



## Global Partnership on Nutrient Management (GPNM)

### Progress report – December 2014

#### Preamble

The Global Partnership on Nutrient Management (GPNM)<sup>1</sup> is a multi-stakeholder partnership comprising of governments, the private sector, the scientific community, civil society organizations and UN agencies<sup>2</sup> committed to promote effective nutrient management, in order to achieve the twin goals of food security through increased productivity and conservation of natural resources and the environment.

The GPNM aims to steer dialogue and actions by various stakeholders to reduce nutrient losses and improve overall nutrient use efficiency in all sectors, and to provide the foundation for a greener economy, in order to produce more food and energy while reducing environmental pollution. The GPNM facilitates exchange of information and good practice with a view to assisting the delivery of knowledge based remedial action and training, in order to help countries engage actively in identifying and implementing cost effective and workable solutions (see [www.unep.org/gpa](http://www.unep.org/gpa)).

The GPNM recognizes the need for strategic global advocacy to foster dialogues among governments and other key stakeholders in order to trigger actions towards lower nitrogen and phosphorous inputs to human activities. It provides a platform to forge a common agenda, mainstreaming best practices and integrated assessments, so that policy making and investments are effectively 'nutrient proofed'. The GPNM also provides a space/platform, including through its electronic platform, where

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<sup>1</sup> The GPNM was launched during the 17<sup>th</sup> session of the United Nations Commission on Sustainable Development at the UN Headquarter in New York, USA in May 2009.

<sup>2</sup> GPNM members include: the Governments of the Netherlands, USA, Italy, Indonesia, India, and Thailand; Natural Environment Research Council, Centre for Ecology and Hydrology, Edinburgh UK; the European Commission; the Task Force on Reactive Nitrogen under the Convention on Long Range Trans-boundary Air Pollution of the UNECE; the South Asia Cooperative Environment Programme (SACEP); the UK-China Sustainable Agriculture Innovation Network (SAIN); private sector institutions such as the International Fertilizer Industry Association (IFA), International Plan Nutrition Institute (IPNI), World Phosphate Institute (IMPHOS), and Nagarjuna Fertilizers & Chemicals Ltd, India; UNESCO's Intergovernmental Oceanographic Commission (IOC/UNESCO), United Nations Food and Agriculture Organisation (FAO), UN-Habitat, the International Atomic Energy Agency's Marine Environment Laboratories (IAEA/MEL), and the United Nations Development Programme (UNDP); academic, research and international public institutions such as the International Nitrogen Initiative (INI), the International Geosphere-Biosphere Programme (IGBP), the Scientific Committee on Problems of the Environment (SCOPE), the International Fertilizer Development Centre (IFDC), The Netherlands Energy Research Centre, the Netherlands Environmental Assessment Agency, the Department of Earth Sciences and Geochemistry - Faculty of Geosciences at Utrecht University, Vrije University - Amsterdam, the Institute of Oceans Management - India, National Centre for Sustainable Coastal Management - India, the Indian Nitrogen Group, China Agricultural University, and the Department of Marine Science at Chulalongkorn University - Thailand; Nutrient Platform Netherlands; Global TraPs; University of Peradeniya - Sri Lanka, Cyprus University of Technology; civil society organizations such as The Nature Conservancy, the Society for Conservation of Nature - India, the Global Environment and Technology Foundation, Water Stewardship Inc.; and regional bodies and projects such as Bay of Bengal Large Marine Ecosystem Project (BOBLME), and Partnerships in Environmental Management for the Seas of East Asia (PEMSEA).

countries and other stakeholders can meet and initiate dialogues to forge more co-operative work across the variety of international and regional fora and agencies dealing with nutrients.

