. This is an area that benefitted from the input of many active participants during the planning process, but has weakened over the years without the support of a specific Government agency to move it forward. Under current approach, medicinal plants would be addressed as specific activities relating to traditional knowledge, rather than being encapsulated at the level of a Thematic Area. The inclusion of traditional healers and medicinal plants in the draft National Cultural Policy should provide the support required to revitalize this area.

Other areas, such as organic farming, have also shown cyclic patterns of increased activity and decline since 1998.

26.6% of strategic activity outputs are considered largely successful

There have been considerable advances in the framework for natural resource management, with the revision of key legislation – the National Land Use Policy and Integrated Framework for Land Resource Development, which brings protected areas and biological corridors more firmly into national planning for land use; the updating of the 1948 Fisheries Act as the Aquatic Resource Act; the Integrated Coastal Zone Management Plan; the revision of the Forest Policy the Wildlife Protection Act, National Parks System Act, and the Mangrove Protection Act. These will bring increased fines, and address issues such as allocation of lands for clear-felling activities within key biological corridors, removal of mangroves, development within the coastal zone, and unsustainable harvesting of natural resources (both terrestrial and marine). However all of these have stalled in the endorsement or implementation process.

Other important biodiversity frameworks are also in the process of being developed under the Environmental Research Institute (ERI) – the National Environmental and Resource Management Agenda and development of the National Biodiversity Monitoring Framework among them, and will meet other outputs of the NBSAP once completed.

14.4% of strategic activity outputs are considered fully successful

These include some of the most important steps taken in the move towards effective management of Belize's natural resources:

- Development and endorsement of the National Protected Areas Policy and System Plan (NPAPSP, 2005), with its associated gap analysis, strengthened management planning framework, co-management agreement for effective NGO partnerships in management of protected areas and management effectiveness assessment framework.
- Green Laws training for protected area co-management staff and communities, and provision of Special Constable status for park rangers
- Implementation of Managed Access as a rights-based fishery management mechanism, and integration of fishers into the management structure
- Development and endorsement of the Integrated Water Resource Management Act
- Greatly improved GIS capacity and use of satellite imagery in ensuring effective natural resources management
- Development of the Sustainable Tourism Master-Plan, professionalization of the industry and improved international marketing of tourism
- Inclusion of participation in communities in management planning for protected areas
- Improved trans-boundary collaboration

Thematic Areas

An analysis of the Thematic Areas demonstrates the strengths and weaknesses of implementation and outputs of the NBSAP since 1998 (Table 4).

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
A. Environmental and Land Use Planning (n=26)	11.5	38.5	50.0	0.0
B. Fisheries, Coastal and Marine Resources (n=53)	7.5	32.1	39.6	20.8
C. Forest and Wildlife Management (n=79)	15.2	46.8	27.8	10.1
D. Agriculture (n=42)	11.9	50.0	21.4	16.7
E. Tourism (n=12)	0.0	58.3	8.3	33.3
F. Medicinal Plants (n=65)	38.5	47.7	10.8	3.1
G. Legal and Policy Framework (n=29)	10.3	27.6	31.0	31.0
H. Information and Geographical Information Systems (GIS) (n=19)	26.3	15.8	36.8	21.1
Access to Genetic Resources (n=12)	0.0	75.0	16.7	8.3
Equity and Benefit Sharing (n=5)	0.0	100.0	0.0	0.0
Human Population (n=5)	20.0	0.0	40.0	40.0
Biosafety (n=6)	0.0	33.3	16.7	50.0

Table 4: Results of Activity Ratings per Thematic Area

Summary of Strengths and Weaknesses

Primary Thematic Areas	Average Rating*	%**
A. Environmental and Land Use Planning (n=26)	2.38	59.62
B. Fisheries, Coastal and Marine Resources (n=53)	2.74	68.40
C. Forest and Wildlife Management (n=79)	2.33	58.23
D. Agriculture (n=42)	2.43	60.71
E. Tourism (n=12)	2.75	68.75
F. Medicinal Plants (n=65)	1.78	44.62
G. Legal and Policy Framework (n=29)	2.83	70.69
H. Information and Geographical Information Systems (GIS) (n=19)	2.53	63.16
Access to Genetic Resources	2.33	58.33
Equity and Benefit Sharing	2.00	50.00
Human Population Policy	3.00	75.00
Biosafety	3.17	79.17
*Score out of a possible 4.00		
**Note: Averages are derived from individual activity ratings for accuracy, which may differ slightly from averages of the roll-up strategies		

The five Primary Thematic Areas with the greatest success of overall outputs are:

Biosafety	79.2%
Legal and Policy Framework	75.9%
Human Population Policy	75.0%
Tourism	69.5%
Information and GIS	69.0%

Two Thematic Areas have ratings of 50% or below - Medicinal Plants, with an overall average rating of 1.87 (46.7%) and Equity and Benefit Sharing 2.00 (50.0%).

The Thematic Areas with the highest output success (highest percentage of activity outputs rating as 4) are:

Tourism	33.3%
Legal and Policy Framework	31.0%
Fisheries, Coastal Resources	24.6%

Table 5: Average Ratings of Primary Thematic Areas

3.1 ENVIRONMENTAL AND LAND USE PLANNING

Thematic Area	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
A. Environmental and Land Use Planning (n=26)	11.5	38.5	50.0	0.0
Overall % Success of outputs	59.6%			

NBSAP Strategies

The strategies of this Thematic Area were targeted at the development of integrated land use frameworks and coordination mechanisms, with recognition of the importance of water catchment planning. It called for building understanding of the need for planning and management of natural resources, and greater participation of community and stakeholder participation in the development, implementation and monitoring of land use plans.

Current Status

Whilst the original activities were focused on strengthening the Special Development Area legislation, which has not been achieved (and therefore rate as only 1 or 2), the development of the National Land Use Policy and Integrated Framework for Land Resource Development, and the Integrated Coastal Zone Management Plan (ICZMP) has moved Belize towards meeting these important national strategy outputs. However the ICZMP has yet to be endorsed, and implementation of the National Land Use Policy has yet to start. The Integrated Water Resource Management Framework addresses the need for more effective management and monitoring of water catchments.

Recommendations for addressing gaps and areas requiring strengthening

- Prioritized cross sectoral implementation of the National Land Use Policy and Integrated Framework
- Endorsement and cross sectoral implementation of the Integrated Coastal Zone Management Plan.
- Ensure there is an effective coordinating mechanism for implementation of the overlapping cross-sectoral frameworks: the Integrated Framework for Land Resource Development, the Integrated Coastal Zone Management Plan, the National Environmental Strategy and Action Plan, the Integrated Water Resource Management Plan and, once revised, the National Biodiversity Strategy and Action Plan
- Prioritise importance of lowland forests in water catchment in Belize, based on mapping and modelling of cloud seeding / rainfall patterns, and identify those that are critical to maintaining Belize's long term water security and associated livelihoods (with particular reference to forests

of the southern plain and the north eastern forest block). Ensure that these are flagged during land planning, land allocation and rural settlement initiatives.

- Build capacity in relevant Ministries and NGOs in the understanding of identification and effective management and monitoring of key water catchment areas.

3.2 FISHERIES, COASTAL AND MARINE RESOURCES

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
B. Fisheries, Coastal and Marine Resources (n=53)	7.5	32.1	39.6	20.8
Overall % Success of outputs	68.4%			

NBSAP Strategies

The Thematic Area: Fisheries, Coastal and Marine Resources focused on maintaining and enhancing coastal and marine biodiversity, and improving capacity for management of these resources to address identified threats, to be achieved through strengthening of the policy and legal framework and investing in institutional and human resources of relevant agencies. The NBSAP included strategies for increasing the sustainability of Belize's fishery, including Managed Access, banning of shrimp trawling, closure of the marine aquarium fishery, better protection of Nassau grouper and other spawning aggregation species, with implementation to be based on good science, supported by socio-economic data and a strong legal framework.

It sought to increase stakeholder participation in coastal and marine resource management, and to increase the level of understanding of the need for sustainable use and effective management by the general public, key stakeholders (fishers, coastal developers) and students. It identified the need for diversification from the traditional fishery, with investigation of the feasibility of exploiting Belize's Exclusive Economic Zone, and for strengthening transboundary and regional co-operation in the marine environment. It also identified the need to build the capacity of NEAC members to be able to effectively evaluate Environmental Impact Assessments for developments planned for the coastal zone.

For the freshwater fishery, it recognized the need for a comprehensive analysis and better management of the freshwater fishery, and particularly of the critically endangered Central American river turtle.

Current Status

In the marine environment, Belize has made significant progress in managing its reef and marine resources. It has a network of marine protected areas that more than meets international commitments for shallow-water ecosystem representation, and are managed on the principles of ecosystem based management. Marine reserves nationally show a higher level of management effectiveness, with ongoing training of staff, and strong transboundary and regional collaboration through initiatives such as PREPAC, MBRS, CRFM, MAR Fund, Healthy Reefs and TRIGOH. Belize however falls short of meeting the IUCN goal of 10% of all marine ecosystems being represented in no-take or replenishment zones.

After successfully piloting Managed Access in two protected areas, Belize is now ready for a roll-out over all marine reserves, and through this rights-based management regime, has strengthened engagement and participation of fishermen in management activities. It has also recognised the need to balance fisheries diversification with increased alternatives for fishermen, and has been promoting small scale community initiatives such as seaweed farming, as well as planning for a larger economic diversification initiative for coastal communities, to assist fishermen to adapt to the changes in the marine environment and productivity.

Belize has banned trawling within its waters, but has not fully addressed whether or not to better regulate or stop the aquarium industry (the appearance of endemic species in the aquarium trade in the US raises concerns that there should be at least improved regulation). Groupers and other spawning aggregation species are more effectively protected, particularly with the declaration of Turneffe Atoll Marine Reserve.

Aquaculture falls under the Ministry of Agriculture, following the transfer all land-based aquaculture activities (including shrimp farming). The Fisheries Department retains the mariculture component covering any fish farming established in the marine environment. The Draft Fisheries Resource Bill has dual responsibilities. The transfer may not be the most logical move, as it removes control of the aquaculture industry from the Departments most closely associated with it and with the most relevant skill sets – the Fisheries Department and Department of the Environment. At the moment there is no comprehensive regulation of Aquaculture - regulation development will be the responsibility of the Minister in charge.

