



UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement Programa de las Naciones Unidas para el Medio Ambiente

Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة

联合国环境规划署



Global Partnership on Nutrient Management (GPNM) Proceedings of the 3rd Steering Committee meeting

December 10th - 11th, 2014

**US Department of Agriculture, South Building, Room 3109, 1400 Independence
Avenue, SW, Washington, DC (hosted by USDA)**

Overview

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 Freshwater and Marine Ecosystems Branch of the Division of Environmental Policy Implementation of UNEP, which serves as the Secretariat to the Steering Committee.

The Third meeting of GPNM Steering Committee was convened over the 10th and 11th December 2014 for the purpose of providing an update on progress of the GPNM since the last steering committee meeting, agree on a resource mobilization strategy for the GEF-G funding cycle and agree on the main inputs from the GPNM to the new International Nitrogen Management System (INMS) project being developed for funding by the GEF.

The meeting was hosted and held at the US Department of Agriculture, in Washington, DC. The Steering Committee participation included representatives from (i) government agencies including the US Department of Agriculture, the National Oceanic and Atmospheric Administration, the Government of the Philippines, the Government of the Netherlands (ii) industry - the International Fertilizer Industry Association and Fertilizers Europe, (iii) research and academia including the Virtual Fertilizer Institute, Rothamsted Research, the International Plant Nutrition Institute, the UK-China Sustainable Agricultural Innovation Network, GGS Indraprastha University, the INI & Energy Research Centre of the Netherlands, the University of Zürich, the International Fertilizer Development Center and (iv) project development collaborators and partners including UNEP, the Global Environment and Technology Foundation, the Centre for Ecology and Hydrology, IOC/UNESCO and the Laguna de Bay Authority, Philippines.

Day 1 of the two-day meeting included review of work accomplishments and the general outlook for the GPNM since the last steering committee meeting, achievements of the four Task Teams (i. Policy; ii. Nutrient use efficiency; iii. Partnerships and iv. Toolbox) of the GPNM over the intervening period, status of implementation of the GEF-Global Nutrient Cycling (GNC) Project (including the project mid-term review) and the development of the INMS Project. The **Day 2** proceedings focused on governance arrangements for GPNM's participation/engagement within the INMS Project, resource mobilization for the GPNM and access to GEF support resources, transitioning the Global TraPs Phosphorous initiative to the GPNM, building new partnerships and the workplan for the GPNM including the strengthening of the communications capacity of the Partnership.

GPNM 3rd Steering Committee Meeting Proceedings - Day 1

Welcome remarks and agenda review

Welcome Remarks: Dr. Greg Crosby, National Program Leader, Sustainable Development, USDA National Institute of Food and Agriculture and GPNM Chair

Dr. Crosby welcomed the meeting participants and formally opened the meeting. He extended greetings on behalf of the USDA and announced that on the start of day 2 there will be the official welcome from the USDA by the Under Secretary, Dr. Ann Bartuska, as she was unavailable to attend the opening.

Welcome Remarks: Vincent Sweeney, GPA Coordinator

Mr. Sweeney introduced himself and his UNEP colleague Dr. Christopher Cox, newly appointed Programme Officer assigned to the GPA (under the nutrient management portfolio) to the meeting, and outlined the work of the GPA and how the programme can assist with the work of the GPNM.



Steering Committee members in session

Welcome Remarks: Patricia Beneke, Director UNEP Regional Office for North America (RONA)

Ms. Beneke delivered remarks on behalf of UNEP thanking USDA for hosting. She special thanks to Vincent Sweeney in his role as Coordinator of the GPA. Reflected on personal family experiences in Iowa and farming, use of nutrients and impacts on the environment. She recognized the twin goal of increasing productivity but keeping sight of conservation of resources, highlighting the role of the GPNM in this regard. The Hague meeting provided the basis for the organization of work of the GPNM and set forth the mission in carrying out the mandate. Noting that the GPA was created in Washington, DC 20 years ago, she encouraged all to be the faces of the GPNM and to let UNEP know all that needs to be

done to assist. She highlighted the challenges of nutrient loading and the dead-zones in the US and even close by in the Chesapeake Bay.

Comments: Scholz: suggested that there have been some faltering in the progress in recent years at the global level on nutrient management asking what is UNEP's perspective on this. Beneke: it is a sensitive issue as it is tied to economics and industry and requires more awareness-raising amongst all stakeholders, particularly at policy and industry levels. Crosby: noted the importance of public private sector cooperation in solving these issues. Beneke: reflected on work in the Florida Everglades in a water pollution issue where there was good cooperation between public and private sector, adding that regulatory compliance did serve an important role in backstopping.

Review of the agenda: Vincent Sweeney, GPA Coordinator

Mr. Sweeney took the participants through the provisional agenda and opened the floor for amendments and adoption. Scholz: requested that the Global TraPs discussion be shifted to ahead of the group discussions (to 2pm) in order to accommodate travel commitments; this was agreed to by the SC. The meeting agenda was adopted.

Status of GPNM and way forward

Vincent Sweeney, GPA Coordinator

The last SC meeting in India included discussions on NUE. The Task Team met here yesterday and the day before and the Task Team chair, Dr. Terry Roberts will update the meeting.

A draft proposal 'Nutrient Benefits and Threats' was prepared but could not be tabled at the first United Nations Environment Assembly (UNEA) in June 2014 given time constraints. The UNEP Governing Council had previously endorsed the work of the GPA and GPNM and supported the strengthening of collaboration to meet the Manila Declaration objectives. The second meeting of the UNEA Assembly will be held in May 2016 and nutrient management goals should be better defined by then; this is a critical timeline to aim for. By mid-2015 there should be a draft resolution that goes to the Committee of Permanent Representatives. This relatively short time span is related to the length of time that will be required for the UNEA process.

Mr. Sweeney's remarks noted the following:

- The GPA will provide the meeting with an update on the outreach activities that includes the creation of newsletters and other communications products.
- The SC will receive an update on the new GEF International Nitrogen Management System (INMS) project.
- The Global TraPs and transition will be the subject of discussion on Day 2.
- The SC will be provided an outline of what GPNM did during the UNEA.

- The new staff member at GPA in the person of Dr Christopher Cox replaces Dr Anjan Datta and will assume full responsibility for the nutrients management programme of the GPA. Dr Datta has continued to provide support (on a consulting basis) through the Centre for Ecology and Hydrology (CEH).

