

# **THE LBS PROTOCOL:**

## **DIFFICULTIES AND CHALLENGES IN THE COUNTRIES PARTICIPATING IN THE PROJECT GEF-CREW**





**“The LBS Protocol: difficulties and challenges in the countries participating in the Project GEF-CReW”.**

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## TABLE OF CONTENTS

<b>INTRODUCTION .....</b>	<b>6</b>
THE CARTAGENA CONVENTION AND THE LBS PROTOCOL.....	7
THE GEF PROJECT CREW .....	9
THE SPANISH-SPEAKING COUNTRIES INCLUDED IN THE GEF CREW PROJECT .....	10
<b>DIFFICULTIES AND CHALLENGES FOR ADHERENCE TO THE LBS PROTOCOL AND FOR THE MANAGEMENT OF WASTE WATER DOMESTIC. ....</b>	<b>11</b>
COSTA RICA .....	11
<i>The State of the Accession Process to the LBS Protocol.....</i>	<i>11</i>
<i>Legislative framework for wastewater and coastal areas management .....</i>	<i>11</i>
<i>Institutional framework for wastewater and coastal area management .....</i>	<i>13</i>
<i>Difficulties and challenges for adherence to the LBS Protocol.....</i>	<i>14</i>
<i>Areas of possible assistance from the GEF CreW Project.....</i>	<i>15</i>
GUATEMALA .....	16
<i>State of the process of accession to the LBS Protocol .....</i>	<i>16</i>
<i>Legislative framework for wastewater and coastal areas management .....</i>	<i>17</i>
<i>Institutional framework for wastewater and coastal area management .....</i>	<i>18</i>
<i>Difficulties and challenges for adherence to the LBS Protocol .....</i>	<i>19</i>
<i>Areas of possible assistance from the GEF CreW Project.....</i>	<i>20</i>
HONDURAS .....	21
<i>State of the ratification process of the LBS Protocol.....</i>	<i>21</i>
<i>Legislative framework for wastewater and coastal areas management .....</i>	<i>21</i>
<i>Institutional framework for wastewater and coastal area management .....</i>	<i>22</i>
<i>Difficulties and challenges for the ratification of the LBS Protocol.....</i>	<i>25</i>
<i>Areas of possible assistance from the GEF CreW Project.....</i>	<i>26</i>
<b>MOTIVATIONS AND CHALLENGES FOR THE IMPLEMENTATION OF THE LBS PROTOCOL.....</b>	<b>27</b>
PANAMÁ.....	27
<i>State of the process of implementation of the LBS Protocol .....</i>	<i>27</i>
<i>Legislative framework for wastewater and coastal areas management .....</i>	<i>28</i>
<i>Institutional framework of wastewater and coastal areas management .....</i>	<i>29</i>
<i>Difficulties and challenges in the implementation of the LBS Protocol.....</i>	<i>31</i>
<i>Areas of possible assistance from the GEF CreW Project.....</i>	<i>32</i>
<b>FINAL CONSIDERATIONS .....</b>	<b>34</b>
<b>ANNEX.....</b>	<b>35</b>

## **ACRONYM AND ABBREVIATION**

ACP: Panama Canal Authority (*Autoridad del Canal de Panamá*)

AMEP: Assessments and Management of Environmental Pollution

AMHON: Association of Municipalities of Honduras (*Asociación de Municipios de Honduras*)

AMP: Panama Maritime Authority (*Autoridad Marítima de Panamá*)

ANAM: National Environment Authority of Panama (*Autoridad Nacional del Ambiente de Panamá*)

ARAP: Authority of Water Resources of Panama (*Autoridad de los Recursos Acuáticos de Panamá*).

AyA: Costa Rican Institute of Aqueducts and Sewers (*Instituto Costarricense de Acueductos y Alcantarillado*)

CAR/RCU - UNEP: Caribbean / Regional Coordinating Unit - United Nations Environmental Program

CEMA - USAC: Center of Marine Studies and Aquaculture of the San Carlos University of Guatemala (*Centro de Estudios del Mar y Acuicultura de la Universidad de San Carlos de Guatemala*)

CEP: Caribbean Environmental Program.

CICA: Center of Investigations on Environmental Pollution (*Centro de Investigaciones en Contaminación Ambiental, Costa Rica*)

CIMAB: Center of Engineering and Environmental Management of Bays and Coasts, Cuba.

CIMAR: Center of Investigations on Marine Sciences and Limnology (*Centro de Investigaciones en Ciencias del Mar y Limnología, Costa Rica*)

CONASA: National Water and Sanitation Council (*Consejo Nacional de Agua y Saneamiento, Honduras*)

CRew: Caribbean Regional Fund for Wastewater Management

ERSAPS: Entity Controller of Water and Sanitation Services (*Ente Regulador de los Servicios de Agua y Saneamiento, Honduras*)

FHIS: Honduran Fund for Social Investment (*Fondo Hondureño de Inversión Social*)

GEF: Global Environmental Facility.

IDAAN: National Institute of Aqueducts and Sewers (*Instituto de Acueductos y Alcantarillados Nacionales, Panamá*).

IDB: Inter-American Development Bank

INFOM: Institute of Municipal Foment (*Instituto de Fomento Municipal, Guatemala*)

LBS: Land-Based sources of Marine Pollution.

MARN: Ministry of the Environment and Natural Resources (*Ministerio de Ambiente y Recursos Naturales, Guatemala*)

MINAE: Ministry of Environment and Energy, Costa Rica (*Ministerio del Ambiente y Energía, Costa Rica*)

MINSA: Ministry of Health, Panamá (Ministerio de Salud, Panamá).

PNUD: Programa de las Naciones Unidas para el Desarrollo

RAC: Regional Activity Center

SANAA: Autonomous Water and Sewer National Service (*Servicio Autónomo Nacional de Agua y Alcantarillado, Honduras*)

SEPLAN: Ministry of Planning and Foreign Cooperation of Honduras (*Secretaría de Planificación y Cooperación Externa de Honduras*)

SERNA: Secretariat of Natural Resources and Environment (*Secretaria de Recursos Naturales y Ambiente, Honduras*)

SINIA: System of Environmental Information (*Sistema Nacional de Información Ambiental, Panamá*)

UNEP: United National Environmental Program

UTP: Technological University of Panama (Universidad Tecnológica de Panamá).

WCR: Wider Caribbean Region.

## **INTRODUCTION**

The Regional Activity Centre for Land-based Sources of Marine Pollution (LBS/RAC-Cimab) Protocol was contracted by the Caribbean Regional Coordinating Unit of the United Nations Environment Program (CAR-RCU/UNEP) to carry out the study that gives title to this report in the four Spanish-speaking countries involved in the Project GEF CReW: Costa Rica, Guatemala, Honduras and Panama.

The objectives of the study were:

1. Identify the main problems/difficulties in Spanish-speaking countries involved in the project GEF-CReW for the ratification of the LBS Protocol.
2. Identify the key challenges that face the countries once ratified the LBS Protocol.
3. Propose a method for the study of difficulties / challenges identification that must be faced by countries for the ratification and/or accession to the LBS Protocol that can be applicable to the countries involved in the project GEF CReW.
4. Identify training needs to help countries comply with the obligations established by the LBS Protocol, in particular Annex III (domestic wastewater).
5. Disclose in a simple and entertaining fashion the subsequent obligations of the ratification of the LBS Protocol and experiences of countries already adhered, emphasizing those related to Annex III (domestic wastewater).

This report presents the results of the activities carried out to achieve the objectives from 1 to 4, are the following:

- Preparation of questionnaires and coordination with the LBS Focal Points of the Spanish-speaking countries involved in the Project GEF CReW and the focal points of the project in the respective countries.

Questionnaires designed for this study are shown in Annex. Were considered two questionnaires, one concerning the major challenges that faced the countries with the management of domestic wastewater and to know the main areas of assistance (financial and technical) that could offer the Project GEF CReW, and the second questionnaire was on the main problems or difficulties of the countries for the ratification of the Protocol of Land-based Sources of Marine Pollution (LBS) and also with the aim of identifying actions to help comply with the obligations established by the Protocol, in particular in Annex III (domestic wastewater).