Belize still has to strengthen its capacity in the management of the freshwater ecosystems and fishery - a recognized national gap in natural resource management (and with NBSAP activities rating as 1). There is no national inventory of the value of the freshwater fishery or its socio-economic impacts. The Fisheries Department, at the moment, is fully focused on and fully extended in management of the marine environment. Despite initial steps taken under the PREPAC project, these have not resulted in either effective monitoring or enforcement of inland water bodies, with challenges and barriers including human resource availability, funding, and access. Where opportunities have existed to strengthen freshwater management through partnerships with NGOs,

however, the Fisheries Department has made some headway...for example in the increased protection of the Central American river turtle, through increasing national awareness, and surveillance and enforcement in high risk times and areas.

Freshwater management requires a specific framework that balances the needs of the fishery with water security, the needs of communities and agriculture, and addresses connectivity issues.

Recommendations for addressing gaps and areas requiring strengthening

- Continued roll-out of Managed Access, balanced by alternative livelihood diversification, and strengthened through the integration of sport fishing
- Strengthening of freshwater fisheries management, based on sound biodiversity, fisheries and socio-economic information, and integrating water bodies within protected areas
- Ensure effective working relationship with the Water Resources Authority
- Develop an Integrated Freshwater Framework for freshwater fishery and aquatic biodiversity / management that is aligned with the Integrated Water Resources Policy, and integrates recommendations from the NPAPSP Rationalization exercise, the National Hicatee Conservation and Monitoring Network and the National Environmental and Natural Resource Management Research Agenda
- Implementation of recommendations from the NPAPSP Rationalization process re. PA boundary modification to include waterways (e.g. Deep River)
- Review the status and sustainability of the aquarium trade from Belize and bring in tighter regulations or closure where required
- Continued strengthening of partnerships between Government and NGOs / CBOs for coastal and marine protected area management, research and outreach.

3.3 FOREST AND WILDLIFE MANAGEMENT

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
C. Forest and Wildlife Management (n=79)	15.2	46.8	27.8	10.1
Overall % Success of outputs	58.2%			

NBSAP Strategies

The Thematic Area: Forest and Wildlife Management focused on the adoption and implementation of the National Protected Areas System Plan, replaced in 2005 by the revised National Protected Areas Policy and System Plan. Conservation strategies included strengthening natural resource management, wildlife protection and protected areas legislation, with the development of an

effectively managed national protected area network, linked by biological corridors. It recognized the need for greater transparency and accountability in the dereservation of protected areas, and called for strengthening of the sub-division mechanism, through inclusion of a requirement for Environmental Impact Assessment for any area of 25 acres or more. It sought to improve national collections, with the formation of a botanical garden, strengthening of the national herbarium and establishment of a faunal collection.

The NBSAP recognised the need for building capacity in the Forest Department, in terms of equipment and human resources, and improved national investment in the National Protected Areas System, supported by more realistic and effective fines and increased royalties on timber and non-timber forest products. Improved, sustainable forest management was supported by strategies for implementation of an effective timber license system, with reduction of short term licenses, and moving towards sustainable forest management units, and improved monitoring of license implementation. There was also a focus on improved management of Forest Reserves (particularly Mountain Pine Ridge Forest Reserve) with use of management plans, implementation of a National Forest Inventory, and a reforestation programme particularly in Corozal District, and for riverine areas. The need for logging companies to move from traditional logging practices to a more sustainable regime was addressed through identification of the need for better management of forests during logging operations, better regulation of sawmills, improved milling practices and increasing the value-added benefits from logging. Improved management of non-timber forest products was also recognized as important, with increased information on the value of these resources, and marketing to niche markets. Forestry and non-timber forest product extraction were further supported by strategic actions for improved surveillance and enforcement of illegal logging, and reinvestment of funds generated from fines and royalties back into forest management.

Better management of game species was also included in the NBSAP strategies – both better control of hunting, and the potential provision of a legal framework and promotion of game ranching at community level to reduce pressure on wild stocks, should it be considered feasible.

Building effective co-management partnerships was also considered key, with strengthening of capacity of protected area co-managers in biodiversity knowledge, and development of an effective management planning framework. Improved awareness of the value of natural resources and ecosystem services was also considered important for communities adjacent to protected areas.

Knowledge was a recognised gap, with strategies calling for increasing knowledge of threatened and endemic species, habitat requirements and important migration patterns, through partnerships, an improved research framework, and supported by an effective permitting system. Community participation was recognized as important, and focused on monitoring of forests and wildlife and building capacity for assisting with enforcement of legislation under the Forest Act and Wildlife Protection Act – this was aligned with the ongoing concepts and activities from community consultations for the development of Belize's northern biological corridors, also being conducted in 1998.

Current Status

Since the development of the NBSAP, there have been significant steps made in the development of the National Protected Areas System, with 35.8% of the terrestrial area being protected under the National Parks Act and the Forest Act. Implementation of the National Protected Areas Policy and System Plan, endorsed in 2005, has resulted in a strong protected areas framework that integrates and strengthens co-management and community participation. A gap analysis and subsequent Rationalization exercise has assisted Belize in ensuring that the protected areas within the system, and the system as a whole, are well planned and functional in their roles of biodiversity protection and protection of ecosystem services.

Meeting CBD Commitments Aichi Target 11

35.8% of Belize's terrestrial area lies within the National Protected Areas System. Of the 68 natural ecosystems identified under the revised ecosystem mapping (Meerman, revised 2014), only 7 ecosystems do not meet the 10% target recommended as the IUCN minimum, and are therefore considered under-represented – these are primarily marine or mangrove ecosystems.

The Environmental Impact Assessment process has been greatly strengthened to increase regulation of both coastal and caye development, and littoral and mangrove ecosystems are flagged for more in-depth evaluation.

The forestry industry has also been improved, with the introduction of sustainable forest management under long term forest licenses, which include regulations to protect steep slopes and riparian belts from impacts directly associated with the logging or with associated road and other infrastructure construction, as well as addressing the need to protect watersheds and biodiversity. Although numerous Short Term Forest Licenses are still being issued, they are gradually being phased out.

Both the Forest and the Wildlife Protection Acts and Policies are considered outdated, and several unsuccessful attempts have been made to revise them, changing little within the policy environment. However, recent initiatives under the Key Biodiversity Areas project have led to the current revision of Forest Policy (ongoing), which will significantly strengthen forest management, with updated regulations and increased fines for illegal extractive activities. The current Wildlife Protection Act, focused on protection of threatened wildlife species, has recently seen a significant increase in successful implementation, with solid progress being achieved in addressing the wildlife trade and captive wildlife. The revised Wildlife Protection Act, once it is approved, will also provide the legislative framework for the farming of game species, should research show that this can be achieved sustainably and be feasible. Under a partnership with Panthera, there is now a Forest Officer dedicated specifically to wildlife conflicts – particularly those with large cats (jaguars and pumas).

There is now a stronger framework for the issuing of research permits, though there are still issues with repatriation of reports. This includes improved communication and collaboration with protected area managers, national working groups and species- / taxa-specific experts before

permits are issued. Whilst the botanic gardens envisioned in the original NBSAP has not yet come to fruition, there are now two established private botanical gardens within Belize, both collaborating with overseas partners for capacity building, and there is re-kindled interest in development of a national botanic garden along the original lines of that proposed under the NBSAP. The National Herbarium has been renovated, and is now being maintained and strengthened under the Environmental Research Institute. Ex-situ conservation, however, is not strong within Belize – as a country that still maintains considerable biodiversity wealth, the priority is in-situ conservation, with the maintenance of intact ecosystems, connectivity and species. A number of threatened species, however, are benefitting from ex-situ conservation measures through rehabilitation programmes focused on returning individuals to the wild – parrots, primates and manatees being the prime examples – to help safeguard national populations.

The biggest challenge in implementation of the NBSAP has been the limited priority Government gives to the management of Belize’s natural resources, despite the recognition of the critical role it plays in support national development plans. The Forest Department has seen its responsibilities grow, and yet its budget cut over consecutive years. It is increasingly stretched to manage those very resources on which Belize depends – particularly with the urgent need for adaptation to the predicted climate changes being faced by the country. There has been an increasing shift of responsibility to the NGO sector to take up the load through co-management partnerships, partnerships with the Environmental Research Institute (ERI - University of Belize) and on funding from international agencies. Without building greater national support, and sustainability, of this sector, this increasing dependency increases Belize’s vulnerability to global economic shifts, which in turn will negatively impact the country’s ability to reduce poverty whilst still ensuring climate change resilience.

<p>REDD: Reducing emissions from deforestation and forest degradation</p> <p>FCPF: The Forest Carbon Partnership Facility</p>

The recent acceptance of Belize’s REDD+ submission to the FCPF opens up financial incentives and opportunities for implementation of REDD strategies, to be managed under the Belize National Climate Change Committee. REDD+ is seen as a vehicle for achieving the goals and objectives of sustainable land use management and sustainable forest management, two tools towards sustainable development.

Recommendations for addressing gaps and areas requiring strengthening

- Ensure protected areas and biological corridors continue to be adequately represented in the revised Integrated Framework for Land Resource Development
- Utilize the revision process for the National Biodiversity Strategy and Action Plan as a mechanism for raising the profile of biodiversity and ecosystem services in Belize, and engaging cross sectoral support for its implementation
- Prioritise a national valuation of environmental resources to support greater national investment in natural resource management

- Promote greater cross-sectoral appreciation and understanding of the role of natural ecosystems in building Belize’s resilience to climate change and addressing poverty
- Support the restructuring of NPAS administration and strengthen the National Protected Areas Secretariat and NPAS office
- Effectively integrate strengthened community-based forest management into the revised Forest Policy
- Prioritise strengthening of the working relationship between NPAS / Forest Department / Fisheries Department, the Water Resource Management Office, the offices of the Ministry of Natural Resources and the Environment, and the Climate Change Office
- Revise site specific geo-referenced descriptions of each individual protected area designated under the National Parks System Act to ensure accuracy of shapefiles in the national data sets. Incorporate revisions of protected area boundaries where feasible to fulfil recommendations for strengthening of the protected areas system under the Rationalization exercise
- Maximise the opportunities presented under REDD+
- Strengthen the partnership with authorized wildlife rehabilitation facilities

3.4 AGRICULTURE

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
D. Agriculture (n=42)	11.9	50.0	21.4	16.7
Overall % Success of outputs	60.7%			

NBSAP Strategies

The NBSAP calls for the establishment of a Sustainable Agricultural Policy that focuses on “the conservation of soils, biodiversity, agro-biodiversity, integrated pest management, organic farming, agro-forestry, environmentally friendly farming techniques and food security issues.” Strategies included training of farmers in sustainable agriculture techniques, the better regulation of pesticide use, monitoring of agrochemical run-off from agricultural and agro-industry operations, with fines for companies causing environmental damage. It required a planned, coordinated approach to monitoring, both of environmental compliance and of environmental impacts, with building of in-country capacity through training, building capacity for community support in sample collection, and installation of lab testing facilities. It identified the need to address recognition of forestry, agro-forestry and sustainable timber harvest as “productive” land use in upgrading of leasehold to private property, reducing the incidence of forest clearance to meet development requirements for ownership.