Koo-Oshima: Noted that the content of some of the meeting documents need to be more accurately reflected. She asked about progress on the website and when will this come up on the agenda. Sweeney: responded that any comments regarding accuracy of documentation should be communicated directly to him, noting that he relies on the SC for verification of content accuracy.

Crosby: stated that he sent the GPNM workplan to the SC noting that it needs to be understood that UNEP has committed resources.

Development of a UNEA Resolution on nutrient management: Crosby: asked that for the 2016 UNEA, what kind of resolution are we looking at drafting? Sweeney: responded that the SC should really be answering this although there are a few key things to consider. The resource allocations UNEP makes when it submits its work programme and budget are based on its mid-term strategy and need to ensure that GPNM's work gets supported from UNEP's resources. The form that it is presented needs to be informed by what are the priorities, and should include timelines. For example for countries adopting NUE guidelines, perhaps highlight the work of the GPA in supporting the GPNM in assisting countries. Need to highlight specific actions to which the countries may commit. There are also facts that can form part of the UNEA resolution. UNEA can mandate UNEP to do specific things and send signals to partners within the resolution.

Crosby: suggested the chair of the GPNM Policy Task Team start looking at preparation of the resolution. Koo-Oshima: noted that there had been some work on a draft resolution for the last UNEA, however was too late to move through the process. Something can be done more formally now. This could be accompanied by a side event at the event for awareness and promotion. Since Rio+20 the governance mechanism has moved to the UNEA which supersedes the previous governing council mechanism. Passenier: added that the UNEA resolution must be strong and affirmed his willingness to contribute to its development. Crosby: noted that Arnoud Passenier's participation on the GPNM was supported by a letter from the Dutch government which constitutes formal high-level government endorsement for which the SC is grateful. Koo-Oshima: stated that the EPA has developed similar type resolutions for freshwater quality guidelines for ecosystems so there is experience; a resolution will need to be reviewed by all countries and put into proper language based on a prescribed format. Datta: suggested that the work of the GPNM to date can be used as part of the background for the resolution. Crosby: there are opportunities for making linkages with many other global frameworks and priorities.

Presentation of GPNM 2013 accomplishments and review of 2014 plan of work

Vincent Sweeney, Coordinator, GPA & GPNM Secretariat

Presentation slides in Annex 3.1. Available at

<http://unep.org/gpa/documents/meetings/gpnm/SteeringCommittee/GPNMProgressOverviewSweeney.pptx>

Overview: Mr. Sweeney stated that documentation on progress is available on the website at <http://unep.org/gpa/gpnm/gpnm.asp> and the Nutrient Challenge website at <http://www.nutrientchallenge.org/>. He provided a background on the GPA and the Manila 2012 Declaration that established and/or endorsed the 3 multi-stakeholder global partnerships. Stressed that GPA has a mandate to support the GPNM and this mandate was handed down by governments. He provided some detail on the 3 partnerships: Nutrients, Marine Litter and Wastewater. GPA has 3 programme officers; one each for the partnerships so there are capacity limitations. He outlined the roles of the GPNM and the need for strategic advocacy and partnerships at the global level. How we get the mandate elevated at the highest decision making level is important. He noted the work of the indicators Task Team that provide useful contributions to support the agenda of the GPNM. Highlights of the GPNM include:

- Integration within UNEP's programme of work.
- Two regional platforms have been established; one for the Caribbean and one for Asia.
- Four Task Teams have been established; (i) policy (ii) toolbox development, (iii) NUE and (iv) partnership development.

He noted that the Programme Officer staff is 100% funded under UNEP's core budget, a demonstration of UNEP's commitment to the process. He acknowledged the support from Greg Crosby and Anjan Datta (supported by CEH) in the interim period between Anjan Datta's departure and recruitment of Christopher Cox. Two steering committee meetings have been held.

Achievements: A GPNM Partnership forum was held at the 2nd Global Conference on Land-Ocean Connections (GLOC-2) in Jamaica in October 2013. IFA's annual conference in May 2014 in Sydney Australia was addressed by UNEP Executive Director which was a significant show of UNEP's commitment. The side event at the UNEA in Nairobi June 2014 was a well-attended significant event. With respect to private-public partnerships, the Division Director met with stakeholders (e.g. an IFA and UNEP bilateral) to show commitment to GPNM.

There has been focus on outreach. In UNEP's flagship publication the UNEP Yearbook, the issue of nitrogen was featured as a priority issue, showcasing relevant information surrounding the issue and proposing approaches to solve the problem. There are UNEP web apps that have been developed to distribute knowledge. It should be noted that in the 2011 Yearbook the focus was on phosphorus. The keynote publication "Our Nutrient World" is another significant publication. The GPA has hired a full-time communications consultant to assist with the development of outreach resources. A draft communications strategy has been developed for discussion at this forum and the website has been revamped and is up and running which includes GPNM pages. The GPNM logo has been revised that

could be considered by the SC at this meeting or via a round-robin process later. Guest editorials on the website are useful information products that support the relevance of GPNM. On the 9th December 2014 UNEP's RONA highlighted a "2 Minutes with Jim Toomey" Nutrient video which won an award at the Blue Ocean Film festival. The GPA is quite proud of this achievement.

GEF Projects: The **Global Nutrient Cycle (GNC) Project** is a core initiative under GPNM which has captured several tools and case studies, and developed the ecosystem health report card for revision and replication. The **International Nitrogen Management System (INMS) Project** concept (Project Identification Form or 'PIF') has been approved by the GEF Secretariat and is in the stage of full project design. The project will access a grant of US\$6 million. The GPNM has contributed to the new post 2015 SDGs discussion on possible nutrient goals. Supporting policy briefs and other resources have been developed for this process.

Way forward:

- Seek continued GPNM member support in all areas,
- anticipate the expansion in the global knowledge-base on policy and broaden awareness raising through the work of the new communications officer,
- development of new projects for increased resource mobilization,
- identification of and addressing key research needs,
- expansion of the GPNM and increased opportunities for networking and collaboration.

There is much work going on with many partners and it is expected that the GPNM will continue to support the process.

Discussion points:

Strengthening awareness: Crosby: stated that this has set the stage for the partnership adding that we need to be able to mold these products into useful tools for governments, partners and even small holder farmers. He stressed that it is time to get more governments on board, partners (such as partners engaged in agriculture extension), build capacity of organizations along the science/education value chain; we need to ramp up membership to the GPNM. He thanked the Policy Task Team for leading the preparation of the draft resolution for UNEA.

