



# UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION



## NATIONAL CAPACITY SELF ASSESSMENT

# Thematic Assessment Report

## BELIZE

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## TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
LIST OF ACRONYMS .....	iii
EXECUTIVE SUMMARY .....	1
1.0 INTRODUCTION .....	3
1.1 National Land Management Issues.....	3
1.2 Deforestation in Belize .....	4
1.3 Overview of in-country Status .....	6
1.4 Requirements under UNCCD .....	7
1.5 Progress Report on Priority Areas Identified for the UNCCD. ....	10
1.6 The Overall Enabling Environment.....	11
1.6.1 <i>Economic framework</i> .....	11
1.6.2 <i>Approach to partnerships, delegation, and governance</i> .....	11
1.6.3 <i>Physical infrastructure and logistics</i> .....	12
1.6.4 <i>Approach to environmental protection</i> .....	12
1.6.5 <i>Approach to implementing UNCCD</i> .....	13
2.0 CAPACITY CONSTRAINTS .....	14
2.1 Capacity to Formulate Policies, Legislations, Strategies and Programs .....	14
2.1.1 <i>Policy formulation at the individual level</i> .....	15
2.1.2 <i>Policy formulation at the institutional level</i> .....	15
2.1.3 <i>Policy formulation at the systemic level</i> .....	15
2.2 Capacity to Implement Policies, Legislations and Strategies. ....	16
2.2.1 <i>Policy implementation at the individual level</i> .....	16
2.2.2 <i>Policy implementation at the institutional level</i> .....	16
2.2.3 <i>Policy implementation at the systemic level</i> .....	16
2.3 Capacity to Engage and Build Consensus Among all Stakeholders.....	16
2.3.1 <i>Capacity to engage and build consensus at the individual level</i> .....	17
2.3.2 <i>Capacity to engage and build consensus at the institutional level</i> .....	17
2.3.3 <i>Capacity to engage and build consensus at the systemic level</i> .....	17
2.4 Capacity to Mobilize Information and Knowledge .....	17
2.4.1 <i>Capacity to mobilize information and knowledge at the individual level</i> . 18	18
2.4.2 <i>Capacity to mobilize information and knowledge at the institutional level</i>	18
2.4.3 <i>Capacity to mobilize information and knowledge at the systemic level</i> ... 18	18
2.5 Capacity to Monitor, Evaluate, Report and Learn. ....	19
2.5.1 <i>Capacity to monitor, evaluate, report and learn at the individual level</i> ... 19	19
2.5.2 <i>Capacity to monitor, evaluate, report and learn at the institutional level</i> 19	19
2.5.3 <i>Capacity to monitor, evaluate, report and learn at the systemic level</i> ..... 19	19
3.0 CAPACITY AFFECTING PRIORITY REQUIREMENTS .....	19
3.1 Develop Long-term Integrated Strategies for Improved Productivity of Land. 19	19
3.1.1 <i>Capacity to formulate policies, legislations, strategies and programs.</i> ... 21	21
3.1.2 <i>Capacity to implement policies, legislation and strategies.</i> .....	21
3.1.3 <i>Capacity to engage and build consensus among all stakeholders</i> .....	21
3.1.4 <i>Capacity to mobilize information and knowledge</i> .....	22
3.1.5 <i>Capacity to monitor, evaluate, report, and learn</i> .....	22

3.2	Strengthen Conservation Efforts and Sustainable Management of Land and Water Resources .....	22
3.2.1	<i>Capacity to formulate policies, legislations, strategies and programs.</i> ...	24
3.2.2	<i>Capacity to implement policies, legislations and strategies.</i> .....	24
3.2.3	<i>Capacity to engage and build consensus among all stakeholders.....</i>	24
3.2.4	<i>Capacity to mobilize information and knowledge .....</i>	24
3.2.5	<i>Capacity to monitor, evaluate, report, and learn .....</i>	24
3.3	Requirement to Prepare a National Action Plan (NAP) .....	25
3.4	Build Capacity in Education .....	26
3.4.1	<i>Capacity to formulate policies, legislations, strategies and programs. ...</i>	26
3.4.2	<i>Capacity to implement policies, legislations and strategies.....</i>	27
3.4.3	<i>Capacity to engage and build consensus among all stakeholders.....</i>	28
3.4.4	<i>Capacity to mobilize information and knowledge .....</i>	28
3.4.5	<i>Capacity to monitor, evaluate, report, and learn .....</i>	28
3.5	In-depth Analysis of Failures to meet Certain Requirements of the Convention	
	28	
4.0	OPPORTUNITIES FOR CAPACITY BUILDING.....	36
4.1	Research Needs.....	38
5.0	STRATEGIC ACTIONS AND ACTION PLAN .....	39
6.0	METHODS USED IN THE THEMATIC ASSESSMENT.....	41
	REFERENCES .....	42
	ANNEX 1: GIS studies assessing land cover in Belize. Data compiled by Mr. Cherrington, CZMAI, GIS specialist.....	45

## LIST OF ACRONYMS

<b>ALIDES</b>	Central American Alliance for Sustainable Development
<b>BAHA</b>	Belize Agricultural Health Authority
<b>BAS</b>	Belize Audubon Society
<b>BECOL</b>	Belize Electric Company Limited
<b>BEL</b>	Belize Electricity Limited
<b>BEST</b>	Belize Enterprise for Sustainable Technology
<b>BIARD</b>	Belize Institute for Agricultural Research and Development
<b>CARD</b>	Community-initiated Agriculture and Rural Development
<b>CARDI</b>	Caribbean Agricultural Research and Development Institute
<b>CARICOM</b>	Caribbean Community
<b>CATIE</b>	Center for Tropical Agriculture Research and Higher Learning
<b>CEDS</b>	Conservation and Environmental Data Systems
<b>CFE</b>	Comission Federal de Electricidad
<b>CHM</b>	Clearing House Mechanism
<b>CITES</b>	Convention on International Trade in Endangered Species
<b>CORECA</b>	Central American Agricultural Council
<b>CREI</b>	Citrus Research and Education Institute
<b>CSO</b>	Central Statistical Office
<b>DOE</b>	Department of the Environment
<b>GEF</b>	Global Environmental Facility
<b>GIS</b>	Geographic Information System
<b>IICA</b>	Inter-American Institute of Cooperation for Agriculture
<b>LIC</b>	Land Information Center
<b>NAP</b>	National Action Program
<b>NARMAP</b>	Natural Resources Management Project
<b>NFP</b>	National Focal Point
<b>NHDAC</b>	National Human Development Advisory Council
<b>NMS</b>	National Meteorological Service
<b>OIRSA</b>	International Regional Organization for Health in Agriculture

<b>PACT</b>	Protected Areas Conservation Trust
<b>PfB</b>	Programme for Belize
<b>PMU</b>	Project Management Unit.
<b>RAMOS</b>	Remote Automatic Meteorological Observation Station
<b>SATIIM</b>	Sarstoon-Temash Institute for Indigenous Management
<b>SICA</b>	Central American Integration System
<b>SIDS</b>	Small Island Developing States
<b>SIF</b>	Social Investment Fund
<b>TIDE</b>	Toledo Institute for Development and Environment
<b>UNCCD</b>	United Nations Convention to Combat Desertification.
<b>UNEP</b>	United Nations Environmental Programme
<b>WCS</b>	Wildlife Conservation Society

## **EXECUTIVE SUMMARY**

Land degradation is an economic, social and environmental problem. It is defined as “the decline in the biological or economic productivity of soil as a result of human activities or climatic change.” In 1994, the United Nations General Assembly established an Intergovernmental Negotiating Committee to prepare a Convention to Combat Desertification. In 1997, the United Nations Conference on Desertification adopted a Plan of Action to Combat Desertification. The Convention was adopted in Paris on June 17, 1994 and entered into force on December 26, 1996. Belize signed and acceded to the Convention on 23<sup>rd</sup> July 1998.

Statistics for Central America show that between 1990 and 1995 the total loss of forest cover was 2,284,000 hectares. This represents an annual average of approximately 388,000 hectares or 0.2% of the region’s forest coverage of 181,233,790 hectares<sup>1</sup>. In a similar study for Belize, it was determined that average forest cover loss varied from a minimum annual estimate of 4,899 hectares (0.3 %) in Southern Belize to a maximum of over 13,374 hectares (0.8%) in Northern Belize.

No specific strategy to combat land degradation and drought has been formulated for Belize. However, certain sectoral policies and strategies that would mitigate the impacts of land degradation and drought have been drafted. Examples are the Agricultural Sectoral Strategy policy document 1998-2020 and Sectoral Strategy 5-year plan which seek to improve agricultural practices; the Forest Strategy (in progress) and the National Land Policy Framework that is one of the expected outputs of the Land Management Programme currently being implemented by the Ministry of Natural Resources and the Environment (MNRE).

As a signatory to the UNCCD, Belize has an opportunity to improve land resource management by addressing the following limitations:

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<sup>1</sup> <http://www.sgsica.org>, State of Environment and Natural Resources in C.A. 1998

- Lack of a comprehensive database including ecological, social, economic, and traditional knowledge.
- Lack of explicit land administration policies and institutional responsibilities.
- The need to improve public sensitivity to the high costs of unsustainable management policies.
- Absence of policies that promote appropriate human settlement pattern, particularly in ecologically fragile or vulnerable areas.
- Expertise to develop and implement integrated ecosystem management.

