

NATIONAL INTEGRATED WATER RESOURCES MANAGEMENT POLICY (INCLUDING CLIMATE CHANGE) FOR BELIZE



Prepared for the
Caribbean Community Climate Change Centre
Belmopan, Belize

Finalized by the
Belize Enterprise for Sustainable Technology (BEST)
Mile 54 Hummingbird Highway
Belmopan, Belize



SEPTEMBER 2008

FOREWORD



Honourable Gaspar Vega

MINISTER OF NATURAL RESOURCES

The Ministry of Natural Resources is pleased to present to the nation a National Water Policy. A national water policy is necessary as part of the process of giving body to the long term vision of sustainable use and management of the natural resources by this government.

Despite what seems to be an abundance of water in Belize, it is becoming a scarce resource. Global Climate Change will directly impact this most valuable and essential natural resource that is critical to our human existence, national needs and development. These needs are manifested in the social, economic and environmental outlook of the country so necessary to an improved quality of life of all Belizeans.

This process of developing a national water policy was initiated with assistance from our development partners starting with the UN-Food and Agriculture Organization. A wide cross section of the Belizean stakeholders - public and private sector agencies, technical experts and policy makers, have all contributed to preparing this policy. Additionally, Belize has worked along with the principal international body, the Global Water Partnership – International Water Resources Management in order to obtain best practices suitable for adoption in our task of having good policy and water governance.

More recently, my government has taken steps to provide the institutional capacity and the regulatory framework for the many issues associated with water - its sourcing, utilization and disposal. This regulatory framework was realized through a Pro-Tem Water Commission and there have been major efforts in various government ministries, departments and sub-agencies to build or upgrade capacity for managing this most essential resource.

Belize's core water policy recognizes that "*Belizeans have a fundamental right to water and it is hereby declared that the policy of the Government is to bring about the planned development, coordinated management, sustainable use and protection of Belize's water resources consistent with the social, economic and environmental needs of present and future generations, and to ensure that all Belizeans have access to affordable, safe, adequate and reliable water.*" At the

same time, this policy allows us to be in synchrony with our international partners and neighbors. As a follow up, my ministry and staff of capable people are proceeding with consultations for the passage of legislation known as the “National Integrated Water Resources Act”. We are currently designing strategies and action plans to take us into the next twenty-five years.

We are grateful to the MACC/Caribbean Community Climate Change Centre, headed and operated by our capable and eminent Belizeans - Dr. Kenrick Leslie and by Mr. Joe McGann for their assistance to the National Meteorological Service. We recognize Messers Carlos Fuller and Ramon Frutos for their contributions.

Gaspar Vega

Deputy Prime Minister
Minister of Natural Resources

September 2008

TABLE OF CONTENTS

	<u>PAGE NO.</u>
Foreword	1
Preface	5
Executive Summary	6
A. Introduction	6
B. Background	6
B.1. Towards Finalization of National Water Resources Policy	8
B.2. Water as a Natural Resource	9
B.3. Why the Need for Policy	9
C. Methodology	10
D. Formulation of the Policy	11
D. 1. Guiding Principles for Water Resources Policy Formulation	12
D. 2. Overarching Policy	13
E. Proposed New Water Resources Policies	13
E.1 Ownership and Vestment	13
E.1.1. Issues, Opportunities and Constraints	13
E.1.2. Policy	14
E.2 Water Resources Assessment	14
E.2.1. Issues, Opportunities and Constraints	14
E.2.2. Policy	14
E.3 Governance, Integrated Management and Stakeholder Participation	14
E.3.1. Issues, Opportunities and Constraints	14
E.3.2. Policy	15
E.4 Institutional Framework and Planning	15
E.4.1. Issues, Opportunities and Constraints	15
E.4.2. Policy	15
E.5 Water Resources Valuation and Economic Considerations	16
E.5.1. Issues, Opportunities and Constraints	16
E.5.2. Policy	16
E.6 Allocation and Prioritization	16
E. 6.1 Issues, Opportunities and Constraints	16
E. 6.2 Policy	16

E.7	Conservation, Efficient Use and Pollution Prevention	17
	E.7.1. Issues, Opportunities, Constraints	17
	E.7.2. Policy	17
E.8	Water Culture	17
	E.8.1. Issues, Opportunities, Constraints	17
	E.8.2. Policy	18
E.9	Water Industry	18
	E.9.1. Issues, Opportunities and Constraints	18
	E.9.2. Policy	18
E.10	External Issues	18
	E.10.1. Issues, Opportunities, Constraints	18
	E.10.2. Policy	19
F.	Summary and Recommendations	19

ANNEXES

1.	Questionnaire - Water Policy Consultations	20
2.	Bibliography	21

PREFACE

This document is the latest attempt to finalize a national water resources management policy using an integrated approach. The policies spelt out cover more than just freshwater and its previous attempts did not give major consideration to the impact of Global Climate Change on the water resources of Belize. This revision of the policy proposals gives major consideration to the impact of climate changes.