Scholz: noted that with regard to P management, we need to think of the most important flows; manure and runoff. Runoff uncertainty is large with very significant impacts to water systems. There has to be outreach for getting the numbers to support information for decision making to stakeholders. Crosby: agreed that this is an important aspect for the communications team to pick up. Sweeney: added, with respect to the short video on nutrient pollution produced by Jim Toomey in collaboration with the GPA (see link at <https://www.youtube.com/watch?v=nolsLLSpXeg>), there are constraints on how much detailed information can be conveyed; it may be necessary to develop something more focused. Heffer: asked where are the lines between GPNM and UNEP in terms of editorial inputs to public outreach material. This aspect needs to be made clearer; has to be some guiding consensus/principles in terms of how content is approved and sanctioned by the steering committee.

Regional Platforms for nutrient management and constraints: Raghuram: suggested that the Regional Platforms for nutrient management can be supported by giving them some level of secretarial support and maybe funding to allow them to do their work. Lewsey: noted that an inaugural meeting of the Caribbean Platform was held a year and a half ago; a report was generated but there has been no activity since then; the report was to have been submitted to the SC but not sure if it ever was. Lu: proposed that we need to consider publication of outreach resources in other languages since it is a global mechanism. The platforms cannot just be information on the website; important that the process moves information from the website to where it is needed. Datta: noted that there are some issues in moving the Caribbean Platform that is hosted by Caribbean Environment Programme (CEP) Secretariat but staff limitations have been posing a challenge. The meeting proposed that the Regional Platform chairs be incorporated into the GPNM SC as a means to promote buy-in. Sweeney: stated that this calls for additional resource mobilization to support the regional platforms hence the reason why this topic is on the table for this meeting. The GPA Secretariat also needs to be in a position to catalyze the process. For example the Global Partnership on Marine Litter (GPML) has received extra-budgetary resources that support the platforms for marine litter; this presently does not exist as yet for the GPNM and will be given priority attention as UNEP will not be able to shoulder entirely on its own.

Strengthening communications, outreach and building partnerships: Santos-Borja: stressed that there needs to be more emphasis on lakes and wetlands given the severe problems caused by nutrient-driven eutrophication. Passenier: advised that we need to have good stories that justify why are we doing this, what we can deliver on; needs to be very clear and convincing. Koo-Oshima: agreed that we need a very pointed narrative, however the GPNM seems to be too narrowly focused; need to be more integrative of wastewater contribution, for example. Passenier: added that the big city deltas have large issues; the stakeholders of these communities should be represented at the GPNM to share experiences with successful initiatives. In addition, the World Bank should be a partner in the GPNM; he underscored the importance of having the right narrative to get financing agencies and other stakeholders involved. Raghuram: suggested that the problem is not lack of information; it is the packaging. This points to the strengthening of the communications strategy. Need simple messages particularly linked to food production. A useful aspect to highlight is that a lot of nutrients within the food production chain are lost. He has volunteered to assist with the communications strategy. Hansen: noted that the World Bank (through the Global Environment Facility) for example invested US\$20 to 25 million in wastewater management in Asia but noted that the GEF cannot do large-scale infrastructure; this is left to the banks and lending agencies. There are many areas of cooperation with the WB. The GEF resources typically serve as co-financing to main WB projects in that they focus on catalytic support for the main investments. Chaitovitz: noted possible opportunities for cross-fertilization between the 3 partnerships (GPNM, GPML and GWI). Bindraban: stated that he fully agrees that there should be linkages and that there should be ways to communicate and articulate innovative technological approaches. Themes like climate-smart agriculture, hidden hunger, food security should be highlighted. Datta: noted that notwithstanding the synergies between the three partnerships a focal starting point was needed; of course the co-benefits between the three themes should be clearly quantified and articulated, maybe as fact sheets. Some of this is already captured in the Our Nutrient World report. Van der Beek: added that the WB has a large Global Partnership for

Oceans; this programme can be a useful stakeholder and a partnership needs to be pursued. Raghuram: stated that there should be information on the website that serves as inducement for new partners to join. Consider the development of a counterpart brochure and maybe a video on the partnership so as to sell it. Crosby: suggested that a set PowerPoint presentation be developed by the GPA so that members of SC can use for advocacy purposes.

Way forward for communication, outreach and partnership-building: Crosby: asked whether other task teams are needed to support this aspect and asked that the SC reflect on this. Heffer: suggested that there should be a task team on communications; bring on persons with actual expertise. Bindraban: added that the discussion should also consider the role of micro-nutrients as they influence N and P as well as human health; this has to be an important aspect of communications and outreach. Roberts: cautioned that we cannot be everything to everyone; all these ideas are great but limited by the number of persons who can do all this. Crosby: suggested maybe a 3-person executive committee be set up to analyze proposals that emerged from the discussions.

GPNM Task Team updates on work progress

1. Policy Task Team

Dr. Sasha Koo-Oshima, Senior International Water Policy Advisor, Office of Water, Environmental Protection Agency (EPA)

The team has focused on the draft resolution of the UNEA as well as the Sustainable Development Goals development, where important inputs to this process were provided through the Open Working Group on SDGs where EPA is involved. The UNEA draft decisions put forth by the group were highlighted with the final proposed draft resolution as stating the following:

- Call upon governments to put in place necessary policy frameworks that incentivize, promote, and support sustainable forms of agriculture that optimize nutrients use that make agriculture/farming ecologically compatible, socially responsible and economically sound.
- Requests the Executive Director to continue UNEP's support to Global Partnership on Nutrient Management (GPNM) to mobilize multi-stakeholder opinion and build science-based consensus for sustainable production and use of nutrients for ensuring food and energy security and the countries in their efforts to a transition to the Green Economy.

She provided an overview of the relevant SDGs being proposed by the Open Working Group. The proposed Goal 2 under hunger and sustainable agriculture is where nutrient management best fits. The other appropriate goal is Goal 6 dedicated to sustainable water and sanitation; some targets have been presented. Goal 14 on sustainable use of oceans is also an important goal of relevance.

Other related policy studies were highlighted including the current OECD study on human impacts on the N cycle in which the study attempts to look at a systems approach to N management. The scope of the work includes flows from agriculture, industry, transport and households; emphasizes the N

cascade. The overall aim is to examine the economic activity and the associated economic policy issues and analyze the impacts and policy options for managing the negative environmental externalities from nitrogen. Additionally, the US EPA's study was highlighted on *Reactive Nitrogen in the United States: An Analysis of Inputs, Flows, Consequences, and Management Options*.

