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Third Meeting of the Scientific, Technical and Advisory Committee (STAC) to the Protocol concerning Pollution from Land based Sources and Activities in the Wider Caribbean.

Miami, Florida, USA, 31<sup>st</sup> October to 2<sup>nd</sup> November 2016

**Second Regional Planning Meeting of the  
Caribbean Platform for Nutrient Management**



**Global Partnership on Nutrient Management (GPNM)**

**Second Regional Planning Meeting of the  
Caribbean Platform for Nutrient Management**

# **Workshop Proceedings**

**February 24-25, 2016**

**Hilton Hotel, Port of Spain, Trinidad & Tobago**

Supported under the  
GEF-funded Global Foundations for Reducing Nutrient Enrichment and Oxygen Depletion from  
Land-Based Pollution, in Support of Global Nutrient Cycle (GEF-GNC) Project



**April 2016**

**Collaborators and organizing partners:**



## **Background**

The Global Partnership on Nutrient Management (GPNM) was launched in 2009 to address the global challenges faced by the mismanagement of nutrients and nutrient over-enrichment. It is a global partnership of governments, scientists, policy makers, private sector, NGOs and international organizations. It responds to the 'nutrient challenge' – how to reduce the amount of excess nutrients in the global environment consistent with global development. The GPNM reflects a need for strategic, global advocacy to trigger governments and stakeholders in moving towards more efficient and effective nitrogen and phosphorous use and lower losses associated with human activities. It provides a platform for governments, UN agencies, scientists and the private sector to forge a common agenda, mainstreaming best practices and integrated assessments, so that policy and investment responses/options are effectively 'nutrient proofed'. The GPNM also provides a space where countries and other stakeholders can forge more co-operative work across the variety of international and regional fora and agencies dealing with nutrients, including the importance of impact assessment work. The work of the GPNM is advanced by a Steering Committee, a sub-set of the Partnership members and is supported by the GPA Unit of the Marine and Coastal Ecosystems Branch of the Division of Environmental Policy Implementation of UNEP, which serves as the Secretariat to the Steering Committee.

The GPNM launched a Caribbean Platform for nutrient management in May 2013 in Trinidad and Tobago. The purpose of the regional nutrient platform is to extend the reach of UNEP and the GPNM down to the country level so as to drive policy and encourage implementation of best practices in nutrient management to minimize adverse impacts on the marine environment. The GPNM convened the second meeting of the platform between February 24 and 25, 2016 and was again co-hosted by the Institute of Marine Affairs (IMA) of Trinidad and Tobago, and UNEP's Caribbean Regional Coordinating Unit. The aim of this meeting was to continue to build awareness of nutrient management issues in the Caribbean, consider recommendations made from the first meeting of the platform, present a draft action plan, and seek out an appropriate institutional mechanism to support the work of the Platform within the region.

The workshop was attended by technical and policy country policy makers and regional technical support agencies. The participant list is contained in Annex 1.

The meeting was supported through financial contributions from the GEF-funded Global Foundations for Reducing Nutrient Enrichment and Oxygen Depletion from Land-Based Pollution, in Support of Global Nutrient Cycle (GEF-GNC) Project.

## **Workshop objectives**

The following were the primary workshop objectives:

- To understand the current priorities in respect to nutrient management in the region
- To agree on a plan of action for the operationalization of the Caribbean Platform for Nutrient Management
- To agree on mechanisms for mainstreaming and building sustainability for the Platform into existing frameworks
- To identify immediate opportunities from ongoing or planned projects to support nutrient related activities in the region.

The workshop agenda is contained in Annex 2.

## DAY 1

### Opening remarks, Workshop objectives and expectations

*Session Chair: Ms. Toylan Arneaud, Director (Ag.) IMA, Trinidad & Tobago*



**Ms. Toylan Arneaud, Director (Ag.), Institute of Marine Affairs (IMA),** Trinidad & Tobago welcomed participants to the meeting on behalf of the Institute and the Government of Trinidad and Tobago. She gave an overview of the nutrient challenge in Trinidad and Tobago, and provided examples of progress in addressing the challenge across the globe with recognition of the need to implement best practices in managing phosphorus and nitrogen flows to the environment. She highlighted issues with respect to nutrient load pollution that was of greatest concern along the west coast of Trinidad, mainly associated with the many urban centers and industrial areas. In Trinidad there are concerns over industrial discharges associated with ammonia production in the Point Lisas industrial area, which has been the focus of implementation of better waste control practices. In Tobago the concern with land-based pollution is along the southwest coast, which is mainly associated with urbanization. The Buccoo Reef, a significant ecological area has been subject to the negative impacts of land-based pollution. Some 30% of the country is centrally seweraged, while 70% of discharges are treated using onsite means. Some 99% of industrial effluent is discharged untreated to the environment. Slash and burn agriculture is a problem and associated land degradation contributes to land-based pollution. She emphasized that there must be collective action to address the pollution problems in the country and that there must be strong stakeholder cooperation. She expressed the continuing commitment of the IMA to the work of the GPNM Caribbean Platform and to the issue of sustainable nutrient management.



**Dr. Lorna Inniss, Coordinator, UNEP Caribbean Regional Coordinating Unit (Car/RCU)** conveyed greetings on behalf of UNEP, thanking the IMA for its support. She noted that from the formation of the GPA in 1995, UNEP Car/RCU has been actively involved in extending the work of the GPA within the Wider Caribbean area. She noted that the Land-Based Sources of marine pollution (LBS) Protocol of the Cartagena Convention was the first relevant regional protocol to follow after the formation of the GPA. There are 12 Contracting Parties to the LBS Protocol

where Trinidad and Tobago was the first English-speaking Caribbean country to ratify the Protocol. Trinidad and Tobago hosts one of two Regional Activity Centres (RACs) for the LBS Protocol, that being the Institute of Marine Affairs, where its cooperation is governed by an agreement between UNEP and the Institute. The LBS Protocol identifies domestic sewerage and agricultural runoff as major sources for nutrient loading in the Caribbean. She expressed that UNEP Car/RCU welcomes this technical meeting noting that some of the related emerging issues includes the Sargassum seaweed invasion that is linked to nutrient loading, compounded by climate change drivers, along with the occurrence of harmful algal blooms and dead zones.



**Vincent Sweeney, Head, UNEP Caribbean Sub-Regional Office** extended a welcome on behalf of the Executive Director of UNEP. He noted that UNEP's Caribbean sub-regional office was recently established which for the time being is being hosted by the Cartagena Secretariat. The sub-regional office was established so as to extend UNEP's reach, with a renewed SIDS focus. The establishment of the Caribbean office follows the establishment of a regional office in the Pacific to serve SIDS in that region. He provided an overview of the various work areas of UNEP citing relevance to Caribbean SIDS. The work of the GPNM Caribbean

Platform fits very well within UNEP's work and the work of the GPA, noting the three partnerships under the GPA, the Global Partnership on Nutrient Management (GPNM), the Global Partnership on Marine Litter (GPML) and the Global Wastewater Initiative (GW<sup>2</sup>I). The scope of the GPNM platform's work straddles the nexus between nutrient and wastewater management. The Caribbean will be the first region to have focal points for each of the GPA partnerships, which is a notable achievement. The work by the Platform will be expected to support decisions out of the United Nations Environment Assembly (UNEA) that will be held in May 2016, and should further contribute to the Sustainable Development Goals, also with alignment to the outcomes of the UNFCCC COP21 and the Paris Declaration on climate change.

## Overview of the GPNM and relationship within UNEP's GPA Programme

*Dr. Greg Crosby, United States Department of Agriculture and GPNM Chair*

*Dr. Christopher Cox, United Nations Environment Programme*



**Dr. Greg Crosby** welcomed the concern of Caribbean stakeholders over the issue of nutrient management and willingness to contribute to the nutrient management agenda, suggesting that the work of the platform is consistent with the resolutions that are emerging out of the United Nations Environment Assembly (UNEA). The GPNM is a global partnership and the regional platform is a way to bring the global level to the regions and down to the national level; without these platforms the GPNM cannot do much. The GPA Coordination Office in

Nairobi has continued to provide strong support to the GPNM through the management and programme support levels of UNEP. The strengthening of the Caribbean Platform presents an opportunity to consolidate joint work in the areas of wastewater and nutrient management, where in

the Caribbean these are closely related in terms of land-based pollution of coastal waters. In the Caribbean and elsewhere, we need to adopt an integrative approach in trying to figure out how we integrate the nutrient-related management areas of relevant projects and other initiatives within the work of the GPNM. In this context we need to ask how the GPNM Caribbean Platform will assist this process. A challenge with nutrient management is that there is a perception that it is not a priority or emergency issue; in this light, we need to recognize that the work toward sustainable nutrient management will be a gradual process. This, notwithstanding the fact that it is estimated that globally some 80% of fertilizer applied does not meet intended crop uptake and that the nutrients end up as losses to the environment and the oceans threatening ecosystem services and in turn livelihoods. He affirmed the commitment of the GPNM to advance the nutrient management agenda in the Caribbean.