Prior and current ministerial or departmental policies and laws, such as those being exercised under the aegis of the various agencies of government, constitute the current perspective of policy. These however are limited and in the aggregate show gaps. These gaps are caused by efforts deal with water from a view of particular interests and thus have a parochial or topical focus rather than a national water resources perspective. Belize, despite being blessed with substantial water resources, now needs to implement a national program of management. The report presents the efforts of the consulting team.

These proposals incorporate previous submissions although some of the proposals have been rearranged or their emphases changed. Overall, a wider concept of management and control of national water resources is addressed. Additions and changes have been made and include input obtained from consultations with stakeholders as well as from secondary source research in water policy in different countries. The proposed policies have a wider impact than other national water policies that deal with just the traditional human utilitarian (personal/domestic and/or agricultural uses) and include other topics of water resources management. Breakdowns and reviews of the policy guidelines of the IWRM, policy documents of other countries and previous attempts at policy formulation indicate that there is a lot of congruence between these documents in terms of topical focus.

Global Climate Change is upon us and will have a major impact on our water resources as is described in the scenarios being forecasted. The government of Belize has embarked upon formulation of national water resources policy. Attendant to these policies will be strategies and mechanisms to address the impacts of Global Climate Change.

The consulting team encountered a significant lack of knowledge about the water resources of the country and the consequences of Global Climate change upon those resources. A large number of interviewees reported that they did not readily see impacts upon national water resources through the 'Global Climate Change lens' and most responded that water is an item taken for granted "since we had a lot of it". This misperception points to the need for a major and long term campaign of sensitivity to water issues. There is a definite the need to create a water culture backed up by increased education and awareness. Any such program will have to include the deleterious effects forecasted under Global Climate Change scenarios as well as any mitigation or adaptation strategies. Most interviewees were left with an increased awareness and sensitivity if not a good understanding of the effects of Global Climate Change upon national water resources. The need to increase national water resources management and control was especially apparent with regard to strategies for strategic response and related adaptation mechanisms.

The consulting team expresses its appreciation to the Caricom Climate Change Center for leading the efforts and issuing this consultancy. Fulfillment of this contract and preparation of this report was made possible by the kind cooperation of the many people who took the time to be interviewed or attended the workshop. These stakeholders, and we are all stakeholders, generously gave of their time despite short notice and the short time span required for the completion of the exercise. A big "thank you" goes out to those people who affected the performance in any way.

Documents were obtained from public and personal collections.

EXECUTIVE SUMMARY

The Caribbean Community Climate Change Centre has issued a contract for a consultancy for “Finalization of a National Integrated Water Resources Management Policy (Including Climate Change) for Belize “, with appropriate terms of reference¹.

The consultancy required review of the prior national water proposal of policy for Belize. This review would require research/review of national as well other countries’ policies, the current body of knowledge. Additionally, stakeholder interviews would be conducted for input and the sum of information compiled, organized and reduced with limited ranking for content covering thematic areas of a draft water policy document for finalization. The derivations yielded issues, opportunities and constraints and provided the basis for formulation of the thematic area and then the related policy. Global Climate Change is predicted to severely impact water resources and was the main issue influencing all stages of preparation research through, stakeholder interviews and policy finalization. The scope and limitation of the terms of reference required that this consultancy be confined to policy as legislation; strategy and adaptation mechanisms would be the subjects of other efforts.

The methodology employed identifying guidelines for good water resources management and these were first drawn up. These guidelines were used as reference in the preparation of the first cut of an over-arching core policy statement. This compact policy statement represents the essential socio/political mission and vision statement of water resources management.

Organization and reduction of all input especially issues, opportunities and constraints led to identification of broad theme and critical areas. These themes guided the content for inclusion as distinct policy areas the policy spelt out. These policy areas cover: ownership, vestment and rights; assessment by quantification and qualification; institutional capacity and planning; valuation and economic considerations; allocations and prioritization; conservation, efficient use and pollution prevention; need for a water culture; water industry and external or trans-boundary policy.

The draft policies are suitable for the final actions of adoption and preparation of legislation. They can serve as the principal guidance in managing the nation’s water resources. This guidance will be necessary for consequential actions such as the preparations of strategy, action plans and adaptation mechanisms in view of the predicted deleterious effects of the impact of “Global Climate Change” in the topical or thematic areas. Global Climate Change was the umbrella since it foreshadowed every area and none of the previous draft or instituted water resource policies anywhere had taken major climactic changes into consideration. The efforts globally are on going and other countries were limited in the treatment of this critical issue.

The draft was presented in a workshop in order to allow further input and refinement that was to be obtained from workshop participants. Rebuttal stakeholder interviews and a second workshop held that has yielded this final draft as the finalized policy document to be submitted for adoption by the Government of Belize.