## **1.0 INTRODUCTION**

Land degradation is an economic, social and environmental problem. It is defined as “the decline in the biological or economic productivity of soil as a result of human activities or climatic change.” The UNFCCC First National Communication reports that population growth, poverty, politics, and short-term economic development, all contribute to unsustainable resource management practices. In 1977, the United Nations Conference on Desertification adopted a Plan of Action to Combat Desertification. Then in 1991 the United Nations Environment Programme (UNEP) concluded that the problem of land degradation in arid, semi-arid and dry sub-humid areas had intensified. The United Nations Conference on Environment and Development, in Rio de Janeiro (UNCED-1992) supported an integrated approach to the problem of land degradation which emphasized involvement at the community level. In 1994, the United Nations General Assembly established an Intergovernmental Negotiating Committee to prepare a Convention to Combat Desertification. The Convention was adopted in Paris on June 17, 1994 and entered into force on December 26, 1996. The Conference of the Parties was constituted as the Convention's supreme governing body, and meetings are held once every two years. Belize signed on to the Convention on July 23, 1998.

### **1.1 National Land Management Issues**

Analysis of satellite imagery taken between 1996 and 1998 characterized Belize as having approximately 70% forest cover (Chief Forest Officer report to Belize's National Awareness Seminar UNCCD, 2004). This same analysis indicates that 42% of Belize was under some form of protection through legislation.

Table 1: Protected Areas of Belize in acres (1995 to 2004)

<b>Category</b>	<b>1995</b>	<b>1998</b>	<b>2000</b>	<b>2001</b>	<b>2004</b>
Forest Reserves	1,067,323	1,006,599	1,015,776	1,081,943	960,114
National Parks	375,309	376,922	395,294	384,810	405,413
Nature Reserves	111,677	111,781	109,711	111,690	111,781

Wildlife Sanctuaries	128,226	353,842	357,866	323,313	359,843
Natural Monuments	9,776	15,560	15,570	15,641	15,560
Archeological Reserves	26,240	27,350	28,567	28,015	28,619
Private Reserves	92,614	292,427	279,447	306,345	292,428
Marine Reserves	83,996	265,664	391,737	391,737	391,737
<b>Total</b>	<b>1,895,162</b>	<b>2,450,145</b>	<b>2,593,968</b>	<b>2,643,494</b>	<b>2,565,495</b>
Land Protected Areas	1,801,395	1,970,402	1,988,2482	2,037,540	1,959,603
<b>% of Total Land Area</b>	31.7	34.7	35.0	35.9	34.5

Source: Environmental Statistics for Belize 2004. Areas from 1995 to 2000 are Statutory Instrument Schedules and 2004 areas are GIS estimated.

The Ministry of Natural Resources and Environment (MNRE) has a framework to guide land use changes by resolving competition for land resources, and promoting a philosophy of sustainable development (Physical Planner, National Awareness Seminar UNCCD, 2004). However, several other institutions and statutory bodies share responsibility for land use planning. These include the Land Utilization Authority ( LUA) of the MNRE, the Central Housing and Planning Authority in the Ministry of Housing, the Coastal Zone Management Authority and Institute (CZMAI) and the National Environmental Appraisal Committee (NEAC) (Physical Planner, National Awareness Seminar UNCCD, 2004). The objective of an IDB funded Land Management Programme currently being implemented by the MNRE is the “promotion of a cohesive land policy framework contributing to the sustainable development and efficient use of land resources” (Physical Planner, National Awareness Seminar UNCCD, 2004).

## 1.2 Deforestation in Belize

Statistics for Central America show that between 1990 and 1995 the total loss of forest cover was 2,284,000 hectares. This represents an annual average of approximately 388,000 hectares or 0.2% of the region’s forest coverage of 181,233,790 hectares<sup>2</sup>. In a similar study for Belize, it was determined that average annual deforestation varied

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<sup>2</sup> <http://www.sgsica.org>, State of Environment and Natural Resources in C.A. 1998

significantly among the Southern, Central and Northern regions of Belize<sup>3</sup>. Table 2 summarizes gross deforestation in Belize between 1989 and 1994.

**Table 2:** Gross and average annual deforestation in Belize.

<b>Period</b>	<b>Gross Deforestation (ha.)</b>	<b>Average Annual Deforestation (ha.)</b>	<b>% Annual Deforestation</b>	<b>Region</b>
1989-1994	24,495	4,899	0.3	Southern
1990-1994	26,832	6,708	0.4	Central
1992-1994	26,749	13,374	0.8	Northern

The data reveals that average forest cover loss varied from a minimum annual estimate of 4,899 hectares in Southern Belize to a maximum of over 13,374 hectares in Northern Belize. This represented an annual loss of 0.3 % in the Southern region, 0.4% in the Central region, and 0.8% in the Northern region based on Belize's total forest cover of 1,607,585 hectares (70% of total land area). Total deforestation in Belize during the period 1989 to 1994 was estimated at 78,076 hectares (5%) or 13,012 hectares (0.8%) annually for this six-year period. This exceeds the annual average rate of 0.2% for the Central American region.

A compilation of GIS studies assessing Belize's land cover underscores the fact that reported land cover data must be viewed in light of temporal and spatial variation (Annex 1). In addition, changes in technology reflected in the source and scale of satellite images may also account for variations seen in the data.

GIS analysis conducted between 1989 and 2004 show that agricultural areas expanded by 168,412 hectares. These studies also show that land cover classified as "Broadleaf forest" decreased by 232,752 hectares. While "Pine forest" decreased by 7,466 hectares and "Savannah" decreased by 3,090 hectares. The data suggest that anthropogenic

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<sup>3</sup> White, et al., 1996

incursion on “Swamp land” amounted to 60,017 hectares and urban areas expanded by 750 hectares.

**Table 3:** Land-cover for Belize from 1989 to 2004  
 (Data compiled by Mr. Emil Cherrington, CZMAI GIS Specialist)

Land Cover (ha)	Aggregate data (1989-90-92)	1993	Aggregate data (1993-96-98)	2004
Agricultural	257,461	340,625	369,608	425,743
Broadleaf Forest	1,453,545	1,202,087	1,291,219	1,220,972
Mangroves	31,269	108,622	93,965	97,186
Water Bodies	31,860	53,148	65,656	93,741
Pine Forest	67,474	63,603	60,423	60,014
Savannah	290,667	412,585	281,104	287,580
Swamp	79,568	7,468	10,133	19,597
Urban Areas	8,082	29,634	45,752	8,831

Data from the MAF show that 79,025 hectares of land was under cultivation in 2002. This decreased to 76,342 hectares in 2003 and 75,031 hectares in 2004 (MAFC Policy Unit). Approximately 1,255 hectares of land was used for aquaculture in 1999. This increased to 2,088 hectares in 2000 and 2,023 hectares in 2001. Citrus Research and Education Institute (CREI) data show that approximately 17294 hectares and 2,876 hectares of land are currently being used for orange and grapefruit production respectively.

### 1.3 Overview of in-country Status

Belize acceded to the UNCCD on July 23, 1998. This Convention was later enforced on the 21<sup>st</sup> October, 1998. At that time, the Chief Forest Officer (Mr. Oswaldo Sabido) was designated the National Focal Point (NFP) for the implementation of the Convention. In February 2000, a UNCCD consultant, Mr. Erwin Ortiz, conducted field visits in Stann Creek and Cayo Districts to assess land use practices. The National Focal Point made recommendations to the Minister of Natural Resources and the Environment to appoint a fifteen-member National Coordinating Body. Since then several representatives from the

MNRE have attended regional and international meetings including, COP 6 in Cuba, and workshops on Benchmarks and Indicators of land degradation in Chile, and St. Lucia.

#### **1.4 Requirements under UNCCD**

Table 4 summarizes the specific requirements of UNCCD and compliant activities conducted in country.

**Table 4: UNCCD Compliant Activities of Belize**

<b>Convention Requirements</b>	<b>Status</b>
<b>Article 2: Objective</b> To combat desertification and mitigate the effects of drought. -Adopt long-term integrated strategies that focus simultaneously, in affected areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level.	No specific strategy to combat land degradation and drought has been formulated for Belize. However, certain sectoral policies and strategies that would mitigate the impacts of land degradation and drought have been drafted. Examples are the Agricultural Sectoral Strategy policy document 1998-2020 and Sectoral Strategy 5-year plan which seek to improve agricultural practices; and the National Land Policy Framework that is one of the expected outputs of the Land Management Programme currently being implemented by the Ministry of Natural Resources.
<b>Article 5: Obligations of affected country Parties</b> Prioritize combating desertification and mitigating the effects of drought, and allocate adequate resources. -Establish strategies and priorities, within the framework of sustainable development. -Address the underlying causes of desertification and pay special attention to the socio-economic factors. -Promote awareness and facilitate the participation of local populations, particularly women and youth, with the support of NGO's. -Strengthen relevant existing legislation, enact laws,	The results of the NAS indicated that there is a lack of knowledge about land degradation. Neither has a national survey to determine the level and/or extent of land degradation or drought situations been conducted. Therefore the need to prioritize strategies or programmes to resolve the issues cannot be identified at this time.