**Dr. Christopher Cox** gave an overview of the GPNM and relationship within UNEP's GPA Programme. He highlighted the scale and magnitude of problems associated with land-based sources of marine pollution and that with the population to exceed possibly 9 billion by 2050, addressing degradation of the planet's oceans must be addressed with urgency. He noted that globally some 80% of wastewater is discharged untreated to the marine environment. He gave an overview of the nutrient cycle and the fate of nutrients in the environment termed the 'nutrient cascade'. According to Johan Rockström et al., 2009 the volume of reactive nitrogen that is created by mankind through fertilizer production and application, and from other sources have greatly exceeded the acceptable planetary boundaries (the 'safe limits' without incurring irreparable ecological damage). The boundary for phosphorous is quickly being approached. He outlined the negative impacts that excess nutrients have on the environment in terms of water quality, air quality, greenhouse balance, ecosystems integrity and soil quality. Climate change drivers are now thought to be accelerating the impacts associated with nutrient loading to the environment. Harmful algal blooms (HABs) could become more severe and persistent due to warmer oceans and fresh waterbodies. The current Sargassum proliferation in the Caribbean (and West Africa) is likely linked to such phenomenon. Nutrient deficits in parts of the world such as sub-Saharan Africa where crop harvest without replenishment leads to soil fatigue and land degradation.

He provided a background on the GPA and its mandate in oceans protection from land-based pollution, where the focus of the Programme is on three pollution source categories; nutrients, marine litter and wastewater. The GPA serves as the Secretariat for three associated global partnerships respectively, the Global Partnership on Nutrient Management (GPNM), the Global Partnership on Marine Litter (GPML), and the Global Wastewater Initiative (GW<sup>2</sup>I). The GPNM was established in 2009 with the key roles being to catalyze strategic advocacy and co-operation at the global and regional levels, support science-policy interaction and translating science for policy makers, provide information and enhance capacities to address the growing problem of nutrient over-enrichment and eutrophication, and position nutrient issues within the international sustainable development agenda. The nutrient management agenda is most closely aligned to Sustainable Development Goal 14 on conservation of the oceans and Goal 2 on sustainable agriculture. The GPA Coordination Office/GPNM Secretariat is executing the GEF-Global Nutrient Cycling (GNC) Project which is helping to build the foundations of knowledge for nutrient

management at the global level. Main areas of support under the GEF-GNC Project include the strengthening of global partnership, analysis of relationships between nutrient sources and impacts, the promotion of best practice technological and policy options based on science and lessons learned, and demonstration of source-impact nutrient flux modeling at the watershed-scale (in the Philippines). The project has also supported the development of ecosystem health scorecard methodologies around nutrient and pollution and assessments for specific ecosystems in India and the Philippines.

He concluded by saying that the work of the GPNM under initiatives such as the GNC Project will contribute to decision maker needs. He made a call to the audience to contribute best practices to the Global Nutrient Management Toolbox that has been developed under the GEF-GNC Project. He noted that the Caribbean Platform will need to figure out how best to incorporate the work of the GPNM from the global level and identify lead local and regional partners to carry the work forward.

An important consideration in the case of the support from GPA is the ability to link to and draw on GPNM's sister global partnership for wastewater, the Global Wastewater Initiative (GW<sup>2</sup>I). The GW<sup>2</sup>I is seeking to establish a Caribbean node similar to the nutrient platform and has engaged discussions with the CWWA. The linkages between the nutrient and wastewater partnerships will be close in the case of the Caribbean, given that wastewater is a significant contributor to nutrient loading in coastal waters.

***Refer to presentation in Annex 3.1.***

## **Discussion**

The Netherlands is a good example of how the nutrient management agenda was raised to the level of national crisis as a result of widespread adverse environmental impacts from nutrient excess. The main source was from the intensive agricultural development policy that the country promoted under heavy government subsidization (including access to fertilizers). The critical factor was the disposal of livestock manure, where it was spread liberally over agricultural fields with little diversion from polluting waterways. This led to widespread eutrophication and hypoxia of waterbodies. In response, the government put significant restrictions on the production of livestock to reduce the pollution problem, which then led to economic and social fall-out among many livestock producers. Many farmers left the country under economic hardship conditions. There are many lessons to be learnt here in principle.

In such circumstances, livestock production policies may need to tend towards reduction of the consumption of red meat. This may be more important in some of the countries of the wider Caribbean such as in northern South America that may be larger livestock producers. This points to the important concept of nutrient recycling to reduce nutrient leakage to the environment. It should be noted that the Netherlands, given their experiences, played an instrumental role in the establishment, support and leadership to the GPNM. Embracing the concept of nutrient use efficiency (NUE) is essential to drive policy response across all relevant sectors. This work must not only be confined to governments but must also engage the private sector, with recognition of not only the environmental, but the economic benefits.



## Relationship of GPNM to the Caribbean Regional Seas Programme

Chris Corbin, United Nations Environment Programme



The main sources of pollution in the Wider Caribbean region are from poor agricultural practices in the form of non-point run off, untreated domestic wastewater and fertilizer run-off from coastal tourism investments (notably golf courses in the islands). Under UNEP Car/RCU's Assessment and Management of Environmental Pollution (AMEP) Sub-programme there are several work areas of relevance to nutrient management; the GEF-Caribbean Regional Fund for Wastewater Management (CRew) Project, the new GEF-Implementing Water, Land & Ecosystem Management in Caribbean SIDS (IWEco) Project, the collaboration with the US Dept. of State on ocean acidification, collaborations under various MEAs, and with international financial institutions and other UN agencies aimed at addressing land-based pollution to the Caribbean. There are interventions looking at the economic dimension of pollution such as the economic valuation pilot projects under the CRew Project, and the Secretariat is providing inputs to the Green Economy Project in Jamaica and St. Lucia. UNEP Car/RCU is active in assisting to build capacity to support the State of the Convention Area Reporting (SOCAR) and the UN Regular Process. Under the Specially Protected Areas and Wildlife (SPAW) Sub-programme there are relevant initiatives in assessment of the status of sensitive ecosystems and management along with capacity building through a myriad of associated projects such as the Caribbean Challenge Initiative and the Caribbean Large Marine Ecosystem Project. There is also collaborative network with IOC-UNESCO, the Convention on Biological Diversity and the Ramsar Convention that will have related dimensions within the nutrient and pollution management agenda.

The LBS Protocol is the primary instrument through which nutrient management and pollution will be addressed. The Protocol's annexes list the pollutants of concern including nutrients, establishes effluent limits and provides specifications related to non-point sources of pollution. Of note under Annex IV, Parties to the Protocol are to develop pollution reduction plans and control agricultural non-point sources of pollution. This is where nutrient management is most closely linked. The Annex calls for estimates of pollution loading, assessment of health risks, assessment of management frameworks, best practices and establishment of monitoring programmes. There have been some key publications on assessment of LBS pollution to the Caribbean Sea that have been supported by collaborating partners such as the Regional Activity Centres (IMA in Trinidad & Tobago and CIMBA in Cuba), INVEMAR in Colombia and the Caribbean Public Health Agency (CARPHA).

The findings of the Pollutant Loads into Caribbean Sea studies (Technical Reports 33 & 52) pointed to the Mississippi, the Orinoco and the Magdalena watershed basins, being the largest basins, as the main contributors of pollutant loads to the marine environment of the Wider Caribbean (Caribbean Sea and the Gulf of Mexico). The Orinoco basin contributes more nitrogen to the Caribbean Sea than the other watersheds.

**Refer to presentation in Annex 3.2.**

## Discussion:

**Q:** Are true economic costs of pollution being quantified including emission of greenhouse gases and are there any experiences in terms of effecting change at the country level using such information? **R:** In the Caribbean this is not the case for the most part. In the Netherlands such studies were undertaken; these could be explored.

At the 7<sup>th</sup> GEF International Waters Conference (IWC) that was held in Barbados there was attention paid to the cost of pollution in presentations delivered by projects in the GEF International Waters portfolio. The World Resources Institute (WRI) has also done work in this area in certain parts of the world. There is an emerging resolution at UNEA around the nutrient management issue and quantifying the benefits of good nutrient management practices.

The private sector dimension related to wastewater treatment and reduction of nutrient loads must be considered. It is a good idea to design treatment solutions that are more stringent than the regulatory standards so as to give a better chance at meeting compliance and environmental requirements. In general there has to be a policy shift to drive more focus on addressing nutrient diversion from wastewater streams across treatment facilities.

Training of farmers to use fertilizers correctly is an important element of addressing the nutrient challenge. **Q:** Have fertilizer supply companies been involved in UNEP's work in the region? **R:** Private sector partnerships were established under the GEF-Reducing the Pesticides Runoff to the Caribbean Sea (RepCAR) Project; CropLife was involved under this initiative. Private sector investors in the agricultural sector provided co-financing to work in field with farmers under the RepCAR Project. Similar collaborations can be sought and developed based on the lessons learned from this project.