Next steps: At the SDSN-IFA meeting in January 2015 there will be a workshop on SDG targets and indicators; this will present an opportunity to advance discussions.

Discussion points:

Heffer: noted that 2015 has been designated by the UN as the International Year of Soils so provides a good opportunity for making linkages. Stockholm World Water Week is also of interest in getting communications out. Datta: added that there have been some efforts in collaboration with the Global Soil Partnership led by FAO.

2. Nutrient Use Efficiency Task Team

Dr. Terry L. Roberts, International Plant Nutrition Institute (IPNI)

Since its formation in 2013, the Team has had meetings via telecon and had a meeting over the past 2 days. The Team has been looking at N use efficiency with a focus but with the outlook to cover all nutrients. There is presently an EU expert panel looking at this; the OECD is also working on this. The task team was successful in getting some agreement on the specific tasks it is challenged with. **Task 1:** Agreed that partial nutrient balance (PNB) was the most appropriate metric of N use efficiency. It is consistent with SDSN recommendations and the IFA position. There is enough data to conduct PNB. Agreed on a definition and that NUE will be used as the metric; has to be put in the context of location and other factors. The team felt it should be more a progress indicator – that is, not an end goal; the Team did not feel it had authority to set limits for countries to adopt. The concept of surplus or deficit gives a good indication of status. He explained the graphical approach that can be presented to countries to adopt/adapt as a tool for the progress indicator. Countries can use this to do assessments to see where they need to go. **Task 2:** Enhance access to data; however need to be cautious with respect to how this data is applied to the indicator. **Task 3:** establish targets for crops; decided that it is best to provide ranges and set guiding principles.

Next steps: The Team is to prepare a 10-page brief on the NUE indicator approach. This brief is to be taken to the upcoming SDSN meeting in Paris.

Discussion points:

Scholz: (commenting on the graphical tool) noted that if one increases the yield and there will be changes to NUE noted that this is not a linear relationship (according to the graph). Roberts: stated that this concept will apply to both P and N. Crosby: noted that in application of the tools there has to be agreement amongst the SC based on what is brought by the scientists working on this. The utility of this tool is to assess where we are and where we want to go; it is about getting everyone (governments) on

the same page with respect of how they assess status. The GPNM does not wish however to be too prescriptive.

3. Partnership Task Team

Dr. Greg Crosby, National Program Leader, Sustainable Development, USDA National Institute of Food and Agriculture

He noted the good links between the modelling work and the policy under the Global Nutrient Cycling project. The focus of this team is about ways to improve the partnerships. Partnership building is based around some key considerations: (i) what are the benefits to a partner; (ii) what are the gaps in the membership of GPNM; (iii) what expectations should GPNM have of each partner; (iv) what kind of recruitment protocol should we go through; (v) what should a GPNM structure and governance look like – e.g. how long does a chair serve, how long appointed, etc.; (vii) what should a communications structure look like. An important factor is how do stakeholders, from policy makers to farmers, access and use information.

He noted the gaps in the membership of the GPNM adding that it could include global farmer networks and other international extension networks. He asked what mechanisms can be best used to invite new members. He suggested that we should look at development of a letter of invitation that outlines the kind of services which can be obtained by the stakeholder from the Partnership; on a matter of formality, who then should sign such an invitation letter? These matters are for consideration by the Steering Committee.

The GPNM has a terms of reference however many members said they had not seen them, hence requesting that the GPA to re-send to members for review. A communications strategy has been developed by the GPA which is up for consideration by the SC. On the matter of the website, there should be one portal for administrative resources (sharing meeting minutes, etc.) and also a web presence that translates products to useful material for stakeholders.

Discussion points:

Heffer: stated that the food industry is becoming increasingly interested and an important actor in discussions. Scholz: suggested that we consider a stakeholder analysis to evaluate who are the most appropriate representatives; this has been done for Global TraPs. Once the groups are known then one can identify willing stakeholders. There needs to be ‘out-of-the-box thinkers’ involved in the Partnership from NGOs and other partners. The stakeholder identification should be done by one representative each from (i) Industry, (ii) policy, (iii) academia and (iv) NGOs.

4. Toolbox Task Team (progress on the GEF-Global Nutrient Cycle (GNC) Project) **Chuck Chaitovitz, Principal, Global Environment and Technology Foundation (GETF)**

He outlined the 4 components of the GNC Project:

1. Building a global partnership on nutrient management (GPNM) to support the promotion of partnerships down to country level;
2. Advancement of science and modelling down to watershed level to understand what the nutrient balances look like;
3. Development of toolboxes that integrate science and modelling outputs that decision makers can use;
4. Investment in investigations at pilot locations; 3 sites: (i) Lake Chilika, India, (ii) Manila Bay watershed, (iii) Laguna de Bay, Manila.

With respect to Component 3 on toolbox development, the focus has been on scalability that is of interest to small farmers and how to translate global knowledge to small farmers in terms of their practices. The tool serves this function. It seeks to advance a system of practices rather than one single practice; linking elements of wastewater management, policy, etc., to farming. Much is known about systems in developed countries, however, it is not known how much is happening in the developing world. In these countries data is typically collected on an ad-hoc basis. At the field level, farmers generally do not collect data. Innovative approaches such as sustainable financing and payment for environmental services (PES) are taking root which will advance the need for collection of data.

Under this Component a decentralized platform that captures BMPs is being developed. The key outputs include a draft BMP toolbox online, a draft synthesis online, inclusion of 25 cases online, an integrative approach/calculation tool online, and technical exchanges with WRI partners on work in the Manila Bay. There have been discussions on a Chilika Lake technical exchange (likely in the early part of 2015). There have been peer reviews. A final training workshop is proposed for the 8th GEF International Waters Conference (IWC8). Other outputs included global inventory of BMPs, development of a training module, training delivered at IWC7 and GLOC2, engagement and growth of collaborations and articles published. The toolbox can be found on the nutrientchallenge.org website.

Dr. Mindy Selman, Senior Associate at WRI provided an overview of the toolbox that is posted online. The data has been scrubbed and data tagged. The tool includes agricultural BMPs and urban BMPs; in total there are about 100 BMPs which are categorized into 14 groups, with some tagged to multiple categories. The database is searchable. Dr. Selman provided an overview of the policy database and the category types and policy types. It is also possible to search the database by region and sector.