and establish long-term policies and action programs.	
<b>Article 8: Relationship with other conventions</b>  Encourage the coordination of activities under other relevant international agreements, particularly the UNFCCC and the CBD.	This is presently being analyzed with the support of the National Capacity Self Assessment Project. The National Focal Points for UNFCCC, UNCCD, and UNCBD are all within the Ministry of Natural Resources and the Environment.
<b>Article 10: National Action Programmes</b>  NAP will identify factors contributing to desertification and practical measures necessary to combat desertification and mitigate the effects of drought.	Belize completed its first National Awareness Seminar in October 2004. A consultancy is being advertised for the preparation of the National Action Programme. The NAP will be based on the output of the NCSA and the NAS.
<b>Article 11: Sub-regional and regional action programmes</b>  Consult and cooperate to prepare action programs to complement and increase the efficiency.	Belize would be able to participate in sub-regional and regional Action Programmes (under the UNCCD) through its membership in the Central American Council for Environment and Development (CCAD) and CARICOM.
<b>Article 12: International cooperation</b>  Cooperate to ensure the promotion of an enabling international environment in the implementation of the Convention. Such cooperation should also cover fields of technology transfer as well as scientific research and development, information collection and dissemination and financial resources.	Belize has been represented in a number of regional and international meetings related to the Convention. These include the meetings on Benchmarks and Indicators in Chile and St. Lucia, and the COP 6 in La Havana, Cuba.
<b>Article 13: Support for the elaboration and implementation of action programmes</b>  Financial cooperation to provide predictability for NAP, allowing for long-term planning.	The drafting of the NAP has recently been initiated.
<b>Article 14: Coordination in the elaboration and implementation of action programmes</b>  Cooperate in the elaboration and implementation of NAP.	Activity to prepare the NAP has just been initiated, and the process will include national participation through the public consultation process.
<b>Article 16: Information collection, analysis and exchange</b>  Integrate and coordinate the collection, analysis and	Data and information related to Land Degradation is currently not available since a national survey to determine the status of the phenomenon has not been

<p>exchange of relevant short term and long term data and information to ensure systematic observation of land degradation in affected areas and to understand better and assess the processes and effects of drought and desertification.</p>	<p>completed.</p> <p>At the national level, the Central Statistical Office of the Ministry of National Development, collects and disseminates all types of data including that on the environment.</p> <p>Belize is involved in a number of regional cooperation mechanisms such as the CCCCC, MACC, SIAM, IABIN, MBRS, and MBC which provide opportunities to share, exchange, and access relevant data and information as needs arise.</p>
<p><b>Article 17: Research and development</b></p> <p>Promote technical and scientific cooperation in the fields of combating desertification and mitigating the effects of drought through appropriate national, sub-regional, regional and international institutions.</p>	<p>Belize is not participating in any of this activity.</p>
<p><b>Article 18: Transfer, acquisition, adaptation and development of technology</b></p> <p>-Promote, finance and/or facilitate the financing of the transfer, acquisition, adaptation and development of environmentally sound, economically viable and socially <u>acceptable</u> technologies relevant to combating desertification and/or mitigating the effects of drought, with a view to contributing to the achievement of sustainable development in affected areas. Such cooperation shall be conducted bilaterally or multilaterally, as appropriate, making full use of the expertise of intergovernmental and non-governmental organizations.</p>	<p>Even in the absence of a national programme designed to combat desertification and mitigate the impacts of drought, Belize contributes to the development of regional Benchmarks and Indicators through participation in the sub-regional and regional meetings.</p> <p>Belize Enterprise for Sustained Technology (BEST), and Help for Progress are two NGO's that have spearheaded technology transfer efforts in alternate energy (biogas, solar-box cookers, Lorena Stoves) that help to reduce land degradation (through deforestation).</p>
<p><b>Article 19: Capacity building, education and public awareness</b></p> <p>-Emphasize capacity building, institution building, training and development of relevant local and national capacities.</p>	<p>A number of the staff of the Forest and Lands and Surveys Departments, the Department of the Environment, and one local consultant have had opportunities to build capacity in relation to the Convention through participation in the sub-regional, regional, and international workshops and meetings.</p>

	Except for the first NAS, no integrated public education and awareness campaign on the UNCCD has been launched.
<b>Article 20: Financial resources</b>  Make every effort to ensure that adequate financial resources are available for programs.  -Mobilize adequate financial resources for the implementation of NAP.  -Utilize and continue qualitative improvement of all national, bilateral and multilateral funding sources and mechanisms, using consortia, joint programs and parallel financing, and shall seek to involve private sector funding sources and mechanisms, including those of non-governmental organizations.	To date financial resources for UNCCD activities have been provided by the Convention Secretariat and the Global Environmental Facility (GEF) through the national UNDP country office (preparation of the first and second National Reports, the NAS, and participation in meetings/workshops).  National funding could not be made available in the absence of a national programme.
<b>Article 26: Communication of information</b>  Communicate to the COP through the Permanent Secretariat, reports on the measures which it has taken for the implementation of the Convention.	1. Belize drafted the First National Report on the status of implementation of the Convention in 2001, and submitted a draft Second National Report in 2003.

## **1.5 Progress Report on Priority Areas Identified for the UNCCD.**

Preparation of the NAP was the most important issue identified at the “First National Capacity Self-Assessment Workshop on the UNFCCC, UNCBD and UNCCD” (May 5-6, 2005). The TOR for a consultancy to prepare the NAP has been drafted and advertised. Other priority needs/actions identified by the workshop participants include a national public education/awareness programme to enable other stakeholders to participate in improved land management, and a national survey to determine the extent of current land degradation and drought incidents in the country. This would facilitate monitoring of the changes and the formulation of projects to address the issues.

The drafting of the “First and Second National Reports” were significant achievements of the NFP, and the establishment of an operational fund by the Global Environmental Facility (GEF) has been instrumental in sustaining current efforts in the achievement of programs related to the UNCCD. In October 2004 Belize held a two-day NAS in order

to increase public awareness of the Convention to Combat Desertification. The specific objectives of the seminar included:

- Identify critical issues or activities contributing to land degradation.
- Determine solutions to the issues and problems contributing to land degradation.
- Provide input to (Recommend) the development of a National Action Programme.
- Encourage involvement of stakeholders in land degradation matters.

## **1.6 The Overall Enabling Environment**

### **1.6.1 *Economic framework***

There is no national budget for the implementation of requirements under the UNCCD. Compliance activities have been financed through grants from international agencies, NGOs, and in-kind contributions of resources from relevant government departments.

### **1.6.2 *Approach to partnerships, delegation, and governance***

There exist successful partnerships between Government and NGOs (Belize Audubon Society, Toledo Institute of Development and Environment) in the management of protected areas. These partnerships promote capacity building in the local populations communities, development of alternate livelihoods and opportunities for sustainable growth of the participating communities.

Different agencies apply relevant laws to manage and conserve natural resources. Examples are The National Park Systems Act, 1981 for the establishment and maintenance of Nature Reserves, National Parks, Wildlife Sanctuaries, and Natural Monuments.

The Forest Act, 1976 allow for the establishment of forest reserves on national lands for sustainable management of these resources for the multiple goods and services they provide naturally. Limitations in human resources and equipment have compromised the effectiveness of the Department especially with regards to compliance monitoring.

The Fisheries Act, 1977 applies to coastal waters and may be extended by Ministerial Order to inland waters. An amendment of the Fisheries Act in 1983 permits the declaration of marine reserves for conservation of marine fauna/flora which may also incorporate adjacent areas of land.

The Ancient Monuments and Antiquities Act, 1981 allows for the management of archaeological reserves for protection, research, or cultural values. Archaeological reserves are governed by the Ancient Monuments and Antiquities Act; however they may lie within areas already under protected status (Caracol in the Chiquibul National Park).

Land tenure is governed by the Crown Lands Act which was superseded by the National Lands Act of 1992. National lands include town, suburban, rural, pastoral, mineral and beach lands.

The Land Utilization Act, 1981 gives authority to the Minister of Lands/Natural Resources to declare Special Development Areas (SDA).

Governance issues are salient to the effective management of natural resources.

#### *1.6.3 Physical infrastructure and logistics*

Belize has adequate physical infrastructure to enable accomplishment of all relevant requirements of the UNCCD. Specifically this includes facilities and logistical arrangements for the provision of educational services, as well as adaptation and dissemination of new technologies.

#### *1.6.4 Approach to environmental protection*

Environmental management is achieved through the Department of the Environment (DOE) established for the administration of the Environmental Protection Act (EPA). The DOE is headed by the Chief Environmental Officer, appointed by the Governor General acting in accordance with the advice of the Prime Minister (Constitution of

Belize: (The Public Service, 107). The DOE has a very broad mandate for the management of the environment. Some of its specific functions include:

1. Continuous assessment of natural resources and pollution.
2. Ensure protection and rational use of natural resources.
3. Investigate cause, nature, and extent of pollution.
4. Conduct, promote, and coordinate research relevant to environmental pollution.
5. Maintain a register of all wastes, discharges, emissions, deposits which are dangerous to the environment.
6. Undertake investigations to ensure compliance with the EPA.

The DOE utilizes formal alliances with other government and non-government agencies through the NEAC, to obtain technical support in evaluation of the environmental impact of development projects. This mechanism, the Environmental Impact Assessment (EIA), enables the decision making process while ensuring minimal negative impacts on the environment.