¹ **TOR – “FINALIZATION OF A NATIONAL INTEGRATED WATER RESOURCES MANAGEMENT POLICY (INCLUDING CLIMATE CHANGE) FOR BELIZE”**, CCCCC-Belmopan, June 30, 2007

FINALIZATION OF A NATIONAL INTEGRATED WATER RESOURCES MANAGEMENT POLICY (INCLUDING CLIMATE CHANGE) FOR BELIZE

A. INTRODUCTION

Water is a natural resource that increasingly requires more special management consideration and national attention. Belize is the country with the highest per capita water resources in the Americas. Water resources in Belize have long been taken for granted but periods and areas of stress have brought renewed interest. National water resources are increasingly becoming an area of focus for national management and control particularly in view of the strategic implications of national security.

A comprehensive policy document outlining policies for national management is required under the terms of reference². There are internal and external drivers of this focus and they arise from natural events or man-made causes. Global Climate Change is the major climactic phenomenon occurring and is expected to have a significant impact upon the water resources of Belize. This document describes the circumstances and processes of national water policy formulation. It establishes thematic areas and individual policy in each area. An over-arching water policy is proposed. This policy document was prepared in accordance with the Terms of Reference under a contract issued by the Caricom Climate Change Center.

B. BACKGROUND

National water resources are defined to be all that material of composition H₂O that falls from the skies upon the earth: is present on the surface and underground; flows into, passes through or comes to rest within the geophysical and economic boundaries of Belize.

Water resources are further defined as constituting a critical sector of the natural resource profile and are further classified as the freshwater and non-freshwater sub-sectors. The freshwater sub-sector definition is based upon the singular importance of the consumptive needs of all living things. There is increasing scarcity and declining quality of these resources as potable water for the consumption and utilization by man and animals, for domestic needs and is generally considered to be poorly distributed for in its central role in the agriculture, industry and the environment. The non-freshwater sub-sector started out as freshwater but has been changed over time and accumulation by contact with minerals and dissolved substances.

Global climate change will have an impact on all the water resources – freshwater and non-freshwater. Critical impact is being brought about by changes which are occurring globally in the earth's climate and are predicted to be malignant rather than benign.

Water resources have never received the treatment accorded other natural resources as Belize was always been considered to have abundant supplies, fairly well distributed with sufficient annual replenishment by nature. However, Increases in population and demographic spread, hydro-energy generation, agricultural demand and tourism driven exploitation have all led to

² Ibid -Terms of Reference for this consultancy

watershed destruction and consequential reduction in the water inventory and quality. This reduction has come about as a result of vegetative cover removal and has been accompanied by inefficient water gathering, storage, use and pollution.

Climactic events that are threatening to accelerate the availability of national water resources have created the need for governance and improved management of our water resources. Attempts have to be made to formulate mitigation strategy and adaptation mechanisms in the light of higher demands for lower supplies. Failure to act now may result in a greater degree of scarcity leading to conflict as well even more accelerated degradation of our water resources.

B.1 TOWARDS FINALIZATION OF A NATIONAL WATER RESOURCES POLICY

There have been previous attempts to draft water policy including the first major effort by Harrison in 1994³. This attempt was followed by a review and consultations carried out by Cardona⁴ in 2005 which described the process of policy formulation, outlined thematic areas and made proposals for changes to the draft proposals of Harrison. The Hydromet section of the National Meteorological Service on behalf of the Pro-tem Water Commission also conducted three national consultations nationwide during 2006-2007⁵. That effort did not yield a policy document but rather recommended changes to the proposals by Harrison.

Previous draft policies, this proposed set of policies along with side bar reports and derivatives of Global Climate Change projections take the view that all water resources are being subjected to increasing pressures and significant variations. Belize is no exception. These forecasted variations are based on climactic event modeling, initial empirical data and are spelt out in projections of vulnerability that will be due to Global Climate Changes^{6,7}.

Global Climate Change is predicted to lead to increased extreme climactic events by frequency and magnitude featuring higher temperatures, less frequent but more intense rainfall, rising sea levels leading to coastal inundation. Declines in freshwater resources due to loss of gathering structures and grounds are already occurring in tandem as a result of land demand and exploitation pressures. Some of the effects arising from these climatic events may be benign but almost all changes need attention and effective strategic responses such as adaptive mechanisms. Consideration is also required to be given to conflict and conflict resolutions especially in those places where competition for a scarce resource will arise. All water resources operate within and without the domestic, national and regional economic communities. Each member country as well as the inhabitants of those countries have enshrined equity and rights.

³ **“BELIZE: Water Resources Management, Policy, Planning and Organization”**, Harrison. R., Belize 1995

⁴ **“Report on Draft Policy on Integrated Water Resource Management (IWRM) and Draft Legislation on Integrated Water Resources Management”**, Cardona. J., Dec 2005, Belmopan, Belize

⁵ **Meeting with the Pro-Tem Water Commission, Nov 24, 2005.**

⁶ **Second National Communication to the Conference of Parties of the United Nations Framework Convention on Climate Change, unpublished, personal communication.**

⁷ **“United Nations Framework Convention on Climate Change. Expert Meeting on Adaptation for Small Island Developing States (SIDS), Community Based Approaches”**, Kingston, Jamaica, 5-7 Feb 2007.