Strategies for developmental research, both within Government and with private sector, focused on assessing the impact of agriculture on biodiversity, and the potential impacts of using integrated pest management. It also included strategies for research into promoting agro-forestry, organic farming /“environmentally friendly” farming and indigenous knowledge on food and medicinal plants, through improved information availability and training. Inclusion of conservation issues and environmentally-friendly farming in agricultural courses, and improved information availability on best agricultural practices for the school curricula, were also considered important strategies.

The importance of increasing international collaboration with countries with similar climatic regimes was considered key, as was establishing closer links with international seed and gene banks for ex-situ maintenance of agricultural plant stocks. This was linked to documenting in-country genetic stock and improving information management and availability on land use and agriculture in Belize.

Current Status

Belize has developed the National Food and Agriculture Policy (2002 – currently under review), which seeks to achieve “A transformed/modern sector that is fully competitive, diversified and sustainable” focussing on five pillars:

- food security and nutrition
- rural prosperity
- agriculture and food production as an engine to economic growth,
- sustainable management of agro-ecological system that contributes to environmental services
- agricultural innovation for competitiveness

A major focus of the revision is the improved integration of climate change as a central theme (though it should be noted that climate change was not a recognized issue during the development of the strategies of the original NBSAP), and the Department has a Climate Change focal point and direct connection with Meteorological Office. Work plans already have to take into account climate change within the planning process. A pilot project is targeted at assisting farmers in becoming more resilient to climate change in the Belize River Valley – an initiative that, if successful will be expanded nationally. Flooding is taken into consideration when advising on agriculture. The Government agricultural stations are being upgraded to meet standards for transfer of new technologies for adaptation to Climate Change, through demonstration of new techniques for building resilience. Direct links with the Meteorological Office also assist in planning and management for the changes predicted to Belize’s climate.

The Agriculture Department is currently focused on the development and promotion of Integrated Farming Systems - agro-silvestry systems combining livestock / fruit trees and live fencing, and training of small producers in the effective use of crop rotation...reducing slash and burn, and taking into account the need for soil conservation. It is also working to assist farmers towards agro-

processing –building adding value and food safety into small scale agriculture, and increasing national food security. However, there is as yet little indication of any roll-out of this approach by the agriculture sector, which is still dominated by mechanized monoculture.

The Agricultural Development Management and Operational Strategy (ADMOS; 2003) rated the establishment and development of an organic farming industry in Belize as a high opportunity area, and there has been a growing interest in agro-forestry (particularly cacao) and organic farming in the private sector, with training opportunities available for farmers through NGO organizations. The development of the organic farming movement in Belize has been led by BOPA, the Belize Organic Producers Association, working with the Ministry of Agriculture over the years to develop certification standards and train extension officers in certification (Tzul, 2009). These were presented in 2010 as the Participatory Guarantee System (PGS) Certification scheme for local production with the support of the Inter-American Institute for Cooperation on Agriculture (IICA) and the then Ministry of Agriculture and Fisheries (MAF). Whilst the Belize Agricultural Health Authority (BAHA) has the mandate to regulate the certification of organic farms in Belize, it currently has no certification system in place to do so, despite the groundwork achieved by BOPA (BAHA representative, 2014), and during consultations, only limited interest was voiced in the promotion of organic farming by representatives of the Ministry of Agriculture (2014), with no identified ongoing activities. Agro-chemicals are of concern, having been detected at high elevations across the Maya Mountains, and chemical contamination detected in marine species. Belize is challenged by not having a national testing lab, nor ongoing water quality testing for agro-chemicals. The costs and logistics of comprehensive international analyses are prohibitive.

There is now greatly increased data collection, data management and use in planning of strategies. The data are key for making sound decisions, based on costing, access to markets, trends, disaster risk management etc., and is recommended as cross cutting under the revised policy, towards better management, both at national and regional level. Agricultural areas are being mapped at national level, both through the Lands Information Centre and independently, with the delineation of individual farms (this is, however, challenged by the dynamic nature of small farms). Under the Land Use Policy, mapping of agricultural areas is now integrated into mapping of other land uses and best land use options, based on soil quality, drainage, the conservation framework of protected areas and biological corridors, to improve decision making on land allocations for agricultural developments. Coordination and collaboration with LIC has greatly improved now that both units are located under the same Ministry and within the same building, with improved use of GIS to assess levels of planting, and impacts of natural disasters. A National Damage Assessment Committee has been established to respond to natural disasters, with teams in each district that deploy after the event to assess the level of damage.

Any large agricultural development has to conduct an Environmental Impact Assessment, with collaboration between Departments in a site visit by DoE, an agriculture extension officer also participates. There is also a staff member in the Ministry whose work is focused on the Environmental Compliance Plan. Environmental sustainability in the agricultural sector has been improved through private sector initiatives, supported by NGOs and by the Government, and with

international funding to achieve implementation. To maintain their current contracts and to compete on the international market, the banana industry has to commit to, and meet, social and environmental standards, including close monitoring of issues such as pesticide use and management of runoff into adjacent rivers (BBGA, pers. com.). The sugar cane industry has been certified under Fairtrade certification and needs to maintain its environmental compliance to keep its market. The citrus industry, too, is moving towards certification through the International Standards Organization ISO 14001 (Environmental Standards), linked to the requirements of its European market (CGA, pers. com.).

The Department of Agriculture has close links with CARDI and Central Farm (University of Belize) for research into best practices, fertilization regimes, pest and disease control, and validation of crop varieties. The Central Farm Campus has been revitalised in recent years to provide training at Associate level in sustainable farming, under the Faculty of Science and Technology, developing capacity in not just farming, but also agro-business and agricultural technology. The Central Farm facility also offers training courses for Agricultural Extension officers, and the establishment of a micro-propagation laboratory, focusing on sugar cane and bananas.

There is no current focus on creation of gene banks or medicinal plants within Government, but private sector initiatives are ongoing at different scales and for different purposes. In both Toledo and Cayo districts, indigenous farmers are trying to maintain pure strains of local corn through use of forest buffers and careful selection of harvested cobs for use as continued seed stock. There are significant concerns among local farmers, however, that GMO seed stock may already be in Belize (illegally), and that eventually, will contaminate local seed stocks.

Recommendations for addressing gaps and areas requiring strengthening:

- Strengthen the framework for organic farming certification for small farmers.
- Build capacity for agro-forestry in Belize, and support a shift in productive land tax to recognise forest / water catchment protection and agro-forestry as development
- Invest in pilot projects promoting more intensive farming methods, reducing the need for continued and increased forest clearance.
- Ensure water security and water catchment areas are considered as high priority for protection during land use planning for agriculture, and during the EIA process.
- Support small farmers in developing environmentally sustainable farming practices that build long term climate change resilience

3.5 TOURISM

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
E. Tourism (n=12)	0.0	58.3	8.3	33.3
Overall % Success of outputs	68.8%			

NBSAP Strategies

The tourism strategies of the NBSAP focused on the development of a national strategic plan for tourism that addressed environmental issues and developed carrying capacities for all protected areas regularly visited by tour guides, to reduce the impacts of tourism on biodiversity. It sought to strengthen tourism at all levels, from the Ministry of Tourism to community based organizations, building national capacity for tourism management whilst minimising environmental impacts.

The NBSAP strategies sought to improve infrastructure at tourism sites inside and adjacent to protected areas, with a basic needs assessment for the system. It also called for improved marketing, both nationally and internationally, to better position Belize for attracting natural history based tourism, targeting specialist groups such as bird watching tours, and included greater regional and international participation and collaboration. It also saw the need to link conservation efforts with tourism, and the importance of both to the national economy, increasing awareness of the role protected areas and biodiversity plays in ensuring Belize remains an attractive and unique tourism destination.

Current Status

The National Sustainable Tourism MasterPlan 2030 was endorsed in 2012, with an overall vision that:

“Belize is an exclusive multicultural sustainable destination in the Central American Caribbean. It is a destination where the authenticity and friendliness of its people, coupled with the uniqueness of an exotic natural environment can be actively experienced within a conserved world.”

The NSTMP is primarily focused on destination development, financing and marketing, but does recognize the importance of conservation and environmental management in supporting Belize’s tourism industry. The quality of the environment and the need to conserve these qualities is recognised within the MasterPlan, which provides the framework that will:

“ensure the NSTMP maintains a balance of three pillars of sustainable development: social accountability, environmental conservation and economic prosperity. The program proposes mechanisms to address resource management and appropriate land use allocation while

maintaining social and environmental safeguards and finding pro-poor mechanisms to link vulnerable groups to the tourism economic value chain.”

Belize is now successfully marketed on the international scene as a tourism destination based on its natural resources. Tourism has increased from 176,054 in 1998 to 917,869 in 2012, with the development of upper end tourism both inland and on the cayes, well established coastal and caye destinations, and the advent of the cruise ship industry. The overnight visitor sector, which contributes the most to the economy, is primarily focused on natural history based tourism destinations. Tourism directly contributes 13.5% to the GDP, with a contribution of closer to 36.6% when associated support industries are taken into account.