It is important to reiterate that the GPNM, as a partnership of stakeholders, is not a substitute for governments' action, but a platform to:

- raise awareness among relevant stakeholders about the nutrient challenge and possibilities to improve nutrient management practices
- provide access to better information, best practices, training and other capacity building tools, through a web based platform and face-to-face meetings/workshops
- facilitate dialogues for policy reform in support of technological and management innovation in order to promote nutrient use efficiency
- facilitate and design cost-effective, on-the-ground interventions reflecting interests of the partners
- foster and strengthen integrated assessment and analysis to generate new knowledge, and
- provide a place for nutrient stakeholders to network and build common interests

A broad summary of the status is as follows:

- o **The Global Partnership on Nutrient Management (GPNM) is fully operational. The GPNM is guided by a Steering Committee and UNEP acts as the Secretariat.**
- o **The Steering Committee meets regularly, reviews progress and provides guidance to the Secretariat.**
- o **The GPNM was endorsed by governments through the Manila Declaration, adopted during the GPA Third Intergovernmental Review (IGR-3) meeting in January 2012.**
- o **The GPNM is now a key deliverable under the UNEP Programme of Work for 2014-2015, which was endorsed by the 27th Governing Council of UNEP.**
- o **The GPNM has launched its Regional Platforms in Asia and the Caribbean.**
- o **GPNM members have volunteered to establish a number of Task Teams and the Teams are working on several critical issues pertaining to supporting governments and other stakeholders to develop policies and strategies to improve nutrient use efficiency. The Task Teams are specifically working on policy issues; Toolbox development for investment decisions; defining nutrient use efficiency concept, indicators and target; and mobilization of support for the GPNM. The Task Teams are led by either Governments or industry.**

Further details are provided below and in complementary documentation.

### **GPNM Secretariat**

The GPNM Secretariat remains housed within the Headquarters of UNEP, as part of the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA) Coordination Office. One Programme Officer had primary responsibility for managing the Secretariat, on behalf of the GPA. As of May 1, 2014, that Programme Officer (Dr. Anjan Datta) retired from UNEP and a replacement has only joined UNEP on December 1, 2014. During the intervening period, the Secretariat was managed by the GPA Coordinator, Vincent Sweeney, ably assisted by the GPNM Chair. Additional support was provided by the Centre for Ecology & Hydrology, another GPNM partner.

### **GPNM Governance**

The Partners, during the launch of the GPNM in May 2009 requested UNEP to act as the Secretariat. In a follow-up meeting in The Hague (October 2009), hosted by the Government of the Netherlands,

there was considerable discussion on the nature of the Partnership, and the meeting recognized the need for some form of management structure to steer the process forward. It was recognized that the Partnership needed to move forward incrementally and in a focused way, given the breadth and depth of nutrient issues, and that it would be important to recognize and complement the various roles of UN agencies, industry, the science community and international organizations. In view of this, an international Steering Committee was formed to give structure and provide strategic guidance to the GPNM.

Originally, the Chair was the Government of the Netherlands, represented by Mr. Kaj Sanders, Senior Policy Advisor, Ministry of Infrastructure and Environment. He was subsequently replaced by the current Chair, Dr. Greg Crosby, Director Sustainable Development, US Department of Agriculture. Members included:

- Government of the United States of America (represented by Dr. Greg Crosby, Director US Department of Agriculture)
- The UK-China Sustainable Agriculture Innovation Network – SAIN (represented by Dr. Yue Lai Lu, Head of the SAIN secretariat)
- International Nitrogen Initiative (represented by the Chair or her/his representative)
- UN-Habitat (represented by Mr. Bert Diphooorn, Division Director)
- China Agricultural University, Beijing (represented by Prof. Fusuo Zhang)
- Indian Nitrogen Group (represented by Dr. N. Raghuram, Secretary of ING)

The GPNM membership however decided, based on the growth of the GPNM, and more recent mandates, to reconstitute the Steering Committee, with representation of the following stakeholders:

Chair (1): Government of the USA

Members (12):

- Government (3): The Netherlands, India and the Philippines
- Science (4): International Nitrogen Initiative; China Agricultural University, Beijing; Global TraPs; & UK-SAIN
- Industry (1): International Plant Nutrition Institute<sup>3</sup> (IPNI), International Fertilizer Industry Association (IFA)
- Public International organization/Civil Society Organization (2): International Fertilizer Development Centre (IFDC); Indian Nitrogen Group/Society for Conservation of Nature
- UN agencies (2): UNDP, FAO

The current Steering Committee however allows for wider representation, when considered necessary including Task Teams and project representatives, as observers.