Environmental protection is also achieved through the regulatory activities of other government agencies such as the Forest and Fisheries Departments. These departments utilize a licensing and permitting system to allow for the monitoring of stakeholders during their utilization of the renewable natural resources. The Geology and Petroleum Department similarly monitors the utilization of the non-renewable natural resources.

#### *1.6.5 Approach to implementing UNCCD*

The responsibility for the implementation of the UNCCD has recently been transferred to the National Meteorological Services (NMS). The new National Focal Point (NFP) has reconstituted the National Coordinating Body, in order to have technical support available in the further implementation UNCCD activities. The NFP advises that certain activities will be out-sourced, utilizing national consultants to provide services and technical assistance, and public consultations will be utilized to allow input from all sectors while planning land degradation mitigation programmes and projects. The

financial resources available through the international funding agencies will be accessed through properly designed projects.

Belize has an opportunity to achieve synergy in the implementation of the United Nations Conventions of Climate Change, Biological Diversity, and Land Degradation and Drought since the Ministry of Natural Resources and the Environment houses all three National Focal Points.

## **2.0 CAPACITY CONSTRAINTS**

### **2.1 Capacity to Formulate Policies, Legislations, Strategies and Programs**

There is no capacity constraint within relevant GOB Departments to analyze socioeconomic conditions, develop long-term plans, conceptualize sectoral and cross-sectoral policies, and formulate programs.

Government Departments consist of experienced and qualified personnel who have the capacity to formulate policies, legislation, strategies, and programs related to prudent land management practices. The MAF has a comprehensive policy document for a period 1998-2020 and a more detailed “Sectoral Strategy” five-year plan. The MAF long-term plan incorporates sustainable farming practices to reduce resource degradation particularly of fragile and vulnerable areas. The MAF is committed to resolving land tenure issues and improving resource management through the promotion of sustainable farming practices such as mixed intercropping, organic nutrient recycling processes, crop rotation, and irrigation. Tree farming, forest enrichment, agro-forestry and silvi-pastoral production systems are being promoted as alternative livelihoods for farmers<sup>4</sup>.

The MNRE consists of the Lands and Surveys Department, Forest Department, DOE, Geology and Petroleum Department and the National Meteorological Service. Experienced and qualified individuals capable of policy formulation, drafting legislation, developing strategies and conducting programs related to land management, staff these

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<sup>4</sup> The National Food and Agriculture Policy 2002-2020

Departments. The Land Management Program demonstrates the will to develop a comprehensive national planning framework for Belize. The Pro Tem Water Commission is currently conducting a national survey on the use and management of Belize's water resources. The Commission is charged with the development of an integrated water resources management policy. The philosophy of this policy is to promote the coordinated development and management of water, land, and related resources for economic and social benefits without compromising the nation's ecosystems<sup>5</sup>.

#### *2.1.1 Policy formulation at the individual level*

Employees of government all have clearly defined job descriptions and clear reporting protocols. Government routinely offers opportunities for short and long-term skills training which increases individual capacity to formulate policies. Scholarships are awarded to Government employees through several international agencies but the most significant program is the "Professional and Technical" scholarship program.

There is no capacity constraint for policy formulation at the individual level as job requirements are clearly defined, individual performance is monitored, incentives provided, and there exists adequate skills training programs for the public service.

#### *2.1.2 Policy formulation at the institutional level*

There are few hindrances to the formulation of departmental policies and programs at the institutional level. Primarily, adequate financial and other resource allocations are not always consistent with employee responsibilities. There is an inherent difficulty to formulate long-term strategies since coordination between the departments responsible for various aspects of land management is not formalized.

#### *2.1.3 Policy formulation at the systemic level*

Under the current system of government it is difficult to establish long-term policies beyond the five year mandate of political parties in government. This lack of continuity

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<sup>5</sup> Government Press Release, 2005

is compounded by the inadequate representation of stakeholders in the decision-making process.

## **2.2 Capacity to Implement Policies, Legislations and Strategies.**

In general, government departments have clear policies and are only limited by staff and or appropriate tools and equipment for compliance monitoring. The core limitation is insufficient financial allocations to improve implementation capability.

### *2.2.1 Policy implementation at the individual level*

Clearly defined policies are easily implemented by Government employees.

### *2.2.2 Policy implementation at the institutional level*

The absence of adequate human and financial resources is the key limitation for the implementation of departmental policies.

### *2.2.3 Policy implementation at the systemic level*

There currently exists comprehensive resource management laws with appropriate penalties for violations. There is a problem of inadequate resources for, or attention given to, enforcement or compliance monitoring.

## **2.3 Capacity to Engage and Build Consensus Among all Stakeholders**

The NEAC, LUA, the Pro Tem Water Commission, and the NCB are examples of mechanisms used to coordinate the expertise and resources from various government departments and non-government organizations engaged in the sustainable management of land and water resources. These bodies all have stakeholder representation that includes the private or business sector. Further financial support for conservation and management of natural resources is provided to NGOs through the Protected Areas Conservation Trust, a quasi-government agency.

Dissemination of information related to land and water resource management is loosely coordinated through pamphlets, newspapers, radio, television advertisements, and websites of the various government departments and NGOs.

#### *2.3.1 Capacity to engage and build consensus at the individual level*

There are no impediments to building consensus at the individual level except for the capacity of individuals. With adequate training and incentives the public service has been able to cultivate effective collaboration between departments. This is exemplified by the establishment of NEAC, the “National Human Development Advisory Council” (NHDAC), and the “Economic Advisory Council”.

#### *2.3.2 Capacity to engage and build consensus at the institutional level*

Inter-ministerial committees (NCB of the UNCCD, NEAC, NHDAC) help to create partnerships and resolve common conflicts. However, there is more to be done in order to increase awareness of issues related to land degradation and drought.

#### *2.3.3 Capacity to engage and build consensus at the systemic level*

Participation is exemplified at the systemic level through partnerships with conservation NGOs (BAS, TIDE, and Ya’ axché Conservation Trust, etc.) entrusted to manage protected areas in Belize. The issue of clarifying property rights and tenure is salient to creating good will. This is especially true for the relationship between indigenous communities in southern Belize. Other target populations are addressed through strategy instruments such as the Toledo Development Corporation and the Toledo Healthy Forest Initiative.

### **2.4 Capacity to Mobilize Information and Knowledge**

The creation of databases within each stakeholder organization and government department is the precursor to the mobilization of information and knowledge. Stakeholder organizations have diverse levels of technical capabilities and technological resources to adequately manage a database. Leading organizations in the management of databases include: WCS, MBRS, BAS, LIC, MAF, PfB, NMS, and CZMA&I (Personal

Communication with Ms. I. Chan, Clearing House Mechanism Project). The CEDS project, launched in 1995, was an attempt to establish a centralized information system by linking those of institutions such as UB, Central Statistical Office, Geology and Petroleum Department, Lands and Surveys Department, Wildlife Conservation Society, Belize Audubon Society, and Programme for Belize, and others.<sup>6</sup>

#### *2.4.1 Capacity to mobilize information and knowledge at the individual level*

Technical training and availability of information databases has been one of the limitations to mobilize data within the public service. However, some government ministries/departments have an Information or Public Relations Officer among the staff, whose responsibility includes the dissemination of reliable and accurate information pertaining to that institution. Otherwise, some available data sources are underutilized due to the lack of knowledge about them or limited access to them.

#### *2.4.2 Capacity to mobilize information and knowledge at the institutional level*

The National Meteorological Service is the government department presently responsible for the implementation of the UNCCD. This institution has daily demonstrated its capacity to mobilize information in the preparation of weather forecasts, and equally so during the annual periods of extreme weather conditions. The data maintained by the NMS is made available to other agencies, such as the Forest and Agriculture Departments, and the Central Statistical Office, on request or voluntarily. The MNRE employs a Communications Information Officer among its staff to deal with the dissemination of information.

#### *2.4.3 Capacity to mobilize information and knowledge at the systemic level*

The stock-taking exercise for the UNCCD was a situational analysis leading to the identification of priority issues and drafting of methodology for solutions.

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<sup>6</sup> LIC/CEDS

## **2.5 Capacity to Monitor, Evaluate, Report and Learn.**

Several Government ministries and departments (MAF, Forest Department, NMS/ Hydrology and the DOE) have significant monitoring functions requiring more staff than is currently available. Consequently, the evaluation and analysis of data is limited by the availability of human resources as well as documented information.

### *2.5.1 Capacity to monitor, evaluate, report and learn at the individual level*

Those staff members that have received formal training have capacity to monitor, evaluate, prepare and submit reports, and they also demonstrate the ability to learn.

### *2.5.2 Capacity to monitor, evaluate, report and learn at the institutional level*

In the absence of a culture of documenting information, it is generally difficult to avoid redundancy. Government, non-government and private sector agencies all maintain data bases and information systems in the form of files or libraries, but there is no country-wide or district-wide links between them.

### *2.5.3 Capacity to monitor, evaluate, report and learn at the systemic level*

There are national planning bodies such as the NEAC and NHDAC that comprise stakeholders from various sectors of the country. Due to the nature of the political system, such planning bodies usually formulate plans for the short and medium term instead of long term.

## **3.0 CAPACITY AFFECTING PRIORITY REQUIREMENTS**

### **3.1 Develop Long-term Integrated Strategies for Improved Productivity of Land.**

Responsibility for priority requirements under the UNCCD is shared among several government departments although coordination is currently realized through the “National Focal Point” at the NMS. Table 5 summarizes the strengths, weaknesses, opportunities and threats specific to the MAF generally responsible for managing land productivity.