- Working missions to countries involved in the study (Costa Rica, Guatemala, Honduras and Panama). Interviews with the actors implicated in the process of ratification / accession at each country (LBS Protocol and the GEF CReW Project focal points), as well as in the process of domestic wastewater management.
- Collection and analysis of the results of the questionnaires / interviews conducted during the working missions to countries.

With the results of this study will be designed a brochure.

### ***The Cartagena Convention and the LBS Protocol***

The Cartagena Convention is a regional, compulsory and legal agreement for the protection and development of the Wider Caribbean Region. The Convention was adopted in 1983 and entered into force in 1986. A total of 25 countries have ratified the Convention.

The Convention focuses on land-based activities as a pollution source, waste discharges at sea, and pollution by ships, the protection of biodiversity, and air pollution, among others. To address these issues in a comprehensive approach, three protocols were developed: the Protocol Concerning Co-operation and Development in Combating Oil Spills in the Wider Caribbean Region (Oil Spills Protocol), Protocol concerning cooperation in combating oil spills in the Wider Caribbean Region, the Protocol on Specially Protected Areas and Wildlife (SPAW Protocol) and **the Protocol concerning pollution from Land-based Sources and Activities (LBS Protocol).**

The LBS Protocol is a compendium of procedures developed to respond to the need to protect the marine environment and human health from the pollution coming from point and non-point land-based sources and activities. The LBS Protocol was adopted in 1999 and came into force in 2010.

**List of countries which have signed or ratified the LBS Protocol**

<b>Countries</b>	<b>Date of accession/ratification</b>
Antigua y Barbuda	July 13, 2010
Bahamas	June 24, 2010
Belize	February 4, 2008
United States of America	February 13, 2009
France	May 4, 2007
Grenada	March 5, 2012
Guyana	July 14, 2010
Panama	July 9, 2003
Dominican Republic	September 6, 2012
Saint Lucía	January 30, 2008
Trinidad & Tobago	March 28, 2003

The LBS Protocol can be the largest agreement of its kind due to the inclusion of discharge limits inputs for household drain (sewage) into the sea. It establishes also the requirements of plans, policies and mechanisms for the prevention, reduction and control of pollution from agricultural non-point sources.

The main text of the LBS Protocol establishes general obligations and a legal framework for regional cooperation. It provides a list of categories of priority sources, activities and pollutants associated of concern.

Annex 1 to the LBS Protocol establishes a list of land-based activities and pollutants of most concern for the Wider Caribbean Region.

Annex 2 highlights and establishes the process for regional development standards and practices for the prevention, reduction and control of sources and activities referred to in Annex 1.

Annex 3 establishes specific regional limits for discharges to coastal areas.

Annex 4 requires each signatory party to develop plans, programs and measures for the prevention, reduction and control of non-point sources of agricultural pollution.

### ***The GEF project CReW***

The GEF CReW Project "Essay of a Regional Fund Prototype of the Caribbean for Wastewater Management" has three objectives: (1) establish innovative, cost-effective and sustainable financing mechanisms for wastewater management in the Wider Caribbean Region (WCR) under the responsibility of the Inter-American Development Bank (IDB); (2) facilitate policy discussions on wastewater management as well as strengthen regulatory and legislative frameworks in the matter, and (3) to facilitate regional dialogue and the exchange of knowledge with the main player of the WCR. The last two objectives are under the responsibility of UNEP.

The Project CReW is made up of three main components: i) component 1: investment and innovative financing for wastewater management; (ii) component 2: reforms in the wastewater management and iii) component 3: communication, dissemination and exchange of information.

The project, with a budget of \$ 20 million has duration of 4 years (June 2011 - June 2015) and is sponsored by the Global Environment Fund (GEF). The coordination is in charge of the Group Coordinating Project "GCP" based at the Inter-American Development Bank (IDB) office in Jamaica. The countries participating in the project are: Antigua and Barbuda, Barbados, Belize, Costa Rica, Jamaica, Guatemala, Guyana, Honduras, Panama, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad &Tobago. Four of the thirteen countries mentioned, are

also pilot countries, Belize, Guyana, Jamaica and Trinidad & Tobago, and in these last ones is where component 1 of the project is implemented.

The project includes within component 1, the development of innovative financing types, such as a possible mode to provide sustainable funding to wastewater projects in the region. Currently, two systems of financing are being tested: Revolving Funds in Belize, Guyana and Trinidad & Tobago and an Improved Credit Fund in Jamaica; parallel activities are in progress within component 2 and 3, which are dealing with the existence of capacity restrictions in legal, institutional, educational and policies frameworks on this topic as well as divulgation and communication activities in Spanish and English.

### ***The Spanish-speaking countries included in the GEF CReW Project***

The Spanish-speaking countries integrated in the GEF CReW Project (Costa Rica, Guatemala, Honduras and Panama) are not included within the pilot projects, therefore the activities carried out in the project correspond to those included in components 2 and 3.

Except for Honduras, the other countries have ratified or acceded to the Cartagena Convention. However of the four countries, only Panama has ratified the LBS Protocol (9 July 2003).

These four countries share, in addition to the language, cultural and historical roots but with uneven socio - economic development levels. According to the United Nations Development Program (UNDP)<sup>1</sup> Costa Rica and Panama are classified as countries with high Human Development Index (HDI); and Honduras and Guatemala with a medium HDI.

In the following is shown the State of the LBS Protocol Process Accession by country. In the case of Panama refers to the state of the Protocol implementation. Also it is summarized the legislative and institutional framework of each country for domestic wastewater and coastal areas management. Finally is listed the main challenges of each country in both thematic as well as possible areas of the GEF CReW Project support.

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<sup>1</sup> UNDP, 2013. "Human Development Report". Available at [www.undp.org](http://www.undp.org)

## **DIFFICULTIES AND CHALLENGES FOR ADHERENCE TO THE LBS PROTOCOL AND FOR THE MANAGEMENT OF WASTE WATER DOMESTIC.**

### ***Costa Rica***

#### ***The State of the Accession Process to the LBS Protocol***

Until 2008, the Focal Point for the Protocol of Land-based Sources of Marine Pollution (LBS) in Costa Rica was the Direction of Environmental Quality Management of the Ministry of Environment and Energy (MINAЕ). In the years 2001-2008 in this Direction were made several attempts to begin the process of ratification/accession to the Protocol by the national authorities. From 2008 the Water Unit of the same Ministry assumed the function of Focal Point.

In the year 2011 again began the process of ratification of the Protocol by the country, as result on March 25, 2012 was issued a technical verdict that was positive and today is on the Committee of Treaties and International Affairs of the Congress of the Republic.

Once the Protocol has the approval of the Committee of Treaties should go to the Constitutional Court. With the POSITIVE dictate of the two bodies, will be achieved the final approval by Congress.

#### ***Legislative framework for wastewater and coastal areas management***

Costa Rica has various policies or strategies that are directly related to the use and management of water resources in general and they are the **National Water Policy (2008)**, the **Strategy for the Integrated Water Resources Management (EGIRH 2006)**, and the **National Plan of Integrated Water Resources Management (PNGIRH 2009)**.

**National Water Policy** is a governmental policy and the action framework of the water sector. Aims to establish a comprehensible water policy and an integrate, develop and implement the policy and regulations on water management as a resource and as a service. Also sets the different institutional roles that will allow governance come back within the current legal framework of water resources management. At the same time the **Strategy for Integrated Water Resource Management (EGIRH)** is the initial phase toward the development of the first **National Plan of Integrated in Water Resources Management (PNGIRH)** that has been

developed in order to guarantee the quantity and quality of water for present and future generations, which is one of the major concerns of the society at the present time.

The above mentioned documents focus on inner waters as a valuable resource for the development of the country, however do not include, or in a very low profile coastal marine waters.

