United Nations Environment Programme
برنامج الأمم المتحدة للبيئة • 联合国环境规划署
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT • PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE
ПРОГРАММА ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ ПО ОКРУЖАЮЩЕЙ СРЕДЕ
UNEP

Global Conference on Land – Oceans Connections (GLOC)
23-24 January, 2012, Manila, Republic of the Philippines
and its inputs to the
3rd Intergovernmental Review Meeting of the
Global Programme of Action for the Protection of the
Marine Environment from Land-Based Activities (GPA)
25-27 January 2012, Manila, Republic of the Philippines

OUTCOMES FROM THE THEMATIC SESSIONS OF THE GLOC

Title of the Session:

Item 6 & 7: A. Managing the global nutrient cycle

1. PLEASE BRIEFLY INDICATE WHO WERE THE KEY PARTNERS/SPEAKERS OF THE SESSION

Chair : Under Secretary Atty. Analiza Rebuelta, DENR, The Philippines
Speakers:

Mark Sutton, Centre for Ecology and Hydrology, Natural Environment Research Council, UK
Clement Lewsey, Director, NOS, National Oceanic and Atmospheric Administration, USA
Kaj Sanders, Senior policy advisor, Ministry of infrastructure and environment, The Netherlands
Gil S Jacinto, Marine Sciences Instt., University of Philippines
Daniel Amlalo, Ag. Exec. Director, EPA-Ghana
Ramakrishna Kilaparthi, Chair, International Nitrogen Initiative
Angela Olegario, International Fertilizer Industry Association, Paris
Amit Roy, International Fertilizer Development Corporation
Roland W Scholz, ETH ZURICH, DEPARTMENT OF ENVIRONMENT SYSTEM SCIENCES
Alfred Duda, Global Environmental Facility, Washington DC.
Vladimir Mamaev, UN Development Programme, New York, USA
Tom Sims, University of Delaware, USA
Jan Willem Erisman, Energy Research Centre, The Netherlands

Discussants:

N. Raghuram, School of Biotechnology, GGS Indraprastha University, New Delhi, India.
Tapan Adhya, Indian Nitrogen Group, Society for Conservation of Nature, New Delhi, India.
Chuck Chaitovitz, Global Environment Technology Foundation, Arlington, USA
John Murphy, Member, US Delegation
Dr. Yusuf Al-Sufi, Member, Palestine delegation

- **BRIEFLY SUMMARIZE THE MAIN DISCUSSION POINTS OF YOUR SESSION:**

The discussion mainly centered around the need to revisit some pollutants as essential nutrients (and other useful things) in the wrong place, the need to recover nutrients from wastes and recycle them back into food chains for sustainable nutrient management, the critical importance of nitrogen and phosphorus as the most anthropogenically imbalanced nutrient cycles on earth, the need for the UNEP led Global Partnership on Nutrient Management to address these two nutrients on a priority basis. The potential for improving nutrient use efficiencies (especially N and P) of fertilizers and manures in crop and animal production, including the possibility of further improvements by dietary changes in animal husbandry and human dietary choices. The recovery and recycling of nutrients from sewage, manure and other

anthropogenic or industrial releases, the potential for reduced or more efficient combustion of fossil fuels were also discussed, including NOx Capture and Utilization (NCU) technology. It was generally felt that strong policy actions and implementation strategies are urgently needed to harness these opportunities and the associated financial benefits in moving towards a green economy. The national governments may consider setting themselves some achievable targets and timeframes in addressing the use efficiencies at specific steps of individual nutrient cycles (such as fertilizer N use efficiency or dietary choices), and/or full chain nutrient efficiencies that allow more flexibility to mix and match multiple interventions for overall sustainability.

- **WHAT MAIN GPA SOURCE CATEGORIES WERE ADDRESSED BY THIS SESSION?**

SEWAGE ■ PERSISTENT ORGANIC POLLUTANTS ☐ RADIOACTIVE SUBSTANCES ☐

HEAVY METALS ☐ OILS (HYDROCARBONS) ☐ NUTRIENTS ■ LITTER ☐

SEDIMENT MOBILIZATION ☐ PHYSICAL ALTERATIONS AND DESTRUCTION OF HABITATS ☐

- **WHAT ISSUES WERE DISCUSSED THAT PARTICIPANTS FELT GPA SHOULD ADDRESS IN THE PERIOD 2012-2016 AND IF SO PLEASE PROPOSE SOME TEXT FOR CONSIDERATIONS/INCLUSION IN THE PROGRAMME OF WORK AND THE MANILA DECLARATION?**