The health effects of nutrient effects in the environment must be emphasized so that it could drive public sector policy and making the needed investments. This seems to be a gap in the Caribbean that can be used to promote and develop the programme.

## Overview of status of the Caribbean Platform – review of 2013 launch event

*Dr. Clement Lewsey, NOS-NOAA*



The Caribbean Nutrient Platform was launched in Trinidad and Tobago in May 2013 and was attended by several countries of the Caribbean along with technical regional agencies. A key aim of the launch meeting was to provide recommendations on the process to advance sustainable nutrient management in the region. Attending countries provided brief accounts of national perspectives in terms of issues and challenges. The technical agencies in attendance provided inputs on their inputs of relevance to the nutrient challenge; these included work by NOAA and special initiatives such as the GEF-REPCar Project, work on best

management practices to reduce livestock pollution and policy processes through demonstration such as the Northwest Coastal Water Quality Demonstration Project in Saint Lucia.

The meeting split into breakout sessions to consider the areas of focus for the Caribbean Platform and the main elements of a mid-term workplan. The main recommendations included:

- Seek endorsement of the Regional Platform, supported by regional technical experts on nutrients management as a voluntary mechanism to assist government action
- Define the mandate and operation of the Platform, outlining goals, structure, plans of action and partners of the Platform. The work of the Platform should be organized around thematic groups (e.g. agriculture; ports and shipping; tourism; mining; solid waste management, etc.) comprising representation from countries.
- Adopt a formalized approach through each respective government - build on existing linkages via the LBS Protocol (Cartagena Convention)
- Identify resources (financial and human) to carry out work programme
- Set up an administrative body / Secretariat for purposes of communicating and coordinating, whereas it was recommended that UNEP/CAR serve as the Secretariat.

***Refer to presentation in Annex 3.3.***

### **Discussion:**

Following the 2013 launch meeting a number of governments received the meeting report. At that time UNEP Car/RCU requested that countries nominate focal points for the Caribbean Platform. However there remained some uncertainty over the points of contact and the process was never fully completed. This has led to some slip in securing commitment from governments. This process needs to be revisited.

Industrial sources of nutrients does not seem to feature prominently. This needs to be addressed; the fertilizer manufacturing and supply sector needs to be brought in.

The effectiveness of regional monitoring systems to support any interventions in nutrient management and wider pollution assessment should be considered. The State of Convention Area Report (SOCAR) is the mechanism for undertaking this type of evaluation. The CLME Project is seeking to develop similar capabilities to contribute to and strengthen assessment efforts. Sustainability in assessments will rely on the partnership networks.

It must be recognized that monitoring still remains a challenge. Many countries do not publicly release environmental data particularly on the status of coastal waters due to perceived potential back-lash from the hospitality sector. There have been many attempts to make the policy shift primarily through environmental health departments in the interest of making investments in pollution control, however the success of such efforts have been marginal. There needs to be greater emphasis placed on the use of strategic economic entry points to drive policy; again this calls for the need to engage the private sector and seek out constructive ways to maintain engagement.

## National overviews on relevant emerging issues, impacts, response measures, governance frameworks and challenges

Country delegates

### Antigua & Barbuda

Laël Bretide-Josiah, Antigua & Barbuda Fisheries Division Laboratory



The main issues for the country is discharge of untreated domestic wastes into waterways and eventual entry to the coastal environment. Agricultural runoff is also an issue. Many of the hotels use wastewater treatment plants but in many cases they do not work effectively and there is inconsistent treatment. There are also problems with unregulated disposals from yachts and cruise ships in nearshore waters.

The 2015 Environmental Protection and Management Act is a key legal instrument that concerns land-based pollution. It adopts a sustainable island development approach and incorporates the LBS Protocol. The implementation of the law is overseen by a technical advisory group drawn from the key regulatory agencies in the country. There are challenges related to monitoring methods particularly related to nutrient loading in sea water. Other issues include limited public awareness, the need for continual lab capacity strengthening and consistency of surveillance efforts. These areas are where the country needs support from regional agencies and within the framework of the Caribbean Platform.

**Refer to presentation in Annex 3.4.**

### Colombia

Luisa Fernanda Espinosa - INVEMAR



There is a National Network for Inter-Institutional Cooperation (REDCAM) that is based on a group of regional environmental authorities throughout the country. These authorities are supported by research centres and institutes. INVEMAR serves to consolidate information for environmental status assessment of the marine environment. The main objective of REDCAM is water quality assessment of the coastal and marine environments of the country. Under REDCAM some 236 stations on the Caribbean coast, including estuaries, marshes, beaches, lower basin rivers generate monitoring data. Parameters assessed include ammonium, nitrates, nitrites and phosphates.

In general the highest concentrations of nutrients are recorded during the rainy season. Higher concentrations are recorded in the stations located in the principal coastal cities (Santa Marta,

Barranquilla and Cartagena), due to domestic waste water discharges. Nutrient concentrations have remained within similar ranges between the period 2001 to 2016, explained by the fact that the country has a low coverage of sewerage. There have been improvements in the coastal areas of Cartagena, Santa Marta and San Andres where marine outfalls were installed.

**Refer to presentation in Annex 3.5.**

## Costa Rica

*Leonardo Cascante, Departamento de Desarrollo Hídrico*

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The issues of concern for the country is climate change, the pressures to increase food production in relation to managing crops diseases and realizing effective coordination among institutions. A monitoring system for surface water bodies and aquifers and digital database has been put in place. There has been investment in the creation of a legal framework to address pollution, along with initiatives to raise awareness on climate change and wastewater management.

The Water Act (1942) is the main instrument that has support regulations on the operation of wastewater treatment plants, effluent disposal and reuse, along with economic instruments governing wastewater discharge to water bodies. A key challenge is that the New Water Act and LBS Protocol has to be approved by legislators. There needs to be the creation of national regulations on non-point sources of pollution and emerging pollutants. Assistance is required mainly in the areas of capacity building on best practices for nutrient management, raising awareness on the problems and in the implementation of technical regulations.

**Refer to presentation in Annex 3.6.**

## Dominican Republic

*Antony De Oleo - Analista de Gestión Ambiental*

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The national circumstances in the country remain similar to what which was reported in the 2013 meeting. There still remain problems with lab capacity for monitoring and there is not enough coverage to provide adequate assessment of nutrient loading into the marine environment. A key challenge is the fact that there is no national reference laboratory. This presents an issue in terms of certifying private labs; there are between 12 and 15 labs and they should be certified by a single authority so as to be able to gain confidence in data being produced by these labs. Another issue is that wastewater operators typically have no certification and this has implications for the quality of wastewater discharges. There is recognized need for a training centre or centres. In 2004 the environmental agency created a training programme for wastewater operators and work is ongoing to strengthen the programme. There is a national wastewater policy, however it does not include considerations for reuse. This limitation is recognized and recent work has commenced mainly in terms of use for irrigation; there are no specific standards at this time however.

## Haiti

*Exil Lucienna - Droit de l'Environnement et Développement*

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There are not enough labs working on pollution monitoring and assessment in the country. There are university and some private labs but without needed capacity in this area. It is desirous to connect with other countries to help build Haiti's national capacities. Work needs to continue on building the information baseline for the country. There also has to be effort invested in raising awareness so as to gain support and effect change.

## Trinidad & Tobago

*Daryl Banjoo - Institute of Marine Affairs*

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Industrial pollution is a big concern for the country; ammonia production and its discharge to the marine environment is an issue particularly in the Gulf of Paria. There are some key legislative and regulatory frameworks of relevance to wastewater/nutrient pollution control and management. These include the Environmental Management Act and associated Certificate of Environmental Clearance Rules and the National Environmental Policy. There is a draft ICZM Policy Framework and support strategies and an action plan. Other important instruments include the Water Pollution Rules under which falls the Specification for the Effluent from Industrial Processes Discharged into the Environment. There is also the Specification for the Liquid Effluent from Domestic Wastewater Treatment Plants into the Environment and the Trade Effluent Standard for Discharge into Public Sewer.

There is need to step-up enforcement of existing laws and regulations (Water Pollution Rules) and the increased implementation of appropriate technologies to deal with untreated toxic waste. Adoption of treatment technologies should be mandatory for industries. The waste discharge permitting system and the polluter-pays framework needs to be improved along with updating the fee structure. Addressing the issue is compounded by a fragmented approach to industrial wastewater management.

The main challenges faced by the country are due to the relatively low percentage of proper sewerage treatment coverage, the typical malfunctioning of a majority of sewerage treatment plants, combined with poor maintenance, discharge of untreated industrial effluents into public sewers, along with poor agricultural practices that result in nutrient runoff and land degradation. All this is the result of weak policies, with limited enforcement and low levels of information and awareness.

***Refer to presentation in Annex 3.7.***



## Discussion:

It seems that the recommendations for minimizing industrial discharges have been generally ignored by operators within the Point Lisas industrial complex. However many companies have obtained ISO certification and making necessary changes.

In the Dominican Republic although there are significant problems with agriculture and pollution, progress is being made. The agriculture department has been offering assistance in addressing wastewater discharges whereby producers are being encouraged to use treatment lagoons and recycling manure to augment nutrient return to crops.

