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Third Meeting of the Contracting Parties (COP) to the
Protocol Concerning Pollution from Land-Based
Sources and Activities (LBS Protocol) in the Wider
Caribbean Region

Cayenne, French Guiana, 15-17 March 2017

**REPORT ON THE LAUNCH OF THE CARIBBEAN PLATFORM OF THE
UNEP GPA GLOBAL WASTEWATER INITIATIVE (GW²I)**



**CARIBBEAN REGIONAL FUND
FOR WASTEWATER MANAGEMENT**



**Meeting of GEF IDB/UNEP CReW Project
and
Launching of the Caribbean Platform of the UNEP GPA Global
Wastewater Initiative (GW²I)**

**27th October 2016,
Hyatt Regency Hotel, Trinidad**



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List of Acronyms

AWWA	American Water Works Association
CARICOM	Caribbean Community
CariWOP	Caribbean Water Operators' Partnership
CDB	Caribbean Development Bank
CDEMA	Caribbean Disaster Emergency Management Agency
CEF	Credit Enhancement Facility
CEP	Caribbean Environmental Programme
CIMH	Caribbean Institute for Meteorology and Hydrology
CRew	Caribbean Regional Fund for Wastewater Management (of the GEF)
CRew+	CRew- Follow-on Phase
CWWA	Caribbean Water and Wastewater Association
EWISACTs	Early Warning Information System Across Climate Timescales
GEF	Global Environment Facility
ghg	Greenhouse gas (emissions)
GPA	Global Programme of Action
GW ² I	Global Wastewater Initiative
GWOPA	Global Water Operators' Partnerships Alliance
HLF	High Level Forum (of Caribbean Ministers Responsible for Water)
IDB	Inter-American Development Bank
IWEco	Integrating Land, Water and Ecosystem Management (of the GEF)
LBS	Land-based Sources (and Activities)
NDCs	Nationally Determined Contributions (of Parties to the UNFCCC/Paris Agreement)
OAS	Organization of American States
PAHO	Pan-American Health Organization
SDG	Sustainable Development Goal (of the United Nations)
SIDS	Small Island Developing States
UN Env.	United Nations Environment (formerly UNEP)
UNFCCC	United Nations Framework Convention on Climate Change
WCR	Wider Caribbean Region

EXECUTIVE SUMMARY

The Context

The meeting was convened to review the GEF IDB/UNEP CReW Project and also to launch the Caribbean Platform of the UNEP GPA Global Wastewater Initiative (GW²I). The event was held at the Hyatt Regency Hotel in Trinidad & Tobago on October 27, 2016, during the 25th Annual Conference of the Caribbean Water and Wastewater Association (CWWA).

Objectives of the Meeting

The meeting had a number of objectives aligned to the two main partners, United Nations Environment (UN Env.) and the CWWA. These were summarily:

- I. To provide useful introduction of the CReW platform;
- II. To showcase resources generated by and impacts and achievements of GEF CReW Project;
- III. Introduce the CREW+ (follow-on phase of CReW) Project;

The CReW Project

The Caribbean Regional Fund for Wastewater Management (CReW) project was launched in 2011 with 13 participating countries, four of which were pilots. The project had three main components that were implemented in parallel but with sequential ordering. The first component was implemented by the IDB and the latter two by the UNEP. The three components were summarily stated as follows:

- I. To establish innovative financing mechanisms for cost-effective and sustainable financing of wastewater management in the wider Caribbean Region (WCR), specially tested in Jamaica, Trinidad and Guyana;
- II. To improve national and local capacity for wastewater management through strengthened policy, institutional & legislative frameworks (facilitated much training);
- III. Facilitate regional dialogue and knowledge exchange with the key stakeholders in the WCR (compilation of lessons learnt).

Key Achievements of CReW Project

Listed among these were the following:

- The Establishment and piloting of four (4) financial mechanisms in the WCR, including project development support;
- Construction of Wastewater treatment plants;
- Improved National Policies, Laws and Regulations;
- Increased understanding of the importance of wastewater management for national development;
- Training of more than 600 persons in wastewater management including utility operators, lab technicians, government officials, media;

- Development of a comprehensive website (www.gefcrew.org), which showcases key outcomes of the project. The content is bilingual (English, Spanish) and so caters to non-English interests.

Key lessons from the CReW Project

- The Creation of and Enabling environment: policy, institutional, legislative and regulatory was critical to success of all activities;
- Pilot, Small Scale project provided useful starts and allowed for needed proof of concept; refinement and improved buy-in, for larger-scale investments;
- Innovative financing with flexible terms was required for successful implementation;
- Sequential, rather than parallel implementation is more successful; and complex issues were resolved by this phased Implementation.