Regarding wastewaters is been developed the **Wastewater Sanitation National Policy**, which aims to define the powers of the institutions involved in the water sanitation. This document will also include short and medium-term plans, objectives, goals, activities and indicators of accomplishment, responsible and deadlines, as well as the resources that would be required to ensure the fulfillment of this policy.

The top legal framework for water management in Costa Rica is the **Waters Law** that dates back to 1942 which was release at that time in a very different socio-economic and environmental context as nowadays, and therefore did not provide the framework for the integrated water management. There are several bills to the Legislative Assembly to update the law. The top or general legal framework for the protection of the environment is the **Organic Environment Law (Law 7554 of October 4, 1995)** which chapters VIII (MARINE, COASTAL and WETLANDS), XII (WATER) and XV (POLLUTION), includes articles related in some way or another with the wastewater management and the environmental quality of coastal areas.

In terms of environmental regulations, specifically for the management and disposal of waste waters, Costa Rica has two fundamental instruments:

**1. - Regulation of disposal and reuse of wastewater:** aims at the protection of public health and the environment through appropriate environmentally wastewater management. This regulation establishes, in its first part, the maximum limits permissible of a large group of indicators that wastewater must comply to be discharged at sewer system and in the receiving body. Also this legal instrument establishes the maximum limits permissible of three specific indicators (BDO, CDO and TSS) depending on the type of wastewater-generating activity.

The second section of this regulation establishes the types of reuse that wastewater can comprise as well as the maximum limits permissible of a group of indicators according to the type of reuse.

This regulation, which is truly comprehensive and useful, does not consider the capacity of the receiving water bodies, for the dilution of the wastewater and for the removal of pollutants, and

does not classify the receiving body according to its use. This regulation applies to both water bodies: coastal marine and inland, according to the definition that has the "receiving body".

**2. - Environmental Levy Regulation for Discharges:** It is an economic instrument of environmental regulation, which goal is to decrease the net pollutant loads discharged in the water bodies of the country through the principle that "who pollutes pays". This regulation establishes the payment to all legal or natural, public or private persons that use water bodies to input, transport or eliminate emissions that can change the water bodies' quality. The application of this regulation seeks to promote minor pollution, i.e. that generating entities discharged treated wastewater with best quality.

It can be said that in relation to wastewater management and disposal, the legislative framework existing in Costa Rica is appropriate, although it can be improved in two fundamental aspects: the inclusion of pollution from diffuse sources and classification of the receiving water bodies according to their use.

As for the environmental quality of marine – coastal waters, Costa Rica does not have legal instruments to establish the concentration limit of quality indicators. Standards or regulations of other countries or organizations are used to assess the environmental quality of the coasts.

#### *Institutional framework for wastewater and coastal area management*

In Costa Rica, the **Ministry of Environment and Energy (MINAE)** is the governing body of the sectors: Environment, Energy, Water and Seas. This Ministry, through the Water Directorate, is responsible for ensuring that the available water of the country has the quality and quantity required by the different uses. Also is responsible for the equitable distribution of the water resource as well as the issuance of permits and the control of wastewater discharges into water bodies and the collection of the environmental levy for the corresponding discharges.

Other institutions directly related to the management and controls of domestic wastewater are:

- **Ministry of Health:** responsible for regulation and the development of regulations related to the operation and management of wastewater. Controls and checks the compliance of discharge and the proper operation of wastewater treatment systems.
- **Costa Rican Institute of Aqueducts and Sewers (AyA):** it is the governing body of potable water supply and sanitation ordinary wastewater (domestic) and at the same time provides aqueducts service for the distribution of water for human consumption, sewerage and ordinary wastewater treatment.

Similarly, for marine-coastal areas is the Water Directorate of the MINAE, the governing body that develops policies for the management and use of these resources. However the MINAE has not established a monitoring program of the environmental quality of coastal areas at country level, although various institutions carried out environmental studies in coastal areas, according to specific regional or institutional interests and the most significant are:

**Center of Investigations on Environmental Pollution (CICA):** this Center is subordinated to the University of Costa Rica and performs analytical services in water quality, air quality and determination of pesticides in water, organism and sediments; also in research and schooling activities.

**Center of Investigations on Marine Sciences and Limnology (CIMAR):** also attached to the University of Costa Rica and studying organisms, environments, process marine and freshwater throughout Costa Rica.

Both institutions have analytical capacity for environmental studies of the marine - coastal areas, and have carried out the environmental quality of water-related projects. The various projects executed by both institutions so far have not shown, in general, problems of pollution in the coastal areas of Costa Rica however warn about the need for ongoing monitoring programs in these ecosystems.

On the other hand, the **Costa Rican Institute of Aqueducts and Sewers** carries out monitoring programs, once a year, on certain beaches of tourist interest through its Water Quality Laboratory. The monitoring sites are closely related to domestic wastewater sources (responsibility of this institution) and the program have a marked end to serve the tourism development.

Costa Rica has an adequate institutional framework for wastewater and environmental quality of coastal areas, though it requires improvement of the inter-agency coordination to avoid duplication of efforts and better management and dissemination of information and data obtained by institutions or projects in both thematic.

#### *Difficulties and challenges for adherence to the LBS Protocol*

The main challenge that has Costa Rica in order to fulfill the obligations under the LBS Protocol is to improve the legislative framework associated with it, mainly in the adoption of legal instruments for the assessment of the environmental quality of coastal areas, including non-point sources of pollution. Regarding wastewater management the legal framework is

appropriate although it can be improved with the classification of the receiving bodies according to their use.

Other actions that would support the process of ratification and that Costa Rica should work are:

- Classifying coastal zones of the Caribbean according to their current and projected use in order to ensure that the most important areas are protected from a negative pollution impact.
- An inventory of the main land-based sources of marine pollution that inputs to the Caribbean Sea.
- Design and implement a monitoring program for land-based sources of pollution and coastal areas of high interest, whether economic, tourist and ecological.

*Areas of possible assistance from the GEF CreW Project*

1. Technical assistance in the development of the legislative framework related to the environmental quality of marine coastal areas.
2. Technical assistance on the improvement of the legislative framework for wastewater discharge in the country, which also includes several legal instruments for various forms of disposal of wastewater (outfalls, septic tanks, among others).
3. Training of innovative practices for mobilizing financial resources for domestic wastewater management.
4. Training on environmental monitoring program for marine and coastal areas, as well as monitoring plans of water quality, both in marine environment, inland waters and aquifers.
5. Technical assistance for the management of the available information that includes the joining together of existing database on wastewater discharge characterization.
6. Development of actions aimed at information systems to include indicators of wastewater management and environmental monitoring.
7. Technical assistance for the evaluation of the infrastructure for the management and treatment of wastewater that the country possesses and currently is founded abandon and in disuse.

8. Specific technical assistance on technical issues such as: microbiology of activated sludge as a tool for operation and maintenance, sediment and biota monitoring in seas, stabilization and disposal of sewage sludge (for example with some pilot project located in existing systems operated by institutions such as Aqueducts and Sewers).

9. Formulation of sanitation projects for fund-raising from international financial institutions. How to make these projects more attractive for these financial institutions in terms of investments return at country and regional level.

10. Strategies for awareness and environmental education in communities, population settlements in risk, so as to ensure the sustainability of all actions related to the LBS Protocol.

## **Guatemala**

### *State of the process of accession to the LBS Protocol*

Article 38 of the Law of the Executive Body of the Republic establishes that the Ministry of Foreign Affairs has the responsibility of policies formulation and the implementation of the legal regime for the relations of Guatemala with other states and persons, or legal institutions of international rights; the diplomatic representation of the State; treaties and international conventions. The aforementioned article establishes among other functions, the coordination, analyze, support and follow-up of trade agreements negotiation, investment, environment, transportation, communications, science and technology and economic integration.