**Table 5:** Analysis of UNCCD Requirement to Develop Long-term Integrated Strategies for Improved Productivity of Land.

S	<b>Individual:</b>
T	-Highly motivated and qualified staff in the Agriculture Ministry/Department.
R	(26 active Extension Officers and 6 District Agriculture Coordinators)
E	<b>Institutional:</b>
N	-Ministry of Agriculture supports extension service programmes for farmers.
G	-MAF drafted a policy document 2002-2020 and a sectoral strategy 5-year plan.
T	-Current approach is the development of marketing strategies and community associations based on specific commodities.
H	
S	-Agro-processing program has been introduced.
	<b>Systemic:</b>
	-Existence of laws that discourage unsustainable land use practices.
	-Promotion of integrated crop management.
W	<b>Individual:</b>
E	-Lack of human resources training for conducting agricultural research.
A	<b>Institutional:</b>
K	-Ministry of Agriculture does not have an agricultural database.
N	-No system in place to ensure that the department builds on existing capacity.
E	-GIS technology not used to assist in crop forecasts and inform agricultural expansion projects.
S	<b>Systemic:</b>
S	-Insufficient financial support from government.
E	- Insufficient or inadequate farm roads.
S	- Not enough investment in irrigation technology.
	- Not enough investment in integrated pest management education programs.
O	<b>Individual:</b>
P	- To reduce post harvest losses through improved storage, and post harvest handling of produce.
P	<b>Institutional:</b>
E	-To Capitalize on the demand for livestock in Central America.
R	-To Produce organic fruits, vegetables and grains for the Tourism industry.
T	<b>Systemic:</b>
U	-To Actively explore potential niche markets; white ginger, pineapple, spices, organic cacao, cashew,
N	and little-known fruits.
I	-To Organize financing credit for small farmers.
T	-To Create a link between theoretical research and application by farmers.

I	-To Utilize existing GIS technology at the LIC (or develop in-house capacity) for planning purposes.
E	-To explore bi-lateral markets and opportunities that may exist within CARICOM.
S	
T	<b>Individual:</b>
H	-Highly trained individuals leaving the service for more lucrative private business.
R	<b>Institutional:</b>
E	-Insufficient support by Ministry of Agriculture and Fisheries for agricultural training programs to ensure qualified entrants into the extension service.
A	
T	<b>Systemic:</b>
S	-Impact of massive epidemics on papaya, peppers, banana, citrus and/or sugar cane, livestock.

### 3.1.1 *Capacity to formulate policies, legislations, strategies and programs.*

The MAF consist of experienced and qualified personnel who have the capacity to formulate policies, legislation, strategies, and programs related to prudent land management practices. The MAF has developed a comprehensive policy document for a period 2002-2020. In addition the Ministry also has a more detailed “Sectoral Strategy” five-year plan. The Agriculture Department is currently developing marketing strategies and community associations based on specific commodities. Renewed emphasis is now being placed on the agro-processing, and the conservation of natural and productive resource base to ensure long-term sustainability.

### 3.1.2 *Capacity to implement policies, legislation and strategies.*

Implementation of policies, legislations and strategies is contingent on an organizations ability to manage resources, and execute programs using effective technologies (NCSA: A Resource Kit, October 2004). Personnel within the MNRE, and the MAF have the capacity to effectively manage resources and execute programs using appropriate technology. Limitations include financial allocation, inadequate deployment of available staff and inadequate staffing.

### 3.1.3 *Capacity to engage and build consensus among all stakeholders*

This is demonstrated by at local (village and community levels), at the municipal level, and within sectors of the population when decisions need to be made on any issue.

### *3.1.4 Capacity to mobilize information and knowledge*

There is an urgent need for the MAF to create an agricultural database that would enable effective compilation, and subsequent analysis of data. The absence of such a database makes it difficult to ensure that the department builds on existing capacity. The department must utilize existing technologies, such as GIS, to assist in crop forecasts and to better evaluate agricultural expansion projects. Traditional knowledge and technology in agricultural practices could also be shared with farmers who can benefit from such assistance.

### *3.1.5 Capacity to monitor, evaluate, report, and learn*

There is some capacity to monitor, evaluate, report, and learn with sectors such as agriculture and tourism. This is constrained by limited availability of databases and supporting information.

## **3.2 Strengthen Conservation Efforts and Sustainable Management of Land and Water Resources.**

This priority requirement was assessed with inputs from the responsible government agencies: the Forest Department, Lands and Surveys Department and the Hydrology Unit of the NMS. Table 6 is a summary of strengths, weaknesses, opportunities, and threats specific to this requirement.

**Table 6:** Analysis of UNCCD Requirement to Strengthen Conservation Efforts and Sustainable Management of Land and Water Resources.

S	<b>Individual:</b> -Qualified personnel in terrestrial and water resources management.
T	<b>Institutional:</b>
R	-MNRE is the parent Ministry for Lands and Survey Department, Forest Department, National
E	Meteorological Service, and the DOE.
N	-PROTEM Water Commission reactivated.
G	-Mainstreaming the Sustainable Land Management Program.
T	<b>Systemic:</b>

H	-Development of a national land policy through the Land Management Program.
S	<ul style="list-style-type: none"> <li>-Land Information Center maintains a database on natural resources and the environmental.</li> <li>-LIC recently increased its staffing to include a GIS technician and a statistician.</li> <li>-Belize is a participant in the Global Mapping Project.</li> </ul>
W	<b>Individual:</b>
E	<ul style="list-style-type: none"> <li>-The trained personnel may not be applying the training in the appropriate field.</li> </ul>
A	<b>Institutional:</b>
K	<ul style="list-style-type: none"> <li>-No formal mechanism or legal structure in place for data collection and dissemination.</li> </ul>
N	<ul style="list-style-type: none"> <li>-Limited staff for proper monitoring and enforcement.</li> </ul>
E	<b>Systemic:</b>
S	<ul style="list-style-type: none"> <li>- The absence of national baseline data that could be used in formulating programmes for integrated management of land and water resources.</li> </ul>
O	<b>Individual:</b>
P	<ul style="list-style-type: none"> <li>-Change practices of Forest Officers to address their expanding role in forest resource management as a result of changing national needs and priorities.</li> </ul>
E	<b>Institutional:</b>
R	<ul style="list-style-type: none"> <li>-To formalize relationship between agencies/organizations such as UB, CSO, Wildlife Conservation Society and PfB.</li> </ul>
T	
U	<b>Systemic:</b>
N	<ul style="list-style-type: none"> <li>-To provide adequate financial and staff support for a data management system.</li> </ul>
I	<ul style="list-style-type: none"> <li>-To create increased awareness through a comprehensive multi-media public awareness programme website, pamphlets, television, and radio programs.</li> </ul>
T	
I	<ul style="list-style-type: none"> <li>-To serve as the regional hub or technical node for the CCAD-SIAM.</li> </ul>
E	<ul style="list-style-type: none"> <li>-To provide networking opportunities for land use change research.</li> </ul>
S	<ul style="list-style-type: none"> <li>-To utilize lessons learnt from the process to establish the “Clearing House Mechanism” currently being developed as a requirement for the UNCBD.</li> </ul>
T	<b>Individual:</b>
H	<ul style="list-style-type: none"> <li>-Policies that are unsupported by appropriate regulations and policies may cause conflict between recommendations of public officers and the political directorate.</li> </ul>
R	
E	<b>Institutional:</b>
A	<ul style="list-style-type: none"> <li>- To maintain departments and agencies which do not adjust their functions and priorities to meet changing national needs.</li> </ul>
T	
S	<b>Systemic:</b>
	<ul style="list-style-type: none"> <li>-Failure to address the need to establish and maintain a national environmental database will be continue to be a major constraint in support of research and long-term planning.</li> </ul>

	-Present inability to keep current because of lack of investment in GIS technology.
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### *3.2.1 Capacity to formulate policies, legislations, strategies and programs.*

The capacity to formulate policies and programs was recently demonstrated by the reorganization of the Forest Department into programs specifically responsible for Wildlife, Biodiversity, Forest Revenue/Exploitation Control, Sustainable Forest Resource Planning & Management, Protected Areas Management, with sub-programs of Mangroves/Wetlands and Law Enforcement. The reactivation of the Pro Tem Water Commission and the passage of the Water Industry Act demonstrate a willingness to formulate policies and legislation for the effective management of water resources.

### *3.2.2 Capacity to implement policies, legislations and strategies.*

Capacity exists within different agencies, but efficient mobilization of this capacity is limited by the deployment of these same human resources, combined with the fiscal and technological constraints.

### *3.2.3 Capacity to engage and build consensus among all stakeholders*

Increasing awareness of the importance of the sustainable management of land and water resources is the important first step in improving participation of stakeholders in decision-making and implementation of programs.

### *3.2.4 Capacity to mobilize information and knowledge*

The absence of baseline data and information, combined with the current technology utilized to manage the information places constraints on the existing capacity to mobilize the information and knowledge. Linkages are not established between the data bases.

### *3.2.5 Capacity to monitor, evaluate, report, and learn*

The capacity to monitor, evaluate, report, and learn will be enhanced through the creation of a database.