At the regional level UNEP Car/RCU has been active in promoting initiatives such as SOCAR so as to mobilize resources for lab capacity strengthening to enable reporting. On UNEP Car/RCU's website there is a searchable database on lab capacities for countries in the region. Additional countries have been expressing interest in participating in the CREW2 Project with the opportunity to help build laboratory capacity.

Not much mention was made of the recreational yachting sector; this should be taken into account. The IMO has done work on pollution from vessels but in the main has to be translated to local implementation. In the British Virgin Islands some relevant practices have been adopted. In the case of yachts there is a loophole in respect to provisions under MARPOL as these types of vessels generally fall outside these provisions. This can also be a sensitive issue in the tourism and hospitality sector in terms of enforcing compliance. It was noted that the Caribbean is rather fragmented in approaches to deal with the issue; there needs to be unity in policy.

## Relevant Regional Level Initiatives

### Overview of work of regional partners

#### Inter-American Institute for Co-Operation on Agriculture (IICA)

*Gregg Rawlins, IICA Trinidad & Tobago*



The agency is focusing on climate change adaptation in the context of improved soil and water management.

## **Caribbean Water And Wastewater Association (CWWA)**

*Patricia Aquing, CWWA Secretariat, Trinidad & Tobago*

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The CWWA is the largest professional association for water, wastewater and waste management in the Caribbean comprising of individual members and those representing water and waste management utility companies, private sector and other professional associations. The organization has been engaged in research, capacity building, technical cooperation, supporting governance arrangements for regional initiatives in water and wastewater management and exchange of expertise and information. The CWWA collaborated jointly with CAWASA in hosting the Caribbean Water Operators Partnership (CariWOP) and is currently in discussions with UNEP GPA Global Wastewater Initiative (GW<sup>2</sup>I) in terms of hosting its Caribbean Platform. The organization has co-organized the High Level Forum of Caribbean Ministers Responsible for Wastewater and makes representation at CARICOM COTED for water, wastewater and waste management. CWWA's flagship event is the Annual Conference that attracts over 400 persons including approximately 60 exhibitors from within and outside the region.

CWWA could offer collaborative opportunities for the work of the GPNM Caribbean Platform in supporting research and studies in wastewater around nutrient management within an established professional forum (such as the Annual Conference), securing political and policy entry points through the High-Level Forum to advance for advocacy on the subject through governments and development partners. The CWWA offers a network of support for work of the Platform through its membership amongst water utilities, individuals and the private sector.

***Refer to presentation in Annex 3.8.***

## **Global Water Partnership-Caribbean (GWP-C)**

*Patricia Shako, Natalie Boodram, GWP-C Secretariat, Trinidad & Tobago*

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GWP-C is a non-governmental organization representing one of thirteen regions of the Global Water Partnership Organization (GWP-O) with the mandate for building capacity and knowledge exchange to support Integrated Water Resources Management (IWRM) in the region. GWP-C's partners include water utilities, government agencies, private sector, NGOs, consultants, youth groups and universities. There are active programmes in regional and national cooperation for IWRM under which include initiatives such as the Water, Climate and Development (WACDEP) Programme, the Rainwater Harvesting (RWH) Programme and the Integrated Urban Wastewater Management (IUWM) Programme. There is a Water Policy, Legislation and Governance Programme that supports countries to develop and implement water policies,



roadmaps, and master plans. GWP-C provide a platform for Ministerial level discussions on IWRM in conjunction with the Caribbean Water and Wastewater Association (CWWA).

**Refer to presentation in Annex 3.9.**

## **Caribbean Large Marine Ecosystem (CLME)**

*Laverne Walker, CLME+ Project Secretariat*

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The CLME Project supports improved management of the living marine resources within the Wider Caribbean Region through an Ecosystem-Based Management (EBM) approach. CLME+ titled “*Catalyzing Implementation of the Strategic Action Programme for the Sustainable Management of shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems*” is the implementation of the 10-year Strategic Action Plan (SAP), an agreed program of interventions which will include policy, legal and institutional reforms, conservation measures and pollution control. The SAP was based on a Transboundary Diagnostic Analysis (TDA) that identified priority transboundary problems that affect the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions including the Brazilian Shelf. One of these priority areas is pollution, of which nutrient loading is of significance. The SAP is to target investments to reduce the nutrient loading to the marine environment.

## **Caribbean Public Health Agency (CARPHA)**

*Shermaine Clauzel, CARPHA Environmental Health & Sustainable Development Department, Saint Lucia*

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CARPHA has recently executed a project on defining waste control areas in St Lucia. The project seeks to set out a methodology to designate waste control areas and define management controls regarding the disposal of liquid and solid waste based on sensitivity criteria. The project will build on a long series of pollution control initiatives the agency has undertaken that will be of high relevance to nutrient loading and pollution of coastal waters. CARPHA (then the Caribbean Environmental Health Institute) was a co-executing agency along with UNEP Car/RCU in the execution of the GEF-Integrating Watershed and Coastal Areas Management (IWCAM) Project. There was significant work undertaken across participating Caribbean countries in assessment and monitoring of pollution, building of capacities including laboratory capabilities and strengthening policy support. CARPHA will be engaged with the IWCAM successor project, the GEF-IWEco Project and anticipates continued support through this engagement to the work of the Caribbean nutrient platform.

## Food and Agriculture Organization (FAO)

*Lystra Fletcher-Paul, FAO, Trinidad & Tobago*

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The FAO's mandate is achieving food security for all by ensuring people have regular access to enough high-quality food to lead active, healthy lives. The FAO facilitates information and knowledge sharing, provides policy advice, technical assistance and expertise, supports countries in preventing and mitigating risks and provides a neutral forum to facilitate dialogue in development of the agriculture sector. In terms of relevance to the regional platform on nutrient management, Strategic Objectives (SO) 2 and 4 are closely aligned. SO-2 seeks to increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner. In this regard focus is on principles of sustainable land management, integrated plant nutrition management, water management (and water information systems) and pollution reduction. SO-4 focuses on enabling inclusive and efficient agricultural and food systems; this entails strengthened value chains and enhanced food safety. A related relevant area of FAO's programme in the Caribbean includes sustainable crop intensification. The FAO is an executing partner of the CLME+ Project where there is a strong component related to nutrient load pollution.

**Refer to presentation in Annex 3.10.**

## Proposed workplan for the regional platform

*Dr. Christopher Cox, UNEP*

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A draft operational plan (for a 2-year short-term timeframe) for the platform was prepared by the GPNM Secretariat based on the first meeting of the platform in 2013 in Trinidad & Tobago. This was contained on Page 9 in the Draft Proposal for the Operationalization of a Caribbean Platform for Nutrient Management (CPNM).

The activity areas proposed by the participants (from the 2013 meeting) were reformulated under the four broad work areas of the GPNM so as to achieve consistency with the platforms being shaped and to be shaped in other regions.

The draft workplan comprises of the following main activities:

- Solicit official national buy-in and commitment
- Designation of the CPNM Secretariat
- Formal constitution of the Platform
- Convene first working meeting of the Platform
- Formulate national chapters/steering committees
- Awareness-raising at the national level
- National work planning

- Define national plan of action. Take stock of allied interventions seek out opportunities for new initiatives
- Meeting of regional science agencies to internalize work agenda; coordinate efforts
- Project formulation and resource mobilization for national and regional-level actions
- Develop first programme of work
- Review of First Programme of Work and preparation of Second Programme of Work
- Meeting of Platform - review second programme of work
- Participation of Platform at the GPNM steering committee meeting
- Participation of Platform at the Inter-Governmental meeting of the Cartagena Convention
- Participation and the annual general meetings of relevant regional fora
- Contribution to a web presence within the GPNM web portal

This meeting was invited to comment on the elements of the draft with a view to discuss in the Day 2 deliberations. Emerging issues should be considered in the discussions that could be picked up in rolling out activities of the platform.

***Refer to presentation in Annex 3.11.***

## **Discussion:**

In the launch meeting of the Platform in 2013, the question of representation on the regional platform was raised but this process was never formalized subsequently. The meeting leaned toward UNEP Car/RCU taking up this role but recognizing the multi-stakeholder nature of the issue it would have been useful to have engaged other entities that could assist with the work of the platform. An immediate question that has to be addressed is how the GPNM platform can meet needs at the national level; what services can it provide to stakeholders.

The issue of sargassum proliferation as related to wider geographic scale nutrient loading into the Atlantic could be one of the 'unifying' agendas that the GPNM platform could contribute toward in terms of bringing partners from global regions together such as from the Amazon and Congo river basins. This can complement existing efforts being carried out in the region. The Regional Activity Centre for Biodiversity based on Guadeloupe has already established a sargassum network and is collaborating with other centers in the Caribbean such as UWI-CERMES. A great deal of science has been generated on the subject but there is a sense that the knowledge and profile on the issue may not be getting out at the global level. The Caribbean Large Marine Ecosystem SAP Implementation Project (CLME+) intended to widen the geographic scope to include Brazil which will be helpful in consideration of the issues around nutrient loading from the Amazon and relation to the sargassum among other issues.

