UNEP

United Nations Environment Programme

The Global Partnership on Nutrient Management (GPNM)

…a global platform to steer dialogue and actions to promote effective nutrient management

The Nutrient Management Challenge

Half the world's food security depends on nitrogen and phosphorous and their use in fertiliser to grow crops. Yet in some parts of the world farmers cannot get enough of them to feed growing populations while, in others, industrial and agricultural activity have put too much of these nutrients into the environment, with profound impacts ranging from pollution of water supplies to undermining important ecosystems and the services and livelihoods they support. Released from fertilizers, fossil fuel burning, wastewater from humans, livestock, aquaculture and industry these nutrients lead to air, water, soil and marine pollution, with loss of biodiversity and fish stocks, destruction of ozone and increased emission of greenhouse gases.

The result is a 'nutrient challenge', an apparent divide between society's need for food and energy and a complex web of adverse environmental impacts which damage the natural resource base. This divide is set to intensify as population and the demand for food and bio-fuels increase, and growing towns and cities produce more wastewater. There will be a growing economic cost from undermining ecosystems, notably in the coastal zone, and the services and jobs they provide.

The GPNM

The Global Partnership on Nutrient Management (GPNM) responds to this 'nutrient challenge' by identifying ways to reduce the amount of excess nutrients in the environment without hindering global development. It reflects a need for strategic, global advocacy to trigger governments and stakeholders to move towards more efficient use of nitrogen and phosphorous. 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 as to effectively 'nutrient proof' policy making and investments. And it provides a space where countries and other stakeholders can forge more co-operative work across various international and regional fora and agencies addressing nutrients.

The GPNM is built on the principle that concerns, opportunities and actions related to nutrients must be embedded into the work of many agencies and fora. It emphasises communication on the challenges of managing nutrients - from food security to dead zones in the world oceans – and to elucidate how integrated assessment, best practices and the engagement of stakeholders can facilitate more sustainable production and use of nutrients.

The UNEP Co-ordination Office for the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (UNEP/GPA) – which has a role as a facilitator and catalyst for action by countries – acts as the Secretariat of the GPNM.

The Foundations for Sustainable Nutrient Management, a report published by the GPNM, scopes out what is important, what works, and who needs to be persuaded in managing nutrients effectively. It recommends four main cornerstones – "foundations" – focused on: 1) building a shared interest and agenda among and within countries; 2) engaging stakeholders and forming partnerships; 3) communicating and mainstreaming best practice tools; and 4) integrated approaches in order to guide cost effective decision making. It concludes by charting how strategic action by countries that builds on these cornerstones can lead to effective nutrient management, and describes the benefits this brings (www.unep.org/pdf/Building_the_foundations.pdf).

Those that have already joined the GPNM include: the Governments of the Netherlands, USA, Italy, Indonesia, and Thailand; the European Commission, the Task Force on Reactive Nitrogen under the Convention on Long Range Trans-boundary Air Pollution of the UNECE and the UK-China Sustainable

Agriculture Innovation Network (SAIN); private sector institutions such as the International Fertilizer Industry Association (IFA), and Nagarjuna Fertilizers & Chemicals Ltd, India; UNESCO's Intergovernmental Oceanographic Commission (IOC/UNESCO), the Food and Agriculture Organisation of the UN (FAO), UN-Habitat, and the United Nations Development Programme (UNDP); academic and research institutions such as the International Nitrogen Initiative (INI), the International Geosphere-Biosphere Programme (IGBP), the Scientific Committee on Problems of the Environment (SCOPE), 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, the Indian Nitrogen Group, China Agricultural University and the Department of Marine Science at Chulalongkorn University, Thailand; and The Nature Conservancy and the Global Environment and Technology Foundation.

Key facts that help to illustrate the challenge

- Human activities produce around 120 million tonnes of reactive nitrogen each year. Nearly two thirds of this ends up polluting air, water, soil, marine and coastal areas, and adds harmful gases to the atmosphere.
- Some 20 million tonnes of phosphorous are mined every year and nearly half of this - 8 times the natural rate of input - enters the world's oceans.
- Between 1960 and 1990 the global use of synthetic nitrogen fertilizer increased more than sevenfold, while phosphorus use more than tripled.
- One half of the world's population is now thought to depend on nitrogen and phosphorous fertilisers for producing their food. Much of the fertiliser is not used by the crops.
- Ninety per cent of wastewater in developing countries is estimated to be discharged untreated into waterways and coastal areas.
- Over 500 coastal areas are impacted by eutrophication caused by excess nutrients worldwide.
- Known dead zones in the world's oceans have increased from 10 in 1960 to 405 in 2008 (comprised of 169 identified hypoxic areas, 233 areas of concern and 13 systems in recovery).
- Millions of people depend on water from wells where nitrate levels are well above recommended levels, while many of the world's freshwater lakes, streams, and reservoirs suffer from eutrophication.
- More than 90% of the world's fisheries depend in one way or another on estuarine and near-shore habitats, whic are increasingly being impacted by nutrient overenrichment of coastal waters.
- Nitrous oxide, a powerful greenhouse gas, is estimated to be responsible for about 11% of such gases' net anthropogenic global warming potential.

The key question is: *'How to promote effective nutrient management, which minimises negative impacts on the environment and human health, while maximising the contribution to global sustainable development and poverty reduction?'*

The Global Partnership on Nutrient Management (GPNM) recognised the need for worldwide strategic advocacy and co-operation to communicate and trigger productive discussion on both the complexity of the nutrient challenge and the opportunities for national cost effective policies and investment interventions.

For more information on GPNM and partnership opportunities, please contact:

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