### 3.3 Requirement to Prepare a National Action Plan (NAP)

This effort is currently underway and is being spearheaded by the “National Focal Point”.

Table 7 summarizes the capacity issues related to this requirement.

**Table 7:** Analysis of Requirement to Prepare a National Action Plan (NAP)

S	<b>Individual:</b>
T	-Qualified personnel in Natural Resources Management, Earth Sciences, Forest Management,
R	Biology, Biodiversity, and Land Management.
E	<b>Institutional:</b>
N	-Improved coordination between departments within the Ministry of Natural Resources.
G	-Coordination of activities through the NCB.
T	<b>Systemic:</b>
H	-Ministerial commitment to the process.
S	
W	<b>Individual:</b>
E	- <b>The NFP may not be able to</b> dedicate enough time to the process due to the demands of other job
A	responsibilities.
K	<b>Institutional:</b>
N	-Until recently there was an inactive institutional framework to support the implementation of the
E	UNCCD.
S	<b>Systemic:</b>
S	-Lack of financial and human resource allocation to the process. The lack of knowledge about land
E	degradation and drought has not enabled priority to be placed on the need for a NAP.
S	
O	<b>Individual:</b>
P	-To articulate resource needs and acquire further training in this field. Investigate the potential of the
P	GEF.
E	<b>Institutional:</b>
R	-To utilize existing GIS technology available within the country in the planning process.
T	-To adopt a valuation system for ecosystem functions.
U	<b>Systemic:</b>
N	-To involve NGOs interested in conservation issues.
I	-To involve more of the private sector and NGOs in the consultation exercises to develop national
T	strategies.
I	

E	
S	
T	<b>Individual:</b> -Lack of opportunities or failure to utilize opportunities.
H	
R	<b>Institutional:</b> -The risk of loosing the NCB by not keeping the members engaged in the process.
E	
A	<b>Systemic:</b> -The failure to elevate the issues of land degradation and drought to a national concern.
T	
S	

### 3.4 Build Capacity in Education.

#### 3.4.1 Capacity to formulate policies, legislations, strategies and programs.

The Ministry of Education and the university community consist of qualified individuals capable of conceptualizing and developing long-term plans. The Agriculture faculty has recently incorporated a comprehensive practical component to the associate degree program in agriculture. This was in response to the criticism from the Ministry of Agriculture that UB graduates from this program have adequate theoretical knowledge but lack practical skills. Table 8 summarizes the strengths, weaknesses, opportunities, and threats relevant to the capacity within the Ministry of Education to accomplish this requirement of the UNCCD.

**Table 8:** Analysis of Requirement to Build Capacity in Education.

S	<b>Individual:</b> -There are many individuals trained in a variety of fields (subjects) including sciences, in the country.
T	
R	
E	<b>Institutional:</b> -Various national institutions offer educational opportunities at the primary, secondary, and tertiary levels.
N	
G	
T	
H	<b>Systemic:</b> -The government has placed high priority on education for all sectors of the population.
S	
W	<b>Individual:</b>

E	-Focus on daily activities leave little place for long term planning.
A	
K	<b>Institutional:</b>
N	-Lack of applied or practical component in existing Programs.
E	-Concentration on basic education limits opportunities for expansion in other fields.
S	
S	<b>Systemic:</b>
E	-Research in education is not a priority for Belize at this time.
S	-No comprehensive database of institutions and educational programs is available.
	-No continuous assessment of specific educational needs to ensure that scholarships and new program offerings are targeted to the UNCCD-specific needs of Belize.
O	<b>Individual:</b>
P	-To increase in knowledge and skills through “professional and technical scholarships” in UNCCD related sciences.
P	
E	-To capitalize on work-study and exchange programs offered directly through universities.
R	-To explore self-financing for academic training.
T	
U	<b>Institutional:</b>
N	-To share available GIS technology with other potential users.
I	
T	<b>Systemic:</b>
I	-To develop a long term strategy to address Belize’s technical and educational needs relevant to land degradation and water resource management.
E	
S	
T	<b>Individual:</b>
H	-Increasing job insecurity as government consolidates its resources.
R	
E	<b>Institutional:</b>
A	-Incongruence between program offerings and societal needs.
T	
S	<b>Systemic:</b>
	-Academic issues are decided at the appropriate level.

### 3.4.2 Capacity to implement policies, legislations and strategies.

Implementation of educational policies is contingent on the availability of financial, technological and human resources.

#### *3.4.3 Capacity to engage and build consensus among all stakeholders.*

The Ministry of Education recently published its action plan based on broad consultation with stakeholders (In Search of Reform, by Dian Maheia). The MNRE believes and practices the consultative process very widely and quite often.

#### *3.4.4 Capacity to mobilize information and knowledge*

The inability to compile and analyze information related to land and water resources management is a limitation that must urgently be addressed. The Hydrology Unit of the NMS analysis rainfall data and makes public the analyzed information via television, newspapers and press releases.

#### *3.4.5 Capacity to monitor, evaluate, report, and learn*

The capacity to monitor, evaluate, report, and learn will be enhanced through the creation of a database of technological and human resource needs of the agricultural and forestry sector. This can then be compared with the specific training programs in order to ensure congruence.

### **3.5 In-depth Analysis of Failures to meet Certain Requirements of the Convention**

This analysis of the Root Causes of the failures to meet certain requirements of the United Nations Convention to Combat Desertification (Land Degradation) is intended to complement the situational analysis already done and reported by the consultant. The consultant applied a SWOT analysis (in the Thematic Assessment Report (TAR)) to identify the gaps, so this analysis will build on that as well as the discussions held during the NCSA workshop of 5 to 6 May 2005. This analysis seeks to identify the root causes of the gaps or unaccomplished requirements that constrained successful implementation of the Convention.

*Article 2: Develop Long-term Integrated Strategies for Improved Productivity of Land.*

STRENGTHS	WEAKNESSES
<p><b>Individual:</b></p> <ul style="list-style-type: none"> <li>-Highly motivated and qualified staff in the Agriculture Ministry/Department.</li> <li>(26 Extension Officers and 6 District Agriculture Coordinators)</li> </ul> <p><b>Institutional:</b></p> <ul style="list-style-type: none"> <li>-Ministry of Agriculture supports extension service programmes for farmers.</li> <li>-MAF drafted a policy document 2002-2020 and a sectoral strategy 5-year plan.</li> <li>-Current approach is the development of marketing strategies and community associations based on specific commodities.</li> <li>-Agro-processing program has been introduced.</li> </ul> <p><b>Systemic:</b></p> <ul style="list-style-type: none"> <li>-Existence of laws that discourage unsustainable land use practices.</li> <li>-Promotion of integrated crop management.</li> </ul>	<p><b>Individual:</b></p> <ul style="list-style-type: none"> <li>-Lack of human resources training for conducting agricultural research.</li> </ul> <p><b>Institutional:</b></p> <ul style="list-style-type: none"> <li>-Ministry of Agriculture does not have an agricultural database.</li> <li>-No system in place to ensure that the department builds on existing capacity.</li> <li>- GIS technology not used to assist in crop forecasts and inform agricultural expansion projects.</li> </ul> <p><b>Systemic:</b></p> <ul style="list-style-type: none"> <li>-Insufficient financial support from government.<sup>7</sup></li> <li>- Insufficient or inadequate farm roads.</li> <li>- Not enough investment in irrigation technology.</li> <li>- Not enough investment in integrated pest management education programs.</li> </ul>

*Article 5: Strengthen Conservation Efforts and Sustainable Management of Land and Water Resources.*

STRENGTHS	WEAKNESSES
<p><b>Individual:</b></p> <ul style="list-style-type: none"> <li>-Qualified personnel in terrestrial and water resources management.</li> </ul> <p><b>Institutional:</b></p> <ul style="list-style-type: none"> <li>-MNRE is the parent Ministry for Lands and Surveys Department, Forest Department, National Meteorological Service, and the DOE.</li> <li>-PROTEM Water Commission reactivated.</li> <li>-Mainstreaming the Sustainable Land Management Project.</li> </ul>	<p><b>Individual:</b></p> <ul style="list-style-type: none"> <li>-The trained personnel may not be applying the training in the appropriate field.</li> </ul> <p><b>Institutional:</b></p> <ul style="list-style-type: none"> <li>-No formal mechanism or legal structure in place for data collection and dissemination.</li> <li>-Limited staff for proper monitoring and enforcement.</li> </ul> <p><b>Systemic:</b></p> <ul style="list-style-type: none"> <li>- The absence of national baseline data that could</li> </ul>

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<sup>7</sup> This was identified as a systemic weakness by the participants of the NCSA Consultation workshop. It is a common perception, but the real lack of capacity may be the inability to adjust operations in accordance with changed priorities.

<p><b>Systemic:</b></p> <ul style="list-style-type: none"> <li>-Development of a national land policy through the Land Management Program.</li> <li>-Land Information Centre maintains a database on natural resources and the environmental.</li> <li>-LIC recently increased its staffing to include a GIS technician and a statistician.</li> <li>-Belize is a participant in the Global Mapping Project.</li> </ul>	<p>be used in formulating programmes for integrated management of land and water resources.</p>
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### The Existing Situation

The Thematic Assessment Report (TAR) describes certain limited capacities that have been gained at the individual and institutional levels. It further describes an enabling environment of established laws and regulations that suggest some capacity at the systemic level for implementation of the Convention. However, it was determined that this enabling environment was inadequate for the effective implementation of the Convention because of shared responsibility for land management in Belize. The definitions, interpretations, and inconsistent application of the land management laws and regulations create an environment that is, in fact, a constraint to sustainable land management.