It is important to develop and implement a good communications strategy to help foster buy-in among external stakeholders to assist their understanding of the relationships associated with the nutrient cycle, consequences and impacts and roles in addressing the nutrient challenge.

## DAY 2

### Reflections on Day 1:

The issue of not being able to publish data particularly on coastal water quality in the public domain constitutes an impediment to driving action to address source issues that impact on water quality. The approach in Colombia in making such monitoring data publicly available was noted and should perhaps be a model that can be aspired to. In Colombia it is policy enshrined in law that all research and resultant monitoring data that is funded from public funds must be made available for public access and scrutiny. Jamaica also has a freedom of information policy that can facilitate reporting on environmental quality status in the public domain.

In many Caribbean countries laboratory capacities remain a major concern; this compromises the ability to do routine state of environment assessments and reporting, which then presents challenges to lend to evidence (indicator) based decision making.

Within the context of the Wider Caribbean under the Cartagena Convention and the LBS Protocol there is a legal obligation by signatory parties to report under the State of the Convention Area Report (SOCAR) mechanism and countries have been reporting, however it should be considered how does raw reported data gets packaged and transformed appropriately, so that it is objective and meaningful to decision making. In light of the sensitivities of data publication in the public domain, discussions continue within the Cartagena Convention framework as to how to package information in a way so as to not to cause undue alarm and that it is effective in supporting decision making.

The matter of data and information access is one that needs to be brought to high-level policy makers and ministers. The issue needs to be contextualized in terms of the actual and potential social and economic implications of doing nothing where data is not used to drive decision making.

There are opportunities to build on the reach of the GPNM through paying attention to the sargassum issue. The potential economic benefits of washed-up sargassum is being recognized that may turn the problem into market opportunity. The upstream at-source issue with nutrient loading from land-based activities is of clear relevance to the GPNM.

### **Draft Platform Operational Plan proposal**

*Dr. Clement Lewsey, NOS-NOAA*

The aim is to orient the work of the Caribbean platform so that it consistent with Global GPNM work areas. This will also harmonize the work of this platform across other regional platforms.

The four proposed main work areas (that are inter-connected) are:

1. **Knowledge generation:** Create and/or develop regional knowledge-base on policy experiences, identify key national research needs to fill gaps and support the development of targets / indicators.
2. **Extension and technical services:** Facilitate / develop new approaches, projects on sustainable nutrient management, contribute to dissemination of knowledge and experiences to support actions, facilitate exchange of scientific data, methodologies and research applications.
3. **Outreach and advocacy:** Develop networks among members to establish and strengthen communities of practice, Identify, review and compile best practices and disseminate through web and face-to-face meetings/workshops.
4. **Governance, partnership and network development:** Facilitate dialogues for policy reform in support of technological and management innovation to promote nutrient use efficiency, support countries in the development of required legal/regulatory instruments and fiscal incentives to enhance the ability to make and sustain investments in nutrient management and pollution control.

Need to consider the following in shaping the Platform:

- Priority areas for intervention
  - What are the main/emerging issues of interest
- Contribution of the Platform to ongoing/planned national and regional efforts (mainstreaming & synergies)
  - What is the 'value-added'?
  - Identify key relevant initiatives
  - Linkages to existing frameworks and the global SGD agenda
- Building advocacy
  - Core messages to establish relevance and gain buy-in
- Partnership building
  - How to enlist partners; sectors of interest - wastewater, hospitality, agriculture, fisheries
- Lead national government focal point on the GPNM (global level)
  - Desirous to designate a lead government on behalf of Caribbean region; proactive support to drive policy; serve on global GPNM
  - Rotation of platform chairmanship
  - DOES NOT HAVE TO BE GOV'T AGENCY TO CHAIR
- Regional host agency arrangements/expectations
  - Desirous to have a node for Caribbean – to be supported by the GPNM Secretariat
- National representation on Platform national focal point designates, roles/expectations
  - How best can national entities feed into process?
- Non-governmental representation and roles
  - How best can these entities support?
- Inter-agency cooperation mechanisms
  - How to gain synergy among various agendas; effectively uptake best practice and draw on experiences

The meeting was tasked to consider the strategic directions from the first platform meeting, review the draft proposal presented in this meeting, validate activities, reformulate as appropriate and align along the 4 core work areas.

***Refer to presentation in Annex 3.12.***

### **Discussion:**

The most importance consideration is defining clear roles among the actors within the platform. This will need to be established based on what the partners bring to the table and expectations of what the platform is expected to deliver. This must be made clear.

The best approach is to identify and focus on 'quick wins'. There are likely existing opportunities through ongoing initiatives that can be linked to almost immediately and aligned to the work of the GPNM.

The question of identifying the national entry points is important. Given the nature of the agenda which for the Caribbean will be largely within the purview of nutrient loading and pollution of coastal waters it can rest within the responsibility of the LBS Protocol focal points. However it is recognized that the platform will need to include entities that have responsibility for 'up-stream' source control, hence the need for bringing contact points for agriculture and wastewater management. This may necessitate designation of multiple focal points, or arrive at an arrangement where there is an established coordination from the country level so that there is a seamless feed-in to national representation on the platform.

It is advised that in figuring out the administrative configuration of the platform not to get bogged down in institutional issues and making it overly complex. The approach may be to identify two or three issues that are of common relevance to countries and use the appropriate national designate that can exert the relevant influence. The structure of the platform has to 'follow function'.

### **Interactive plenary session:**

The meeting participants were asked to list top three issues of relevance to the nutrient management agenda in the region from their (national and agency) perspective. The results are presented in the following table.

Identified priority areas	GPNM Key Work Areas			
	1. Knowledge generation (assessment and monitoring)	2. Technical services (Best practices – agriculture; wastewater mgmt.)	3. Governance and policy	4. Outreach and advocacy
<b>Countries</b>				
<b>Antigua &amp; Barbuda</b>				
Strengthen lab capacity and train personnel	○			
Train field extension personnel		○		
Develop a communications strategy to raise local awareness				○
Develop a national programme for improved nutrient management			○	
Strengthen national inter-agency cooperation			○	
<b>Colombia (INVEMAR)</b>				
Assist design and develop regional projects to improve knowledge sharing on nutrient management	○			○
Mobilize resources to support work of scientific personnel				
Contribute to ratification of the LBS Protocol			○	
<b>Costa Rica</b>				
Build capacity to implement best practices for nutrient management		○		
Invest in modelling approaches to identify nutrient load hotspots in agricultural areas	○			
Advance LBS Protocol ratification efforts			○	
<b>Dominican Republic</b>				
Strengthen lab capacity to support data capture associated with nutrient loading	○			
Strengthen financing / resource mobilization efforts			○	
Invest in ecosystems restoration		○		
<b>Haiti</b>				
Advance process toward LBS Protocol ratification			○	
Train relevant stakeholders at all levels (farmers to technical government personnel for improving nutrient management)		○		
<b>Trinidad &amp; Tobago (EMA)</b>				
Develop indicator baseline to support state of environment assessments	○			

Identified priority areas	GPNM Key Work Areas			
	1. Knowledge generation (assessment and monitoring)	2. Technical services (Best practices – agriculture; wastewater mgmt.)	3. Governance and policy	4. Outreach and advocacy
Identify experts (regional and international) to inform projects and programmes of relevance to nutrient management		○		
<b>Trinidad &amp; Tobago (IMA)</b>				
Update legislation for pollution reduction			○	
Make available best management practices (e.g. new and emerging technologies)		○		
Invest in demonstration projects for specific target groups (e.g. industrial sector)		○		
<b>Agencies</b>				
<b>CARPHA</b>				
Advance health considerations in nutrient management				○
Invest in economic valuation assessments related to nutrient management	○			
Strengthen partnerships to share best practices			○	
Enhance resource mobilization (linked to economic valuation)			○	
<b>CWWA</b>				
Support advocacy at political and technical levels and enhance stakeholder engagement especially in the tourism sector				○
Improve the research base and sharing of data on water quality	○			
Build capacity and carry out training in relevant areas		○		
Build the links with GPA Global Wastewater Initiative (GW <sup>2</sup> I) in launch of a Caribbean Platform for wastewater			○	
<b>GEF-CLME+ Project</b>				
Support establishment of a baseline on nutrients management	○			
Assist in priority setting and development of a strategic action plan for improved nutrient management and accompanying investment portfolio			○	
Contribute to bridging the science-policy interface	○			
<b>GWP-C</b>				
Contribute to bridging the science-policy interface	○			
Improve the data and information baseline to guide policy decisions	○			



Identified priority areas	GPNM Key Work Areas			
	1. Knowledge generation (assessment and monitoring)	2. Technical services (Best practices – agriculture; wastewater mgmt.)	3. Governance and policy	4. Outreach and advocacy
Improve coordination of resource mobilization and use of resources			○	
Integrate ecosystem valuation related to the impact of wastewater/nutrient loading	○			
<b>IICA</b>				
Build the baseline; identify assessments undertaken, noting impacts and knowledge gaps	○			
Improve knowledge management and enhance sharing experiences; policies and models	○	○		
Sensitize and deepen advocacy to stakeholders in the agricultural sector on the impacts of their activities				○
<b>UNEP Sub-regional Office</b>				
Raising the profile of UNEP's work in nutrient management and other relevant areas			○	
Advance the agency programme of work, UNEP resolutions and their implementation			○	
Mobilize resources for the regional platform			○	
<b>Collective priority areas (from plenary discussion)</b>				
Promote the platform to the general public				○
Develop the communications strategy for the platform				○
Promote appropriate technologies - use of animal and human bio-solids		○		
Promote best practices and alternative options for wastewater use		○		
Strengthen and support ICZM approaches			○	

The following is a clustering of common country priority areas grouped by the GPNM key work areas and the areas of possible support by the agencies based on capabilities aligned to the key work areas **(this was done post-meeting)**

Relative implementation timeframes indicated as follows: ● short-term; ● medium-term; ○ long-term.