According to the above, the competence of the Ministry of Foreign Affairs in the field of international treaties and conventions is transverse, as relates to the competence of all Ministries and Institutions of the State and the non-governmental sector if has international implications.

In the case of the Protocol of Land-based Sources of Marine Pollution (LBS), in the month of March, 2011, the General Directorate of Legal Affairs and International Treaties of the Chancellery began a round of consultations with the different institutions involved, requesting their pronouncement related to convenience or inconvenience that Guatemala accedes to the Protocol.

As a result, was obtained the favorable opinion of the Ministry of Defense and the Ministry of Environment and Natural Resources, which have the financial capacity to make the needed contributions arising from the signing of the aforementioned Protocol.

Furthermore, the Budget Technical Directorate of the Ministry of Finance has dictated in the sense of checking the source in question, where the funds will come, to cover the commitments arising from the accession to the Protocol.

In terms of the agencies consulted within the Ministry of Foreign Affairs, were aroused concerns about the claim of Guatemala in regard to the territorial dispute with Belize at the time of considering accession to the Protocol.

It is of interest of the Ministry of Foreign Affairs as well as of the Ministry of the Environment and Natural Resources (**MARN**) to initiate a new consultation process.

#### Legislative framework for wastewater and coastal areas management

The legal framework for environmental protection in Guatemala is the "**Law of Protection and Environment Improvement**" (**Decree 68-86**), which aim is to ensure the maintenance of ecological balance and the environment quality to improve the life quality of the country population. This general law does not include standards or specific regulations for the environmental quality of coastal areas.

There are other laws which support the environmental protection process as the "Environmental Promotion Education Act" (Decree 74-96), which as its name implies, establishes guidelines for the promotion and the development of environmental education.

Guatemala has the "**Policy for the Integrated Management of the Marine Coastal Areas**" approved through the Governmental Agreement Number. 328-2009 and prepared by **MARN** with wide-ranging public participation locally as well as nationally. This policy is a first step to support the socio-economic progress of coastal populations, as well as sustainable development and the conservation of marine and coastal resources, guiding the generation of instruments and tools that ensure long term maintenance and proper use of coastal marine resources.

Guatemala also has a "National Water Policy and Strategy" (2011) presenting the objectives, principles, orientations and guidelines for a proper management of water resources in its various uses and zones of influence, although it was not adopted in accordance with the law.

These policies themselves are not a legal instrument, are a reference point and a guiding instrument.

Regarding the management, discharge and reuse of wastewater, Guatemala published on May 11, 2006, the governmental agreement No. 236 - 2006 "**Regulation for Discharge and Reuse of Wastewater and Sludge Disposal**". This Regulation establishes the criteria and requirements

that must be fulfilled for the discharge and reuse of wastewater, as well as for sludge disposal, also establishes the maximum limits permissible for wastewater discharges to receiving bodies, without differentiating between receiving bodies types; therefore applies equally to those who discharge their wastewater to river basins or coastal areas. In addition set up four stages to achieve these limits.

This regulation applies to all entities generators of waste water and classified waste water (ordinary type) domestic and industrial (of special type).The application of that regulation compete to the Ministry of environment and natural resources and to municipalities, mainly.

Guatemala marine - coastal has no standards or regulations for the environmental quality of areas. The country is based on international standards to comply with the commitments of the international agreements in this area.

#### *Institutional framework for wastewater and coastal area management*

In Guatemala, the **Ministry of Environment and Natural Resources (MARN)** is the competent entity of public sector and the environmental matters head in the country, which corresponds to protect natural systems that develop and give life sustenance in all its manifestations and expressions, fostering a culture of respect and harmony with nature.

**MARN** coordinates, accomplish and carries out the policies and legislation concerning the pollution prevention, environment conservation, protection and improvement to ensure rational, efficient and sustainable use of natural resources. Being the institution directly related to the regulation and control of marine pollution, in particular through the coordination and synergies for the strategy of the Mesoamerican Biological Corridor in Guatemala - unit of the CBM-which includes the sustainable management of the Mesoamerican Reef System, and that in conjunction with the Water Resources and Watershed Unit, coordinates actions and activities to prevent and reduce coastal marine pollution.

On the other hand the Water Resources and Watershed Unit has designed monitoring and assessment plans for the entities that generates wastewater, but do not have sufficient staff or an adequate infrastructure to execute these monitoring, and either a laboratory for the analysis of the water samples collected, which is done through an agreement with the **Ministry of Public Health and Social Welfare**.

Additionally, **MARN** has departmental delegations throughout the Republic of Guatemala that carried out environmental work in each of the areas, serving 18 municipalities of the Pacific Ocean coast and two on the Caribbean coast. Additionally, exists in the Guatemalan Caribbean,

the Managing Group for the Marine Coastal Policy, which is a multi-institutional entity and of civil society organizations that follow-up the implementation of the policy strategic lines of the Integrated Management of the Marine Coastal Areas of Guatemala, in this case highlights the importance of line 7: Prevention of pollution and degradation. In this regard, it is important to mention the existing coordination between port units and Port Authorities for this management.

On the other hand the **Ministry of Public Health and Social Assistance** is the governmental and regulatory governing body in the field of water and sanitation, and that according to the health code, it is the entity that will provide the technical assistance together with the Institute of Municipal Foment (**INFOM**) on aspects of construction, operation and maintenance of the municipal wastewater treatment systems at national level.

There are other institutions or agencies in some way involved in the subject of marine pollution, such as the General Directorate of Maritime Affairs of the Maritime Vice-Ministry of the **Ministry of the National Defense**; the **National Port Commission**; **Port Companies** and the **Center of Marine Studies and Aquaculture** of the San Carlos University of Guatemala (**CEMA - USAC**). These institutions carry out studies and environmental research in the country coastal areas, according to specific institutional or regional interests, but do not exist at country-level, a monitoring program or an environmental quality assessment of coastal areas continuous and systematic.

The municipalities of Guatemala are the direct responsible of providing basic sanitation to the population and therefore responsible for domestic wastewater management services, and receive technical and financial assistance from the **Institute of Municipal Foment**.

The institutional framework in Guatemala is suitable for management and control of waste water in general and consequently of marine pollution. However, the institutions responsible with such tasks do not have sufficient personnel or equipment to fulfill the laws and regulations regarding such issues in time and quality. Additionally, the pollution control of wastewater (domestic and industrial) is centralized.

#### *Difficulties and challenges for adherence to the LBS Protocol*

One of the main challenges of Guatemala in order to access the LBS Protocol is to improve its legislative framework. Then, to achieve an effective management of land-based sources that discharge to the marine – coastal areas and especially regarding pollution, Guatemala should develop laws, regulations, rules and policies to control these aspects in order to improve the current environmental quality of the marine - coastal areas.

An institutional strengthening through the implementation of an own water quality lab, equipment and qualified personnel, is needed to achieved the application of the existing legislative framework (and in the future). This is a challenge that must face and solve the environmental authorities of Guatemala, to accomplish an effective and efficient control of the environmental quality of coastal areas and their classification.

Other specific actions that Guatemala must carry out in order to support the process of accession to the LBS Protocol are:

- Classifying Caribbean coastal zones according to its current and projected use, in class I and class II as stipulated in Annex III to the LBS Protocol. So it is needed to carry out an Environmental Base Line Study with the participation of local institutions and organizations.
- An inventory of the main land-based sources of marine pollution that discharged in the Caribbean Sea, with the participation and coordination of the departmental delegations of the **MARN**.
- With the results obtained from the Environmental Baseline Study, must be designed and carried out a monitoring program in coastal areas of high interest i.e. economic, tourism or ecological and conservation of the Caribbean Sea.

*Areas of possible assistance from the GEF CreW Project*

1. Strengthening of the institutional capacity of the central level of the Ministry of Environment and Natural Resources (**MARN**) and departmental delegations, especially in terms of **MARN** lab analyses capacity.
2. Training and technical support regarding the microbiological and physical - chemistry characterization of those priorities water bodies where wastewater discharges are input.
3. Technical assistance in updating and improvement of Wastewater Regulations in the country; as well as in the preparation of other legal instruments for the effective management of coastal areas.
4. Financial assistance for environmental awareness programs for key actors in the municipalities and sanitation implementing institutions.