Whilst Belize does now have a medium-term tourism plan, developed through a participatory process and endorsed by Government, there have been several examples of the Plan being overridden for political and personal gain, including the agreement for the development of a large cruise ship port at Harvest Caye, in direct contradiction of the MasterPlan, which calls for restrictions to small cruise ship arrivals in the south, and against vocal local opposition. This has weakened the MasterPlan, reducing public confidence in the willingness of Government to implement planned strategies and spatial zoning of activities – not only for the MasterPlan, but also for other plans...including the National Land Use Policy and the Integrated Coastal Zone Management Plan.

Where tourism is being developed through the MasterPlan, investment is primarily in Archaeological Sites, as they are seen as having greater long term security. The presence of a Sustainable Tourism Plan has had little impact on the tourism investment in national protected areas. Infrastructure in the national protected areas is primarily seen as the responsibility of the co-management partners. The lack of long term security for the co-management NGO and CBO partners, and of a concession framework for national protected areas, is seen as a significant barrier to attracting investment in tourism infrastructure, and infrastructure within the National Protected Areas has not been fully developed, as a result.

Certification of environmentally sustainable tourism operations is not fully developed in Belize, and is on a per establishment basis, matched to international certification standards, rather than through a national certification system.

Carrying capacities have not been developed for the majority of protected areas – carrying capacity as a mechanism for tourism regulation has been updated to the more implementable Limits of Acceptable Change framework. However this is only fully integrated into one management plan (Cockscomb Basin Wildlife Sanctuary), with a small number of marine reserves also having documents discussing mechanisms for addressing tourism impacts.

Recommendations for addressing gaps and areas requiring strengthening

- Develop a strong concession framework for promoting investment in infrastructure for the protected areas

- Increase cross-sectoral awareness of the pivotal role of biodiversity and the National Protected Areas System in the maintenance and expansion of the tourism sector
- Increase collaboration between the Ministry of Forestry Fisheries and Sustainable Development and the Ministry of Tourism in the areas of public awareness of the value of biodiversity and NPAS, and in their maintenance

3.6 MEDICINAL PLANT

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
F. Medicinal Plants (n=65)	38.5	47.7	10.8	3.1
Overall % Success of outputs	44.6%			

NBSAP Strategies

Representation of Medicinal Plant interests was particularly strong during the NBSAP, it being a time of high activity in the traditional healing sectors, with the promotion of the formation of the Terranova Medicinal Plant Reserve, and the first steps towards the creation of NojKa'axEligioPanti National Park.

Strategies focused on the in-situ and ex-situ protection of medicinal plants, improved knowledge on status and distribution in the wild, and through integration of medicinal plants into protected area management plans, agricultural systems, botanical gardens, school gardens, and reforestation schemes (including riparian restoration), as well as transplanting of medicinal plants threatened by forest clearance to Terranova and other medicinal plant areas. They also included promoting the cultivation of medicinal plants to reduce pressure on wild populations and the preservation of seeds in seed-banks. There were also strategies to establish similar reserves in each District, along with medicinal plant trails and integration of medicinal plants into the school syllabus, increasing awareness across Belize.

It sought to strengthen regulations governing harvesting, use and trade of medicinal plants, with specific inclusion of medicinal plants in the revised Forest Act, development of guidelines for sustainability and standards for medicinal plant products, as well as the drafting of a Bioprospecting Policy. Recognition and certification of traditional healers was an important strategy, with legislation to protect traditional healer knowledge. Strategic activities also focused on building capacity for use of medicinal plants by community health workers, local researchers and teachers, with indigenous groups, traditional healers, in-country, international and private sector collaboration towards improved management and continue researching the effectiveness of plants as medicine.

Current Status

Prior to the 1998 NBSAP, Belize was developing a strong medicinal plant / traditional healer community. The well-established Ix Chel Tropical Research Centre raised the profile of medicinal plants in Belize in the 1980's, bringing traditional healers together and resulting in the establishment of the Belize Association of Traditional Healers. This was focused on reducing the rate of erosion of traditional knowledge involving herbal medicine. Several other community based organizations, including Itzamna Society and the Belize Indigenous Training Institute and associated Q'eqchi' Healer's Association, also sprang up, focused on the need to preserve traditional knowledge, establishing medicinal gardens, trails, educating about medicinal plant use, and linking with overseas universities to explore the effectiveness of medicinal plant chemicals. The New York Botanic Gardens partnered with the Ix Chel Tropical Research Centre for implementation of the Belize Ethnobotany Project, which ran from 1987-1996, cataloguing and preserving over 2000 medicinal plant specimens, and analysing their medicinal qualities. Two ethno-botanical reserves were established specifically for protection of medicinal plants – Terra Nova Rain Forest Reserve and NojKaaxMe'en Eligio Panti National Park.

However, with no structured implementation of NBSAP strategies, support for this Thematic Area faltered. Terra Nova Rain Forest Reserve failed after an initial set-up period, Eligio Panti National Park also became dormant, both as a result of political interventions, and several of the stronger indigenous groups declined.

More recently, the traditional healer sector has strengthened again as community capacity increases, and as this sector becomes integrated into the strategic plans of the Institute for Social and Cultural Research (ISCR), a unit under the National Institute of Culture and History (NICH). Ix Chel Research Centre is active in promotion of knowledge of medicinal plants in young people, and the Belize Indigenous Training Institute / Q'eqchi' Healer's Association has been working closely with Cleveland University to improve knowledge of medicinal plants in southern Belize. This partnership also looked at identifying regions where medicinal plant species are located in the Maya Mountains Massif, and providing prioritization and identification and application of in situ and ex situ conservation strategies to protect them.

NICH has drafted the National Cultural Policy (2013), which recognizes the need for legislative support for greater recognition of traditional healing and herbal remedies, and the protection of intellectual property rights. Under the Policy, NICH commits to:

- Conducting research regarding the type of traditional healing practices in Belize and the degree to which it is practiced and used by the Belizean population.
- Inventorying flora within Belize and investigation of medicinal properties and potential health risks and benefits.
- Making a decision on the implementation of a health model which incorporates best practices in traditional medicine and conventional medicine

- Supporting the evaluation and recognition of the philosophy and health practices of previous generations.
- Supporting research and scientific development in nature based medicines, and seeking to ascertain the potential economic viability of traditional medicines with a view to establishing Intellectual Property Rights and Patents.

Abi-annual Traditional Healers Forum is now established, strengthening communication and collaboration between traditional healers and building awareness of native medicinal plants.

Recommendations for addressing gaps and areas requiring strengthening

- Support NICH / ISCR in its support of traditional healers
- Ensure that there is a mechanism to address the responsibility for the issuing of permits for extraction of medicinal plants for research that encompasses both the Forest Department and ISCR, takes into account the relative rarity of plant species being collected, and includes input from protected area co-management partners, if relevant
- Ensure strengthened protection of intellectual property rights, and capacity building for traditional healers in understanding of this area

3.7 LEGAL AND POLICY FRAMEWORK

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
G. Legal and Policy Framework (n=29)	10.3	27.6	31.0	31.0
Overall % Success of outputs	70.7%			

NBSAP Strategies

The NBSAP strategies of the Legal and Policy Framework were focused on improving legislation for in-situ and ex-situ conservation. These included effective protected areas management legislative framework that encompassed co-management partnership, sustainable use and management planning, the development of a National Fisheries Policy, strengthening of the Wildlife Protection Act and Forest Policy, and of an ex-situ Conservation Policy (inclusive of issue related to MARPOL). Strengthening of the permitting system for removal of flora and fauna from protected areas was also considered.

MARPOL: The International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" is short for marine pollution)

It sought to reduce overlap between legislation, and strengthening of areas of ambiguity, with improved collaboration and coordination between Ministries to avoid conflicts. It also recognized the

need to develop a legal and policy framework for sustainable water resource management, estuaries and wetlands, and for the legal integration of recognized private protected areas within the National Protected Areas System.

Strategies included building the capacity of law enforcement, the judiciary and co-management partners in the environmental laws, natural resource policies, and the rationale behind them, with provision for protected area rangers to train and certify as “special constable”, to improve on-site enforcement capacity. It also sought to strengthen the institutional capacity of the Forest and Fisheries Departments, with increased human and financial resources, to improve enforcement capacities. Strengthening co-management partnerships with communities and NGOs was also seen as a key strategy, through the drafting of guidelines for co-management regimes.

Current Status

Many of the strategies raised within the Law and Policy Thematic Area have been addressed through the development of the National Protected Areas Policy and System Plan (NPAPSP, 2005) – the co-management framework, and the management plan and management effectiveness frameworks. The Rationalization process (2012) addressed the need to support traditional sustainable use in those Wildlife Sanctuaries where it has been ongoing for generations, with recommendations for implementation. The antiquated Fisheries Act has been revised as the Fisheries Resources Bill, and is currently awaiting endorsement.

There have also been several initiatives raising the capacity of co-management partners, and many rangers are also trained as special constables. The Forest Department has invested time and funds in building the capacity of its co-management partners through Green Laws training in environmental legislation. In the marine environment, the Fisheries Officers also go through training to ensure they are effective in surveillance and enforcement activities, as well as chain of custody for increasing prosecution success. The National Protected Areas Secretariat is currently increasing protected area manager capacity through a series of programmes implemented by project partners focussing on ranger training, management planning, management effectiveness, biodiversity research and monitoring and conservation finance.

There are still capacity building required to increase prosecution success, and a need for increased understanding by the judiciary and magistrates of environmental law and the underlying reasons for the legislation.

Recommendations for addressing gaps and areas requiring strengthening

- Lobby for endorsement of the revised Fisheries Resources Bill
- Continue capacity building activities for protected area managers focused on increasing institutional capacities and management effectiveness
- Continue building capacity of rangers, Forest and Fisheries officers for surveillance and enforcement, leading to successful prosecutions

- Target awareness materials at the judiciary and magistrates to build support for, and understanding of, enforcement of environmental legislation.

3.8 INFORMATION AND GEOGRAPHICAL INFORMATION SYSTEMS

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
H. Information and Geographical Information Systems (GIS) (n=19)	26.3	15.8	36.8	21.1
Overall % Success of outputs	63.1%			

NBSAP Strategies

Strategies in the Thematic Area: Information and Geographical Information Systems were targeted at building capacity in data collection, information management and GIS, and maximising GIS use in the planning and management of natural resources. The NBSAP identified the need for improved knowledge of the biodiversity to be managed, and the requirement for a National Biodiversity Monitoring Framework to assess and monitor threats. Community participation in research and monitoring were considered key strategies, but for national monitoring, it focused on building a team of trained field biologists and technicians for implementation of the National Biodiversity Monitoring Programme.