### **GPNM - activities and programmes**

GPNM initially focused its attention on areas such as awareness raising, consensus building, synthesizing existing information and identifying gaps with a view to strengthened assessment in

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<sup>3</sup> To ensure science inputs from industry, IPNI was included

certain regions (e.g., Africa) and supporting stakeholders through extension and interventions as appropriate.

In the last year, or more recent times, GPNM has undertaken the following activities:

***Participation in various global, regional and national meetings  
to raise awareness and mobilize actions***

The Secretariat and partners of GPNM organized and participated in many events at global, regional and national levels as a strategy of outreach, advocacy and consensus building. For example:

- The Fifth International Nutrient Management Symposium and the First International Conference of the “Global Transdisciplinary Processes for Sustainable Phosphorus Management (Global TraPs)” in Beijing;
- The 6th International Nitrogen Conference (N-2013);
- The Kansas City conference (which resulted in the Kansas City Consensus) on nutrient management, August 2013;
- Day long special event on Nutrient Challenge during the GLOC-II with wider participation of Governments, OECD, CBD Secretariat, Industry, Academia and NGOs;
- IFA’s 82<sup>nd</sup> Annual Conference in Sydney, Australia, May 2014;
- Side Event on Nutrient Management during the First United Nations Environment Assembly, June 2014; and
- Bi-lateral with UNEP Director and IFA, during First UNEA, Nairobi.

These contributed in securing commitments from partners to GPNM and its activities and in several cases influencing the global/regional agenda setting (as noted below). Dr. Fusuo Zhang, of the China Agriculture University and a member of GPNM is currently looking at how to integrate a collaborative, worldwide approach to phosphorus sustainability. This was mentioned at the Sustainable Phosphorus Summit (SPS) 2014 in Montpellier, France. An objective could be to integrate this into UNEP’s current mission to define a 2050 Sustainable Development Plan, including -30% objectives and definition of indicators. He suggested that work on phosphorus could build on the experience and data of the International Nitrogen Initiative (INI).

***Facilitation of GPNM regional platforms***

Following the GPNM Asia Platform meeting in 2011, a GPNM Caribbean Platform was launched in May 2013, at a workshop hosted by the Secretariat of Cartagena Convention, UNEP Caribbean Environment Programme, Regional Coordinating Unit. The Caribbean platform now provides a regional forum for member countries to share information on their level of awareness of nutrients management, their strategies to address surplus/excess nutrients run-off at the national level and to provide recommendations to promote effective sustainable nutrient management across the region. The establishment of the Caribbean Regional Partnership on Nutrient Management entails setting up a type of administrative body or Secretariat or an institutional home for the purpose of communicating and coordinating the efforts, time and activities of all stakeholders. The Secretariat of UNEP/CAR was recommended to coordinate and spearhead all activities in that region. This model may be useful to consider in other regions as well.

***Publication of resource material***

The GPNM successfully *mainstreamed global knowledge of nutrient management policies, practices and their impacts on water quality, soil health and human wellbeing* through publication of the “Our Nutrient World” report during the 27th session of the UNEP Governing Council in February 2013. This report was prepared in partnership with the International Nitrogen Initiative. It resulted in:

- o Enhanced public awareness and stimulated debates and calls for actions re. Nutrients – which turned into public discourse a subject which had mainly been a scientific discussion. Nearly 300 articles were published worldwide and this report was one of the most viewed articles of the Independent newspaper (UK) for 3 days, and for the Guardian newspaper (UK) it was one of the most shared and commented news items, with a record of 240 comments and 12,767 shares through Facebook.
- o Several articles being published in scientific journals including *Nature*, *Environmental Development*; and the G8 UK Summit Publication of June 2013.
- o *Our Nutrient World* being used by many agencies in formulating and /or influencing discussion on the post-2015 SDGs targets. For example, the Sustainable Development Solutions Network (SDSN) in its publication *Solutions for Sustainable Agriculture and Food Systems*, Technical report for the post-2015 Development Agenda (September 2013) used ONW data and analyses.
- o ONW data and conclusions being used by David Griggs and colleagues in their article “Sustainable Development Goals for People and Planet” published in *Nature* 21 March 2013, vol. 495.