5. Technical and financial implementation of community productive projects aligned to the Policy of Integrated Management of the Marine Coastal Areas of Guatemala, to take off pressure upon the marine coastal resources in times of close season.
6. Actions for the dissemination of the lessons learned from the Pilot Projects of Phase I of the Project CReW.
7. Capacitating in the formulation of proposals to include Guatemala in the phase II of the Project CReW.

## ***Honduras***

### ***State of the ratification process of the LBS Protocol***

The overview of international commitments in the field of environment, the Ministry of Natural Resources and Environment recognizes more than 50 conventions or treaties which have impact on the environmental sector. The main international conventions among others, to which Honduras is linked, are the following:

- The United Nations Framework Convention on Climate Change.
- Convention on Biological Diversity.
- Vienna Convention for the Protection of the Ozone Layer.
- Kyoto Protocol link with the United Nations Framework Convention on Climate Change.
- Amendments to the Montreal Protocol on Protection of the Ozone Layer.

Honduras as far as March of 1983, signed the Cartagena Convention, however today it has not ratified this Convention and therefore neither the LBS Protocol. Nevertheless there is an agreement at country level to approve the Convention and the Protocol, and Honduras is running the process to do so.

### ***Legislative framework for wastewater and coastal areas management***

The general legislative framework for environmental protection in Honduras is the **General Law of the Environment**, 1993, which is a "law of laws". Despite the general nature of this law, it includes articles related to maritime and continental waters (chapter I) and the marine and coastal resources (chapter IV).

The top legislative framework for the management of waters in Honduras is the **Law of Waters**, (2009) and its scope includes continental, coastal, island, surface and marine waters. This Law constitutes the general regulatory framework from which are subordinated the particular laws in matters of maritime waters, fisheries and water for human consumption.

As for wastewater management, Honduras has some **Technical Standards for wastewater discharges to receiving bodies and to the sanitary sewer**. These standards set the maximum values allowable for a large group of quality indicators for discharges in water bodies and sewer. Also, these standards are applicable to wastewater discharged, either at sea or land, and do not classify the receiving body according to their use.

Currently it's been developed a National Plan for Water and Sanitation that will aim to increase the collection and treatment systems of domestic waste water, in order to eliminate health risks due to disease transmission or through waterborne.

In terms of the management and assessment of the environmental quality of coastal areas, Honduras does not have an appropriate legislative framework since it has no standards or regulations themselves on such issues. However it should be noted that the **National Environment Policy** adopted in 2005, includes a guideline which recognizes the role of the State in the elaboration of methodologies, technical analysis and key environmental standards for environmental considerations, also the policy recognizes the need to review the current environmental legislation with the aim of simplifying it and harmonizing all legal bodies.

#### *Institutional framework for wastewater and coastal area management*

In Honduras, the **Secretariat of Natural Resources and Environment (SERNA)** is the institution responsible for issues related to the integrated management of water resources as well as being responsible for the environmental impact assessment system and environmental licenses. **SERNA** also coordinates actions on environmental matters with public and private entities, and develops projects in this field, seeks the prevention and control of pollution through education and environmental management, studies and research, and environmental audits and performs actions of protection and conservation of biodiversity. This entity is the focal point of the Cartagena Convention and its protocols.

The **Association of Municipalities of Honduras (AMHON)** is the leading institution in the development of the 298 municipalities of Honduras, the modernization of local governance and decentralized environmental management of natural resources of the municipalities. The **AMHON** coordinates with the 270 municipal environmental units (year 2007) promoted by **SERNA** and these constitute an important support in the environmental impact assessment and

are responsible for the implementation and enforcement of the regulations derived from the same.

The **Ministry of Planning and Foreign Cooperation of Honduras (SEPLAN)**, is also a centralized entity linked to the environment and natural resources, and develops standards and tools for national, regional and local institutions in the field of land use.

The previous entities are national institutions responsible for regulation and environmental protection in Honduras. The entity for the assessment and management of marine pollution is the **Merchant Maritime of Honduras**. Among the tasks of this unit are: manage, promote, regulate, project and implement strategies, policies, plans and program that are related to the operation and development of the Maritime Sector and safeguard national interests in the maritime zone. It also has a Department of Environmental Protection and Prevention of marine pollution caused by vessels and naval artifacts that are moored in Honduran waters.

In the other hand, Honduras national institutions responsible for the management and disposal of domestic wastewater are the following:

**1. - Autonomous Water and Sewer National Service (SANAA):** is the Honduran entity responsible for promoting the development of the public potable water supply, sanitary and storm sewers, sanitation and technical assistance across the country.

In Honduras, from the 1960s, the organization of the sanitation (domestic wastewater) sector was centralized. **SANAA**, an autonomous state-owned company, was in charge of planning, financing and development of water supply and sanitation services, as well as the operation of the same. In late 1980s and early 1990s, this management model began to be discussed due to the progressive inability to cope with the rapid growth of the population, mainly in the cities and by the inability of the State for the financing of new works; as well as the need for procedures to ensure sustainability, incorporating the participation of beneficiaries in the payment for the services.

**SANAA** was in charge of approximately 40 urban water supplies at that time. This management model began to be revised in 1992 taking some actions such as the transfer of services to their respective municipalities. From that time the State began a modernization process that involved the separation of functions and the creation of the **CONASA (National Water and Sanitation Council)** and the **ERSAPS (Entity Controller of Water and Sanitation Services)** in 2003. **SANAA** has transfers the systems to the municipalities and develops into an entity of technical assistance for municipalities and water boards.

**SANAA** has carried out variety of investment projects in the field of potable water and basic sanitation to the benefit of cities, villages and hamlets in rural as well as at urban area in the country. In its 52 years, **SANAA** has contributed with works of great importance for the water supply suitable for human consumption, such as dams, pipelines, distribution system, purification plants as well as projects of basic sanitation, technical assistance, not only in those communities in which acts as operator of the services, but also with national coverage.

**2. - National Water and Sanitation Council (CONASA):** Formulates and approves the national policy in the water sector, develops national strategies and plans. It also coordinates and focuses the activities of the various public or private institutions linked to the issue of potable water and sanitation. **CONASA** is the official representative of the Government of Honduras in potable water and sanitation, nationally and internationally.