B.2 WATER AS A NATURAL RESOURCE

Water is collected in watersheds and natural or man made impoundments, is transported in natural or man-made courses and eventually reposes in that great reservoir-the sea for return and closure of the hydrologic cycle. Water is the principal driver of the definition of the nature and dimension of watersheds by its precipitation, presence and flows.

Watersheds are geographical bounded areas consisting of ridges and drainage basins including river catchments. Ridges immediately or eventually give up water to standing or flowing bodies contained in the landforms of the basins. Basins are the regions/formations of land where water drains and gathers to become specific bodies of water both on the surface and below.

Water is present on the surface in lakes, lagoons, ponds, rivers, streams, rivulets, water tables, wetlands, drainage basins. Water that filters below the surface gathers or flows in subterranean strata such as water tables, aquifers, caverns and underground rivers and streams.

Water is the greatest transportation medium or system of the country and a major agent of soil creation, mineral dissolution and temperature regulation whether considered through its physical or chemical properties. Classification of water resources is done by dissolved mineral content (water quality), quantity, storage sites or catchments and age (the result of ancient-fossil water or recent precipitation).

National water resources are used in situ or extracted and moved about to support life (potable supplies, domestic use); agriculture (irrigation, livestock, processing); industrial processes (mining, manufacturing, cooling); recreation and aesthetics (sports, tourism, religion, culture, landscape). The availability of appropriate replenishment for supply affects the quantity and quality of surface inventory present in courses and impoundments (wetlands, reverine, lacustrine, marine) and subterranean inventory (aquifers and fossil water bearing structures). Water is stored for later use and outflows (acquisition, extraction and utilization) as direct consumptive, agricultural, industrial use with eventual dispersal into the Caribbean Sea, the ultimate repository.

B.3 WHY THE NEED FOR POLICY

Diminishing water resources of any country are of key concern and becoming even more important. Water is a finite resource and the inventory is threatened by increasing demand, reduced supply, and destructive actions of the populace as well natural or climactic events. Climate change is predicted to accelerate the rates decline of freshwater inventory, affect water quality and its impact cannot be ignored.

Belize, until now, had witnessed the occurrences of hydrological cycles that had been considered to be predictable due to the presence of stable climate and weather patterns. Intuitive knowledge, historical indicators, qualitative plus quantitative observation data and an increasing body of empirical knowledge have all contributed to and strengthened the local interpretive scene. Analysis conducted on data obtained from very limited hydrological, environmental resource studies coupled with modern predictive tools such as weather forecast mechanisms have now moved to the forefront in climate determination. Tools such as dynamic modeling now form the technological base for decision making and are beginning to pick up disturbing trends. All these have been very useful in short term micro-local and some midterm

macro-regional level applications. However those domestic and regional forecasts are incomplete since they do not take into consideration the global phenomena grouped under the concept of global climate change.

Considerations are required for highly probable outcomes that are predicted to be mostly aggravating. These highly probable outcomes are sufficiently malignant to require institutional management and control, guidance and responses by strategy and adaptive mechanisms. Responses to global climate challenges in the water natural resources sector will require a national focus and drive. National responses to global climate change will also be driven by bi-national, regional and international mechanisms. This effort for water resources is being spearheaded and driven regionally by the Caricom Climate Change Center as part of a larger global effort.

C. METHODOLOGY

The methodology used in the process of this consultancy first employed challenges to terminology to ensure correct definitions, descriptions and appropriate usage.

A set of guidelines for good water resources management and an overarching core policy statement were first prepared. These guidelines led to the formulation of a survey questionnaire which was the primary source for consultations using interviews of stakeholders. These interviews were conducted using the standardized questionnaire⁸.

Reviews were conducted on secondary source materials such as prior proposals, technical and policy literature as well as relevant documents. All the resulting information was compiled, organized, scored by multi-voting or other techniques and distilled into thematic areas in order to determine critical areas and content. Issues and constraints were further used to amplify the policy.

Secondary literature and document reviews consisted primarily of water policies and water policy guidance documents as well as relevant technical and political literature concerning Global Climate Change, poverty elimination and improvement of the human condition. Global Climate Change affects water policy as well as creates need for any other amplification to old policy as well as requires the addition of any new ones.

A draft was first presented in a workshop and any resultant changes incorporated especially along with decision made as to final format. A second round of further input and refinement was obtained from more stakeholder interviews and a second workshop held.

The organization of this report is strongly based upon dissection and review of the past efforts at policy making. Re-statement in some cases largely reflects the need to incorporate Global Climate Change considerations.