Re-ordered (and clustered) priority areas	GPNM Key Work Areas			
	1. Knowledge generation	2. Technical services	3. Governance and policy	4. Outreach and advocacy
<b>Country priority areas</b>				
Strengthen laboratory and human resource capacity for monitoring	○			
Develop indicator baseline to support assessments	●			
Invest in assessment approaches to identify nutrient load hotspots and impacts	○			
Assist design and develop of regional projects to improve knowledge sharing on nutrient management	●			
Build policy and technical capacity to implement best practices		○		
Identify and make available best management practices (e.g. new and emerging technologies; wastewater use, use of animal and human bio-solids)		●		
Identify experts (regional and international) to support work of the platform		●		
Develop projects and seek support for ecosystem affected restoration		●		
Strengthen national inter-agency cooperation mechanisms			○	
Mobilize resources to support national and regional initiatives			●	
Develop national programmes for improved nutrient management			○	
Contribute to ratification of the LBS Protocol			○	
Update/strengthen legislation for pollution reduction			○	
Strengthen and support ICZM approaches			○	
Develop and execute regional and national communications strategies to raise awareness				●
Promote the platform to the general public				●
Develop the communications strategy for the platform				●
<b>Agency contributions (will need to update in consultation with other agencies not present at meeting)</b>				
Invest in economic and ecosystem valuation assessments related to nutrient management; wastewater/nutrient loading	CARPHA; GWP-C			

Re-ordered (and clustered) priority areas	GPNM Key Work Areas			
	1. Knowledge generation	2. Technical services	3. Governance and policy	4. Outreach and advocacy
Improve the research base and sharing of data on water quality to guide policy decisions	CWWA; GWP-C			
Support establishment of a baseline on nutrients management; identify assessments undertaken, noting impacts and knowledge gaps	CLME+; IICA			
Contribute to bridging the science-policy interface	CLME+; GWP-C			
Improve knowledge management and enhance sharing experiences; policies and models	IICA			
Build capacity and carry out training in relevant areas		CWWA		
Strengthen partnerships to share best practices			CARPHA	
Enhance coordination of resource mobilization (linked to economic valuation)			CARPHA; GWP-C	
Build the links with GPA Global Wastewater Initiative (GW <sup>2</sup> I) in launch of a Caribbean Platform for wastewater			CWWA	
Assist in priority setting and development of a strategic action plan for improved nutrient management and accompanying investment portfolio			CLME+	
Raising profile of UNEP's work in nutrient management and other relevant areas			UNEP	
Advance the agency programme of work, UNEP resolutions and their implementation			UNEP	
Mobilize resources for the regional platform			UNEP	
Advance health considerations in nutrient management				CARPHA
Support advocacy at political and technical levels and enhance stakeholder engagement especially in the tourism and agricultural sectors				CWWA; IICA

Based on the foregoing discussions the draft workplan that had been circulated in advance of the meeting was presented and participants commented on the main elements of focus for a short-term (2-year) work programme for the Platform around the priority issues identified. The revised proposal captured general agreement on activities and process, with further post-meeting refinements provided by the GPNM Secretariat. The revised work programme is presented below.

### Short-term (2-year) Work Plan for the Caribbean Platform for Nutrient Management

Activities	Means and approaches	Year One		Year Two		Lead responsibility and core partners
		First half	Second half	First half	Second half	
Solicit official national buy-in and commitment	Via formal report, disseminate workshop reports (from the May 2013 and February 2016) to stakeholders in attendance and directly to corresponding officials agency heads along with proposal for Platform establishment					UNEP CEP
Designation of the CPNM Secretariat	Through direct negotiation with countries gain 'formal' consensus on the designation of UNEP/Caribbean Environment Programme (CEP) as the regional secretariat for the Platform					UNEP CEP; UNEP GPNM Secretariat
Establish the administrative framework	Establish an Executive Committee of the CPNM based on volunteers from engaged countries through solicitation by the UNEP/GPNM Secretariat, supported by UNEP/CEP					UNEP CEP; UNEP GPNM Secretariat
Designate the platform technical and policy support network	Identify experts (regional and international) to support work of the platform					
Convene the first working meeting of the Platform	Develop terms of reference, establish the rules of procedure, set work priorities, objectives and targets, determine final constituency of Platform. This may likely be a virtual meeting (via GoTo Meeting) or perhaps held in conjunction with an existing scheduled event.					CPNM Exec Comm; UNEP CEP; UNEP GPNM Sec
Assemble existing knowledge and make available online	Identify and make available best management practices (e.g. new and emerging technologies; wastewater use, use of animal and human bio-solids). Resources are to be hosted on the GPNM website at <a href="http://www.nutrintchallenge.org">www.nutrintchallenge.org</a> and the CEP website at <a href="http://www.cep.unep.org/">http://www.cep.unep.org/</a> as well as other partners.					CPNM Exec Comm;
Develop the platform communications strategy	Develop a communications strategy for the Platform, based on the global GPNM partnership. Make clear the target audiences (policy makers, private sector in the area of tourism and agriculture, water and wastewater sectors)					CPNM Exec Comm;
Roll-out of awareness-raising activities	Execute initial series of regional and national sensitization events within existing fora/events among the partners agencies based on resources material provided by the GPNM secretariat.					CPNM Exec Comm; CWWA; GWP-C; IICA
Convene meeting of regional science and policy experts to 'internalize' work agenda; coordinate efforts	Convene a face-to-face workshop amongst lead regional agencies and national designates to further validate common areas of work; take stock of progress and relevant initiatives/work programmes (avenues to 'internalize' the work of the platform in agency workplans) and identify gaps that will require further funding.					CPNM Exec Comm; UNEP CEP

Activities	Means and approaches	Year One		Year Two		Lead responsibility and core partners
		First half	Second half	First half	Second half	
	Develop indicative investment proposal/concept note for resource mobilization as outcome from this workshop. This can be programmed through UNEP-AMEP work programme (e.g. SOCAR; projects)					
Project formulation and resource mobilization for national and regional-level actions	Prepare funding proposal(s) (through contracted services) to source funding and submit to prospective donors. This should include resources to contribute to Secretariat support.					CPNM Exec Comm; UNEP CEP; UNEP GPNM Sec.
Review of progress and preparation of Second Programme of Work	Review of 1 <sup>st</sup> PoW with national and regional stakeholders and preparation of 2 <sup>nd</sup> PoW. This will be based on progress within the 1st PoW (possibly through a virtual process)					CPNM Exec Comm
Meeting of Platform - review second programme of work	Meeting of the Platform members to finalize review of the 1 <sup>st</sup> PoW and formally endorse the 2nd PoW. This could be a face-to-face meeting (possibly held within an existing forum to be efficient) or done virtually if funding is limited.					CPNM Exec Comm
Participation of Platform at the GPNM steering committee meeting	Chair/lead of Platform attend the GPNM Steering Committee to report on progress on the 1 <sup>st</sup> PoW and highlight strategic outlook of the 2 <sup>nd</sup> PoW, support requirements and advances made in resource mobilization. This may be virtual or face-to-face depending on resource availability.					UNEP GPNM Sec.; CPNM Exec Comm
Participation of Platform at the technical and policy segments of the Inter-Governmental meeting for the Cartagena Convention	Chair/lead of Platform presents the Caribbean Platform to highlight progress made under the 1 <sup>st</sup> PoW and outlook. The critical emphasis will be on partnership building and strengthening alliances with meeting attendees, seeking out opportunities for resource mobilization and coordinate efforts. This should be at the LBS Protocol Scientific and Technical Advisory Committee (STAC) and/or the Inter-Governmental Meeting.					UNEP CEP; CPNM Exec Comm
Participation and the annual general meetings of relevant regional fora	Chair and/or designates of the Platform participate at meetings of the Caribbean Week of Agriculture, the Caribbean Water and Wastewater Association, the Caribbean Water and Sewage Association, the Caribbean Alliance of Sustainable Tourism. This will be to highlight progress made under the 1 <sup>st</sup> PoW and outlook. The critical emphasis will be on partnership building and strengthening alliances with meeting attendees, seeking out opportunities for resource mobilization and coordinate efforts					CPNM Exec Comm; UNEP CEP; UNEP GPNM Sec.; CWWA; CAWASA; others

Activities	Means and approaches	Year One		Year Two		Lead responsibility and core partners
		First half	Second half	First half	Second half	
Contribute to a web presence within the GPNM web portal	A node on the GPNM web portal 'The Nutrient Challenge' to be established that will host all the relevant public knowledge information about the Platform. Consideration to be given to administration of the content and management of user needs and expectations					CPNM Exec Comm; UNEP CEP; UNEP GPNM Sec

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## **Governance arrangements of the Platform (facilitated discussion)**

*Facilitated by Dr. Greg Crosby, GPNM*

A key question is whether or not the leadership of the platform and the national designates should be exclusively from formal government. It may be considered that this may not be the case as some countries may opt to propose designates who represent based on qualification/interest rather than job assignment in a government institution. It may be advised to leave the choice up to the country but maybe best to get endorsement from an appropriate national agency so at least there is some level of 'national formalization'. It is agreed that it is best to avoid the possibility of representation becoming overly politicized; keep the spirit of a network, yet anchored in some level of national endorsement.