CReW+: A follow-on Initiative of CReW

The CReW project is not at an end and a new project (CReW+) will succeed it. **CReW plus seeks to: Improve the enabling environment for wastewater management through a wider range of innovative financing options and mechanisms, with a multifocal an integrated approach. Wastewater will be always regarded and perceived as a resource. The CReW+ will have a broader mandate and will have five (not three as in CReW before it) components. These are namely:**

- I. Standards for Enabling Environment
- II. Financing facility (new and improved)
- III. Infrastructure construction (On the Ground)
- IV. Testing of new technologies
- V. Communication and Outreach

Launch of the Caribbean Wastewater Platform

The Global Programme of Action (GPA) is the only global intergovernmental mechanism directly assessing the connectivity between terrestrial, freshwater, coastal and marine ecosystems. One objective of this programme is to establish regional wastewater platforms to cater to the differential needs of countries. The Caribbean Regional Wastewater platform was launched in this meeting. Participants were given the opportunity to propose key priorities that this platform should address. These are elaborated in section 7.5. Among key issues emanating from this discussion and main recommendations of the meeting are the following:

- 1) **A Young professionals programme** and mentorship of next generation is needed and should be prioritized;
- 2) **Exposure to, and evaluation of, appropriate technology** has emerged as an immediate need. A technology (use and suitability) matrix is available, this could be revised, tailored and augmented for the Caribbean context;
- 3) **Increased advocacy by CCWA** is needed, and messages need to be tailored to meet the needs of the different publics in the region to be done to be effective;
- 4) **Capacity building, training and certification** (must be systematized)-CARICOM is looking at Caribbean certification of (water) professionals. St. Lucia was named as location where there are no certified plumbers/water utilities pipe fitters.
- 5) **Access to Donor Funding** is an urgent need. A number of agencies (UN Env., CDB, IDB, and the Caribbean Community Climate Change Centre-CCCC) have been accredited by the Green Climate Fund (GCF). The CCCCC has funding available under the GCF and has invited CWWA to

prepare projects. The other GCF accredited agencies (including the UN Env.) can help with accessing funding for member states if approached.

1.0 Welcome Remarks of Partners

1.1 The Caribbean Water and Wastewater Association (CWWA)- Mrs. Patricia Aquing, Executive Director

Mrs. Aquing welcomed all present and noted collaborations between all the partners which made the Caribbean Regional Fund for Wastewater Management (CReW) project possible. She noted that the CWWA will be playing a coordinating role and relished the opportunity to do so. She gave a brief account of her foray into CWWA and remarked that her regard for wastewater as a resource, had evolved over time. **Mrs. Aquing also highlighted that the success wastewater story of water in the Caribbean, was due to the engagement and participation of several stakeholders.** There is a close fraternity/sorority of partners that has emerged from the CReW Project and this allows for frequent and informal interactions between key stakeholders. This auger well for continued collaboration and work in wastewater management in the Caribbean. Mrs. Aquing concluded that many have seen the value of the work being done and of the CWWA conference itself. This for her was particularly gratifying and she commended all involved.

1.2 The Inter-American Development Bank (IDB)- Mr. Yvon Mellinger

Mr. Mellinger expressed delight at the participation of the inter-American Bank (IDB) in the CReW Project. He noted that important strides had been made in wastewater management and that much had been under the collaboration between United Nations Environment (UN Env.) and the IDB. Mr. Mellinger emphasized that while this phase of the CReW was ending the, CReW platform developed would keep momentum going until the successor initiative (CReW+) is fully developed. The IDB regards CReW+ as a great sequel and looks forward to even greater success. He anticipated that the meeting would be very a fruitful.

1.3 United Nations Environment (UN Env.)- Mr. Christopher Corbin, Environmental Officer

Mr. Corbin highly praised the fruitful partnership between the UN Env. and the CWWA and noted that a mutually beneficial relationship had developed between the two agencies. Mr. Corbin remarked that among two key roles served by UN Env. was joint implementation of the CReW project with the IDB and serving as the implementing agency for Cartagena Convention. Both initiatives are focused on the wider Caribbean and collectively addressed Marine protection and improved wastewater management. Mr. Corbin remarked that wastewater was not an initial focus for most countries, but had evolved over time and now enjoys much greater acceptance. He thanked the IDB for helping to make it a priority for Caribbean countries. **With respect to the successes of the CReW project, Mr. Corbin highlighted *inter alia* that the over 600 persons had been trained throughout the region in wastewater management, so that significant capacity had been built.** He concluded CReW+ is an exciting initiative and will move the wastewater agenda further forward.

1.4 Global Programme of Action (GPA)- Ms. Birguy Lamizana Diallo

The Global Programme of Action (GPA) expressed thanks to CWWA and UN Env. and the Caribbean Environment Programme (CEP) in particular, for the work done to establish a website for the CReW. Ms. Diallo said that the site along with the project newsletters gave her a wealth of knowledge and helped to share key success stories with a global audience. In showing the synergy of the GPA with the work of UN Env. Ms. Diallo remarked that the GPA is an intergovernmental intervention that seeks to reduce pollution from land-based activities. This in turn reduces the adverse impacts on watersheds and coastal cities and resources. The GPA mandate is reviewed every 5 years. Ms. Diallo mentioned that a Nuclear Management meeting was held in Trinidad. This aim of this was build partnerships, capacity and synergies to help reduce the harmful -off from agricultural wastewater and the associated harmful impacts. The GPA initiative will help to harmonise work for improving nuclear and wastewater management and looks forward to helping the countries of the region in greater ways.

1.5 The Caribbean Regional Fund for Wastewater Management (CReW)- Mr. Alfredo Coello, Project Coordinator

Mr. Alfredo Coello provided key highlights of the CReW Project. It was funded by Global Environment Facility (GEF) and the IDB and implemented jointly by the IDB/UN Env. The project's overall objective was to improve wastewater management in the Caribbean. **The CReW had 13 participating states, four of which were chosen as pilots.** Mr. Coello noted that the project was successful despite its challenges and this phase was coming to an end. He thanked all 13 countries for participating and the four pilot countries. He also expressed appreciation to all the donors, partners, stakeholders, and colleagues (past and present) whose collective efforts contributed to the success of this first phase of the CReW project. Mr. Coello, like other colleagues before him, looked forward to implementation of CReW+ and the launching of the Caribbean Platform.