⁸ Annex ii – Questionnaire – Water Policy Considerations

D. FORMULATION OF THE POLICY

Prior policy review and formulation of policy proposals serve three main purposes:

- ✓ Update the current body of knowledge for aggregation into policy options.
- ✓ Include stakeholder consultations into final options of a policy document; considering and including regional and global commitments especially those relating to bilateral and multilateral obligations.
- ✓ Finalize a national water policy for adoption as the Integrated National Water Policy in synchrony with and advancing the aims of International Water Resources Management (IWRM) efforts⁹.

International Water Resources Management (IWRM) has been the major umbrella for efforts at identifying priorities and instruments for national water resources management and from which policies can be derived¹⁰. A summary of the position of Belize and the neighboring countries of Central America presented at a workshop in 2006 reported that:

an "IWRM Action Plan was under preparation since December 2004 and was expected to be finalized by April 2006.

The plan was being prepared by five government ministries with the participation of numerous NGO's.

There was no strategy for financing the IWRM Action Plan

The responsible body for the implementation process was the Water Commission and Public Utilities Commission.

There was no existing program for capacity building for organizations and/or individuals involved in implementation of the IWRM Plan."¹¹

The author indicated that "This policy document will be the lead document and guidance for:

- ✓ Preparation of table ready legislation and regulations codifying aims, objectives, strategies and actions pertaining to the management of national hydrological resources.
- ✓ Identify and include sensitivity effects and outcomes based on best and worst case scenarios of climate change in the policy.
- ✓ Spelling out the agencies/actors, responsibilities including capacity and capabilities.¹²

⁹ Sharing knowledge for equitable, efficient and sustainable water resources management" Ver. 2, Global Water Partnership ISBN 91-974012-8-5, The Netherlands.

¹⁰ Ibid IWRM pp 67-141

¹¹ "Move on through IWRM in Central America: National Plans and Legal Frameworks", IWRM Workshop, Virginia Reyes, 2006

¹² Ibid-IWRM Workshop

D.1 GUIDING PRINCIPLES FOR WATER RESOURCES POLICY FORMULATION

Good natural resource policy clearly states the positions of the political directorate of present and past governments directly in relationship to concurrent issues. Policies are guidance for promoting order, equitable sharing of a natural resource, pre-empting and resolving conflict as well as putting a country in the vanguard of implementing and as well as husbandry of national resources. A good water order is the highly desired outcome in water resources management as it promotes and sustains good governance.

Good management is ultimately the sum of efforts setting out objectives and goals, strategies, action plans, current and future adaptive mechanisms and contingency planning. Rational thinking requires that all aspects of water resources be considered and that pre-use and post-use considerations be involved. Wastewater is equally as important as virgin freshwater since water is a cyclical resource.

The fundamental principles upon which this water policy is designed include the following:¹³

1. Water is a finite and vulnerable natural resource, essential to sustain life, the environment, the economy and national development.
2. Water, as a national resource, belongs to the people of Belize, now and forever.
3. Water is vested in the state that is the guardian and guarantor of water rights.
4. The state governs, manages and promotes rational use of the water resources for the benefit of the Belizean people at all times.
5. Access to safe and affordable water is a fundamental right of all Belizeans and water availability is directly correlated to levels of health and poverty.
6. Watersheds and their surface and subterranean linkages to the marine environment are the basic functional units for achieving Integrated Water Resources Management.
7. Water has an economic value and the “user pays” principle is integral in ensuring the sustainability of the resource.
8. Water has equity value and water rights are allocated by the state and are tradable.
9. Global climate change, climate variability and land use will have impacts on the availability and use of water resources.

According to the Integrated Water Resources Management (IWRM)-“*A National Water Resources Policy sets goals and objectives for the management of water resources at the national scale and includes policies for regions, catchments, shared or trans-boundary water resources, and inter-basins transfers, all within an IWRM framework. It addresses both the quantity and quality aspects of both surface and groundwater resources and also deals with the delivery of water services.*

A national policy may include matters of jurisdiction and delegation and items like: the extent to which water management is decentralized or consolidated, the use of economic incentives, capacity building to meet institutional challenges, and monitoring and control to reduce

¹³ Summary of JOI (Jury of Informed Opinion, Stakeholder Interviews)

*ecosystem degradation. Policies entail measures which require investments, and their costs and benefits should be considered before adoption.*¹³

D.2 OVER ARCHING POLICY

The overarching water policy is meant to be combined mission and vision statements or guide for the management of Belize's water resources. It has as its basis the IWRM promotions, the human rights approach identified under the Millennium Goals and incorporates a greater emphasis on management and control as well as encompasses the principles of sustainable development. The overarching policy for the integrated management of national water resources is that:

“Belizeans have a fundamental right to water and it is hereby declared that the policy of the Government is to bring about the planned development, coordinated management, sustainable use and protection of Belize’s water resources consistent with the social, economic and environmental needs of present and future generations, and to ensure that all Belizeans have access to affordable, safe, adequate and reliable water.”

This over arching policy then allows the formulation of the policy for each thematic area based on the issues, opportunities and constraints that follow.