More recently, **the issue of nutrients was featured as the first emerging issue in the UNEP 2014 Yearbook** (see [http://www.unep.org/yearbook/2014/PDF/UNEP\\_YearBook\\_2014.pdf](http://www.unep.org/yearbook/2014/PDF/UNEP_YearBook_2014.pdf)). Specific reference to the GPNM is made on page 9 of that document. The Yearbook also speaks to:

- Excess Nitrogen in the Environment
- Changes in the global nitrogen cycle
- Increased coastal dead zones and climate change impacts
- What is being done to reduce excess nitrogen releases; and
- Towards integrated nitrogen management

The inclusion of nutrient management in the most significant UNEP publication is considered a clear signal that it is being recognized globally as an issue warranting attention.

### ***Outreach***

The GPA engaged a full-time Communications Consultant to support the Secretariat in its outreach activities. Among the work completed includes preparation of a **draft Communications Strategy for the GPNM**. A revised website for the GPA (see [www.unep.org/gpa](http://www.unep.org/gpa)), which includes a new GPNM page has also been brought online. Key facts that help to illustrate the challenge, and explain about GPNM and its role in addressing the nutrient challenges are provided. Information and documents are being uploaded on nutrient management and the Secretariat has been actively tweeting and raising awareness through preparation of articles on topical issues, such as the toxic algal blooms in Ohio last summer and impacts of eutrophication on tumors in turtles (see <http://unep.org/gpa/gpnm/Activities.asp> ). The Algal Bloom article was also published on [www.unep.org](http://www.unep.org) as a 'Guest Editorial' in August 2014. The GPNM Fact Sheet has been updated and options for a revised logo for GPNM have been prepared. A *Nutrient Runoff* video, produced in collaboration with UNEP's Regional Office for North America, and featuring syndicated cartoonist, Jim Toomey, won First place for animation at the BLUE Ocean Film Festival awards in November (see

[http://www.blueoceanfilmfestival.org/www.blueoceanfilmfestival.org/2014\\_film\\_finalist\\_3.htm](http://www.blueoceanfilmfestival.org/www.blueoceanfilmfestival.org/2014_film_finalist_3.htm) ).  
The video can be seen at [www.unep.org/gpa](http://www.unep.org/gpa)

The GPNM also generated high-level endorsement from the Government of Trinidad & Tobago and other member States of the Caribbean Environment Programme to promote sustainable nutrient management through its launch of a Caribbean platform (mentioned previously).

### ***GPNM mainstreamed in the UNEP Programme of Work***

The GPNM has now been totally embedded in the work programme of UNEP. In the 2014-2015 UNEP Programme of Work, approved by the 27<sup>th</sup> Session of the Governing Council (February 2013), one of the outputs under Expected Accomplishments of the Chemicals and Waste Sub-programme reads: “actions catalysed through the multi-stakeholder Global Partnership on Nutrient Management to reduce and, where possible, eliminate threats to aquatic environments from land-derived nutrients”. **This development ensures that resources will be programmed by UNEP towards the future work of the GPNM.**

### ***Development of the GEF projects***

The GPNM Secretariat, in collaboration with its partners, continues to implement the UNEP/GEF project entitled “Global foundations for reducing nutrient enrichment and oxygen depletion from land based pollution, in support of Global Nutrient Cycle (GNC)”. The core objective of the project is “to provide the foundations (including partnerships, information, tools and policy mechanisms) for governments and other stakeholders to initiate comprehensive, effective and sustained programmes addressing nutrient over-enrichment and oxygen depletion from land based pollution of coastal waters in Large Marine Ecosystems”. This approach is applied to the Manila Bay watershed in the Philippines and Chilika Lake in India.