- Setting of global policy goals for sustainable nutrient management and greening of economies
- Global recognition of the need for countries/regions to improve quantification of their nutrient cycles
- Working with diverse stakeholder to demonstrate co-benefits from improved nutrient managements across sectors (eg. Coastal-marine ecosystems, food security, energy security, climate change mitigation, protection of the quality of water, air and soil, health and biodiversity)
- Consider working towards common goals/targets/timeframes for improved nutrient management
- Sharing of best practices for improving nutrient management practices, including technologies and development of guidance documentation

- **WERE ANY NEW EMERGING ISSUES DISCUSSED, IF SO PLEASE PROVIDE SOME NARRATIVES AND THE KEY RECOMMENDATIONS TO BE PROPOSED FOR CONSIDERATIONS BY THE IGR3**

- A key recommendation was to consider the establishment of a target for improved nutrient management
- A consensus around the need for effectiveness in achieving behavioural changes (eg. Improving management practices and avoiding over-consumption)
- It was agreed that setting quantitative target(s) for improved nutrient management provide a powerful incentive for action; even on a voluntary basis, such targets would be useful in encouraging change.
- The following proposal was made:
    - To set a global goal to improve/work towards improving nutrient use efficiency by 20 % at a country level
    - To set a mutually agreed timeframe for the above goal to be realized (eg. by 2016), compared with a baseline year (eg. 2008).
    - It is proposed to implement the global goal through two complementary indicators:
        - To improve crop nutrient use efficiency by 20% relative to the base year for each country, towards an eventual nutrient use efficiency of 70%
        - To improve full chain nutrient use efficiency by 20% relative to the base year for each country, towards an eventual full chain nutrient use efficiency of 50%
    - Definitions and thresholds:
        - Crop NutUE is here defined as nutrients in harvested crops as a % of the total nutrient input at a country level
        - Full chain NutUE is here defined as nutrients in human food available for consumption as a % of the total nutrient inputs at a country level.

        - Relative target: The target is set relative to the base year eg. If the base year for a country is at NUE 25%, the *relative* improvement would aim for a target of NUE at 30%
        - Eventual NutUE enables countries with nutrient limitations to be exempted from the 20% improvement target.
    - Flexibility for country discussions at IGR3:
        - The use of two indictors for nutrient use efficiency allows for maximum flexibility for countries to optimize nutrient management according to local conditions. For example, the full chain approach allows a government to intervene at any or all components of a nutrient cycle, be it at the level of fertilizer, manure, sewage, fuel, or consumption choices.
        - Estimates have been based on available FAO dataset, which can be used for future monitoring, or countries may choose to submit their own national data.
        - Ambition level of the proposal may be varied according to: a) the % improvement (eg. 15, 20%), b) timeframe (eg. 2008-2016), c) the eventual NutUE for setting exemptions from the target for nutrient limited countries, d) the extent to which countries agree to achieve the targets on a voluntary basis or agree to make progress towards the targets.
    - Choice of the nutrient use efficiency indicators:
        - The indicators were identified based on the simplicity of their calculation from available FAO data and being integrators allowing maximum flexibility in the means to improve nutrient management (eg. including all sectors including crops, livestock and sewage).
        - The NutUE indicator highlights the financial benefits for the stakeholders and the green economy
        - In the longer term, further efforts may be put in developing nutrient balances to calculate surpluses and to calculate nutrient inputs into different marine areas. These have benefits but require further data to support their calculation.

- **LIST THE MAIN ACTIVITIES THAT THE PARTICIPANTS AGREED TO UNDERTAKE THEMSELVES/JOINTLY WITH PARTNERS IN THE PERIOD 2012-2016 TO FACILITATE IMPLEMENTATION OF THE GPA AND WHAT ROLE THEY FORESEE FOR THE GPA COORDINATION OFFICE IN THAT PROCESS.**

- The participants agree that the GPNM can be strengthened by wider participation by governments and other stakeholders from various countries/regions.
- Key tasks include:
    - Development of guidance documents and policy toolkits for improved nutrient management, linking the different source and activity sectors
    - To provide further guidance documentation on the calculation of the nutrient use efficiency indicators, refining the existing spreadsheet approach, for sharing between countries.
    - To share experiences of successes and failures of nutrient management in different countries/sectors
    - To make further efforts in mainstreaming nutrient management to show how efforts to reduce coastal eutrophication can deliver co-benefits to meet other environmental targets eg. Climate change, food security, health, biodiversity, air, soil and water quality.