E. PROPOSED WATER POLICIES

Ten thematic areas have been identified as the main components of this proposed draft Water Policy. All policies are listed with two levels of presentation - i) the issues, opportunities and constraints as well as ii) the policy itself.

E.1. Ownership and Vestment

E.1.1. Issues, Opportunities and Constraints

- The ownership and vestment of the water resources of Belize requires proper definition.¹⁴ This definition is the basis for rational determination of the rights, responsibilities for use and enjoyment.

¹³ “Sharing knowledge for equitable, efficient and sustainable water resources management”, Ver. 2, Toolbox IWRM, Para 1 & 2, pp 15, Global Water Partnership 2003, www.gwptoolbox.org.

¹⁴ Based on the Canada Water Act (1966)-British Columbia

- As an environmental service, water resources have value and are property in common.¹⁵ Extraction and use is not currently impeded and control not well designed or exercised.

E.1.2. Policy

The Government of Belize declares that: All water resources are vested in the state on behalf of the people and that it shall grant the rights of use and enjoyment subject to constraints as may be defined in law based on an equitable regulatory system that is conducive to national sustainable economic, social and environmental development.¹⁶

E.2. Water Resources Assessment

E. 2.1. Issues, Opportunities and Constraints

- Partial assessments of national water resources have been performed.¹⁷ A complete national classification and inventory of water resources is required.
- Data acquisition, information management and communication systems need to be improved to make water resources information available to all.
- Baselines of water quality have not been established for all types of water and usage and need to be the basis for regulatory action.

E.2.2. Policy

The Government of Belize will:

Establish and operate capacity and mechanisms to obtain knowledge, assess and maintain a comprehensive database of the country's water resources and adopt and be guided by an integrated management system in terms of the quantity and quality of all surface and ground water resources. Use the knowledge in future planning, decision making and resource management in order to expand and keep current a national inventory of water resources.

E.3. Governance, Integrated Management and Stakeholder Participation

E.3.1. Issues, Opportunities and Constraints

- Good governance and integrated management should be exercised openly and with public subscription and participation. Stakeholder involvement and participation in governance and management helps to bring transparency, good stewardship and accountability.¹⁸
- The model developed under the International Water Resources Management is a very useful guideline.

¹⁵ IWRM p 81

¹⁶ "Millennium Development Goals- First Report" JUL 2005, p 41

¹⁷ "Annual Reports of Hydromet Office", 2005

¹⁸ National Development Action and Strategy, December 2006

E.3.2. Policy

The Government of Belize declares that it will govern and manage the national water resources using a decentralized and integrated approach to include adequate public consultation, subscription as well as participation and will build capacity appropriate to good governance.

E.4. Institutional Framework and Planning

E.4.1. Issues, Opportunities and Constraints

- Aspects of water resources management are currently shared between several government agencies (DOE, Public Health Bureau, National Hydrological Service, etc) and to a lesser degree NGOs (TIDE, Program for Belize, etc). Interdisciplinary/interagency cooperation is occurring especially where cross cutting issues are involved but needs improvement. Water quality is lacking the comprehensive and modernized standards required. Monitoring labs do not produce the quality assurance required.¹⁹
- The appointment in Yr 2003 of the Pro-Tem Water Commission (PWTC)²⁰ was first step to integrate water resources management but is defunct.

E.4.2. Policy

The Government of Belize will:

1. Establish a permanent National Water Commission with responsibility for integrated water resources management, control and coordination, acting upon the interests of all stakeholders and adaptation measures necessary in response to climactic changes. This commission will:
 - a. formulate and develop national plans, such as the National Water Resources Master Plan - prepared on the basis of river basin planning, groundwater management plans, coastal zone management plans.²¹
 - b. determines strategy and prepares proposals to develop these water resources to meet the nation's future requirements.
 - c. monitoring and control of water resources including utilization, conservation, waste management and development.
 - d. build capacity in water professionals.²²
2. Provide resources from the national budget and other sources to support the commission in carrying out its functions.

¹⁹ "Rapid Assessment of Laboratories in Belize", private communication to Min of Agriculture/H. Vernon 1999.

²⁰ "BELIZE-Country Environmental Profile", pp 102, DOE/MNR, Jan 2006

²¹ IWRM Toolbox, pp 83-88

²² IWRM Toolbox p 63

E. 5. Water Resources Valuation and Economic Considerations

E.5.1. Issues, Opportunities and Constraints

- The water sector has attracted limited investments in gathering and storage infrastructure except by the major utility and to a lesser extent, the water boards.²³
- Water is subject to some permitting and limits or restrictions for abstraction and type of end use.²⁴
- Water as a natural resource is not subject to direct fees or royalties for use or abstraction except under special declaration such as reserved areas. Global Climate Change could negatively impact the availability of water and hence the economic cost over the medium to long-run and thus “users pay principle” should be applied.