Building Belize’s Biodiversity Information System (BBIS) for national environmental data management also fed into regional biodiversity networks, with the development of a formal data exchange policy. The strategy addressing the development of the system also focused on standardisation of data collection, standards for metadata, and ensuring the data was accessible – with a periodic synthesis of environmental statistics produced through the Central Statistics Office.

Current Status

Capacity building in GIS use in Belize has been effective and ongoing, with annual workshops and symposiums, and the majority of Forest and Fisheries Department Officers and co-management partners either having in-house experience, or having easy access to GIS technicians. Spatial analysis is used to monitor forest clearance, in climate change modelling, in land use planning, and in surveillance and reporting. The Lands Information Centre manages the national spatial data sets.

Biodiversity data management in the marine environment is managed in databases, hosted by the Environmental Research Institute, managed under a series of working groups (the Spawning Aggregation Working Group and National Coral Reef Monitoring Network, for example), with analysis

and presentation of data in site level reports, and through national and regional initiatives such as the Healthy Reefs Initiative

In the terrestrial environment, there has been a compilation of information on biodiversity, produced in 2005 (Meerman, 2005). Basic biodiversity monitoring and data management, however, has not yet achieved this level of organization. Several protected areas have complex biodiversity monitoring programmes in place, but there are, as yet, only limited national mechanisms for compiling data. The most useful is the Biodiversity and Environmental Resource Data System (BERDS) of Belize, a private sector-driven biodiversity and environmental data warehouse hosted by the Belize Tropical Forest Studies. This is being complimented by the development of a National Environmental and Natural Resource Management Research Agenda, and a National Biodiversity Monitoring Framework, through a highly participatory process coordinated through the Environmental Research Institute.

The Forest Department is initiating a National Forest inventory to provide information on timber stocks and forest

Recommendations for addressing gaps and areas requiring strengthening

- Finalise and implement the National Environmental and Natural Resource Management Research Agenda
- Finalise and implement the National Biodiversity Monitoring Framework
- Support continued maintenance and use of BERDS as the national biodiversity database
- Continue building national and site level capacity in GIS and management and use of spatial data in monitoring
- Update and correct the Statutory Instruments for protected areas recognized as having descriptive errors or inconsistencies
- Extend use of GIS to more fully utilize data management capacities over and above basic mapping
- Build capacity for biodiversity inventory and monitoring, with improved baseline species lists of major taxa

3.9 ACCESS TO GENETIC RESOURCES

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
Access to Genetic Resources (n=12)	0.0	75.0	16.7	8.3
Overall % Success of outputs	58.3%			

and

3.10 EQUITY AND BENEFIT SHARING

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
Equity and Benefit Sharing (n=5)	0.0	100.0	0.0	0.0
Overall % Success of outputs	50.0%			

These two Thematic Areas are closely linked, and therefore addressed together.

NBSAP Strategies

The NBSAP strategies for the Thematic Area: Access to Genetic Resources and Equity and Benefit Sharing sought to maximise the benefits for Belize from exploitation of its biological resources through the development of an effective legal and institutional framework, targeted at providing legislation, guidelines, permitting and an effective framework for controlling access to genetic resources and bio-prospecting, modelled on examples of successful programmes in other countries. Maximising local participation, access and benefits in any exploitation of natural genetic resources (particularly for pharmaceutical or other industrial purpose), and ensuring sustainability, with identification of areas of high concentrations of targeted organisms, are all key strategic activities designed to strengthen management of genetic resources. Also considered important was the need to address intellectual property rights. It sought to ensure the benefits derived from the exploitation of biological resources, cultural resources and traditional knowledge, both at the national and local level, were equitably distributed, and reinvested into conserving the integrity of critical habitats and ecosystems.

Current Status

Many of the strategic actions in the Thematic Area: Medicinal Plants overlap with this thematic area, including the mapping of key concentrations of medicinal plants, development of legislation and regulations and guidelines for extraction. It was shown from the work conducted by the New York Botanic Gardens that “crude extracts of plants used by one healer in Belize gave rise to four times as

many positive results in lab tests for anti-HIV activity than did specimens collected randomly” (Cox et al., 1994) –traditional medicinal plants are increasingly valued for the "blueprints" they can potentially provide for new synthetic drugs, and it is use of traditional knowledge in this area that leads to the need for protection of the intellectual property rights, linked to knowledge of natural resources, and mechanisms, to ensure benefit sharing. To some extent, these are to be addressed under the National Cultural Policy.

However, there are also many genetic resources that are not medicinal plants that have also raised concerns in the past (eg. cacao and coral polyps), leading to the need for less specific legislation that can cover all genetic resources, both terrestrial and marine, not just medicinal plants. The Fisheries (Amendment) Regulations 1999, No. 13, Section 39 addresses the permitting and regulating aspects of marine bio-prospecting, and this was taken further in 2003 by the Coastal Zone Management Authority and Institute, which prepared a draft Legal and Regulatory Framework for Marine Bio-prospecting, in recognition of the lack of a comprehensive legal framework governing this area. It also recognized the need to protect indigenous knowledge and intellectual property rights, and to ensure that profits were reinvested into management of the marine environment. A 2004 submission by Belize to the World Trade Organization stated that Belize:

Bioprospecting:

The exploration of biodiversity for commercially valuable genetic and biochemical resources.

“holds the view that there is a need for sui generis intellectual property protection at the international and national level for traditional knowledge. Protection of traditional knowledge must not require any formalities or registration. The rights conferred by traditional knowledge must include the right to prevent the unauthorized commercial reproduction, imitation and use of traditional knowledge.”

It sought to model bioprospecting agreements on those developed by countries such as Costa Rica (INBio-Sacra), with inclusion of clauses related to the fair and equitable sharing of benefits including profit sharing, royalty payments, access to and transfer of technologies, the granting of free licenses to the community, and the development of local human resources, with enforcement processes that cover civil judicial procedures, provisional measures, border measures, and criminal procedures.

Bioprospecting is integrated into the draft Fisheries Resource Bill, though this is still to be endorsed. This is particularly important in light of the current interest in the medicinal properties of marine life. Again, however, this does not give clear, national, integrated legislative coverage or guiding framework in this area relevant to all biodiversity.

There are conflicts between international agreements (CBD, WIPO and WTO) that are still in the process of being balanced to ensure traditional rights and knowledge are recognised and ethical, moral and legal issues are addressed. The Convention on Biological Diversity gives Belize ownership, and thus control, over the plants and animals within its border, a very relevant point when dealing with foreign institutions wanting to conduct sampling of medicinal plants or other biodiversity, from

cacao to marine organisms as diverse as corals, manatees and sharks. However, there is also recognition of the rights of the researchers identifying active ingredients, and of the pharmaceutical companies supporting their work. Belize needs to clearly define in its legislation what constitutes payable genetic resources, and clarity on who owns these resources. In the case of medicinal plants, it needs to be clear whether this is the national government, local communities of origin, or the collaborating traditional healer. In the case of the Belize Ethnobotanical Project, an integrated part of the research was capacity building and benefits to those who participated with their knowledge. A significant proportion of the profits from literature published as an output of the work on medicinal plants in Belize was provided to the collaborating healers to assist them in furthering their individual goals for traditional healing (King et al., 2004).

Control of bioprospecting and subsequent harvesting is important, particularly where species can become vulnerable from over-harvesting. This has been seen in the case of harvesting of “popta” seeds from the Southern Plain for the pharmaceutical industry, providing short-term employment to local communities, but reducing palm populations significantly from unsustainable harvesting practices.

Article 15 of the CBD provides a framework for national governments to implement Access and Benefit Sharing (ABS) mechanisms to regulate and protect knowledge and genetic resources in order to facilitate access and ensure the fair and equitable sharing of benefits. Belize, however, is not a signatory of the Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising from their Utilization, which includes the global Access and Benefit Sharing of Genetic Resources (ABS) mechanism, providing an international framework for bio-prospecting that requires developed countries to pay for the collection and use of plant or animal species that they obtain for commercial use from the developing world.

Belize’s intellectual property legislation became WTO/TRIPS consistent in June 2000, along with the establishment of the Belize Intellectual Property Office (BELIPO), under the Patents Act (Chapter 253), to administer the intellectual property legislation of Belize. However this doesn’t have specific legislation to cover traditional knowledge (though it does cover patents for new plant varieties). The Act specifies that “a patent shall not be granted for an invention the commercial exploitation of which it is necessary to prevent in Belize in order: (a) to protect public order or morality, including to protect human, animal or plant life or health; or (b) to avoid serious prejudice to the environment.

Recommendations for addressing gaps and areas requiring strengthening

- Design and implement national, practical strategies, legislation, regulations and guidelines on Access and Benefit Sharing (ABS) that are fairly balanced, and take into account the value of traditional knowledge
- Ensure ABS is adequately represented in legislation on Intellectual Property Rights

3.11 HUMAN POPULATION

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
Human Population (n=5)	20.0	0.0	40.0	40.0
Overall % Success of outputs	75.0%			

NBSAP Strategies

A single strategy in this Thematic Area sought to lobby for the development, adoption and implementation of a National Population Policy that integrated poverty, human settlement, economic factors and biodiversity conservation. It focused on the inclusion of poverty and biodiversity conservation issues in land use planning, particularly of new settlements, and the need for wide stakeholder participation in any planning process for human settlements.

Current Status

Belize has a strong national development plan, Horizon 2030, endorsed in 2013), developed through broad, cross sectoral stakeholder participation, and geared towards achieving the Millennium Development Goals. It is supported by two key policies: the National Poverty Eradication Strategy and Action Plan, 2009-2013 (NPESAP), and the Medium-Term Development Strategy (MTDS: Building Resilience against Social, Economic and Physical Vulnerabilities; 2010-2013). The NPESAP (2009) sought improvement in the land management framework and natural resource management practices, in recognition of the importance of these as a poverty alleviation mechanism. It also integrates biodiversity and the environment into disaster management strategies, with the recognition that natural ecosystems provide one of Belize's primary defences in building resilience to climate change impacts. Outputs include the National Land Use Policy and Planning Framework (NLUPP), which provides well-founded recommendations on best land use.