The main project components are:

- the development and application of quantitative modelling approaches: to estimate and map present day contributions of different watershed based nutrient sources to coastal nutrient loading and their effects; to indicate when nutrient over-enrichment problem areas are likely to occur; and to estimate the magnitude of expected effects of further nutrient loading on coastal systems under a range of scenarios
- the systematic analysis of available scientific, technological and policy options for managing nutrient over-enrichment impacts in the coastal zone from key nutrient source sectors such as agriculture, wastewater and aquaculture, and their bringing together an overall Policy Tool Box
- the application of the modelling analysis to assess the likely impact and overall cost effectiveness of the various policy options etc. brought together in the Tool Box, so that resource managers have a means to determine which investments and decisions they can better make in addressing root causes of coastal over-enrichment through nutrient reduction strategies
- the application of this approach in the Manila Bay watershed with a view to helping deliver the key tangible outcome of the project – the development of stakeholder owned, cost-effective and policy relevant nutrient reduction strategies (containing relevant stress reduction and environmental quality indicators), which can be mainstreamed into broader planning
- a fully established global partnership on nutrient management to provide a necessary stimulus and framework for the effective development, replication, up-scaling and sharing of these key outcomes.

Progress on the GNC project is provided in complementary documentation. Highlights include:

- Adapted the “Global News” (Global Nutrient Export from WaterSheds) model to include global sources & impacts
- Developed a “searchable” global tool box of practices & policies, 25 cases studies, synthesis of practices and an online toolkit regarding how to utilize the tools
- Developed an ecosystem health report card to assess nutrient impacts for policy makers and other stakeholders. The Chilika Lake Ecosystem Health Report Card has been endorsed by the government, and in the light of the key conclusions and recommendations, the Chilika Lake Management Plan is now being revised.
- Progressed with the model development for Manila Bay to better understand sources and impacts (i.e., State of the Coasts, Manila Bay Environmental Atlas, Good practices/lessons learned in nutrient management in the agricultural sector in the Manila Bay watershed, etc.)
- Secured commitment from the Laguna de Bay Authority, Government of the Philippines to replicate the Ecosystem Health report Card, and organized the first stakeholders workshop to constitute the task team which will carry out data gathering and analysis for the production of the report card.

Key next steps to help replicate nutrient management best practices and policies include:

- Finalize models in Manila Bay by November 2015
- Hold workshops with pilot regions to share sources and impacts and gather replication strategies
- Integrate models with the global toolbox to link sources to solutions by September 2015
- Hold training in November 2015 during GEF IWC 8 and PEMSEA East Asian Seas Conference

The GPNM Secretariat is working very closely with partners of GPNM in the development of the full Project ***“Targeted Research for improving understanding of the Global Nitrogen Cycle and demonstration of an International Nutrient Management System (INMS)”***, the concept (PIF) of which has already been approved by the GEF Secretariat. For this project GEF will provide a grant of USD 6 million. Additionally, for preparation of the full project, a grant of 150,000 USD has been received from the GEF Secretariat. Through the GPNM network, commitments from over 50 agencies and institutions have been secured to support this project, with co-financing of over 35 million USD.

Progress on the INMS project is provided in complementary documentation.

The GPNM developed a collaborative project entitled ***“controlling Nutrient Loading and Eutrophication of Coastal Waters of the South Asian Seas Region”*** in partnership with the South Asia Cooperative Environment Programme (SACEP), which is an inter-governmental organization. The main objective of this initiative is to undertake a review study to identify the sources of nutrients that end up in the coastal waters and development of a regional action plan as well as establishment of a regional policy forum to monitor progress in the implementation of the action plan. SACEP, with support from the GPNM Secretariat secured funding for this project. Some of the GPNM Asia Platform members are involved in the execution of this project, while the GPNM Secretariat provided advisory services to SACEP with regards to this project as well as its other relevant programmes.