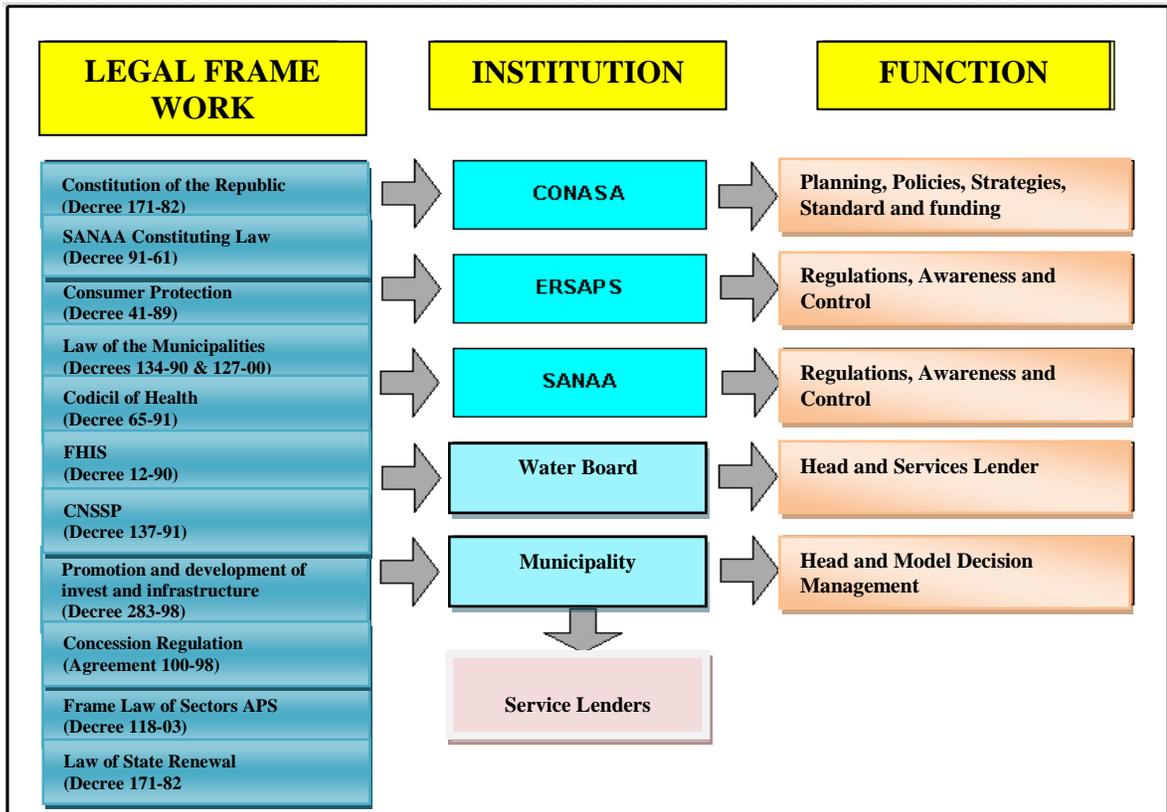
The Manager of **SANAA** acts as Executive Secretary of the **CONASA**, and the institution itself - **SANAA** - should act as technical secretariat of the **CONASA**.

**3.- Entity Controller of Water and Sanitation Services (ERSAPS):** is a decentralized institution ascribe to the Secretary of State in the health offices, with functional, technical and administrative independence, which functions are the regulation and control of water supply services and sanitation in the country.

**4. - Municipalities:** are the owners of sanitation and are empowered to decide the management models to be implemented, under the conditions laid down in laws and regulations, which establishes that lenders must have financial and administrative autonomy.

**5.- Honduran Fund for Social Investment (FHIS):** this entity is responsible with the improvement of the living conditions of meager inhabitants through basic social services, ensuring the sustainability of investment through an optimal quality of environmental and civil works projects, encouraging community participation and strengthening the management capacity of local governments and their communities.

Honduras has an adequate institutional framework for domestic wastewater management (summarized in the figure below) although the non existence of data collection systems of generated and discharged wastewater to sewer and inland water bodies, have a successful experience in domestic wastewater management that can be shared with the rest of countries in terms of a Rotary Financing Fund to create small aqueduct and sewer. However, the institutional framework related to coastal areas pollution should be strengthen in equipment as well as the training of human resources to ensure an effective coastal areas management including the water quality.



*Difficulties and challenges for the ratification of the LBS Protocol*

Honduras needs to improve its legislative framework for domestic wastewater management as well as for the management and assessment of marine pollution. In the first case the scope and effectiveness of the regulations, rules and laws governing this subject must be extended. In the case of the environmental quality of coastal areas, Honduras should developed their own rules or regulations.

The institutional strengthening (equipment and qualified personnel), is also a challenge, especially in the environmental quality assessment of coastal areas.

Other specific actions that Honduras must run in parallel to the process of accession to the LBS Protocol are:

- An inventory of the main land-based sources of marine pollution that are discharged to the Caribbean Sea.

- Classify the Caribbean coastal zones according to its current and projected use, in class I and class II as stipulated in Annex III to the LBS Protocol. So it is needed an Environmental Baseline Study. Then, taking into account the results of the proposed Environmental Baseline Study must be developed a monitoring program for the environmental quality of coastal areas.
- Prepare a program or policy to contribute to the prevention, reduction and control of marine pollution.
- Implementing environmental education programs due to a shortage of such program at the country level.
- Strengthening of human resources associated to the environmental quality assessment of coastal areas and domestic wastewater management.

*Areas of possible assistance from the GEF CreW Project*

1. Activities for the promotion and dissemination of the LBS Protocol.
2. Training on environmental monitoring program for marine and coastal areas, as well as monitoring plans of water quality, both in marine environment, inland waters and aquifers.
3. Technical assistance in the revision and harmonization of the legal framework and development of tools for the assessment of marine pollution and domestic wastewater management.
4. Training in analyses techniques for seawater, being the accreditation as final interest.
5. Strengthening of the institutional capacity of the central level (**SERNA**) and municipal environmental units.
6. Strengthening of scientific institutions related to the marine pollution assessment, for the human resources as well as equipment.
7. Trainings of innovative practices for the mobilization of financial resources for domestic waste water management.
8. To design and implement environmental education programs.

## **MOTIVATIONS AND CHALLENGES FOR THE IMPLEMENTATION OF THE LBS PROTOCOL**

### ***Panamá***

#### ***State of the process of implementation of the LBS Protocol***

Panama adhered to the LBS Protocol on July 9, 2003 and has a program for the implementation of this Protocol, which has three (3) main objectives:

##### ***Objective 1:***

Develop comprehensive short-, medium-, and long-term actions to reduce and reverse the deterioration of the coastal and marine environment from pollution of land-based sources and activities.

##### ***Objective 2:***

Develop actions of formal, non-formal and informal environmental education about the problems of the degradation of the coastal and marine environment of Panama, against pollution from land-based sources and activities.

##### ***Objective 3:***

Strengthen and promote the National System of Environmental Information (SINIA) to monitor and evaluate the progress of the activities of the national program of action for the protection of the coastal and marine environment from pollution from land-based sources and activities.

The main activities carried out within this program include the following:

- Throughout of the Directorate of the Culture Environmental Foment (incorporated to the National Environment Authority) and by the Department of Citizen Participation, ongoing activities with the support of environmental volunteers in sensitive areas are carrying out in Bocas Del Toro. These activities include the education and the construction of latrines. These projects aim to improve the life quality of families living in these areas, while preserving the natural resources quality, mainly the hydroids.

- In Panama City, is currently operating a project of sanitation of the city and the Panama Bay, which involves the construction of sewer networks for the collection and treatment of wastewater.
- For the year 2014, begins the tender for the construction of water treatment plants for major cities in at least four provinces of the country.

Legislative framework for wastewater and coastal areas management

In 1998, Panama adopted the **General Law of Environment** (Law No. 41 of July 1, 1998), with the aim that the environmental management is a responsibility of the State; in addition must arranged the environmental management and its integration with the social and economic objectives for achieving SHD in the country, as it expresses his first article.

The principal rules or regulations in the management and disposal of wastewaters in Panama are:

- Resolution No. 49 of February 2, 2000, approving the Technical Regulation DGNTICOPANIT No.24-99 on "Reuse of treated wastewater". This regulation establishes the requirements for water quality for different purposes (consumption of animals, irrigation, industrial or mining, recreation, etc) after being treated.
- Resolution No. 350 of July 26, 2000, which approves the Technical Regulation DGNTICOPANIT No.39-2000 on "Discharge of liquid effluents directly to wastewater collection systems", which establishes the characteristics that must comply the discharge of liquid effluents outputs from domestic, commercial and industrial activities to the wastewater collection systems.
- Resolution No. 352 of July 26, 2000, which approves the Technical Regulation DGNTICOPANIT No.35-2000 on "Discharge of liquid effluents to surface and underground water bodies", which aims to prevent pollution through the control of liquid effluents discharged to surface and underground water bodies. This regulation establishes the maximum limits permissible which must comply the effluent discharges from domestic, commercial and industrial activities, inputted directly and indirectly within the marine or inland water bodies. The regulation is unique for all types of water body either marine or continental and does not formulates differences with the receiving bodies according to their use.

Panama has a legislative framework appropriate for wastewaters management and disposal, although it is perceptible of improvements. However, currently Panama has no standards or regulations concerning the environmental quality of coastal areas. In this case are used rules and laws of other countries. A national legislation governing the environmental quality of coastal areas has a status of a precondition Bill.