2. Objectives of the Meeting

Following these remarks, Mrs. Patricia Aquing, outlined the objectives of the meeting. She noted that there were two sets of objectives, one each aligned with the CWWA and the CReW.

2.1 The CWWA Objectives

- IV. To provide useful introduction of the CReW platform;
- V. To demonstrate how the platform works and what the space offers;
- VI. To facilitate information exchange with stakeholders and sharing of success stories.

2.2 The CReW Objectives

- I. To showcase impacts and achievements of GEF CReW Project;
- II. Introduce stakeholders to resources generated by the Project;
- III. Introduce the CReW+ (follow-on phase of CReW) Project;

- IV. Help all to navigate the complexity of UN Env. and explore options for leveraging support (in particular the technical assistance).

3. Presentation on GEF IDB/UNEP CReW Project: (Key Impacts, Achievements & Lessons Learned)- Alfredo Coello

3.1 Project Components

Mr. Coello outlined that the CReW project was launched in 2011 with 13 participating countries, four of which were pilots. The project had three main components that were implemented in parallel but with sequential ordering. The first component was implemented by the IDB and the latter two by the UNEP. The three components were summarily stated as follows:

- IV. To establish innovative financing mechanisms for cost-effective and sustainable financing of wastewater management in the wider Caribbean Region (WCR), specially tested in Jamaica, Trinidad and Guyana;
- V. To improve national and local capacity for wastewater management through strengthened policy, institutional & legislative frameworks (facilitated much training);
- VI. Facilitate regional dialogue and knowledge exchange with the key stakeholders in the WCR (compilation of lessons learnt).

3.2 Impacts and Achievements of CReW

The CReW project had a number of key achievements, and its impacts are likely to last well beyond CReW into the future. Among key highlights are:

- The Establishment and piloting of four (4) financial mechanisms in the WCR, including project development support. The most advanced of these are:
 - The Belize Wastewater Revolving Fund- receiving repayments since April 2015
 - The Jamaica's K-factor wastewater utility surcharge, established in 2008, which is being used to repay funds to their Credit Enhancement Facility (CEF)
- Construction of Wastewater treatment plants;
- Improved National Policies, Laws and Regulations;
- Increased understanding of the importance of wastewater management for national development;
- Training of more than 600 persons in wastewater management including utility operators, lab technicians, government officials, media;
- Increased political recognition awareness and commitment for investments in wastewater Management with tangible actions resulting from this. For example:
 - Jamaica became the 5TH CReW country to ratify the Land Based Sources of Pollution Protocol in November 2015
 - Several CReW countries have initiated national discussions on Land-based Sources (LBS) Protocol ratification using Wastewater as the main Pollution area of concern.

- Key interest expressed by countries to participate in CReW+

3.3 Key Lessons Learnt from the CReW Project

All lessons learnt have been used to inform the design of the follow on initiative, CREW+. The lessons elaborated below (and others not listed) will therefore help to make the CReW+ more successful and effective.

Key lessons include the following:

- The Creation of and Enabling environment: policy, institutional, legislative and regulatory was critical to success of all activities;
- Pilot, Small Scale project provided useful starts and allowed for needed proof of concept; refinement and improved buy-in, for larger-scale investments;
- Innovative financing with flexible terms was required for successful implementation;
- Sequential, rather than parallel implementation is more successful; and complex issues were resolved by this phased Implementation.
- Establishment of strategic partnerships was critical; it helped to link CReW with key global and regional initiatives and put wastewater on the national agendas of participating countries;
- An effective communication strategy that commenced early, was important for success along with individuals that helped to champion the cause;

3.4 Discussions on CReW Project-It's Impacts

This section summarizes the main points of discussions that followed the presentation made by Mr. Coello on the CReW project. For ease of reference, the speakers and their affiliations are given in parentheses and all questions/comments are given first, followed by titled responses of the presenter¹.

Comments of participants

[Mr. Marlon Daniel- Guyana Water Inc.]: **A revolving fund alone is not sustainable for Wastewater.** The Jamaica case study was a good example, as investment made by CReW investments should be fully recoverable. The CReW project did (substantially) more than building wastewater treatment plants, and the presentation did not highlight some of the other landmark achievements. Jamaica was most successful because there was an existing mechanism, but this was not the case in other states. In particular, the lack of enabling environment and sustainable funding affected implementation in some countries (e.g. Guyana).

[Mr. Vincent Sweeney- UN Env.]: It is challenging to summarise many achievements of an outstanding project in such allotted short time. It is perhaps fair to say that the presentation did not do justice to CReW and its achievements. Maybe in future, more pictures of on the ground work could be included to tell a more compelling and complete story.

¹ This format is replicated throughout the report from this point onwards

[Mr. Justin Sealy- St. Lucia]: Some important impacts are intangible (e.g. mind and behavior change), these cannot be easily captured by a presentation of this nature. Efforts have to be made to somehow report on these moving forward.

Responses of Presenter- Mr. Alfredo Coello

On Funding of waster Initiatives: It is true that financing needs a source of revenue, and tariffs must be in place, but the reality is that the in-country mechanism varies between islands. Significant effort was made to explain the purpose of CReW and to do so in the early stages of implementation. **We used such forums to emphasize that CReW was not a merely an infrastructure development project, but a financing mechanism that can accomplish and facilitate improved wastewater management.**

Fulsome Presentation of results: the decision not to include more on of the ground results was not an oversight; it was deliberate. Ms. Donna Sue (the next immediate presenter) will showcase several stories in a series of short video presentations. CReW was very process oriented with 13 countries and 4 pilots. It is true that the project did much more than mere construction and the website tour and testimonial will attest to this later.

4. CReW Resources and How to access them- An Introduction to New CReW website- Donna Sue Spencer, UN. Env.

4.1 A Guided tour of the site

Ms. Donna Sue Spencer gave a guided tour of the new CReW website (www.gefcrew.org). She pointed out that the site was created to showcase key outcomes of the project, and will be populated with other items later as the project closes. She also highlighted that content is bilingual (English, Spanish) and so caters to non-English interests.

Key Features of the site include:

- ✚ Dedicated country pages: each of the participating countries has a page which are all interactive
- ✚ Site Tabs: there are five main ones- Pilot Projects, Publications, Media, and Resources
 - Pilot projects: information on the 4 pilot initiatives are viewable via this link.
 - Publication: landmark achievements, main events of project, reports and other publications are downloadable from the site.
 - Resources: has regulatory and legal documents as well as training material and workshop documents
 - Media: has all video and documentaries (of varying durations). A video presentation from Jamaica was shown

4.2 Discussions on CReW website

Questions/Comments

[Dr. Hugh Sealy- St. Georges University]: Is the Cartagena Protocol (LBS) still relevant? The Protocol does not include nutrients and the standards used to monitor other substances are based on those of the United States and Europe. These standards are not relevant to the Caribbean. **In particular, it should be emphasized that class 1 standards of the Protocol are now inadequate and this should be addressed.**

Utility companies should be forced to address nutrient levels in a more meaningful way, since this does much more harm and damage to marine and other ecosystems. The Caribbean should spend less time controlling biological oxygen demand (BOD), and bacteria levels which are less harmful to our coral reefs, and focus more on nutrient monitoring. The region has a water shortage problem yet reuse of water-which can help alleviate the shortage- is not practiced. The reuse of water must be prioritized moving forward and we as a fraternity must push for this. Wastewater is really freshwater containing only 2% solids; we need to stop depositing this straight into the sea.

On a related point, the Nationally Determined Contributions (NDCs) of parties to the United Nations Framework Convention on Climate Change (UNFCCC)- Paris Agreement, do not include greenhouse gas (ghg) emissions from wastewater. This is a serious omission since anything that decomposes and produces methane (CH₄), generates ghg. **Methane is a potent ghg, therefore wastewater ghg emissions should have been included in the Paris agreement.** But not having this emission in our NDCs is an opportunity, since those emissions can be quantified and the credits traded. The income earning possibility is included under Article 6 of the Paris agreement.

[Mr. Cletus Springer- The Organization of American States]: CReW has developed good products; how will value be added to them to improve utility beyond the project? **Efforts should be made to enhance decision making using the CReW outputs and products developed.** How significant are ghg emissions from wastewater, given that the total emissions of Small Island Developing States (SIDS) are small? Are there other major emissions sources besides wastewater that have not been accounted?

[Ms. Valerie Jenkinson-World Water and Wastewater Solutions Ltd.]: Every utility needs good public education and outreach (PEO) to deal with wastewater. Maybe CReW+ could develop a framework for this, which could be customized for different utilities.

[Ms. Birguy Lamizana Diallo- Global Programme of Action]: the CReW products and outputs are relevant and many countries have signed LBS protocol and developed National Plans of Action for addressing pollution. But further actions are needed especially for new and emerging pollution sources and synergies with work of CReW would be timely.

[Mr. Cyprian Gibson- Bahamas Water Company]: Water Ministers are not always in same space with Environment and this affects the free flow of information and needed actions. This working in silos was highlighted in the high level forum (HLF) by the Minister of Bahamas, and efforts should be made to address this.

Responses: Ms. Donna Sue and Mr. Christopher Corbin, UN Env.

- [Mr. Christopher Corbin]:
 - The LBS protocol is still relevant but does not address all issues. The exclusion of nutrients was due to lack of consensus among parties. Actions in-country would be needed to address other issues like these, but LBS protocol (a living document) represents basic standards and parties are expected and encouraged to do more than the minimum. St. Lucia and Barbados are among regional countries that have taken other effective actions resulting in improved wastewater treatment and management. **The Caribbean platform for nutrient monitoring is being set up and a meeting in Miami is being held in November 2016.** The UN Env. will include *inter alia* the inadequacy of Class 1 standards. The UN Env. agrees that ghg emissions from

wastewater (however small) should be addressed and (perhaps) included in financing initiatives. But, data on these emissions is not readily available.

- Use of CReW Products: efforts should be made to make use of the CReW products and outputs; the website is one legacy that will now become a clearing house mechanism. The need for focal points to enhance decision making in-country is a major gap. UN Ev. Intends to address this gap under CReW+.
- [Ms. Donna Sue Spencer]:
 - CReW Products and Communication Framework: The Media tab has fact sheets, briefing sheets and newsletters that have been very useful at the country-level. Utility companies are good target for improving their communication for wastewater management. CReW experience shows that communication must start earlier to fully explain purpose and objectives of project, in particular explaining that CReW was a funding mechanism and not an infrastructure building project.

5. Presentation on CREW+ Proposal (Objectives, Scope and Proposed Outcomes)- Alfredo Coello

5.1 The Objectives and Components of CReW+

Mr. Coello remarked that the CReW project lacked financing for the wastewater sector, but in some cases available funds were not spent. Learning from this, and noting other key challenges and successes, the CReW + was designed with a wider mandate. The new project will have five (not three as in CReW before it) components. These are namely:

1. Standards for Enabling Environment
2. Financing facility (new and improved)
3. Infrastructure construction (On the Ground)
4. Testing of new technologies
5. Communication and Outreach

CReW plus seeks to: Improve the enabling environment for wastewater management through a wider range of innovative financing options and mechanisms, with a multifocal an integrated approach. Wastewater will be always regarded and perceived as a resource. The scale of projects will have a wider range than those of the CReW and greater emphasis will be placed on transformation and sustainability. The CReW+ will also:

- ✚ Include Rural scale low technology interventions;
- ✚ Be based on provisions of the Sustainable Development Goals of the UN and LBS Protocol;
- ✚ Have greater country ownership and will include 5 more countries (total of 18).

5.2 Discussions on CReW+

Questions/Comments

[Rensford Joseph- Guyana]: Low cost technology and solutions are needed for rural areas as treatment by sewage plants is in many cases cost prohibitive. We are delighted to see that there is focus on rural projects under CReW+.

[Allan Neptune – Grenada]: Is there a qualification criterion for country participation in CReW+ and if so what is it?

[Shervon Ifill -Trinidad & Tobago]: there are limited institutions for sanitation in the Caribbean and this causes actions and interventions to be mostly uncoordinated. Fecal sludge management onsite is not well addressed (almost taboo); can this be done under CReW+?

[Mr. Wayne Williams -House of Development Corporation, Trinidad & Tobago]: wastewater treatment plants downstream benefit from discharge of wastewater further upstream and they are local examples of this. So treatment of wastewater by one stakeholders may affect availability/quality of another.

Responses: Mr. Alfredo Coello and Mr. Christopher Corbin

✚ [Mr. Alfredo Coello]:

- On Rural Project: agreed that these projects are important and noted lack of treatment plants for rural citizens. There are many options that exist for rural areas, but a shrewd selection has to be made.
- The value of wastewater: has to be established to convince political leaders. **The nature of water transport in the hydrological cycle actually means we are ALL drinking used water of many years ago.** Data information and sensitivity is important for actions moving forward.
- Eligibility for CReW: all countries receiving GEF funding were invited to participate in CReW+, but participation requires country endorsement. Some countries because of internal conflicts and challenges did not send the requisite endorsement and so cannot participate.

✚ [Mr. Christopher Corbin]

- Utility Companies and Fecal Management: Wastewater was not prioritized and utilities were not really vested in this, but dialogue was started under CReW. **Fecal management represents an opportunity for CReW+; this can be explored.**
- Possible Actions areas under CReW: there are three possible areas for action (1) Capacity building for testing of waste and reuse options; (2) Evaluation of reuse technologies and determination of best options for the Caribbean; (3) Continued dialogue with actors in sector

6. The Global Wastewater Initiative (GW²I), and the Caribbean Wastewater Platform

6.1 Presentation on the Global Wastewater Initiative (GW²I) – Ms. Birguy Lamizana Diallo, UN Env. GPA

Global Programme of Action (GPA) is the only global intergovernmental mechanism directly assessing the connectivity between terrestrial, freshwater, coastal and marine ecosystems. Member states of the GPA endorsed the creation of the Global Wastewater Initiative (GW²I) to: prompt synchronized action; encourage investments in the field of wastewater; facilitate cooperation, coordination and synergy amongst all stakeholders; identify and foster opportunities which can be applied by countries or scaled up (www.unep.org/gpa/gwi). The GW²I is a global multiple stakeholder platform which comprises a number of UN agencies, international organizations, governments, scientists, private sectors and Major groups and stakeholders. Collectively they (the 52 partners) are expected to provide the foundations for partnerships to initiate comprehensive, effective and sustained programmes addressing wastewater management. This is a voluntary network of stakeholders with an international Steering Committee and a Secretariat to be provided by UNEP/GPA.

The GW²I has three key pillars; it:

- Is supportive of policies and best practices
- Can provide adequate and tailored technology for wastewater
- Will use Innovative financial mechanisms- (including examples from CReW)

The GW²I will also be harmonized with and linked to Goal 6 of the Sustainable Development Goals (SDGs) of the United Nations. **SDG 6 seeks to Ensure Access and Sanitation for All by the year 2030**. The work of the GW²I will also be associated with the Paris Agreement for Climate change adaptation in the water sector.

Efforts are underway to establish regional platforms linked to the global one and the Caribbean launch is now taking place in this meeting. The Caribbean Wastewater Platform, like other regional platforms is intended to accomplish the following:

- Facilitate delivery of technical collaboration and support activities of key GW²I global or regional partners, including those supporting specific focal areas.
- Measure and report on impacts of activities.
- Secure ongoing support from diverse sources & develop strong partnerships
- Facilitate coordination / 'matchmaking' of wastewater management activities across international programs and countries at the regional level, including information exchange on programs through regional forums.

6.2 Presentation on CWWA and Proposal for the Caribbean Wastewater Platform -Mrs. Patricia Aquing

The Caribbean Water and Wastewater Association (CWWA) is uniquely positioned to implement aspects of the GW²I platform given its function. The CWWA was established by an ACT of parliament of Trinidad and Tobago in 1991. Its roles and functions include:

- Hosting annual conference and exhibition
- Assisting member states in times of water crises
- Technical Cooperation
- Training and capacity building

There are a number of Strategic Alliances that the CWWA has formed with key agencies in the conduct of its work. Listed among key partners and nature of the alliance are the following:

- Caribbean Community (CARICOM): provides guidance on the status on the governance arrangements. CWWA recently acknowledged as the office voice for Caribbean water professionals by CARICOM.
- Caribbean Water Operators Partnership (CariWOP): CWWA serves as a partner to the CariWOP
- Caribbean Institute for Meteorology and Hydrology (CIMH): CWWA serves on the multisector consortium for providing climate services to the region. The work seeks to create an enabling environment for increased use of Early Warning Information System Across Climate Timescales (EWISACTs).
- Caribbean Disaster Emergency Management Agency (CDEMA): CWWA serves on the Caribbean Disaster Committee
- UN Env. GPA: Mutual Collaboration on multiple initiatives and projects in the Caribbean that seeks to improve water and wastewater management.

With this profile, proven track record of performance, and strong private sector linkages through membership of multiple stakeholders including utility companies, professionals and researchers, the CWWA is uniquely qualified to help advance the work of the Caribbean Wastewater Platform.

6.3 Discussions on the GW²I and Caribbean Wastewater Platform

Question

[Shervon Ifill- Trinidad & Tobago]: Will CWWA be the repository for data and information?

Response

[Mrs. Patricia Aquing-CWWA]: the CWWA may not be that centre, but will help with identification of gaps and network with centres of excellence who are so positioned.

7. Operationalizing the Caribbean Wastewater Platform

7.1 Partnerships for the Caribbean Wastewater Platform- Mrs. Patricia Aquing, CWWA

Mrs. Aquing outlined some specific functions that the CWWA can perform within the platform. These included the following:

- Advocacy and Awareness Building,
- A Clearing House for Key sector information and resource persons,
- A repository for island specific information;
- A medium for training and capacity building

A Proposed structure of the platform was also presented as also possible roles.

7. 2 Discussion on Partnerships for the Wastewater Platform

Questions/Comments

[Ms. Valerie Jenkinson-World Water and Wastewater Solutions Ltd]: Is there scope to include non-English speaking countries (French, Dutch) within the GW²I?

[David Boyce]: How do you plan to engage participants in other countries to assist with their national initiatives? Will funding be provided for local consultancies?

Responses- Mrs. Patricia Aquing (CWWA) and Mr. Christopher Corbin (UN Env.)

[Mr. Patricia Aquing- CWWA]

- Inclusion of countries: All countries would have access to the platform and inclusion will not be limited to English speaking countries.
- National Support: the platform is more an initiative and not a project per se. But, activities that are 'projectized' can attract funding and consultancies later. The CWWA is working to establish skills bank of agencies and expertise to make information and activities easily communicated to constituents.

[Mr. Christopher Corbin- UN Env.]:

- Support for Countries: the intention is to support all countries and bilateral support is being sought to assist in this regard. The platform will facilitate sharing of information so keep all aware of activities

7.3 Linkage between the GW²I Platform and the LBS Protocol with specific reference to initiatives such as IWeco and CREW+ - Mr. Christopher Corbin, UN Env.

The Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Area (known as the **Cartagena Convention**) was adopted in Cartagena, Colombia in 1983 and entered into force in 1986. At the time it was the only legally binding environmental treaty in the Wider Caribbean. The Protocol concerning pollution from Land Based sources and Activities (LBS) is a more recent wider Caribbean treaty which was adopted in 1999 and entered into force in 2010. To date 12 countries are party to this protocol. This treaty is important since **over 80% of pollution of the Caribbean seas comes from activities on land**. Moreover, **upward of 75% of domestic wastewater enters rivers and seas untreated**. The negative impacts of such pollution are severe, including:

- Decreased Water Quality: due to increased sediments, nutrients and pathogens;
- Increased risk of disease;
- Degradation of marine ecosystems: coral reefs, Seagrass Beds, and Mangroves;
- Adverse socioeconomic effects on key sectors: Health, Tourism and Fisheries.

The LBS protocol seeks to: **Reduce pollution through establishment of effluent and emission limitations (with categories and standards) and/or through best management practices; and facilitate the exchange information on land-based pollution through cooperation in monitoring and research.**

The LBS Protocol can support the Caribbean Wastewater regional platform in distinct ways. Listed likely contributions to the platform are the following:

- ❖ Capacity Building
- ❖ Reforms
- ❖ GEF Projects
- ❖ Monitoring, Assessment & Evaluation
- ❖ Caribbean Platform on Nutrients

The Global Environment Facility Integrating Water, Land & Ecosystems Management in Caribbean SIDS (GEF-IWeco) is an initiative that involves 11 Caribbean states. The objective of the project is to contribute to the preservation of Caribbean ecosystems that are of global significance and the **sustainability of livelihoods** through the application of existing proven technologies and approaches that are appropriate for small island developing states through **improved fresh and coastal water resources management**, sustainable land management and sustainable forest management that also seek to enhance resilience of socio-ecological systems to the impacts of climate change.

The IWeco project has 4 main components, which have clear synergies with the Caribbean platform and the CREW+, in that they will all serve to markedly improve wastewater management by enhancing technical frameworks, creating enabling policy environment and facilitate greater sharing of information. The four components are elaborated in table 1 below.