Most rural settlements are still evolving in a non-planned fashion, primarily starting with a small number of immigrant families settling illegally along roads. Without planning for long term expansion, these settlements are not always well situated, with insufficient national land available to support the community once it starts growing, leading to increasing pressures for releasing land within protected areas, clearance of steep slopes (particularly along the Hummingbird Highway), and clearance of riparian vegetation. The Belize Rural-Area Based Development Strategy (BRADS), developed under the Ministry of Labour, Local Government, Rural Development, NEMO and Immigration (MLLRD), and approved in 2013, promotes broad-based rural economic growth and the reduction of the incidence of poverty in established rural communities of Belize, but doesn't address the issue of new, non-approved settlements, nor does it directly address settlement planning.

Recommendations for addressing gaps and areas requiring strengthening

- Lobby for implementation of the Land Use Planning Framework
- Lobby for tighter control of establishment of new communities, with planning to ensure environmental sustainability

3.12 BIOSAFETY

Thematic Areas	% Activities Rated As 1	% Activities Rated As 2	% Activities Rated As 3	% Activities Rated As 4
Biosafety (n=6)	0.0	33.3	16.7	50.0
Overall % Success of outputs	79.2%			

NBSAP Strategies

NBSAP Strategies for the Thematic Area: Biosafety focused on the establishment of a National Biosafety Committee and competent regulatory authority, supported by national legislation. It called for a study to evaluate the risk posed by Living Modified Organisms (LMO), and the preparation of a National Biosafety Framework.

Current Status

The Focal Point of the Cartagena Protocol on Biosafety is the Belize Agricultural Health Authority (BAHA), the competent authority in Belize for Agricultural Health and Food Safety. BAHA also hosts the Biosafety Clearing House (BCH) for Belize. The first public forum on GMOs and related Biosafety issues was held in Belize in 2000. At that forum it was decided that Belize would place a moratorium on the importation and use of GMOs until Belize had established its National Biosafety Committee which would be charged with developing and implementing the relevant protocols and mechanisms for managing the use of GMOs. The National Biosafety Committee (NBC) was formed in November 2002, with the objective of reviewing the use of GMOs and drafting appropriate policy and legislation for Biosafety and GMO use, with recommendations for addressing present and future Biosafety issues in Belize. The committee endorsed and extended the decision not to consider any importation of LMOs until the framework was fully operational. The National Biosafety Policy was approved in 2009, and the Biosafety Policy stipulates that a full risk assessment needs to be conducted before any trials take place. BAHA's Plant Health Diagnostic Laboratory, in Central Farm, has the capacity for basic screening for GMO modification of seeds.

Belize's implementation of its policy on biosafety has not been without issues. In 2011, controversial GMO corn seed was imported for test plots, contravening the Biosafety Policy, and was subsequently destroyed under government supervision. However, with a highly porous border, and rumours of seeds being distributed to farmers before they were destroyed, it may be that GMO crops are continuing to be grown within Belize's borders. Another case, this time of illegal GMO soybean seeds, were destroyed in 2013, and the Government of Belize reaffirmed its commitment to

the moratorium. Later that same year, a conference on Agro-biotechnology and Bio-safety reached consensus that strong regulatory mechanisms must be in place before there is any further move to introduce GMO crops, if at all. There is, to some extent, a projection of inevitability by those consulted in the Agricultural Department, with GMO contents already in many food items imported into Belize, including animal feed.

The Department of Agriculture still has to review and make decisions on Belize's stand on LMOs, and ensure that the risk assessments have been completed, that Belize has the technical capacities in place, and an approved, fully-functioning biosafety legal framework to oversee management of LMOs, should the decision be to allow importation and farming of GMO crops. It is being pressured by the Belize Grain Growers Association, associated primarily with the Mennonite farming community, who are lobbying hard for permission to import GMO seed, particularly in view of the climate change predictions and the future need for more disease and drought resilient crops.

Traditional Maya farmers, however, have voiced concerns of the implications to the ability to maintain pure strains of traditional maize varieties, and maintain culturally important, subsistence maize crops once GMO varieties are being grown commercially, and once they have crossed with the local varieties and resulted in sterile harvests. The honey bee keepers, too, point to the evidence mounting for the role of neonicotinoids used on GMO crops and the global decline of bees, for which the use of some within the European Union is now banned.

Recommendations for addressing gaps and areas requiring strengthening

- Lobby for the Government of Belize, through the Department of Agriculture, to take a definitive stand on GMO
- Implement an approved, fully-functioning biosafety legal framework, based on Belize's stand on GMOs

4. SUMMARY OF RECOMMENDATIONS

4.1 ENVIRONMENTAL AND LAND USE PLANNING

- Ensure protected areas and biological corridors continue to be adequately represented in the revised Integrated Framework for Land Resource Development
- Utilize the revision process for the National Biodiversity Strategy and Action Plan as a mechanism for raising the profile of biodiversity and ecosystem services in Belize, and engaging cross sectoral support for its implementation
- Prioritise a national valuation of environmental resources to support greater national investment in natural resource management
- Promote greater cross-sectoral appreciation and understanding of the role of natural ecosystems in building Belize's resilience to climate change and addressing poverty
- Support the restructuring of NPAS administration and strengthen the National Protected Areas Secretariat and NPAS office
- Effectively integrate strengthened community-based forest management into the revised Forest Policy
- Prioritise strengthening of the working relationship between NPAS / Forest Department / Fisheries Department, the Water Resource Management Office, the offices of the Ministry of Natural Resources and the Environment, and the Climate Change Office
- Revise site specific geo-referenced descriptions of each individual protected area designated under the National Parks System Act to ensure accuracy of shapefiles in the national data sets. Incorporate revisions of protected area boundaries where feasible to fulfil recommendations for strengthening of the protected areas system under the Rationalization exercise
- Maximise the opportunities presented under REDD+
- Strengthen the partnership with authorized wildlife rehabilitation facilities for threatened species

4.2 FISHERIES, COASTAL AND MARINE RESOURCES

- Continued roll-out of Managed Access, balanced by alternative livelihood diversification, and strengthened through the integration of sport fishing
- Strengthening of freshwater fisheries management, based on sound biodiversity, fisheries and socio-economic information, and integrating water bodies within protected areas
- Ensure effective working relationship with the Water Resources Authority
- Develop an Integrated Freshwater Framework for freshwater fishery and aquatic biodiversity / management that is aligned with the Integrated Water Resources Policy, and integrates recommendations from the NPAPSP Rationalization exercise, the National Hicatee Conservation and Monitoring Network and the National Environmental and Natural Resource Management Research Agenda

- Implementation of recommendations from the NPAPSP Rationalization process re. PA boundary modification to include waterways (e.g. Deep River)
- Review the status and sustainability of the aquarium trade from Belize and bring in tighter regulations or closure where required
- Continued strengthening of partnerships between Government and NGOs / CBOs for coastal and marine protected area management, research and outreach.

4.3 FOREST AND WILDLIFE MANAGEMENT

- Ensure protected areas and biological corridors continue to be adequately represented in the revised Integrated Framework for Land Resource Development
- Utilize the revision process for the National Biodiversity Strategy and Action Plan as a mechanism for raising the profile of biodiversity and ecosystem services in Belize, and engaging cross sectoral support for its implementation
- Prioritise a national valuation of environmental resources to support greater national investment in natural resource management
- Promote greater cross-sectoral appreciation and understanding of the role of natural ecosystems in building Belize's resilience to climate change and addressing poverty
- Support the restructuring of NPAS administration and strengthen the National Protected Areas Secretariat and NPAS office
- Effectively integrate strengthened community-based forest management into the revised Forest Policy
- Prioritise strengthening of the working relationship between NPAS / Forest Department / Fisheries Department, the Water Resource Management Office, the offices of the Ministry of Natural Resources and the Environment, and the Climate Change Office
- Revise site specific geo-referenced descriptions of each individual protected area designated under the National Parks System Act to ensure accuracy of shapefiles in the national data sets. Incorporate revisions of protected area boundaries where feasible to fulfil recommendations for strengthening of the protected areas system under the Rationalization exercise
- Maximise the opportunities presented under REDD+
- Strengthen the partnership with authorized wildlife rehabilitation facilities

4.4 AGRICULTURE

- Strengthen the framework for organic farming certification for small farmers.
- Build capacity for agro-forestry in Belize, and support a shift in productive land tax to recognise forest / water catchment protection and agro-forestry as development
- Invest in pilot projects promoting more intensive farming methods, reducing the need for continued and increased forest clearance.
- Ensure water security and water catchment areas are considered as high priority for protection during land use planning for agriculture, and during the EIA process.

- Support small farmers in developing environmentally sustainable farming practices that build long term climate change resilience

4.5 TOURISM

- Develop a strong concession framework for promoting investment in infrastructure for the protected areas
- Increase cross-sectoral awareness of the pivotal role of biodiversity and the National Protected Areas System in the maintenance and expansion of the tourism sector
- Increase collaboration between the Ministry of Forestry Fisheries and Sustainable Development and the Ministry of Tourism in the areas of public awareness of the value of biodiversity and NPAS, and in their maintenance

4.6 MEDICINAL PLANT

- Support NICH / ISCR in its support of traditional healers
- Ensure that there is a mechanism to address the responsibility for the issuing of permits for extraction of medicinal plants for research that encompasses both the Forest Department and ISCR, takes into account the relative rarity of plant species being collected, and includes input from protected area co-management partners, if relevant
- Ensure strengthened protection of intellectual property rights, and capacity building for traditional healers in understanding of this area

4.7 LEGAL AND POLICY FRAMEWORK

- Lobby for endorsement of the revised Fisheries Resources Bill
- Continue capacity building activities for protected area managers focused on increasing institutional capacities and management effectiveness
- Continue building capacity of rangers, Forest and Fisheries officers for surveillance and enforcement, leading to successful prosecutions
- Target awareness materials at the judiciary and magistrates to build support for, and understanding of, enforcement of environmental legislation.