### *Institutional framework of wastewater and coastal areas management*

National institutions responsible for regulation and control marine pollution in Panama are:

- **The National Environment Authority of Panama (ANAM)**, which is an autonomous entity of the Panamanian State in charge of the environment and natural resources. Its main function is to ensure compliance and laws enforcement, regulations and national policies in the field of environment. It is responsible for applying the DGNTICOPANIT Technical Regulation 35-2000 for liquid effluents that are discharge directly to continental or maritime bodies and water masses, these, are surface or underground, natural or artificial, within the Republic of Panama.

The **ANAM** has historically focused its attention on following inland waters pollution. Since 2008, **ANAM** maintains a national monitoring program at 32 watersheds of the 52 that are in Panama, which include 91 rivers and 255 sampling sites in these basins, for which water samples are taken and are carried out laboratory tests that allow establishing the Environmental Quality Indicators (EQI) for each of these points. This program has helped to establish a water quality baseline of the country, allowing actions improvement aimed to the integrated management of water resources.

The scope of the **ANAM**, within marine - coastal waters, is limited to the zones outlined as protected areas and wetlands.

- The **Authority of Water Resources of Panama (ARAP)** is in charge of manage, promote, foment, develop, project and implement policies, strategies, legal and regulatory standards, plans and programs, which relate directly to the activities of fishing, aquaculture, marine- coastal management and related activities, based on the guiding principles of ensuring the production, conservation, control, administration, promotion, research, and the responsible and sustainable use of aquatic resources.
- The **Technological University of Panama (UTP)** is the state technological - scientific education institution of the highest rank in Panama. The synergy created with the

governmental, private and social sectors of Panama, allows the UTP maintain an academic up-to-date offer and contribute efficiently to the technological, environmental and social development of the country. On the other hand, the bond developed with prestigious academic institutions, in research, organizations and companies from other countries, ensures their successful insertion into the globalized world. The Technological University of Panama addresses much effort to the development of scientific research, which represents a potential respond to the needs of Panamanian society. Throughout the multiple services this university provides stand out the Center Research Hydraulic and Hydro Technic, which focuses on everything related to water resources and environmental research.

The **ANAM**, works in collaboration with the **ARAP** and the **UTP** in the monitoring areas of the Panamanian Caribbean, within the framework of the project "Mesoamerican Network Water Quality" (REMECA), developed to assess the effects of climate change in the Mesoamerican Region supported by the Mexico-Japan trilateral cooperation program. REMECA, which was initiated in the year 2013, has a sampling station in the Panamanian Caribbean, specifically in the Punta Galeta area (province of Colon). This area is monitored four times a year (twice in the dry season and twice in the rainy season). This Caribbean province in particular has classified coastal waters according to their uses, but in general the Caribbean coastal waters in the country are not classified according to their applications.

The above entities are the national institutions responsible with the regulation and control of marine pollution in Panama. But it should be pointed out the following national agencies with incidents in this activity:

- The **Panama Canal Authority (ACP)**: Is responsible for the management and preservation of the Canal water resources, participating actively in the protection of the environment and sustainable development in its watershed.
- **The Panama Maritime Authority (AMP)**: These agency duties include: "Manage, promote, regulate, project and implement strategies, policies, plans and program that are related to the operation and development of the Maritime Sector and safeguarding national interests in maritime and inland water areas".

In the case of domestic wastewater, the main institution of Panama responsible for their management is:

- **National Institute of Aqueducts and Sewers (IDAAN)**: its main function is to support, maintain and improve the health level, the well-being and progress of the Panamanian

inhabitants and their communities, through the supply potable water service and the collection and safe disposal of wastewater. It is responsible for applying the Technical Regulation DGNTICOPANIT 39-2000, about the discharge of liquid effluents directly into wastewater collection systems.

Other agencies such as the **Ministry of Health (MINS)** and **ANAM** are active entities in the management and disposal of domestic and industrial wastewater.

The **Institute of Aqueducts and Sewers (IDAAN)** and the **Ministry of Health (MINS)** are carrying out a project for the sanitation of the city and Bay of Panama, which is a governmental project, and has been designed to solve the wastewater problem of the capital city, which are currently discharged to streams, rivers and other tributaries; causing environmental pollution on the coastal area (in this case on the Pacific coast) and health risks to the population. The project includes the construction of collectors and wastewater treatment plants that upon completion will increase the sanitation coverage of the population of Panama City and San Miguelito from 21.3% to a 60.7%.

The **ANAM** database on wastewater discharges had established: the number of permit received on applications of wastewater discharge, which have given it, which have refused, the physical - chemical and microbiological parameters assessed per province and per year. The monitoring frequency of each pollutant source is fixed according to the activities conducted monthly by environmental quality lab (LCA) of the **ANAM**.

#### *Difficulties and challenges in the implementation of the LBS Protocol.*

Difficulties that Panama has had in the orderly implementation of the LBS Protocol, have been several, ranging from lack of effective follow-up due to the high turnover of staff, changes in direction because of political issues, limited economic resources of the institutions to implement projects or consulting for the inventory of land-based sources of marine pollution, establishment of plans for the monitoring and tracking of coastlines, among others. All this contributes to the difficulties that have **ANAM** at the moment of executing actions.

Having approved and established a program for the implementation of the LBS Protocol represents an achievement and at the same times a challenge for Panama. **ANAM** must work for its internal integration, with the aim of achieving a collaborative effort from all directions which by its competence are associated in some way with the LBS Protocol.

The main challenge would be to get together the rest of governmental institutions, which, by law, are related to the LBS Protocol and go ahead jointly and establish a National Plan that can

be developed effectively if each entity accomplishes their role. All actions that are carried out in Panama, related to the wastewater issue, is being conducted independently by the different institutions, then, to optimize all these actions and making better use of resources is required a collaborative work between the different entities linked with wastewater management.

The main actions that Panama should carry out at the short term in order to fulfill with the obligations establish in the Protocol must be:

- Activities for the promotion and dissemination of the LBS Protocol obligations with a comprehensive institutional scope.
- Include the activities related to the Protocol in the National Environmental Strategy for 2014-2018.
- Establish an Institutional Committee to assess strategies and setting out priority lines of action and serve as a liaison with other governmental and non-governmental institutions that can contribute to the planning, development and implementation of projects related to the Protocol.
- Classifying the Caribbean coastal zones according to its current and projected use
- An inventory of the main land-based sources of marine pollution that discharge to the Caribbean Sea
- Establish a National Monitoring Program of coastal marine waters in the Caribbean Region.
- Adoption of a legislative framework for the environmental quality of coastal areas
- Improve the legislative framework related to wastewater discharges to bodies or mass of waters, particularly distinguishing the receiving bodies according to their use.

*Areas of possible assistance from the GEF CreW Project*

1. Financial assistance for a dissemination program of environmental standards.
2. Strengthening of the institutional capacity of **ANAM** (National Environmental Authority) Environmental Quality Lab (LCA), to achieve the establishment and standardization of routine tests for wastewater matrix in their laboratories.

3. Technical assistance for the improvement of the legislative framework for wastewater discharge in the country, as well as in the preparation of other legal instruments for the effective management of coastal areas. In particular assistance in the review of the environmental water quality draft standards.
4. Technical assistance in the preparation of project proposals.
5. Training on water quality indicators (both coastal and inland) and environmental monitoring systems.
6. Technical assistance in the elaboration of policies on control in particular related to discharge regulations.
7. Promotion and promulgation of the LBS Protocol obligations notably those concerning Annex III domestic wastewater.
8. Trainings of innovative practices for the mobilization of financial resources for domestic wastewater management.