Another question is that of the level of required stakeholder involvement. How wide should representation be? Should this be open-ended? This will have implications in the process of bringing people together and managing the group. These considerations will be related to expectations of what the platform will deliver to the countries in terms of services. Roles can then be appropriately defined that then determines the level of engagement. It is acknowledged that it may be more of a challenge to get private sector involved on the platform unless there is some perceived direct economic benefit. The hospitality sector will have vested interest given the very direct impacts nutrient pollution has on the quality of recreational waters; the case for engagement will still need to be sold to this sector.

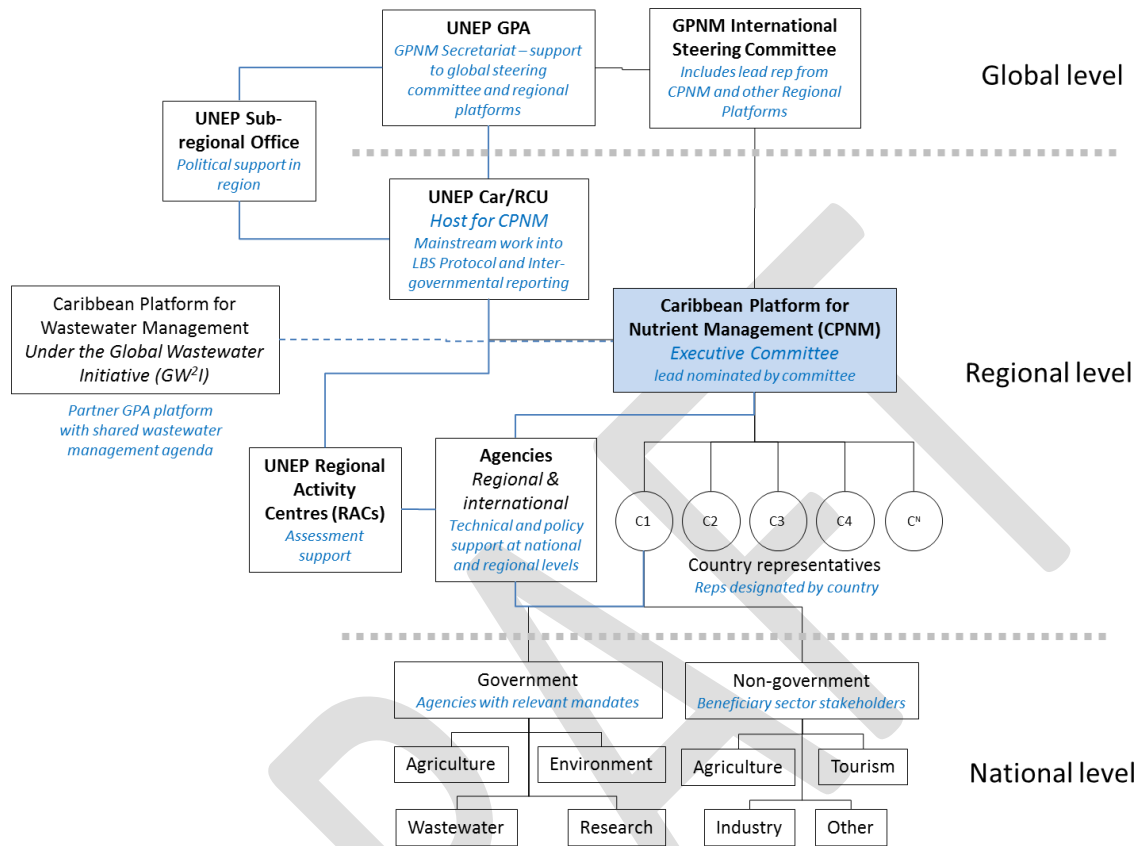
The platform may need a 'champion' country to represent on behalf of countries represented within the GPNM at the global level, for example being represented within the GPNM global steering committee. How to determine the country may be challenging in the absence of a defined procedure. This should be considered. This also leads to the question as to who is accountable for the operation and sustainability of the platform. This will inform what governance structure look like. There may be consideration of the appointment of a Chair and Co-chair arrangement.

The Association of Caribbean States (ACS) is a potential stakeholder that may be considered although recognizing that its mandate may not extend to all the countries in the Wider Caribbean. This should be explored.

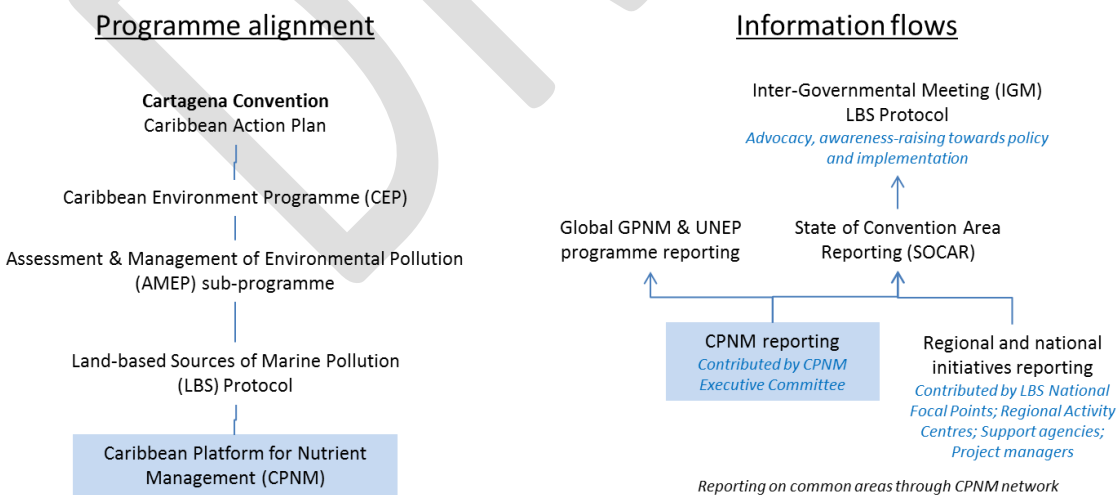
There is agreement that the key role of the platform is to share knowledge. INVEMAR (Colombia) will be keen to work with countries in enhancing the capabilities in improving monitoring regimes and demonstrate how data can be used toward relevant decision making in fostering good practices. It should be noted however that INVEMAR is not a government agency; some discussions will need to be held with the national authority in Colombia to formalize collaboration.

The platform's activities must be rooted in a workplan which should be communicated to governments. The workplan must clearly identify what the platform is intended to do and achieve. Related, the platform must have well-articulated terms of reference. This has to be prepared by the Secretariat.

Participants deliberated in the plenary discussions on the structure and organizational relationships of the platform. The proposed structure and relationships that emerged from the discussions are presented in the two graphics below:



**(A) Proposed organizational relationship of the Caribbean Platform for Nutrient Management**



**(B) Alignment of the Caribbean Platform for Nutrient Management within the Caribbean Environment Programme (Regional Seas) and information flows**



## **Building sustainability of the Platform**

*Facilitated by Christopher Corbin, UNEP CAR/RCU*

Realizing sustainability will require strong private and non-governmental stakeholder engagement and will need to be underpinned by a good communication strategy and execution.

The inter-agency cooperation at the regional level will need to be considered so as to draw on the strengths of the partners, share expertise and seek out synergies within existing initiatives and programmes being undertaken by these regional partners.

An 'executive committee' body is recommended so as to constitute the administrative core of the platform; a group that will drive the platform agenda. Related, consideration has to be given to the mechanism of designating national representation on to the platform. The LBS national focal points should be regarded the front-line entry point, but at the national level it may be likely that other 'more appropriate' nominees with experience on the nutrient management agenda may be favoured. In any case there should be a process where that nominee is 'formally' nominated on to the platform. There will need to be a 'lead' or chair on the platform executive committee. This person will be expected to represent the Caribbean on the global GPNM Steering Committee.