4.8 INFORMATION AND GEOGRAPHICAL INFORMATION SYSTEMS

- Finalise and implement the National Environmental and Natural Resource Management Research Agenda
- Finalise and implement the National Biodiversity Monitoring Framework
- Support continued maintenance and use of BERDS as the national biodiversity database
- Continue building national and site level capacity in GIS and management and use of spatial data in monitoring

- Update and correct the Statutory Instruments for protected areas recognized as having descriptive errors or inconsistencies
- Extend use of GIS to more fully utilize data management capacities over and above basic mapping
- Build capacity for biodiversity inventory and monitoring, with improved baseline species lists of major taxa

4.9 ACCESS TO GENETIC RESOURCES

4.10 EQUITY AND BENEFIT SHARING

- Design and implement national, practical strategies, legislation, regulations and guidelines on Access and Benefit Sharing (ABS) that are fairly balanced, and take into account the value of traditional knowledge
- Ensure ABS is adequately represented in legislation on Intellectual Property Rights

4.11 HUMAN POPULATION

- Lobby for implementation of the Land Use Planning Framework
- Lobby for tighter control of establishment of new communities, with planning to ensure environmental sustainability

4.12 BIOSAFETY

- Lobby for the Government of Belize, through the Department of Agriculture, to take a definitive stand on GMO
- Implement an approved, fully-functioning biosafety legal framework, based on Belize's stand on GMOs

5. BARRIERS TO NBSAP IMPLEMENTATION

The National Biodiversity Strategy and Action Plan (NBSAP, 1998 – 2003), whilst never formally endorsed, has provided an informal framework for the guidance of biodiversity conservation in Belize, and has been used to some extent by successive Governments, NGOs and CBOs in the prioritisation and justification of biodiversity conservation activities. Perhaps the most lasting contribution of the NBSAP was to bring the conservation community together – from the Government Authorities to the community participants - to decide on common goals, for the first time in Belize, opening the way to a much more participatory approach.

Since 1998, the National Protected Areas System has grown to meet most national and international commitments, and Managed Access has significantly strengthened natural resource management in the marine environment, with Belize becoming a regional leader for these two accomplishments, and for its strong community participation ethos and co-management framework. Generally, however, this has not been as a result of active implementation of the NBSAP. The Plan has been hampered by uncoordinated implementation, and many key strategies have not yet been fully achieved even now, 16 years later – including the revision of the Forest and Fisheries Acts, the Wildlife and Mangrove Protection Acts, and the Forest Policy.

A number of historical and current barriers have been identified to the effective implementation of the NBSAP:

SHORT TERM BARRIERS

Natural Disasters: Belize was impacted both directly and indirectly by four storms during and immediately after the NBSAP development process (Hurricanes Mitch in October 1998, Keith in October 2000, Chantal in September 2001 and Iris in October 2001). These were extremely disruptive to both national priorities and the national economy. Government focus from 1998 to 2002 was primarily on disaster relief and economic recovery.

No National Endorsement: Despite its very strong and highly participatory development, lack of formal endorsement of the draft National Biodiversity Strategy and Action Plan by the Government of Belize reduced the impact of the document, resulting in limited mainstreaming once it was completed.

Limited Distribution: The NBSAP was printed in two volumes and distributed to workshop participants, with a particular focus on ensuring community participants had access. However, based on the very low level of recognition and use shown by participants from Departments across Ministries during this review, dissemination beyond participants appears to have been limited. With the very limited follow-up beyond the dissemination stage, the NBSAP never became firmly meshed

into other Departmental policies, and biodiversity and the environment never made it into the list of national priorities.

Structure of the Action Plan: Belize was ahead of its time in developing its NBSAP, but as a result, did not incorporate a number of the strengthening mechanisms found in more recent NBSAPs from other countries. These include specific, well-worded, achievable targets, and integrated evaluation and indicator frameworks. The Action Plan was extremely detailed, but the large number of individual activities made implementation a daunting task. Many activities also had multiple agencies listed as “Proposed Responsible Agencies”, with no identification of a single lead agency to take responsibility for implementation.

Realism: The budget for the implementation of the NBSAP was estimated at Bz\$40 million – at that time, with a national economy struggling to overcome a series of national disasters, and a focus on national recovery, Belize’s ability to achieve implementation was seriously undermined. Whilst it is broadly recognized that the management of biodiversity and natural resources in general needs a far higher prioritization by the Government of Belize and an appropriate level of financial allocation in the national budget, the cost of implementation of the NBSAP would still have been beyond realistic expectations.

Lack of Connectivity of Ownership: There was extensive cross sectoral participation from across Ministries in Belize, both in membership of the National Biodiversity Committee and in the workshops for development of the NBSAP strategies. However, there was limited connectivity between the people who participated in the creation of the NBSAP, and those in a position to implement it, particularly following the change in Government in 1998. This resulted in shifts of attention away from strategies developed by the previous Government, with reshuffling of personnel in the implementing agency, and initially no single champion to lead the implementation process or to ensure the start-up process successfully engaged cross sectoral buy-in.

The structural Governance shift from Permanent Secretaries to politically appointed Chief Executive Officers in the year 2000, has reduced connectivity, both across time and between Ministries. Chief Executive Officers are generally appointed on their knowledge of the process of governance, often without prior experience in the natural resource management field, and without the historical knowledge of activities in this sector. The longer tenure and greater long-term relevant experience and commitment of the Permanent Secretaries provided greater continuity within Ministries, and facilitated improved cross Ministerial collaboration.

Limited Coordination: The lack of a dedicated coordinating body or focal point was a severe limitation until the formation of the National Biodiversity Office in 2002. Once created, the limited availability of experienced, dynamic people with the expertise and experience to fill the post and lead implementation of the NBSAP forward in Belize was a major constraint. The National Biodiversity Office eventually became defunct.

There was also an issue of limited communication and coordination between the agencies sitting on the National Biodiversity Committee, and therefore theoretically involved in coordinating

implementation, with these being housed within different Ministries. The National Biodiversity Committee, too, eventually became inactive.

Limited Mainstreaming: Most activities that have been implemented have been in areas within the mandate of authorities with the responsibility for natural resource management (areas and activities under the Forest Department, Department of Fisheries and Department of the Environment), and those areas of specific interest to NGOs, often at site level. Within these agencies, the NBSAP has been used to some extent to develop workplans and justify funding for activities. In other Ministries, the NBSAP was not well known or disseminated, and therefore not well integrated into workplans or subsequent strategic plans. This resulted in little wider implementation across the national landscape / seascape.

MEDIUM-TERM BARRIERS

Limited Long-term Awareness: During the review consultations, it became very clear that the NBSAP was a very short-lived plan. Conservatively, fewer than 50% of participants knew that Belize has an NBSAP, and fewer than 20% had actually seen it. Only a handful of participants had read the document, the majority of those being either involved in its original development, or in the NGO sector and using it to leverage funding. The Plan itself contains key strategies, many of which have been or are being implemented by both Government and NGOs alike – but this is not a result of active, inspiring and engaging implementation of the Plan itself.

No Review Process: Whilst the need for periodic review and revision is recognized within the NBSAP, there is no framework or timeline for the review and revision process within the plan, and there has been no in-depth review / revision of the NBSAP since its development (however, this is more a result of the short term barriers to implementation, rather than the lack of a review mechanism).

Out of Date: The NBSAP is now considered out-of-date. It has not been updated to incorporate more recent CBD requirements, such as valuation of ecosystem services, Aichi Targets and climate change adaptation. Whilst it is possible to download the NBSAP as a scanned image document in many individual PDFs from the CBD website, in this format, it cannot be considered a living document, being neither easily accessible nor easy to revise.

The more recent National Protected Areas Policy and System Plan (2005/6) benefitted from more advanced planning tools and the identification of the weaknesses of the NBSAP, and is a far stronger, better disseminated, more implementable plan. As such, it was formally endorsed by the Government of Belize and became the blueprint for biodiversity management. However it has a specific focus on the management of investments and activities linked to the National Protected Areas System (as designed). In the absence of a stronger NBSAP, this has left the biodiversity and natural resources of the wider landscape outside the protected area system largely off the radar in terms of governance.

Changing Perspectives: The intervening period after the development of the NBSAP in 1998 was a time of perceived conflict between Belize's development agenda and its natural resource / conservation agenda, with a widening gap between the two sectors. However, more recently, there have been steps taken towards integration of environment into national development planning through Belize's commitment to the Millennium Development Goal 7. There has also been the recognition and acceptance at Government level of the importance of the environment and environmental services in building national resilience and adaptation to the predicted climate change impacts. These two advances provide a springboard for the revision of the National Biodiversity Strategy and Action Plan that can be mainstreamed across Government and civil society.

RECOMMENDATIONS FOR STRENGTHENING THE REVISED NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN

Biodiversity management is relevant to the national land and seascapes of Belize, not just to the National Protected Areas System, and therefore needs to be mainstreamed across Ministries and, in the context of Belize, needs to be inclusive of the non-Governmental conservation community and private sector. The development and implementation of the NBSAP will have impacts on a national scale, beyond the boundaries of the National Protected Areas System, with biodiversity / natural resource management as an overarching theme, and the National Protected Areas System as one tool to be used. This needs to be taken into account during the revision of the NBSAP, and the subsequent designation of NBSAP implementation responsibility.

The current environment is one of increasing collaboration between Ministries, with a number of key policies and plans being drafted or revised to strengthen governance in different sectors. Belize has an opportunity to use the revision of the NBSAP to improve mainstreaming of biodiversity across government and society, to strengthen Belize's commitment to maintaining its natural resources, ecosystem services, and species diversity, and as a tool to ensure Belize moves forward with strategies that will assist in poverty reduction and increasing national resilience and adaptation to climate change.