## **FINAL CONSIDERATIONS**

It is clear that there is a difference between the studied countries in terms of wastewater and coastal areas management levels, main aspects for the ratification/accession to the LBS Protocol. But there is a group of common areas in which the countries must work in the near future to pave the way for the ratification of the Protocol, and these are:

- Classifying coastal zones according to their current and projected use in class I and II as stipulated in Annex III of the Protocol or in a similar classification.
- To carry out an inventory of the main land-based sources of pollution that inputs to the Caribbean.
- Design and implement a monitoring program for the land-based sources of pollution and coastal areas of high interest, whether economic, tourist and ecological.
- Promoting the scope and obligations of the Protocol.

In general is perceived that countries must rebuild or improve the legislative framework for wastewater management and the environmental quality of coastal areas with larger deficit in this latest issue. In the majority of countries have been established standards or criteria for the wastewater discharges to inland water bodies, however, have not been developed likewise to the coastal areas discharges.

Strengthening constitutes the main challenge of the studied countries in terms of the institutional framework from the technical point of view (analytical laboratories) and human resources (technical and governmental) of the institutions involved in one way or another in wastewater management and control of the environmental quality of coastal areas. In general these institutions are present and have well defined their role within each country, however don't have enough human and materials resources.

The potential areas for the assistance of the GEF CReW Project, where identified in this study for each country, and represent a valuable tool for the development of future activities of the countries involved within the components 2 and 3 of the project.

**ANNEX.**

**SURVEY**

**“Management of domestic wastewater”**

Esteem participant:

The following survey aims to identify the main challenges or challenges facing domestic of your country in the management of waste water and the main areas of assistance (financial and technical) that could offer the project GEF CReW.

Thank you for your valuable cooperation.

Name/s:

Country:

Organization and Responsibility:

Contact Information – Email and Telephones:

1. Which ones do you consider are the **main problems related to the domestic wastewater management** in your country?

- Limited institution capacity
- Inadequate laws (rules) for the management and disposal of wastewaters
- Lack of public awareness about the subject
- Little interest in the private sector
- Lack of government funding
- It is not a Government priority.

Others:

2 - Have your country any **legislation (environmental quality standards) for wastewater discharge to the coastal zone** and inland water bodies in general?

YES  NO  DO NOT KNOW  EXIST BUT NOT KNOW

3 - Does your country have any **plan, program, strategy for the management and disposal of domestic wastewater**?

YES  NO  DO NOT KNOW  DEVELOPING

In the case that your answer is "Yes" or "they are developing it" could you describe it?

4 - Does your country **systems or monitoring plans or data collection of wastewater generated and discharged to sewer and inland water bodies?**

YES  NO  DO NOT KNOW  EXIST BUT NOT BE ACHIEVED

In the case that your answer is "Yes" you could describe it? Scope, frequency of monitoring, indicators evaluated, source of financing, etc.

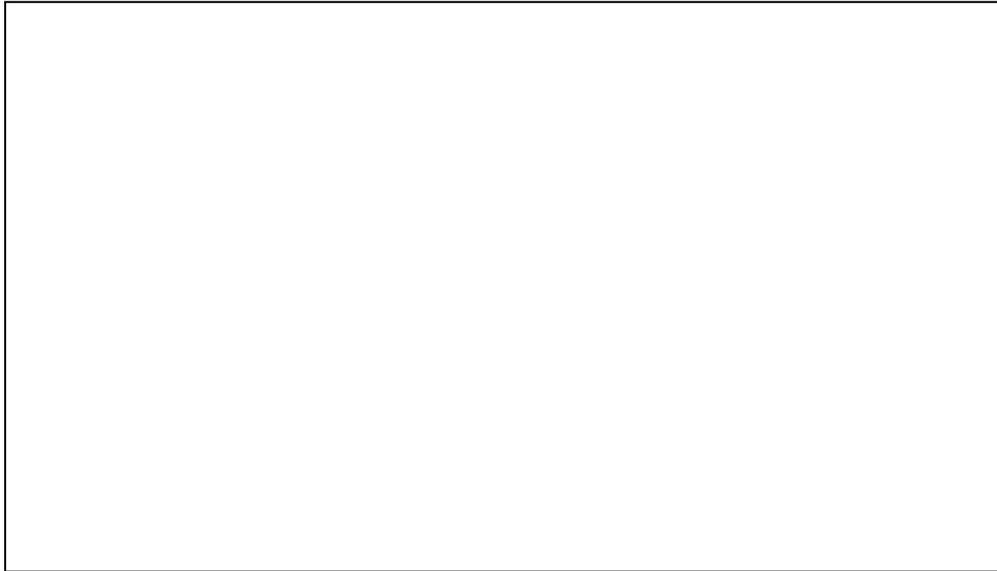
5- Which are the national institutions (agencies / ministries) responsible for the management and disposal of domestic wastewater in your country? Briefly describe the role of each one.

6- Which ones do you think are the main areas of assistance (financial and technical) that could offer the GEF CReW Project related to the management and disposal of domestic wastewater?

- Collection and wastewater treatment
- Final disposal of the domestic wastewaters
- Wastewater characterization and/or assessment
- Citizen awareness

Others:

7- Do you think that your country has some **successful experience in the management of domestic wastewater that could be shared with other countries**? You could mention it and detail it briefly.



## SURVEY

### "The Protocol of Land-Based Sources of Marine Pollution (LBS) of the Cartagena Convention"

Esteem participant:

The following survey aims to identify the main problems or difficulties in their country for the ratification of the Protocol of land-based sources of marine pollution (lbs) of the agreement of Cartagena, know the main challenges/challenges that confront countries once ratified it and identify actions to help meet with the obligations established by the Protocol, in particular in annex III (domestic wastewater).

Thank you for your valuable cooperation.

Name/s:

Country:

Organization and Responsibility:

Contact Information – Email and Telephones:

## SURVEY

1. - Does your country have an inventory of the main land-based sources of marine pollution?

YES

NO

DO NOT KNOW

In the case that your answer is "Yes" could you detail it?

2. - You think your country has an **appropriate INSTITUTIONAL framework** for the management of land-based sources of marine pollution?

YES

NO

DO NOT KNOW

When your answer is "NO" or "DO NOT KNOW" specify.

3. - You think your country has a **LEGISLATIVE framework suitable for WATERWASTE DISCHARGE TO THE COASTAL ZONE** and inland water bodies in general?

YES  NO  NOT SUFFICIENTLY ADEQUATE

When your answer is "NO" or "NOT SUFFICIENTLY ADEQUATE" specify (you can include one or more).

- Rules and laws of other countries are used.
- There is an adequate legislative framework but it is not updated.
- There is a legislative framework only for domestic wastewater.
- There is a legislative framework for industrial wastewater only.
- It is not taken into account the non-point sources of marine pollution.

Others:

4. - Does your country have **classified coastal waters according their use?**

YES  NO  DO NOT KNOW

5. Do you think your country has an **adequate LEGISLATIVE framework concerning THE ENVIRONMENTAL QUALITY OF THE COASTAL ZONE?**

YES  NO  NOT ENOUGH SUITABLE

When your answer is "NO" or "NOT ENOUGH SUITABLE" specify (you can include one or more).

- Rules and laws of other countries are used.
- There is an adequate legislative framework but it is not updated.

Others:

6. – Has your country a **plan, program, strategy to contribute to the prevention, reduction and control of marine and basins pollution?**

YES  NO  DO NOT KNOW

In the case that your answer is "Yes" could you name and briefly detail them

7. - Does your country have a **monitoring plan or data collection on the environmental quality of coastal areas?**

YES  NO  DO NOT KNOW  EXIST BUT NOT ACHIEVED

In the case that your answer is "Yes" could you detail them? Scope, sampling frequency, indicators or parameters assessed, source of financing, etc.

8. - Which are **the national institutions (agencies / ministries) responsible for regulation and control of marine pollution in your country?** Briefly explain the role of each one.

9. - Which you consider **are the main areas of assistance (financial and technical)** required by your country **for the improvement of the management and control of marine pollution?**

Strengthening of institutional capacity

Assistance in legislative strengthening

Development of environmental education programs

Others: