September 2016

The GPNM Update

Chairman's review of the work of the Global Partnership on Nutrient Management

Highlights

The GEF contributes US$6 million in continued support to global sustainable nutrient management

The Global Environment Facility approved funding of the four-year project **Towards International Nitrogen Management System (INMS)**. The project, supported by a GEF grant of US$6 million, with co-financing from a wide range of partners (including many of the GPNM) to the tune of US$62.6 million, is global in scope, and will be implemented by UN Environment (UNEP) and executed by the Centre for Ecology and Hydrology. The project will deliver on a global assessment of nitrogen threats, benefits and opportunities for improving nitrogen management, including case studies for each of the main world regions, guidance on joining-up mitigation and adaptation options and strategies linked to circular economy and green economy thinking, and a platform to promote better cooperation across nitrogen science and policy domains. The project will be launched within the 7th International Nitrogen Initiative Conference (INI2016) that will be held in Melbourne, Australia in December 2016. The project advances current work under the **GEF-Global Nutrient Cycling Project** also being implemented by UN Environment. More information on the INMS Project can be found on the project website.

US State Department supports the Caribbean to address nutrient and wastewater pollution

The US Department of State will support the Caribbean Environment Programme and UN Environment's GPA Programme through a US$245,000 grant in a new initiative "***Applying innovation to reduce nutrient pollution from wastewater and agricultural discharges in waterways, coastal and marine environments of the Caribbean Sea",*** targeting Jamaica and Costa Rica as demonstration countries. The project is expected to build on the work of the GEF-Caribbean Regional Fund for Wastewater Management (CReW) implemented by Inter-American Development Bank (IDB) and UN Environment (UNEP), and will further assist Caribbean countries meet obligations under the Land-Based Sources of Marine Pollution (LBS) Protocol. It will also link to other projects such as the GEF-IWEco Project and the GEF-Caribbean Large Marine Ecosystems Project and significantly, the work of the GPA under the Global Partnership on Nutrient Management (GPNM) and the Global Wastewater Initiative (GW^2I). The pledge was part of announcements at the **Our Ocean Conference** in Washington DC held in September 2016; see the full list of commitments here.

Photo source: UNEP Caribbean Environment Programme

West African Regional Strategy Validation meeting on Sargassum Seaweed and Coastal Invasive Species

The challenge of alien invasive species (AIS) and sargassum seaweed invasion in West Africa was the focus of a strategic planning workshop held over the 9 and 10th August 2016 in Monrovia, Liberia, hosted by the Abidjan Convention Secretariat, UN Environment's Regional Seas Programme for West Africa. The outcome of the workshop was the validation of approaches, and agreement on directions toward the adoption of a regional strategy to address mitigation of risks from AIS invasions and reduce vulnerability of coastal communities as a result of severe sargassum influxes.

The dimension of land-based pollution and nutrient loading to the marine environment related to harmful algal blooms and possible linkages with the sargassum issue, was presented by Christopher Cox of UN Environment's GPNM Secretariat. Read more about the sargassum issue in relation to West Africa and the Caribbean here.

Workshop participants

The International Fertilizer Association and the International Fertilizer Development Centre visit UN Environment (UNEP)

On 8 September 2016, the GPNM Secretariat at the GPA had the pleasure of hosting Mr. Patrick Heffer, Senior Director of the International Fertilizer Association (IFA), and Dr. Scott Angle, President of International Fertilizer Development Centre (IFDC), in a special Brown Bag Lunch presentation to offer their reflections on the topic '***Sustainable Nutrient Management: Towards Food Security and Sustainable Agriculture with Benefits in Conserving Terrestrial and Marine Productive Ecosystems***'.

The presentation was an in-depth summary of the past and future trends in world fertilizer consumption and the significance of developing nations, mainly China and India in the overall use of nutrients, which utilize approximately 70% of the total global fertilizer production. The concept of Nutrient Use Efficiency (NUE) and environmental benefits were also discussed, highlighting gradual improvement in application in countries, contributed to by the development of scientific management principles related to source, rate, timing and placement of mineral and organic fertilizers.

The Global Partnership on Nutrient Management (GPNM) is a multi-stakeholder partnership comprising of governments, the private sector, the scientific community, civil society organizations and UN agencies committed to promoting effective nutrient management (with a focus on nitrogen and phosphorus) to achieve the twin goals of food security through increased productivity and conservation of natural resources and the environment. UN Environment (UNEP), through the Coordination Office of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), provides the Secretariat of GPNM. Read more at www.nutrientchallenge.org.

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News & Emerging Issues

Nutrient Recycling Challenge

Source: Environmental Protection Agency (EPA)

Since November 2015 the US-EPA and various partners have been hosting a competition for technologies to recycle nutrients from livestock manure in the United States. The mission of the **Nutrient Recycling Challenge** is to help find technologies that are a win-win for the environment, farmers, and the economy. There are four phases of the innovation challenge, in which innovators will turn their concepts into designs, and eventually, into working technologies to be piloted on livestock farms. Phase I of the competition is winding down, with 34 awardee teams to enter Phase II, commencing in October 2016. The teams will develop technology designs based on submitted concept papers.

It is estimated that every year, livestock produce over a billion tons of animal manure containing valuable nutrients—nitrogen and phosphorus that plants need to grow. Importantly, while manure can be used as renewable fertilizer, but it should be used properly, to minimize water pollution and build healthy soils. Follow the Nutrient Recycling Challenge click here.

Reactive nitrogen assessment in South Asia

T. K. Adhya, H. Pathak, N. Raghuram, Y. P. Abrol

The Indian Nitrogen Group (ING-SCON) and South Asian Nitrogen Centre organized a workshop the '**Reactive Nitrogen Assessment in South Asia'** that was convened as one of the International Nitrogen Management System events over the 26 and 27 February 2016 in New Delhi. The recently released report from the event noted that the nitrogen cycle is the most disturbed nutrient cycle due to human influences, with linkages and wide-ranging impacts across many areas; food security, energy, industry, human health, biodiversity, environment and climate change. The workshop reported that there is also evidence of large-scale transport of reactive nitrogen-based pollutants from South Asia to East Asia, and vice versa. It was further noted that high values of atmospheric reactive nitrogen are affecting the health of the inhabitants of Delhi. Read the full report here.

Photo: cincynorthhealingrooms

- The **First Nordic Phosphorus Conference**, Malmö, Sweden, 27-28 October 2016 .
- 43rd session of the **Joint Group of Experts on the Scientific Aspects of Marine environmental Protection (GESAMP)** in Nairobi, Kenya, November 14-17 2016
- **7th International Nitrogen Initiative Conference**, Melbourne, Australia 4-8 December 2016.

Nutrient Cycling in Agroecosystems

Source: International Fertilizer Development Center

Field experiments conducted by the International Fertilizer Development Center (IFDC) and the Bangladesh Agricultural University suggest that the combination of fertilizer deep placement (FDP) and alternate wetting and drying (AWD) technologies in lowland rice cultivation increase fertilizer use efficiency, save water, and increase grain yields. Compared with prilled urea applied via broadcasting, the deep placement of urea briquettes and NPK briquettes significantly reduced ammonium in floodwater and ammonia volatilization. During the Boro season, deep placement of urea and NPK briquettes increased grain yield by 40 percent and 29 percent, respectively, compared to broadcast prilled urea. Nitrogen recovery increased from 35 percent of prilled urea to 65 percent with deep placement.

According to a previous study, AWD can reduce water use by up to 38 percent while maintaining rice yield. In the IFDC experiment, AWD irrigation did not significantly affect grain yield or nitrogen use efficiency, demonstrating that its adoption during the Boro season could save irrigation water without reducing yield. Experimental results were published in *Nutrient Cycling in Agroecosystems* (2016, Volume 104, Issue 1, pp 53–66). Because these results were obtained from one location in Bangladesh, more studies across various soils, climate, and management practices are needed to understand the interaction of fertilizer and water management on yields, nitrogen use efficiency, and soil fertility. Read the full paper here.

GPNM Partners Corner

The GPNM, in conjunction with the Global Wastewater Initiative partnership acknowledges **new collaborative partnerships** that have emerged with the development of the **Massive Open Online Course (MOOC) on Nutrient and Wastewater Management**. The MOOC development, spearheaded by UN Environment is led by Concordia University in collaboration with Knowledge One out of Montreal, Canada. To date several of the core course components that will constitute a Source Book have been prepared and we look forward to the launch of the MOOC in early 2017. **Our new collaborators….**

Email the Secretariat

GPNM

GPA Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

UNEP