Table 1. Main Components of the GEF-IWEco Project

Component	Details
<i>Component 1</i> : National Innovative Solutions	Water Security & Improved Sanitation, Wastewater management, Land & Watershed Restoration & Ecosystem Resilience
<i>Component 2</i> : Strengthening Water, Land and Ecosystems Monitoring & Indicators Frameworks	Strengthened national and regional systems for monitoring of environmental status with respect to key international agreements
<i>Component 3</i> : Strengthening Policy, Legislative & Institutional Reforms; Capacity Building for Land, Water & Ecosystem Services Management	Strengthened policy and legislation for the effective management of water, land and ecosystems resources that account for climate change
<i>Component 4</i> : Enhancing Knowledge Exchange, Best-Practices, Replication and Stakeholder Involvement	Improved engagement and information access for practitioners and other stakeholders through targeted knowledge sharing networks

Efforts should be made to institutionalize a system of training to ensure that expertise is built for long-term sustainability beyond conclusion of projects. It would also ensure knowledge and expertise is not lost when officers move on to our endeavours.

7.4 Identification of Work Plan Priorities for the GW²I Regional Caribbean Networks

The following priorities were presented for the first biennial work plan of the regional platform.

- I. Advocacy and Awareness
- II. Definition of the platform (who? which partners?)
- III. Development of the Work Plan and Budget
- IV. Marketing and Branding
- V. Capacity Building and Training
- VI. Partnership Building
- VII. Knowledge Management and Information Sharing

7.4.1 Discussion on work plan priorities

Questions and comments were entertained on these priorities and the following section summarizes the exchanges:

[Mr. Christopher Corbin- UN Env.]: this is a welcomed intervention that will advance advocacy. Awareness raising can make use of factsheets and briefings developed by CREW. A number of other items can be linked to or accessed via the wastewater platform including: The Caribbean nutrient platform, CREW resources, data and information already researched.

[Ms. Birguy Lamizana Diallo- UN Env.]: Networks already exists, maybe it is now time to look at where the interest will be. **One area of need is for training and capacity building, and linking with the LBS**

Protocol, and other pollution reduction treaties. A Wastewater and Nuclear management online training is being developed. Collaboration with existing centres of excellence should be pursued. Some priorities have been identified in the high level forum (HLF) and other forums, which should be considered.

[Mr. Danville Tony]: Can we link water reuse with climate change (adaptation)?

[Mr. Marlon Daniel- Guyana Water Inc.]: the aquifer recharge from surface water sources in Jamaica is a good example, we need for information exchange of this nature. Efforts should be made to link this intervention to climate change.

[Wayne Williams]: regarding budget support, how will the new platform be funded and what options exist to raise funds for the CWWA?

[Mrs. Patricia Aquing-CWWA]: question about funding is premature, but is being looked at through strategic alliances mentioned in CWWA annual general meeting (AGM). CWWA is targeting low hanging fruits and also interests expressed by private sector partners for joint collaboration. Partnerships forged from CReW and new initiatives under CReW+ and GW²I can avail funding. Further work to rebrand wastewater as a resource will be key raising its profile and linking to climate change can create new opportunities. Wastewater is being used in some Caribbean islands, especially for irrigation

[Mr. Vincent Sweney- UN Env.]: there is a due diligence process that must be followed for accessing donor funding and receiving disbursements. Moving forward the CWWA should find it will easier to do so having gone through that process. Partnerships have helped to move things forward in other regions; there is no reason why this cannot be done in the Caribbean.

[Mr. Alfredo Coello- CReW+]: some attempts were made to use the term **ONE-WATER**, so that all water (fresh or waste) are valued the same. But use of the term is restricted because it is patented. We should learn from countries like Israel who have a number of best practice examples in water re-use.

[Mr. Adrianus Vlugman-PAHO]: one can only patent a brand not a word, so the it unlikely the term ONE-Water is patented. But even in the unlikely case that it is a patented brand, the Caribbean can buy rights to use it.

[Shervon Ifill- Trinidad & Tobago]: Work in the Caribbean on Sanitation is not well known in the international community. Much work in developing countries is focused on Asia and Africa. We need to have our professionals to do research and write proposal to access the pool of funding available.

[Mr. Patricia Aquing-CWWA]: We agree that efforts should be made to write good wastewater and sanitation proposals. Some progress has been made with engaging multiple donors, and this will continue moving forward.

7.5 Top Priorities for the Caribbean Wastewater Platform- As suggested in Open Discussion- Chair: Mr. Christopher Corbin (UN Env.)

In seeking to identify the top priority of participants, Mr. Christopher Corbin, asked all to name their first priority item if the platform was currently operational in full. The following exchanges summarize the responses given. For ease of reference, similarly themed responses are included under the same heading.

7.5.1 Technology and Knowledge Transfer

[Mr. Justin Sealy- St. Lucia]: information on different technologies for wastewater management, to help with selection of most appropriate high end products. Information exchange on success stories and work opportunities, will be of interest to St. Lucian water professionals.

[Mr. Rensforde Joseph- Guyana]: a knowledge management strategy is needed to ensure that know and success stories are shared.

[Mr. Harry Phillippaeux -Barbados]: standard low cost plan/technologies for poor rural community for wastewater treatment; Caribbean wide sub- regional information system for wastewater (technologies in use).

[Denise Singh Pereira-Trinidad & Tobago]: knowledge transfer of wastewater use and application to next generation. Promote success stories on different islands. Downstream users of wastewater- what can be done. Sludge management can yield productive outputs. Work on engineering options and costing should be shared especially the most cost effective solutions. Level of awareness is low and this should be addressed as early as possible. Competition among primary and secondary schools is helping to bridge the knowledge gap.