Discussion points:

Sweeney: asked if persons wanted to provide additional data/update the toolbox, how will this be done? Chaitovitz: responded that they will still shoulder this work for now. Raghuram: asked how do you filter the BMPs from all the other practices out there – what constitutes ‘relevant’ BMPs? Response: Can include any practices that showed benefits in terms of improved nutrient management. Note that BMPs are very site specific depending on the scale/location. Lu: asked how will stakeholders know when new information has been uploaded? He added that the FAO has amassed huge databases such as WOCAT; how will we link to this database (and others)? Chaitovitz: responded that there is

interest in linking with the IW-LEARN platform to facilitate and formalize some of these linkages to other databases as suggested. Crosby: noted that the project is extended to March 2016 so suggests using the next 3 to 6 months to populate the database. Koo-Oshima: added that it would be good to include economic data; e.g. the equivalent value of nutrient exports, etc.

Albert Bleeker, Senior Researcher, Environmental Assessment, INI & Energy Research Centre of the Netherlands provided an overview of the Calculation Tool Approach: Based on Global NEWS model. Calculations have been done for 6,000+ basins for the current situation; the next (online) version of the tool will allow for evaluation of different pre-set scenarios. Working to develop this as a web-enabled tool. Currently the policy and BMP datasets are not linked and should move to an integrated situation; can integrate maps and spatial data. The tool primarily focuses on agriculture. Contributions of the SC are being sought in terms of other relevant data (including spatial data). The main updates to the system to be made in the next year milestones for the project into 2016 have been identified. He showed screenshots of the nutrientchallenge.com website and various data outputs available from the site, noting the ability to evaluate scenarios by using interactive tools (sliders) to select management scenarios and evaluate outcomes.

Discussion points:

Bindraban: asked how you would translate policy and practices to nutrient loading in the river. Chaitovitz: responded that work on this aspect is to be posted to the website.

GNC Component B: Quantitative analysis of relationship between nutrient sources and impacts to guide decision making on policy and technological options

Henrik Enevoldsen, Head, IOC Science and Communication Centre on Harmful Algae, IOC/UNESCO
Presentation slides in Annex 3.2. Available at

<http://unep.org/qpa/documents/meetings/qnm/SteeringCommittee/GEFComponentBEnevoldsen.pptx>

The main outcomes of Component B would be 'relevant stakeholders in developed and developing countries have basis and tools available to attribute sources of nitrogen (N), phosphorus (P) and silica (Si) within watersheds; quantify past, current and potential future export of N, P and Si to the coastal zone and develop estimates of the relative efficacy of increases/decreases in nutrient export on coastal water quality at regional to international scales'.

An overview of the elements of component B were provided and of the status of implementation.

B1. Overview of existing tools for source-impact analysis of nutrients: A draft was delivered November 2014.

B2. Global database development: B2.1: Global NEWS compiled and available on GPNM website. Regarding sub-item B2.2: Aquaculture data were published in Reviews in Fisheries Science (2013 and 2011). Spatial allocation freshwater aquaculture was completed in 2013 and published in Environmental

Research Letters, and data and publication on spatial allocation marine aquaculture will be completed January 2015. Component B2.3: Coastal conditions and coastal effects, is in progress and will be completed 2015. For B2.4: Observed impacts, Sub items B2.4.1: Occurrences of hypoxia and harmful algal blooms and B2.4.2: Impacts on fisheries, these are expected during 2015.

B3. Nutrient impact modeling is composed of B3.1: Enhance predictive capability of models which was published as two papers McCrackin et al (2014) and Liu et al (2014), Sub item B3.3: Analyze maps of past, current and future contributions of different nutrient sources was addressed in a paper published by McCrackin et al (2014), Sobota et al (2013) McCrackin et al (2013, Harrison et al (2014).

B4. Development of regional models of coastal effects under different physical regimes using regional data Manila Bay, subcomponent B4.1, delivered a database covering the watersheds discharging to Manila Bay. It will be updated to include results from concluded studies from partner agencies (BSWM, PNRI, PEMSEA) and nutrient data from earlier draft database will be updated (PEMSEA). Final to be delivered April 2014 (original timeline). In progress: Preparation to modelling with the interaction and cooperation of PEMSEA.

Subcomponent B4.2: High resolution river export model , has delivered a preliminary nutrient load model which was completed after working visit by University of the Philippines staff at Utrecht University with Bouwman and Beusen, There is currently an updating of data and maps needed for improvement of nutrient load model and a processing of inputs in a finer resolution grid. Addition of agricultural and aquaculture component to model is in progress as is an update for export of other N forms as input to DELFT3D.

For subcomponent B4.3: Ecosystem model for Manila Bay, work is in progress. 2D model has been set up, work on 3D model in progress. DELFT3D WAQ for B4.3 to complement the hydrodynamic and water quality models. Review of related literature for model parameters (local values, emission rates, etc) half completed as is the setup of grid system and boundary conditions.

For subcomponent B4.4: Testing and application (UP), the scenario building is half completed and John Harrison (WSU) was at a sabbatical at UU (October 2013-April 2014) and worked together and shared experiences, models and data. There was also working visit of UU to UP April 2014, as well as a Modeler's workshop with PEMSEA and other partners (April 2014). There was a follow up workshop in October 2014. Work visit of Lara Sotto (UP) (October 2013) to Utrecht, and there are planned working visit of UP to UU for April or May 2015. A paper was published by Sotto et al (2014) on the spatiotemporal variability of hypoxia and eutrophication in Manila Bay, Philippines during the northeast and southwest monsoons. And an oral presentation on nutrient load estimates for Manila Bay using population data was made at the IOC WESTPAC Symposium in Vietnam April 2014.

B5. Toolbox Component C: A summary model for impact of nutrients on harmful algal blooms is in progress, to be completed spring 2015 and a model for impacts of nutrients on hypoxia is in progress, to be completed later in 2015. An analysis of the relationships between N loading, hypoxia, and fisheries is in progress, to be completed 2016.

B6. Training workshop: Preliminary scheduled for IWC8 VN late 2015.

Further information is available at the nutrientchallenge.com website.

Discussion points:

Van der Beck: noted the complementary work of the Transboundary Waters Assessment Programme (TWAP). Lu: asked what is the relationship between the UNEP GPA website and the nutrientchallenge.org website and what types of information is being disseminated on these two sites?

Sweeney: stated that it should be noted that UNEP has stringent publication guidelines and protocols and approval processes as far as dissemination of documents from official UNEP web resources. The UNEP GPA site hosts information on the GPA Secretariat's support to the partnership and official UNEP documentation. The work of the partners and relevant activities that may not necessarily be subject to review and approval by UNEP are hosted on the [nutrientchallenge](http://nutrientchallenge.com) portal.