The roles and expectations of partners must be made clear, hence a well-defined terms of reference for the platform is necessary.

It is agreed that UNEP Car/RCU (with responsibility for the Caribbean Environment Programme) play the role of host node for the platform, thereby embedding the platform within the existing governance arrangements under the LBS Protocol and the Caribbean Regional Seas governance mechanism. There must be links made to the wider OECS and CARICOM environmental governance frameworks.

## **Next steps**

*Dr. Christopher Cox, United Nations Environment Programme*

Finalize the meeting report and circulate for consideration and adoption by the countries in attendance. This will also be sent to the other countries in the region and relevant partner agencies including those that attended the first meeting of the Platform in 2013. This will be undertaken by the CEP Secretariat supported by the GPNM Secretariat.

The key areas for consideration out of the meeting will need to be the proposed administrative configuration of the Platform, agreement on designating of the Caribbean Environment Programme Secretariat as the host node for the Platform (and association within the LBS Protocol and governance framework), the appointment of an Executive Committee to lead the process moving forward and the proposed workplan.

The report of the meeting and recommendations should be tabled at the next Scientific and Technical Advisory Committee of the LBS Protocol and the Inter-Governmental Meeting of the Parties to the Cartagena Convention for recognition and adoption.

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**Workshop participants (not all pictured)**

**L-R:** Luisa Espinora, *INVEMAR, Colombia*; Exil Lucienna, *Ministry of Ministry of Environment, Haiti*; Natalie Boodram, *GWP-Caribbean*; Antony De Oleo, *Ministerio de Medio Ambiente y Recursos Naturales, Dominican Republic*; Leonardo Cascante, *Ministerio de Ambiente y Energía, Costa Rica*; Darryl Banjoo, *IMA, Trinidad & Tobago*; Lael Bertide-Josiah, *xxx Antigua & Barbuda*; Alicia Noel, *Ministry of xxx, Trinidad & Tobago*; Xiomara Chin, *EMA, Trinidad & Tobago*; Ambika Ramoutar, *Ministry of xxx, Trinidad & Tobago*; Toylan Arnaud, *IMA, Trinidad & Tobago*; Greg Rawlins, *IICA*; Lorna Inniss, *UNEP Car/RCU*; Greg Crosby, *USDA*; Vincent Sweeney, *UNEP*; Laverne Walker, *Caribbean Large Marine Ecosystem Project*; Shermaine Clauzel, *CARPHA*; Christopher Corbin, *UNEP Car/RCU*; Clement Lewsey, *NOAA*; Patricia Shako, *GWP-Caribbean*; Christopher Cox, *UNEP-GPA*; Patricia Aquing, *CAWASA*

Photos of the meeting are posted on the GPNM Flickr online photo gallery at <https://www.flickr.com/photos/140082532@N06/albums/72157666847744250>

## Annex 1 List of participants

Name	Country	Title	Organization	E-mail
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Annex 2

## Second Regional Planning Meeting of the Caribbean Platform for Nutrient Management

Facilitated by the GEF-Global foundations for reducing nutrient enrichment and oxygen depletion from land based pollution, in support of Global Nutrient Cycle (GEF-GNC) Project

**February 24-25, 2016**

**Venue – Hilton Hotel, Port of Spain, Trinidad & Tobago**

### Agenda

**Objectives:**

- To understand the current priorities in respect to nutrient management in the region
- To agree on a plan of action for the operationalization of the Caribbean Platform for Nutrient Management
- To agree on mechanisms for mainstreaming and building sustainability for the Platform into existing frameworks
- To identify immediate opportunities from ongoing or planned projects to support nutrient related activities in the region

Time	Session	Detail	Lead Resource person(s)
<b>DAY 1: 24<sup>th</sup> February, 2016</b>			
8:30 -9:00	Registration		• UNEP Secretariat
9:00 - 9:20	Opening remarks	Welcome by the Institute of Marine Affairs (IMA), the Global Partnership on Nutrient Management (GPNM), the United Nations Environment (UNEP) and the Ministry of Planning and Development, with very brief perspectives on the issues of interest.	<ul style="list-style-type: none"> <li>• Toylan Arneaud, Director (Ag.) IMA, Trinidad &amp; Tobago</li> <li>• Dr. Lorna Inniss, Coordinator, UNEP Car/RCU</li> <li>• Vincent Sweeney, Head, Caribbean Sub-Regional Office</li> <li>• Dr. Greg Crosby, Chair, GPNM</li> </ul>
9:20 - 9:30	Participant introduction		
9:30 – 9:40	Workshop Objectives and expectations	Outline of the agenda, the workshop objectives and the learning objectives.	Dr. Christopher Cox, UNEP-GPA and GPNM Secretariat
9:40 – 10:00	UNEP’s GPA, the Global Partnership on Nutrient Management (GPNM) and relationship with the Caribbean Regional Seas Programme	Overview of the GPNM and relationship within UNEP’s Global Programme of Action for Protection of the Marine Environment	Dr. Greg Crosby, GPNM Chair Dr. Christopher Cox, UNEP-GPA and GPNM Secretariat
		Contextual relationship of the GPNM within the Caribbean regional Seas Programme with emphasis on the Land-based Sources of Marine Pollution Protocol and the development of the first State of Convention Area Report (SOCAR)	Chris Corbin, Programme Officer, UNEP
10:00 – 10:15	<b>BREAK</b>		
10:15 – 10:45	Overview of status of the Caribbean Platform	Recap of the lead-up to the establishment of the Caribbean Nutrient Platform, expectations and recommendations from the inaugural meeting of 2013	Dr. Clement Lewsey, NOS-NOAA
10:45 – 12:30	The national context and issues relating to nutrient management	Brief overviews on (i) relevant emerging issues/impacts, (ii) response measures and (iii) existing national governance frameworks and gaps/challenges where assistance is required <i>Presentations must be no longer than 10 minutes per country</i>	Country representatives
12:30 – 1:30	<b>LUNCH</b>		
1:30 - 2:30	National perspectives on nutrient management and emergent issues	Brief agency perspectives on ongoing support work at regional and national levels to address challenges with focus on wastewater nutrient recovery, nutrient use efficiency in agriculture and runoff management, advocacy for pollution control, sectoral responses to nutrient challenge.	Attending agencies

Time	Session	Detail	Lead Resource person(s)
		<i>Presentations must be no longer than 10 minutes per agency</i>	
2:30 – 2:45	<b>BREAK</b>		
2:45 – 4:30	Proposed workplan for the regional platform	Presentation of the draft Operational Plan for the Caribbean Platform – developed based on recommendations from 2013 inaugural meeting	Dr. Clement Lewsey, NOS-NOAA

<b>DAY 2: 25<sup>th</sup> February 2016</b>			
9:00 – 9:10	Recap of Day 1		Dr. Christopher Cox, UNEP-GPA
9:10 – 10:00	Reflections on the draft Platform Operational Plan proposal	Facilitated discussion on the elements of the proposal in consideration of: <ul style="list-style-type: none"> <li>• priority areas based on emerging issues,</li> <li>• linkages to existing frameworks and the global SGD agenda</li> <li>• operational structure of the Platform,</li> <li>• contribution of the Platform ongoing and planned national efforts (mainstreaming),</li> <li>• contribution to regional advocacy strategies to ensure broad based buy-in from diverse stakeholders</li> <li>• partnership building</li> </ul>	Facilitated by Dr. Clement Lewsey
10:00 – 10:20	<b>BREAK</b>		
10:20 – 12:30	Governance arrangements of the Platform	Facilitated discussion on platform governance <ul style="list-style-type: none"> <li>• Lead national government to focal point on the GPNM (global level)</li> <li>• Regional host agency arrangements/ expectations</li> <li>• National representation on Platform national focal point designates, roles/expectations</li> <li>• Non-governmental representation and roles</li> <li>• Inter-agency cooperation mechanisms</li> <li>• Succession of platform chairmanship</li> </ul>	Facilitated by Dr. Greg Crosby, GPNM
12:30 – 1:30	<b>LUNCH</b>		
1:30 – 3:00	Building sustainability of the Platform	Discussion on recommendations on <ul style="list-style-type: none"> <li>• Resource mobilization - international and regional-level funding</li> <li>• Establishing relationship within the Caribbean Regional Seas governance mechanism(s)</li> <li>• Establishing relationship within the wider OECS and CARICOM environmental governance frameworks</li> <li>• Private and non-governmental stakeholder engagement</li> <li>• Building a communications and outreach strategy that enhances communications both within the platform and with external audiences</li> </ul>	Facilitated by Christopher Corbin, UNEP Car/RCU
3:00 – 3:45	<b>BREAK</b>		
3:45 – 4:30	Next steps	Summary of core recommendations and next steps with focus on upcoming activities/programmes that might support of the work of the GPNM Platform or related regional issues could be highlighted	Dr. Christopher Cox, UNEP-GPA

**Annex 3      Presentations**

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