The enabling environment for Land Management in Belize is embodied in the following chapters of the Substantive Laws of Belize, Revised Edition 2000:

- The Forest Act, Chapter 213, administered by the Forest Department in the Ministry of Natural Resources and the Environment, allows for the establishment of forest reserves on national lands for sustainable management of these resources for the multiple goods and services they provide naturally.
- The Fisheries Act, Chapter 210, administered by the Fisheries Department in the Ministry of Agriculture and Fisheries, applies to coastal waters and may be extended by Ministerial order to inland waters. A 1983 amendment permits the declaration of marine reserves for conservation of marine fauna/flora which may also incorporate adjacent areas of land.

- The National Parks System Act, Chapter 215, also administered by the Forest Department, is utilized for the establishment and maintenance of Nature Reserves, National Parks, Wildlife Sanctuaries, and Natural Monuments.
- The Ancient Monuments and Antiquities Act of 1981 was repealed and replaced by the National Institute for Culture and Heritage Act, Chapter 331, administered by the Ministry of Tourism. This Act allows for the management of archaeological reserves for protection, research, or cultural values. It enables the responsible authority to declare areas of land as Archaeological Reserves.
- The Lands and Surveys Department applies the National Lands Act, Chapter 191 of the Laws of Belize. This department is authorized to perform activities pertaining to government-owned land. Matters related to tenure in general, including acquisition, transfer, sales, etc, are managed under the Act. National lands include town, suburban, rural, pastoral, mineral, and beach lands.
- The Land Utilization Act, Chapter 184, is another piece of legislation administered by the Lands and Surveys Department to control activities on land, whether privately owned or national.

This situation, involving multiple responsibilities for land management, is additionally complicated by other chapters of the laws that give authority to other agencies for some aspects of land management. These include the Belize Land Development Authority, Chapter 181; Environmental Protection Act, Chapter 328; and the Coastal Zone Management Act, Chapter 329. The latter give some responsibility for land management to the Department of the Environment and two statutory bodies, the Belize Land Development Authority and the Coastal Zone Management Authority.

Further analysis, supplemented by consultations within and outside the NCSA workshops, has revealed that it is this relatively wide variety of institutions responsible for various aspects of land management that creates negative impact on land (and land productivity). There are cases where the allowable uses or activities contradict each other. A typical example that continues to have deleterious effect is the conflicting situation arising because of the different objectives of the Forest and the National Lands Acts.

While the Forests Act seeks to improve management and protection through the declaration of forest reserves, and control the removal of timber species and other vegetation cover; the National Lands Act enables persons or companies to achieve ownership of land through development which can be defined as or includes activities such as “removing and keeping clear of bush”.

While efforts have been made to collaborate in management, demonstrated in the formal establishment (through legislation) of advisory bodies like the Land Utilization Authority and the National Environmental Appraisal Committee, their decision making are guided by the laws which distribute jurisdiction and sometimes contradict each other. There is overlapping instances of jurisdiction and authority; duplicated definitions describing responsibility which reduce clarity. Examples of definitions that change with time are “the high water mark” used to demarcate a boundary, or “the sixty-six foot reserve” on permanently running water ways that is changed depending on the actual existence of land.

Some of the laws established to manage land resources also provide for management of water resources by default. The Forests, National Parks, and the Environmental Protection Acts all make provision for protection of surface water in ponds, lakes, etc, or permanently running waterways. The EPA also attempts to protect underground water resources from pollution. Other agencies now share responsibility for water management, such as Belize Water Services Limited, and the rural (village) water committees, but no comprehensive water management policy is in place. Some of the stakeholders are regulatory while others are monitoring, and their tasks are not always complementary.

No comprehensive policy exists to provide the necessary framework to guide management and shared responsibility. The most important strategy to address this situation is the adoption of a National Land Use Policy, and the harmonization of the existing laws, that would provide the framework to guide the management of these essential resources. This would enable collaboration between the stakeholder agencies in working towards the achievement of one common goal, equitable use of the available

resources. This would enable the removal of contradicting clauses, lead to the resolution of potential conflicts, and clarify the final authority for the various categories of land. This would have similar beneficial impact on water resources management, although that would be complemented by the work being done by the Pro Tem Water Commission.

### **Capacity Building in Education and Implementation of a National Action Programme on Land Degradation**

These two topics can be linked because there are potential synergies that can be exploited in the effort to meet the requirements of the Convention. In this case Educational Capacity should be interpreted as knowledge, attitude, and behavior related to the phenomenon of land degradation and drought in Belize. The discussions held during the workshop revealed limited knowledge about the concept of land degradation at the general stakeholder level. While there were observations about changing land use and the negative impacts, no conclusions were being drawn about the long-term effects and the causes of the changes that were taking place.

Desertification is not a phenomenon associated with any of the changes related to land in Belize. Land degradation is barely recognized, but there is acknowledgement of its presence in some sectors, primarily agriculture. Land degradation in the form of reduced productivity and deteriorating quality of land is being experienced in some parts of the country. This was disclosed during the National Awareness Seminar and during field visits by technicians while engaged on other exercises. However, no baseline data exists against which changes could be monitored, measured, and analyzed. No statistical data means no opportunity to analyze, interpret, and derive information pertaining to land degradation to be disseminated or input to a planning process. There is no accurate and reliable data and information that could be used in making decisions, nor for the drafting of programmes to deal with land degradation.

There have been incidences of communities experiencing water shortages, but no research has been conducted to determine whether drought was caused by changing

climate or weather patterns, or caused by the practices in the areas where they were experienced. The National Meteorological Service maintains records of the various meteorological variables collected daily, but the staff members readily admit that the available data is not complete to enable accurate analysis at local community levels.

*Article 10: Prepare (and implement) a National Action Programme*

STRENGTHS	WEAKNESSES
<p><b>Individual:</b></p> <ul style="list-style-type: none"> <li>-Qualified personnel in Natural Resources Management, Earth Sciences, Forest Management, Biology, Biodiversity, and Land Management.</li> </ul> <p><b>Institutional:</b></p> <ul style="list-style-type: none"> <li>-Improved coordination between departments within the Ministry of Natural Resources.</li> <li>-Coordination of activities through the NCB.</li> </ul> <p><b>Systemic:</b></p> <ul style="list-style-type: none"> <li>-Ministerial commitment to the process.</li> </ul>	<p><b>Individual:</b></p> <ul style="list-style-type: none"> <li>-The NFP may not be able to dedicate enough time to the process due to the demands of other job responsibilities.</li> </ul> <p><b>Institutional:</b></p> <ul style="list-style-type: none"> <li>-Until recently there was an inactive institutional framework to support the implementation of the UNCCD.</li> </ul> <p><b>Systemic:</b></p> <ul style="list-style-type: none"> <li>-Lack of financial and human resource allocation to the process. The lack of knowledge about land degradation and drought has not enabled priority to be placed on the need for a NAP.</li> </ul>

*Articles 16, 17, & 18: Build Capacity in Education.*

STRENGTHS	WEAKNESSES
<p><b>Individual:</b></p> <ul style="list-style-type: none"> <li>-There are many individuals trained in a variety of fields (subjects) including sciences, in the country.</li> </ul> <p><b>Institutional:</b></p> <ul style="list-style-type: none"> <li>-Various national institutions offer educational opportunities at the primary, secondary, and tertiary levels.</li> </ul> <p><b>Systemic:</b></p> <ul style="list-style-type: none"> <li>-The government has placed high priority on</li> </ul>	<p><b>Individual:</b></p> <ul style="list-style-type: none"> <li>-Focus on daily activities leave little place for long term planning.</li> </ul> <p><b>Institutional:</b></p> <ul style="list-style-type: none"> <li>-Lack of applied or practical component in existing Programs.</li> <li>-Concentration on basic education limits opportunities for expansion in other fields.</li> </ul> <p><b>Systemic:</b></p> <ul style="list-style-type: none"> <li>-Research in education is not a priority for Belize at this</li> </ul>

education for all sectors of the population.	<p>time.</p> <ul style="list-style-type: none"> <li>-No comprehensive database of institutions and educational programs is available.</li> <li>-No continuous assessment of specific educational needs. to ensure that scholarships and new program offerings are targeted to the specific needs of Belize.</li> </ul>
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Research material related to land degradation in Belize is limited as revealed by the stock-take. Activities under the Convention were initiated in 2000, and since then very little has been done except for participation in regional and international meetings. This situation is not unique to Belize, since the UNCCD is much less active than the UNFCCC and the UNCBD. It was in late 2003 after the Sixth Conference of the Parties in La Havana, Cuba that the UNCCD received critically needed financial commitment and support when the GEF was approached and agreed to become one of the funding agencies for Convention.

Belize's first national report to the UNCCD, and the draft second National Report both reported on the lack of information related to land degradation and drought. Shortage of information means that there is little on which to build credible public awareness and educational programmes to sensitize the public on the phenomenon. The National Action Programme and a properly designed public education and outreach programme would be necessary tools to enlighten the public by improving their knowledge, encouraging them to change their attitude, and empower them to change the practices that are causing the changes the land productivity, and contributing to water shortages. The adoption of a NAP at the political level would ensure some commitment by government to facilitate support for projects or programmes intended to address land degradation and drought. Financial investment through projects is not the whole solution to a problem without education to change attitudes and behavior. Changed attitude and behavior are better long-term investments in the strategy to reduce poverty, which is one of the major causes of land degradation around the world.