Draft Conclusions/ Recommendations Mid-Term Review - Global Foundations for Reducing Nutrient Enrichment and Oxygen Depletion from Land-Based Pollution, in Support of Global Nutrient Cycle (GEF-GNC Project)

Isabelle Van der Beck, GEF IW Task Manager, UNEP

Presentation slides in Annex 3.3. Available at

<http://unep.org/gpa/documents/meetings/qnm/SteeringCommittee/GNCMTRVanderbeck.pptx>

Summary of review findings: The project at mid-term has been rated as 'marginally satisfactory'. She noted that this is often an expected evaluation result for the mid-term that signals room for improvement. She outlined the objectives of the Mid-Term Review (MTR) and highlighted the various criteria for review. The general conclusions are that the project is a very good initiative overall and has addressed the critical uses and that it will benefit other countries. The project design was comprehensive; however maybe with too many outcomes and outputs. The logframe indicators were also perhaps not too-well defined. The reviewer was impressed by enthusiasm and commitment of the project partners and impressed with the achievements of the pilots, concluding that they were catalytic. The reviewer however noted that information generated is not readily available for public use and opined that the GPA is the appropriate body to facilitate improvements in this regard. The reviewer noted that there were some challenges in communication between the PCU and the partners. Regarding visibility to external stakeholders, this is somewhat poor and that the lack of an effective communications plan is contributory. The reviewer suggests that the website does not seem to meet GEF IW requirements. The draft MTE report will be submitted before Christmas for submission of review comments by mid-January 2015. The recommendations are to be considered at the next project steering committee meeting. The reviewer was impressed with Component A which allowed GPNM to advance and build capacity and the fact that scientists and modelers were able to collaborate and take this up to the highest national policy directorate in the Philippines.

Lessons learnt: The project provides a good opportunity to demonstrate ideas and concepts through the demonstration sites. However lack of a good communications strategy and deficiencies of the website are proving problematic. The transition in technical staff at the GPA (with respect to the departure of Dr Datta and recruitment of his replacement) resulted in some issues but not significant to the project overall.

Recommendations: The following areas for attention and improvement have emerged from the review:

- Review logframe and indicators; make sure they are smart and streamline the number of indicators;
- Go back to project document and consider the M&E framework and report properly on a quarterly basis as was intended;
- Gender was not taken into consideration adequately; nothing has been done on this issue and should be rectified;
- Develop a communications strategy;
- The project website is more of a document repository; not interactive enough. There is room for improvement;
- An exit strategy / sustainability plan needs to be prepared;
- Supportive of a project extension. Costed workplans for the extension need to be prepared and submitted to the SC for approval.

The project overall has done a great job that should be captured in experience notes and has potential to contribute to significant impact in the area.

Discussion points:

Sweeney: asked if the logframe of the project were to be changed, does this have to go back to the GEF for their approval? Van der Beck: responded, not necessarily; this can be done based on the present reality/circumstances the project faces. The important aspect is that the project remains faithful to the outcomes as specified in the logframe.

Targeted research on the global N cycle: towards an International Nitrogen Management System (INMS)

Clare Howard, Centre for Ecology & Hydrology, Edinburgh, UK

Presentation slides in Annex 3.4. Available at

<http://unep.org/gpa/documents/meetings/qpnm/SteeringCommittee/INMSGPNMCHoward.pptx>

Dr. Howard stated that this presentation was delivered on behalf of Dr Mark Sutton who was unable to attend as he is at another meeting. She explained that an INMS helps link management of the various components of the nitrogen cycle and provided a diagrammatic overview on how reactive nitrogen gets into the system, the range of nitrogen forms that are generated, and the consequent environmental

issues. The wide-ranging impacts make it a challenge to address all the issues in an integrative manner. There are a lot of communications requirements with stakeholders to make them understand the process and impacts. She illustrated trends in global fertilizer use, noting the fact that there is no global treaty for nitrogen but that there are many other treaties that cover elements of nitrogen management. The challenge is how can these be coordinated to make them work together? This is where an INMS fits. The project comprises the following tracks: Track 1: intergovernmental governance; Track 2: coordinate science policy; Track 3: basic and applied field research, and Track 4: extension and training. The project will be funded by the GEF for a total of US\$6 million. The opportunities to be addressed by the project include refining the indicators, investment in mitigation and management practices, demonstration of best practices and understanding and addressing barriers.

The following are the project components:

- C1: tools and methods for understanding the N cycle
- C2: global and regional quantification of N use
- C3: regional demonstration
- C4: awareness raising and sharing

The regional demonstrations will assist in gaining an understanding of the N issues within different global and regional circumstances, supported by implementing relevant management plans and charting the progress. Across the regions some issues will be different while others will be similar. There are 4 types of demonstration activities based on differing regions envisaged in the Project Identification Form (PIF, or GEF project concept document). Activities will be in: (1) Developing countries with excess N such as those in South Asia, South America; (2) Countries with economies in transition, where the focus will be within 3 watersheds in eastern Europe; (3) Developing countries with insufficient N where the target will be Lake Victoria countries; (4) Developed countries with excess N including countries in western Europe and along the Atlantic seaboard of North America.

Status of project development: There are planned project development meetings for the formulation of the full-sized project proposal; in Japan, in February 2015 and in the Ukraine, for some time in spring 2015.

There is a parallel INMS “Priming Project”; this is a 3-year initiative aimed at the integrated assessment modelling needs for N, including modelling needs for the community of stakeholders. This will feed into the main INMS Project. She provided an overview of this project and key outputs.

The INMS project is now in the Project Preparation Grant (PPG) stage; where the GEF has granted resources that will aid in the development of the full-sized project (FSP). At the project concept submission (PIF submission) which was approved by the GEF earlier this year, co-financing was solicited from the various project partners. In this ‘PPG phase’ there are on-going discussions with the partners on project implementation modalities, along with further discussions on definition of the demonstration site areas, and gaining formal commitments from the partners in terms of co-financing. It is anticipated

that the FSP will be submitted by July 2015 after addressing any GEF comments. The launch of the FSP is anticipated at the IWC8 in October 2015. The project is expected to commence implementation in 2016.

Immediate next steps: Broadening the INMS project partner engagement will be assisted by a planned meeting for all partners in April 2015 in Lisbon; this will support further discussions on commitments and integrate work of the UNECE task force on reactive N. A contributory meeting on integrated assessment modeling is planned for the 5th and 6th of May in Edinburgh. Communication on the project development will be key, given the number of stakeholders. CEH will post all the information on the project to date to aid in dissemination; to include the newsletters and partner information.