7.5.2 Skills Bank for Professionals; Engagement of Professionals

[Mr. Danville Tony- St. Vincent]: skills bank of professionals and expertise would be very useful. Low cost technologies and solutions for Caribbean Islands would also be valuable since challenges and needs of islands vary.

[Noel White- Jamaica]: would love to see more engagement of practitioners, and more engagement of tertiary institutions for research to close the knowledge cycle.

7.5.3 Increased and enhanced Partnerships and Collaboration

[Mr. Marlon Daniel-Guyana Water Inc.]: Strengthen the enabling environment; partnerships with CREW and Environment Protection Agency (EPA) and other agencies is important.

[Ms. Michelle Samuel- USA]: increased linkages between the American Water Works Association, the CWWA and the GW²I. Also general links for agencies in the USA to the Platform.

7.5.4 Clearing House for Data, Research, Monitoring and Needs Assessment

[Mr. David Boyce- Barbados]: Needs analysis across region to determine areas of priority, inventory of systems, status of operators and level of certification, and clear identification; by 2021

[Mr. Adrianus Vlugman-PAHO]: Caribbean is difficult area, PAHO is willing to help. The platform could help with monitoring of effluent quality, monitoring and enforcement, though that this is not the mandate of CWWA.

[Mr. Allan Neptune- Grenada]: access to better quality data

7.5.5 Awareness Raising, Public Education and Outreach

[Mr. Wayne Williams- Trinidad & Tobago]: Continue to build awareness, especially of the understanding of wastewater. Ministers not trained in wastewater and constant turnover of persons by elections makes sustained and effective actions difficult.

7.5.6 Advocacy for Legislation

[Mr. Lewis Hill]: Generate model legislation that could be presented at HLF of ministers to advance the adoption of in-country legislation

7.5.7 Training, Capacity building, Certification and Financing/Resource Mobilization

[Mr. Louis Hill]: Training in proposal development and how to access funding for wastewater projects;

[Mr. Allan Neptune- Grenada]: assistance to mainstream climate change into proposal development to enhance success;

[Shervon Ifill- Trinidad & Tobago]: mobilization of young people and get them interested in sanitation as a career. Professionals in this area are ageing so a younger generation of professionals must be identified and suitably trained. I am willing to help get others involved;

[Mr. Valerie Jenkinson-CWWA] should have a Young Professional Group and stress the importance of certification of professionals. CWWA needs to get new faces and others involved to engage new demographic of people. Use methods to get change going, and put pressure on politicians.

8. Synthesis of Chair (CWWA): Key Take away points

- 6) **A Young professionals programme** and mentorship of next generation is needed and should be prioritized;
- 7) **Exposure to, and evaluation of, appropriate technology** has emerged as an immediate need. A technology (use and suitability) matrix is available, this could be revised, tailored and augmented for the Caribbean context;
- 8) **Increased advocacy by CCWA** is needed, and messages need to be tailored to meet the needs of the different publics in the region to be done to be effective;
- 9) **Capacity building, training and certification** (must be systematized)-CARICOM is looking at Caribbean certification of (water) professionals. St. Lucia was named as location where there are no certified plumbers/water utilities pipe fitters.
- 10) **Access to Donor Funding** is an urgent need. A number of agencies (UN Env., CDB, IDB, and the Caribbean Community Climate Change Centre-CCCCC) have been accredited by the Green Climate Fund (GCF). The CCCCC has funding available under the GCF and has invited CWWA to prepare projects. The other GCF accredited agencies (including the UN Env.) can help with accessing funding for member states if approached.

9. Closing remarks

In bringing the meeting to a close, the main partner agency, expressed their appreciation to all for attending and for participating so actively in the discussions. The comments are summarized as follows:

The United Nations Environment (UN Env.)

Mr. Christopher Corbin: Thanked the CWWA and Mrs. Patricia Aquing in Particular for hosting the meeting. He also expressed gratitude to the participants for their engagement and enthusiasm. He concluded that the CReW+ project will benefit from this.

Mr. Alfredo Coello: the exchanges were very productive, UN Env. is happy to see launch of CReW+

Mr. Vincent Sweeney: Thanked all for their contribution and vowed to do the best to continue to supporting the work.

Ms. Birguy Lamizana Diallo: very happy with progress and participation. Expressed thanks to the CWWA for being such gracious host. UN Env. is fully committed to process and Platform: Marine litter, nuclear and wastewater are all issues that can be addressed. The resources that are available will be duly shared.

The Inter-American Development Bank (IDB)

Mr. Yvon Mellinger: this was a long but very productive week. This meeting has helped to define a clear way forward for advancing the wastewater agenda. The intention is to build on the initiative developed under CReW and actively engage the youth moving forward. These are critical keys to future success.

The Caribbean Water and Wastewater Association (CWWA)

Mrs. Patricia Aquing: The CWWA was happy to play host and regards this as the start of greater things for the water and wastewater sectors. The success of collaboration to date, lessons learnt and success stories as well as fruitfulness of the discussions, will collectively serve to improve the CReW+. Moreover, the platform launched in this meeting has the potential to significantly enhance wastewater management in the sector throughout the region and well beyond. Our sincerest thanks to all those who made this meeting a success: donors, professionals, researchers and other stakeholders unnamed.