In this project, the problem of eutrophication of coastal waters was examined for the countries of South Asia. Relatively few studies have examined mass balance of nutrients in coastal waters. In general, estuarine and coastal systems in the South Asian countries were found to be nitrogen limited – this means that additional sources of nitrogen can trigger algal blooms, especially of harmful and noxious algae. Some of the estuaries studied, notably along the Indian east coast, are phosphorus limited. Along the west coast of India, natural hypoxic conditions have been recorded

but these are increasing in number and frequency, ostensibly because of anthropogenic impacts. Overall, the datasets were insufficient to gain a clear understanding of the quantum of pollution due to nutrients. With the functioning of tropical systems different from that of temperate regions, detailed studies and models are required to fill in this important gap. **The Intergovernmental meeting of SACEP and South Asian Seas (December 2013) endorsed the study.**

#### ***GPNM Members' contribution in the Post-2015 Sustainable Development discussion***

A number of GPNM partners have been involved in the discussions on a possible nutrient goal, in the context of the Post-2015 Sustainable Development Goals (SDG) through various channels (s.a. government - e.g. USA & Netherlands) SDSN (IPNI, IFA, IFDC), INI, (through its work with the OECD) and CBD etc. This work has contributed to the ongoing debate at capitals and within the UN-system, which will eventually lead to a set of Goals negotiated by member countries.

#### ***Publication of policy brief, information document and case studies***

GPNM partners have committed to contribute in the production of policy briefs, information documents and cases studies covering various themes/topics that could be used for raising awareness, and support policy development/reform processes. Some contributions are included in Annex 1.

#### ***Way forward***

##### ***Outreach, advocacy and provision of technical services***

The GPNM intends to continue and strengthen its outreach and advocacy program. It will seek to foster a community of interest among partners, and reach agreement among partners to provide access to relevant information, tools, cases of best management practices etc. that they have at their disposal for wider dissemination and use in making policy and investment decisions for remedial actions. Partners will be encouraged to become more engaged in all activities related to nutrient management, be it under the auspices of GPNM and/or any other institutions.

The GPNM will seek to offer the following in support of its members' work, in a way that maximizes the contribution of nutrient management to global development, food security and a low carbon society:

- Building knowledge through sharing of lessons learned to assist in analysis of policies, business models and technological options for sustainable production and use of nutrients
- Creating a global base of knowledge on policy experience and ways to adapt that experience to specific national circumstances
- Promoting activities that raise awareness and disseminate information for improving capabilities of partners
- Facilitating development of new approaches and projects to complement governments' efforts to reform/develop policy frameworks as a necessary foundation for sustainable nutrient management
- Identifying key research needs that would fill gaps in knowledge
- Offering opportunities to develop networks among the members.



## **Annex 1: Outreach materials produced by GPNM: 2013-2014**

The GPNM members produced a series of policy briefs, Information/Technical papers and Case studies. The target was to produce them by the end of 2013, for launch during the 2<sup>nd</sup> Global Conference on Land-Oceans Connection (GLOC-II) 2-4 October 2013 in Jamaica or during the 6<sup>th</sup> International Nitrogen Conference 18-21 November, in Kampala, Uganda. Some examples are presented below (although list is not exhaustive).

<b>Document</b>			
<b>Sl · N o</b>	<b>Topic</b>	<b>Author</b>	<b>Time line</b>
1	Nutrients For Food or Pollution: The Choice is Ours!	Prof. Mark Sutton (INI) and Anjan Datta (GPNM)	2013
2	Eutrophication and Ocean Acidification (see: <a href="http://www.nutrientchallenge.org/sites/default/files/documents/files/FINAL%20Ocean%20Acidification%20policy%20brief%20spread_press%20quality_print.pdf">http://www.nutrientchallenge.org/sites/default/files/documents/files/FINAL%20Ocean%20Acidification%20policy%20brief%20spread_press%20quality_print.pdf</a> )	Prof. R. Ramesh, NCSCM/ING	2013
3	Policy options for efficient nitrogen use: A case study of Indian experiences	Dr. Bijay Singh and Prof. Y.P. Abrol (ING)	2013
4	Adopting innovations and intervention strategies in agriculture to address nutrient challenges: Use of urea super granules and urea deep placement application technology. Case study from Bangladesh	Dr. Amit Roy, IFDC	2013
5	“Nitrogen Deposition, Critical Loads and Biodiversity”	INI	June 2014
6	“Options for Ammonia Mitigation”	UNECE Task Force on Reactive Nitrogen	June 2014
7	Mariculture: significant and expanding cause of coastal nutrient enrichment	Bouwman et al	2013