Discussion points:

See Day 2 proceedings.

GPNM 3rd Steering Committee Meeting Proceedings - Day 2

Day 2 proceedings commenced under the chair of Dr Greg Crosby who introduced the Deputy Under Secretary, Dr. Ann Bartuska.

Remarks from Host Government

Dr. Ann Bartuska, Deputy Under Secretary for Research, Education, and Economics, USDA

Dr. Bartuska provided insights of her current engagements on work with conservation and sustainability and nutrients management. She sits on the intergovernmental panel of biodiversity and ecosystems services so understands the issues around nutrient management including the science-policy interface and associated challenges. She noted the progress at this five-year milestone of the GPNM and complimented the group for its work. She however admitted that there is not enough data on reactive N and influences on ecosystems and that it is important to consider NUE as a priority issue. Nitrogen management also has a climate change dimension not to mention water and food security; being able to make these linkages is important and it is good that the GPNM is considering this. She commended the work in the Philippines with the report card tool noting that we need to take these lessons and translate them further at national and regional levels. The importance of partnerships is also in sharing practices in terms of incorporation of science in our own programmes. Funding have been coming in for areas on climate change and other sustainability issues and nutrient management can be linked. She made note of the application of agroforestry solutions specifically for land smallholders that are of relevance in nutrient management and sustainable development. She stated that she looks forward to getting updates and outputs on the performance indicators work.

Discussion points:

Lewsey: mentioned that there is need to consider the issues with wastewater from the urban environments into the Mississippi River that gets into the Gulf of Mexico. Bartuska: agreed that this is a major issue. The Mississippi River Basin Scheme has a programme for monitoring that will assist with decision making. Bindraban: asked how in her experience she has managed to foster inter-departmental linkages? Bartuska: responded that on the science side there seems to be much better harmonization among collaborators; this is aided by a science committee. There is a high-level decision making body that feeds policy down through the departments, however the budget to implement at the departmental level is often done in silos and this presents challenges in harmonization between departments/agencies. In effect, most of the work gets done on a peer-to-peer basis and this seems to work more effectively. The highest level authority comes from the President and this is the greatest convening authority that will force interagency collaboration. Sweeney: asked about the possibilities for financing under discretionary budget avenues from the USDA? Bartuska: responded noting that access to and resource commitments do not lie within the area she has responsibility over; rather it is the remit of other branches of the agency and also agencies such as USAID. However, if financial support is being sought, consider preparation of a proposal to be directed to the appropriate agency(ies).

Ms. Adelina Santos-Borja then updated the meeting on work ongoing in the Philippines. She informed that the Manila Bay ecosystem health report card is still a work in progress and stakeholder consultations are being planned to review the report card. A draft is due at the end of February into March 2015. She said that they have been in consultation with the University of Maryland on further development of the draft. The Manila Bay group is also keen and awaiting the outputs from this process. Every year a report on the environmental status is to be provided to the Supreme Court, however there are very many watersheds and local governance bodies so it presents a challenge in coordinating and integrating information to feed into the review and decision making process. Nonetheless the report card mechanism provides a good way to integrate all of this.

Discussion points on the INMS Project presentation (from Day 1)

In-kind (co-financing) contributions: Roberts: asked what happens if the in-kind contributors do not follow through to match the GEF core resources? Van der Beck: responded stating that much of the partner's co-financing will be also represented by work already carried out that contributes to the baseline for the project. It should be noted that project resources can also be available to the project collaborators so builds a win-win partnership in implementation. Howard: noted that the partner commitments were identified at the PIF stage but now this has to be firmed up in the PPG phase. Van der Beck: noted that if there are challenges in getting the level of partner co-financing that was committed at the PIF stage when the project comes up for CEO endorsement this will present a challenge to its approval by the GEF Secretariat. Roy: noted that as one of the partners, their activities have changed since initial commitment so wanted to get clear on how this will work in pledging co-

financing. Van der Beck: stated that this will need to be brought to the attention of the project design team; noted that it is also possible that additional co-financing may be pledged by CEO endorsement. Roy: noted that there could be cases where there is double-counting in pledging co-financing; how might this be dealt with? Van der Beck: responded stating that this can be the case, but this possibility should be reduced if there is proper accounting for the co-financing from the partners as the project is designed. Raghuram: noted that it will be easier to raise co-financing based on local initiatives; the Indian government will not commit co-financing resources for initiatives that will occur outside India.

Stakeholder buy-in, commitment and sustainability: Scholz: remarked that the proposal is of a very good quality, however, was a bit skeptical over how it is framed in terms of stakeholder involvement; there seems to be insufficient involvement of the stakeholders based on their current configuration. Van der Beck: suggested that there will be a meeting in April to present what the design task team has prepared and will provide an opportunity for inputs. The documentation has been circulated amongst participating countries and so far two countries have commented with no objection. Passenier: asked what will be the ultimate end results of the project – who will use what? He added that we need to think about what are the expectations of the project; these should be clear at this point. Van der Beck: stated that these questions are being considered in the project design between now and the middle of 2015. Hansen: added that the project proposal (PIF) was assessed by the GEF's Scientific and Technical Advisory Panel (STAP) and included many of these elements in their review with emphasis on sustainability. All partners should be aware and engaged in this planning. The project needs to build on existing structures/work of partners. Lu: asked how can the project build in a mechanism to maintain continuous inputs of stakeholders, further noting the need to also build in substantial roles for prominent local institutes that have influence on governments; an important consideration as there are limitations of the regional/international agencies in exerting local influence. Koo-Oshima: added that there is not much clarity on how to engage with governments; how ultimately will project outputs get translated to policy at the end? She also wanted to know who were all the stakeholders and what they bring to the table. Van der Beck: noted and clarified that there have been many internal planning steps that sought to integrate stakeholders and that these processes are still taking place; information on the state of progress on project formulation is readily available from the design team and partners will be kept updated. The PIF communicates most of the information that is of current relevance (including partner involvement and relationships).

Selection of local project sites: Chaitovitz: asked how will the demonstration areas be selected; are there meritorious criteria that advance the selection of these sites? Van der Beck: responded stating that this may not be an absolute need; has been based on mutual agreement among stakeholders (including governments); Mark Sutton is currently putting together some documentation on justification for selection of the project sites. Zhang: noted that the geographic scope and size in the countries will have implications for data collection. Howard: stated that it is diverse based on the work that will be done in the country. There are levels from field to catchment to regional scales.