## **CONCLUSIONS**

The root causes for failure to meet certain requirements of the Convention lie in

- 1) the scarcity of knowledge about the phenomena in Belize, and
- 2) the failure to access financial resources to conduct the necessary surveys to obtain the data,
- 3) lack of effective coordination between the agencies that are responsible for land and water management in Belize.

## **RECOMMENDATIONS**

1. The most important strategy to achieve successful implementation of the UNCCD is the adoption of a National Land Use Policy, and harmonization of the existing laws, that would provide the framework for comprehensive land management activities, revision of all relevant laws in order to remove ambiguity and conflicts, and bring resolution to the situation of overlapping responsibilities between different agencies.
2. Belize needs to conduct a survey to determine the status of land degradation and drought.

## **4.0 OPPORTUNITIES FOR CAPACITY BUILDING**

The current ambiguity in land administration policies and institutional responsibilities necessitates direct intervention by Government. Policy makers must view ecosystems as providing goods and services more valuable than those of the traditional market economy. Prudent land resource management must consider ecological, economic and social issues. This can be accomplished through a concerted effort to evaluate existing opportunities in land and water resource management.

Personnel training can best be accomplished through collaboration within and between relevant Ministries. This will be more effective than the current model of having experts

conduct large group workshops. There is little doubt that the learning process and transfer of technology are best accomplished through personal interaction using issues directly relevant to the individual trainee. As a signatory to the UNCCD, Belize has an opportunity to improve land resource management by addressing the following limitations for which financial assistance is available through GEF:

- 1) Lack of a comprehensive database including ecological, social, economic, and traditional knowledge.
- 2) Lack of explicit land administration policies and institutional responsibilities.
- 3) The need to improve public sensitivity to the high costs of unsustainable management policies.
- 4) Absence of policies that promote appropriate human settlement pattern, particularly in ecologically fragile or vulnerable areas.
- 5) Expertise to develop and implement integrated ecosystem management.

The responsibility for designation of protected areas is shared among the Forest Department, Lands and Survey Department, Fisheries Department, and the Archaeology Department. Effective management of Protected Areas will necessitate close collaboration between these government departments that are now all, except Fisheries and Archeology, in the same Ministry (MNRE).

In response to the ad hoc approach to management, in 1995 the “National Sustainable Development Steering Committee/Task force” was convened with the explicit task to make recommendations to government on sustainable development. This has resulted in Belize investing in an extensive “Land Management Program”.

General recommendations with regards to existing laws governing land resource management all hinge on empowering an “Advisory Committee” as the ultimate authority in resource management issues. This Committee, which is provided for in almost all the relevant Acts, would consist of technical experts of all relevant areas. Technical Committees must always provide in writing reasons for acceptance, refusal, or revocation of any decision made and the deliberations of these decisions must be made available to the public.

#### **4.1 Research Needs**

Effective land management can only be achieved through the formulation and subsequent implementation of policies derived from sound scientific research. Policy makers must be cognizant of the numerous functions that ecosystems perform. Ecosystems provide humans with quantifiable goods such as lumber, fiber, food, water, medicine, etc. However, ascertaining the value of ecosystem services is a much more elusive task. These services include: regulation of gases ( $\text{CO}_2/\text{O}_2$ ), regulation of temperature, precipitation, ameliorating the impacts of pollution, soil formation, nutrient cycling, biological control, habitat protection, and providing recreation opportunities. Research must be conducted to identify ecosystem function and determine the cumulative impacts of converting natural ecosystems into the traditional developmental models. Resource managers must always be cognizant of the concept of short term versus long term sustainability and should be guided by the principle of long term sustainability using the ecosystem approach.

Belize needs to quantify deforestation rates over the past 20 years and assess consequent losses of ecosystem goods and services. There is grave urgency in ascertaining the impact of population growth on deforestation rates and poverty. It is important that monitoring exercises are conducted to describe the connection between desertification and surface water quality, with specific reference to the effects on aquatic ecosystems. Quantification of sediment loads to estuarine areas and the assessment of the impacts of watershed management on water quality is a critical research area. There is a need to assess the impacts of land management on the retention times and flood potential of watersheds. This includes a seasonal assessment of the rate of fluctuation of river levels. Research should also be conducted on fluctuations of seasonal soil temperatures and vegetation regeneration rates. Finally, a species diversity study is needed to assess the rate of habitat alteration and species loss within Belize's diverse ecosystems needs to be conducted.

The absence of a comprehensive baseline is a critical issue in sustainable land management. There is an urgent need to conduct monitoring surveys on the extent of land degradation in Belize. Research must be conducted to ascertain the impact of tourism on land degradation. It is also necessary to review those examples documented in the baseline and begin to share the lessons learnt from activities that reverse the process of land degradation. This will enable Belize to draft effective long-term strategies to ensure good stewardship of its land-based resources. The Conservation and Environmental Data Systems (CEDS) had been a first attempt to respond to the identified need for a comprehensive data system. The “Clearing House Mechanism” being established for biodiversity data is another method of compiling, disseminating, and managing information related to biodiversity. Stakeholders to the UNCCD should include a research component to their activities. The findings of such research would then feed into a comprehensive and decentralized national database.

## **5.0 STRATEGIC ACTIONS AND ACTION PLAN**

The most important strategic initiative must be a National Land Policy Framework. This must include or be complemented by:

- a comprehensive database including ecological, social, economic, and traditional knowledge.
- explicit land administration policies and institutional responsibilities.
- improved public sensitivity to the high costs of unsustainable land management policies.
- policies that promote appropriate human settlement pattern, particularly in ecologically fragile or vulnerable areas.
- expertise to develop and implement integrated ecosystem management.
- main-streaming the National Action Programme to the national budgeting process so that activities or commitments under the plan will be the basis for mobilizing additional internal and external resources.

Some specific actions to be undertaken include:

1. Appropriate training in resource management that incorporates theory and practice within a Belizean environment and includes data management. In-service training for personnel in key Ministries and supporting organisations. Greater stress must be placed on sustainability.
2. Widespread public education and information within an integrated environment communication policy.
3. Greater participation by stakeholders in decision-making in general environmental matters and specifically in land and water resource management and degradation issues.
4. Greater attention to communities-at-risk and their inclusion in all consultations involving their habitats and livelihoods.
5. Greater vigilance, control and enforcement of laws relating to land especially the granting and renewal of permits, slash-and-burn, arson and unauthorised logging. Technical Committees must be strengthened and provided greater autonomy.
6. Strengthen coordination among government ministries, departments, agencies and quasi-government organisations.
7. Greater support for the National Focal Point or the establishment of a mechanism to manage the activities/expectations under the UNCCD. Land administration policies must reflect the view that ecosystems provides goods and services more valuable than those of the traditional market economy.
8. Development and maintenance of a comprehensive database for land and water resources data storage, analysis and dissemination.
9. Strengthen capabilities in hydrological and meteorological services through additional training and the provision of data collecting equipment.
10. Prepare project proposals to fund “Comprehensive Drought Research to mitigate its Negative Impact.”

## **6.0 METHODS USED IN THE THEMATIC ASSESSMENT**

The primary objective of this assessment was to analyze activities conducted by the Belizean government in compliance with the UNCCD. This was accomplished through a detailed review of workshop proceedings, relevant laws, policies and non-regulatory mechanisms. The specific responsibilities of government agencies, as well as those of the private sector, NGOs and CBOs currently managing land resources, were reviewed and analyzed. A database was compiled and recommendations were proposed for capacity development activities. A review of financial mechanisms, revenue generation activities, and sources of funding was conducted. Information was obtained from workshop proceedings, reports and several articles selected by the Project Management Unit (PMU). Information from the “Stock-take” report was used as the basis for this assessment.

A “prioritization matrix” was circulated among stakeholders in order to identify priority areas for the continued implementation of the UNCCD. This consultative process facilitated a situational analysis exercise, resulting in the identification of strengths, weaknesses and opportunities of the critical sectors responsible for the implementation of the UNCCD. Finally, a report was submitted to the PMU after consultation with the lead consultant.

Upon submission by the National and Lead Consultant of the Stocktake and Thematic Assessment Reports, the Technical Coordinating Committee and the Inter-ministerial Project Steering Committee reviewed and approved these reports.

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ANNEX 1: GIS studies assessing land cover in Belize. Data compiled by Mr. Cherrington, CZMAI, GIS specialist.

<b>Publication Date</b>	<b>Authors</b>	<b>Source</b>	<b>Source Year</b>	<b>Source Resolution</b>	<b>Scale</b>	<b>Project</b>
1994	Fairweather and Gray	SPOT XS	1989-90-92	20 m	1: 76,000	Not available
1995	Iremonger and Brokaw	Landsat TM	1993	30 m	1: 250,000	NARMAP
2001	Meerman and Sabido	Landsat TM	1993-96-98	30 m	1: 250,000	C.A. Ecosystems Mapping Project
2005	Meerman	Landsat ETM	2004	30 m	1: 110,000	NPAPSP