E.5.2. Policy

The government of Belize will:

1. Encourage the use of economic and social assessments, dynamic cost models to determine the economic value of all water resources and give consideration to use of this valuation in future planning, modeling and trade in the national water resources.²⁵
2. Promote and account for increased investment in the development of water storage infrastructure. This will include the use of “no regret” and other adaptation measures to respond to the predicted adverse effects of Global Climate Change on water resources.

E. 6 Allocation and Prioritization

E. 6.1 Issues, Opportunities and Constraints

- As with any resource, effective allocations, prioritization of uses and assignation of rights ensue in an appropriate regulatory framework.
- The UN Millennium Development Goals, to which the government subscribes, particularly speaks about and prioritizes the human right to fresh potable water, water for other domestic consumption uses and that these rights supersedes any other uses.²⁶
- National standards or international standards such as those of the UN Millennium Development Goals are major undertakings and require major efforts at resource allocations.

E. 6.2 Policy

The Government of Belize in combination with its partners will:

²³ Village Council Act , 2004

²⁴ IWRM Toolbox p125

²⁵ IWRM Toolbox, p133

²⁶ Millennium Goals Goal #7

1. Establish mechanisms in order to provide water for domestic consumption and that use shall take preference over other uses.
2. Make safe potable water supplies available in adequate quantities twenty-four hours a day to the entire population by Yr 2020 and ensure that every property is provided with an approved means of disposal of domestic wastewater and water borne wastes.

E. 7. Conservation, Efficient Use and Pollution Prevention

E.7.1. Issues, Opportunities, Constraints

- Extraction of large quantities of raw water and reduced flow during the dry season has increased the threats from increasing salinity occurring in the rivers upstream.
- Inefficient use, water wastage, leakages and inferior plumbing are major concerns regarding use of water resources.²⁷
- Untreated sewage, industrial thermal contributions and hydro power generation effluents, land clearing washes, aquaculture effluents, agricultural surface and subterranean drainage water are major contributors to degradation of water quality.
- Sea level rise, as forecasted under Global Climate Change and forest clearing practices contribute to water quality degradation.

E. 7.2. Policy

This national water policy will recognize the impacts of climate change in all areas of water resources management and direct the efforts to:

1. Obtain and conserve the nation's water resources at standards of quality appropriate to use.
2. Institute standards and mechanisms for enforcement to assure efficiency and minimize degradation in systems for water.
3. Mainstream and increase public awareness about conserving the national water resources by efficient use and pollution prevention.

E. 8. Water Culture

E.8.1. Issues, Opportunities, Constraints

- Despite a long coastline, many cayes, lagoons, rivers and other water bodies, Belize has yet to develop a full water culture appropriate to those resources despite the role water has played as a medium in the life, recreation and safety of the nation. Improving the understanding of the people of Belize about all the benefits accruing from water is an opportunity is needed.²⁸
- Except for natural emplacement, water has not been factored in living environments and the urban areas except for some coastal foreshores.

²⁷ IWRM Toolbox p131

²⁸ IWRM p105-106

- Water bodies regulate the temperature of the landforms and play a great role in affecting the aesthetics of the environment.

E. 8.2. Policy

The national water policy will promote through public awareness and education an understanding by Belizeans of the economic and social benefits of water in the country. These include benefits to be derived from the use of the water resources for living things particularly biodiversity sustenance, economic and industrial development. Additionally, water is increasingly becoming a medium for tourism, sports, recreation, fire protection systems. Increased aesthetics lead to a general improvement in the outlook for economic, social well being and quality of life of the people. Special emphasis is required in light of the predicted effects of Global Climate Change.

E.9. Water Industry

E.9.1. Issues, Opportunities and Constraints

- A fledgling water industry has evolved with more than fifty utilities, water boards and companies currently involved in delivering or selling raw, treated, and “purified” water in containers or as ice for storage and beverage consumption.
- The water industry is currently unregulated with respect to the core focus- water. The PUC for example is charged with regulating only the utility services.²⁹
- The bottled water industry extracts more water at source than water provided by utilities. They also produce significant quantities of plastic wastes which end up in water bodies which significantly harm wildlife in all ecosystems.

E.9.2. Policy

The Government of Belize will:

- Consult with stakeholders to obtain agreement on manner and nature of the regulation of the industry. Self-regulation will be encouraged to the extent possible.
- Establish a water commission to carry out a regulatory and national management role.

E.10. External Issues

E.10.1. Issues, Opportunities, Constraints

- There are several inland water bodies requiring cooperation in their management and conservation with the neighboring countries of Guatemala and Mexico. These are mostly watersheds and rivers which also form part of the national boundaries.³⁰
- National water bodies include the major body of salt water starting at Chetumal Bay and ending in the Gulf of Honduras has to be managed on a multi-national basis. Rivers

²⁹ PUC Act, 2000

³⁰ BELIZE – Country Environmental Profile

acting as border demarcations are national security and policy matters of the central government.