A series of recommendations have been developed to assist in strengthening the NBSAP during the revision process:

Structural Strengthening

- Updating the structure of the NBSAP through:
 - incorporation of the new Aichi objectives, actions and targets, modified to the national context, that support informed, effective decision making and action for biodiversity conservation and sustainable use.
 - integration of a framework for effective monitoring and evaluation of implementation,
 - reinforcement of the importance of ecosystem services to national development and poverty alleviation

- addressing of the issues of climate change impacts on ecosystems and biodiversity, and the need to build resilience

Strengthening the Revision Process

- Engage the Ministry of Natural Resources and Agriculture as an active partner in the revision of the NBSAP, with the integration of the National Land Use Policy and associated Integrated Planning Framework providing a cornerstone for the revised NBSAP.
- Engage the National Climate Change Office and National Climate Change Committee as active partners in the revision of the NBSAP, with the integration of relevant national climate change adaptation strategies,
- Engage the National Water Commission and ensure alignment of the revised NBSAP with the Integrated Water Resource Management Plan and.
- Effectively integrate relevant national poverty alleviation strategies
- Engage the Coastal Zone Authority and Institute in the NBSAP revision process, and ensure alignment with the Integrated Coastal Zone Management Plan
- Effectively integrate relevant areas of the revised Environmental Policy and Strategy (2014 – 2024).
- Integrate relevant outputs from system level conservation plans (Maya Mountains Massif, Maya Mountain Marine Corridor, Southern Belize Reef Complex and Northern Belize Coastal Complex).
- Ensure the National Protected Areas Secretariat and the relevant natural resource management departments (Forest and Fisheries Departments, Department of the Environment) are fully engaged in the NBSAP revision process, with commitment to allocation of time for their full, active involvement.
- Maintain and strengthen broad conservation community engagement, collaboration and participation during the revision of the NBSAP, to ensure well-founded goals and objectives, and buy-in for implementation of strategies and input into monitoring status of targets.

Improving Implementation

- Designate a focal point for guiding NBSAP implementation.
- Ensure effective oversight of implementation - in order to ensure transparency and active commitment to implementation of the NBSAP, and to avoid duplication of effort, a logical path forward would be to formally extend the remit of the National Protected Areas Secretariat, based on cross-sectoral representation, composition and expertise, to include *oversight* responsibility for implementation of NBSAP, with the guidance of the Technical Committee.
- Strengthen the long term collaboration and coordination achieved with relevant natural resource management departments now being under the same Ministry, to avoid division in the future.
- Build in mechanisms for external monitoring of Government implementation of the revised NBSAP by conservation community stakeholders.

Improving National Commitment

- Strengthen awareness at Cabinet level of the importance of the environment for national development, building support for the implementation of the NBSAP and NPAPSP.
- Increase communication at CEO level between key Ministries involved in Natural Resource management for improved cross-sectoral coordination and collaboration.
- Invest time and effort to strengthen cross-ministerial collaboration, coordination and commitment for improved natural resource management – use of cross-sectoral, nationally focused, significant, externally funded projects (e.g. KBA project, climate change adaptation projects) may be the most effective way of approaching this.
- Ensure engagement of key political parties during the NBSAP revision process to ensure cross-party buy-in and medium-term continuity across political regimes.

DRAFT

REFERENCES

- Anderson, E.R., Cherrington, E.A., Flores, A.I., Perez, J.B., Carrillo R., and E. Sempris (2008).** Potential Impacts of Climate Change on Biodiversity in Central America, Mexico, and the Dominican Republic." CATHALAC / USAID.
- Belize Audubon Society (2008).** An environmental Agenda for Belize, 2008 – 2013.
- Caribbean Community Climate Change Centre (2008).** National Integrated Water Resources Management Policy (including climate change) for Belize.
- Clarke, C., M. Canto, S. Rosado. (2013).** Belize Integrated Coastal Zone Management Plan. Coastal Zone Management Authority and Institute (CZMAI), Belize City.
- Cherrington E. A. (2014).** Technical report: basic assessment of key ecosystem coverage of Belize protected areas. Report to NPAS.
- Cooper E. L. Burke and N. Bood (2009).** Coastal capital: Belize. The economic contribution of Belize's coral reefs and mangroves. WRI Working Paper. World Resources Institute.
- Cox, P.A. and Balick, M.J. (1994).** "The Ethnobotanical Approach to Drug Discovery," Scientific American, June, 1994, p. 84
- Department of the Environment (2008).** National Plan of Action for the Control of Land-Based Sources of Marine Pollution in Belize
- Environmental Research Institute (2011).** National Environment and Natural Resource Management Agenda, University of Belize
- Government of Belize (2009).** The National Biosafety Policy
- Government of Belize / United National Development Programme (2011).** MDG Acceleration Framework: Water and Sanitation.
- Government of Belize / United National Development Programme (2013).** Millennium Development Goals Report and Post 2015 Agenda: Belize 2013.
- Homer, F. (2005).** Improving Governance of Protected Areas in Belize: institutional, management and legislative requirements. NPAPSP..
- King, S.R., Chinnock, J.A., Balick, M.J., Sanchez, S.C., Moran, K. and Limbach, C. (2004).** Traditional Knowledge, Biological Resources and Drug Development: Building Equitable Partnerships to

Conserve, Develop and Respect Biocultural Diversity. In: Intellectual Property and Biological Resources. (ed) B. Ong. Marshall Cavendish International. Pp. 284-321.

International Development Bank (2012). Belize and the ISB: Twenty Years of Partnership

IUCN/WCMC (1996). World Heritage Nomination – IUCN Summary: Belize Barrier Reef System (Belize).

Jacobs, N. and A. Castenada(1998). The Belize National Biodiversity and Action Plan. Ministry of Natural Resources and the Environment, Belize

Kramer P.A. and P.R. Kramer, (2002). Ecoregional Conservation Planning for the Mesoamerican Caribbean Reef, WWF, Edited by McField M.

McCook L. J., G. R. Almany, M. L. Berumen, J. C. Day, A. L. Green, G. P. Jones, J. M. Leis, S. Planes, G. R. Russ, P. F. Sale, S. R. (2009). Management under uncertainty: guide-lines for incorporating connectivity into the protection of coral reefs. Coral Reefs 28:353–366

McField M. et. al. (2014). Healthy Reef initiative Eco-Audit Results for Belize

McField et. al. (2007). Healthy Reefs for Healthy People Manual

McSweeney, C., M. New and G. Lizcano. UNDP Climate Change Country Profiles Belize. UNDP Climate Change Country Profiles. <http://country-profiles.geog.ox.ac.uk>

Meerman J., J. McGill and M. Cayetano (2011). National Land Use Policy for Land Resource Development

Meerman J., J. McGill and M. Cayetano (2011). National Integrated Planning Framework for Land Resource Development.

Meerman, J. (2011). Ecosystems Map of Belize – 2011 edition: <http://biological-diversity.info>

Meerman, J. (2005). National Protected Areas Policy and System Plan. Forest Department

Ministry of Agriculture (2003). Agricultural Development Management and Operational Strategy (ADMOS)

Ministry of Agriculture (2002). The National Food and Agriculture Policy.

Ministry of Economic Development and the National Human Development Advisory Council (2009). National Poverty Elimination Strategy and Action Plan, 2009 – 2013.

Ministry of Economic Development and the National Human Development Advisory Council (2010). Belize Medium Term Development Strategies 2010 – 2013.

Ministry of Forestry, Fisheries and Sustainable Development (2014). Management and Protection of Key Biodiversity Areas of Belize: Environmental Management Framework

Ministry of Forestry, Fisheries and Sustainable Development (2014). Readiness Preparation Proposal, Submitted to the Forest Carbon Partnership Facility.

Ministry of Forestry, Fisheries and Sustainable Development (2012). Belize National Sustainable Development Report

Ministry of Natural Resources (1998). 1st National Report to the United Nations Convention on Biological Diversity

Ministry of Natural Resources (2002). 2nd National Report to the United Nations Convention on Biological Diversity

Ministry of Natural Resources (2006). 3rd National Report to the United Nations Convention on Biological Diversity

Ministry of Natural Resources (2010). 4th National Report to the United Nations Convention on Biological Diversity

Ministry of Tourism (2011). National Sustainable Tourism MasterPlan of Belize 2030

National Institute of Culture and History (2012). National Cultural Policy Working Document

Noblick L. (2009). Palm Conservation and Research Fieldwork – Belize 2009: Expedition Report for the Montgomery Botanical Centre.

Olson, D. M., Dinerstein, E. (2002). The Global 200: Priority ecoregions for global conservation. *Annals of the Missouri Botanical Garden* 89(2):199-224.

Padeco / IDB (2011). Annex 04 – Existing Issues of Water Supply and Sewerage in Belize City

Perfect Green Belize (2008). Action Plan for the inclusion of Biodiversity Conservation in Tourism Policies. Report to Association of Protected Areas Management Organization

Richardson, R. (2009). Belize and Climate Change: The Cost of Inaction. UNDP

Simpson, M.C., Scott, D., New, M., Sim, R., Smith, D., Harrison, M., Eakin, C.M., Warrick, R., Strong, A.E., Kouwenhoven, P., Harrison, S., Wilson, M., Nelson, G.C., Donner, S., Kay, R., Geldhill, D.K., Liu, G., Morgan, J.A., Kleypas, J.A., Mumby, P.J., Palazzo, A., Christensen, T.R.L., Baskett, M.L., Skirving, W.J., Elrick, C., Taylor, M., Magalhaes, M., Bell, J., Burnett, J.B., Rutty, M.K., and Overmas, M., Robertson, R. (2009) An Overview of Modelling Climate Change Impacts in the Caribbean Region with contribution from the Pacific Islands, United Nations Development Programme (UNDP), Barbados, West Indies

TEEB (2009). The Economics of Ecosystems and Biodiversity for National and International Policy Makers – Summary: Responding to the Value of Nature

United Nations Environment Programme (2010). Belize MDG Scorecard and Outlook Report 2010

United Nations Environment Programme (2013). Emission's Reduction Profile: Belize.

Vidal C. (2012). Timber production value chain in three Belizean Mennonite communities. Technical Bulletin no. 53, CATIE.

Walker Z. and P. Walker (2005). National Framework for Management Planning under the National Protected Areas Policy and System Plan. Contracted by Forest Department/NPAPSP

Walker Z. and P. Walker (2008). Conservation Action Plan for the Southern Belize Reef Complex. Report for Friends of Nature, TNC and Fisheries Department

Walker Z., P. Walker, N. Catzim and J. Awe (2008). Technical Assessment of the Biodiversity and Cultural Values of the Maya Mountains Massif. Report for Belize Forest Department and The Nature Conservancy.

Walker Z. and P. Walker (2009). Columbia River Forest Reserve – Strategic Management Plan 2011 – 2015. For Belize Forest Department and Ya'axché Conservation Trust.

Walker Z. and P. Walker (2010). Status of Protected Areas in Belize. Report for APAMO

World Resources Institute (2005). Belize Coastal Threat Atlas