E.10.2. Policy

The Government of Belize considers water resources as the national security and economic interest. These considerations require engaging in bi-lateral and multi-lateral discussions. The government will take the necessary steps to achieve the benefits of shared and unshared water resources between countries as well as enter into cooperation agreements with our neighbors for the protection of source, quality, quantity and access in the trans-boundary areas. Global Climate Change has regional implications for national water resources and so issues of conflict prevention and resolution need to be addressed in bilateral or multilateral mechanisms.

G. SUMMARY AND RECOMMENDATIONS

Drafting of policy can be reduced to a simple imperative but the preparing a comprehensive policy or set of policies require participation and involvement of all stakeholders. The finalization of a national integrated water resources management policy (including climate change) for Belize combined all the resources of information to arrive at this policy document.

The process of arriving at a document suitable to adoption has been long and has involved several attempts. No policy is complete if not translatable into actions and strategy for implementation. The consulting teams it has produced a policy document that meets the expectations of national management and control. Most countries manage water resources to some degree but few do so in a comprehensive and all encompassing way. Belize has risen to the challenge and needs to take the next step. Failure to do so will have serious consequences in light of the predictions of Global Climate Change.

Annex 1: Questionnaire-Water Policy Consultations

WATER POLICY CONSULTATIONS

Date: _____ Organization: _____

Location _____

Name/Position of Person: _____

Should Belize have a water policy Thoughts

What should a water policy be?? General

And what should be general the role of public sector and private sector

Specific Roles - Advisor, Conservator, Owner, Facilitator, Guardian, Initiator, Mediator, Monitor, Protector, Regulator, Steward

Magnitude - Exclusive, Major, Minor, None

Climate Change Perspective and Adaptation - Negative Change, Positive Change

Dimension	Issues	Role	Magnitude	Climate Change
Legal Political	Jurisdictional, Conflict, Conflict, Water Rights, Bilateral Obligations Regional Obligations International Obligations Vestment			
Social Economic	Right to Water Externalities - Implications of Economic Rent and Use			
Financial	Fee Based			
Environmental Physical	Protect the Environment Sources Infrastructure			
Utilization	POTW (Publicly Owned Treatment) Privately Owned Treatment Disposal			
Facilitation	Distribution-Source Distribution-Transmission Distribution-Retail			
Pricing Institutional	Setting the pricing Cradle to Grave Source Only During use (Efficiency) Disposer			
Other	Adaptive Mechanisms to Climate Change			

Conflicts to be Identified.

Annex 2: Bibliography

“BELIZE: Water Resources Management, Policy, Planning and Organization”, Harrison. R., 1995 pp12-104

“Report on Draft Policy on Integrated Water Resource Management (IWRM) and Draft Legislation on Integrated Water Resources Management”, Cardona. J., Dec 2005, Belmopan, Belize

Meeting with the Pro-Tem Water Commission, Nov 24, 2005.

Second National Communication to the Conference of Parties of the United Nations Framework Convention on Climate Change, personal Communication.

“United Nations Framework Convention on Climate Change. Expert Meeting on Adaptation for Small Island Developing States (SIDS), Community Based Approaches”, Kingston, Jamaica, 5-7 Feb 2007.

“Climate Change and Water Resources: A Global Perspective.” Arnell, N.W., Tyndall Center for Climate Change Research, University of South Hampton, UK. pp 167-175

Belize Country Environmental Profile. DOE/MNRE. 2006. pp 239.

Report on Draft Policy on Integrated Water Resources Management (IWRM) and Draft Legislation on Integrated Water Resources Management. Cardona, J. Pro-tem Water Commission, 2005, pp39

Global Water Partnership. Sharing Knowledge for Equitable, Efficient and Sustainable Water Resources Management: Tool Box-Version 2. 2003. p158.

First National Communication to the Conference of the Parties of the UNFCCC. Belize. July 2002, pp1-12

Florida Department of Environmental Protection-Florida Water Plan. Office of Water Policy. 2007. p 40.

Fronterra a Norte-Sur. New Ecocides Sweep Mexico’s Coasts. Center for Latin American and Border Studies, New Mew Mexico State University. 2007. 5p.

“An Approach to Sustainable Water Management Using Natural Resource Accounts: the Use of Water, the economic Value of Water and the Implications for Policy”. Lange, G-M Ministry of Environment and Tourism, Namibia. 1997. 39p.

Millennium Development Goals First Report. Government of Belize. July 2005. 51p.

Ngigi. A & D. Macharia. Water Sector Policy Overview Paper-Kenya. May 2006. 5p.

Pacific Islands Applied Geoscience Commission. Programme for Water Governance in Fiji. 2005.3p.

The Water Resources Management Act-Belize. Government of Belize, 2006. 31p.

The Belize Constitution. Government of Belize. 1990. 126p

Third Master Agreement- GOB-BECOL-BEL. 2001. p41

**UNFCC. Expert Meeting on Adaptation for Small Island Development States (SIDS).
Community-based Adaptation Approaches.** Kingston, Jamaica, 5-7 February, 2007.
10p