Other: Sweeney: suggested the need to reformulate the presentation in consideration of the audience. As presented, it was rather difficult to follow and was a challenge to see what the outputs and outcomes

are. Need to make sure the presentation is repackaged appropriately so that it is easily understandable especially by non-technical audiences.

Chaitovitz: pointed out that the planned April meeting date may coincide with the convening of the World Water Forum (WWF).

GEF 6 Priorities - Blending integrated thinking with focal area objectives

Steffen Hansen, Junior Program Officer, International Waters, Global Environment Facility (GEF)

Presentation slides in Annex 3.5. Available at

<http://unep.org/qpa/documents/meetings/qnm/SteeringCommittee/GEF6StrategicProgrammingSHansen.pptx>

Mr. Hansen outlined how the GEF works from its guidance role (STAP and GEF Council and Evaluation Office) to Operations through Implementing Agencies and finally to actions with Executing Agencies. He provided an overview of the GEF focal areas and noted that the GEF 6 strategy is approved; GEF replenishments are done on 4-year cycles. Previously, there were more single portfolio 'silo' approaches but the GEF is now looking at integrating the focal areas in project design and implementation. The GEF seeks to pilot and implement what the private sector will typically not approach. An example of this new integrated thinking which the GEF is advocating is the nexus between water, food and energy. The GEF focal areas have multiple entry points that nutrient management can be nested within. He gave insights on the International Waters (IW) focal area and that investments are typically informed by Trans-boundary Diagnostic Assessments (TDA) that are translated to Strategic Action Programmes (SAP) which are done across multiple countries at a regional level. However the SAP is implemented at the country-level in realizing transformational change. It is on this platform that the STAR (System for Transparent Allocation of Resources) allocation assigned by the GEF to countries can be distributed. There are several programme areas under the IW focal area that the nutrient initiatives can fit within. The Land Degradation (LD) focal area is another potential area of entry. The Chemicals and Waste focal area is of relevance also. Challenges with nutrients affect biodiversity and there may be opportunities under the biodiversity focal area for support based on the ridge to reef watershed management framework; however BD may be a more difficult entry point for nutrients based on orientation of the focal area.

He highlighted the disbursements under the IW portfolio from 1992 to 2014. He outlined the major relevant GEF projects that can be looked at to gain understanding from other networks. He also provided insights on "blue biomass" – nutrient capture through sea moss in the marine environment as an innovative approach, drawing on lessons from Denmark, based on a business model for use of seaweed in agriculture, nutrient and livestock feed stock.

Discussion points:

Roy: asked whether there is there is a defined co-financing based on the project, or are there set amounts? Hansen: responded that these are not cast in stone but there are policy guidelines; the co-financing policy was just revised by the GEF Council and can be circulated. Koo-Oshima: added that it will be interesting to do life cycle assessments for the case of the blue forest example presented; fish meal replacement in agriculture, biofuel potential, potential for nutrient mining where the enterprises may get to large scale.

Global TraPs Phosphorous Transition

Arnoud Passenier, Director, Value Chains Sustainable Innovations, Ministry of Infrastructure and the Environment, the Netherlands

Presentation slides in Annex 3.6. Available at

<http://unep.org/gpa/documents/meetings/qnm/SteeringCommittee/AdviseGLobalTraPsAPassenier.ppt>
[x](#)

Mr. Passenier raised the question of how to integrate Global TraPs (Transdisciplinary Processes for Sustainable Phosphorus Management) into the GPNM, highlighting the need to explore possible synergies between the two platforms. He outlined the process of consultation on this issue that included interviews with stakeholders from Global TraPs on possible arrangements. There is a shared mission regarding nutrient management and food security hence both networks should come together at the global level and they are similarly networked with science/academia and industry although admittedly, GPNM has more of a focus on N while Global TraPs has been more focused on P management. He discussed the relevant elements for integration highlighting the similar characteristics of the two networks and how the structure of the GPNM may be adapted with a focus on innovation and a systems approach. He acknowledged that the UNEP-supported platform is stable. He noted that there is general consensus to protect the heritage of Global TraPs within GPNM adding however that there is no fund to support research in this area. He suggested the creation of a Task Team for P in the coming year and presented the terms of reference for such a Task Team. It should be multi-disciplinary, with a maximum of ten participants representing science, business and government. Arnoud Passenier is prepared to lead the Task Team in the initial stages and can develop an agenda within the next few months.

Discussion points:

Scholz: stressed that we need to put in place an appropriate organizational model to be effective. Bindraban: advised that the policy position for P management should be based on opportunities to move to a closed loop via various avenues, linking food security to pollution control. Sweeney: asked what kind of message should the GPA be advancing that is not already being done?; or is this to be a position that Global TraPs is to be subsumed under GPNM? Roberts: noted that the Global TraPs project finishes in 2 or 3 weeks and no longer exists; the discussion was around a transition to a task team around P; these are the activities for which Global TraPs is looking for a home. Raghuram: advised of the need to be aware of the boundary conditions of the GPNM, however welcomes the addition to the GPA mandate and the GPNM mandate which is evolving anyway. Scholz: noted that there was co-leadership from the main pillars – policy and science; this must be considered in integrating the two platforms.

Meeting decision: the Global TraPs is now integrated within the GPNM as a task team on P. The following are the task team members:

- Arnoud Passenier
- Terry Roberts
- Roland Scholz
- Sasha Koo-Oshima
- Amit Roy

Discussion on governance arrangements for the INMS project

Isabelle Van der Beck, GEF IW Task Manager, UNEP

Presentation slides in Annex 3.7. Available at

[http://unep.org/gpa/documents/meetings/gpnm/SteeringCommittee/TargetResearchGNCIVanderbeck.](http://unep.org/gpa/documents/meetings/gpnm/SteeringCommittee/TargetResearchGNCIVanderbeck.pptx)

[pptx](#)

The meeting discussed the mechanisms for integration of the project governance within the GPNM and how the project steering committee may be constituted and decisions made in terms of both administrative and technical aspects of the project. Van der Beck: noted that both GNC and INMS initiatives fall within the remit of GPA/GPNM mechanism. Under the GNC Project UNEP has both Implementing Agency (IA) and Executing Agency (EA) responsibilities. However, this is not the case for the INMS initiative; it will be externally executed. In identification of an EA out of the GNM partnership, the agency having a competitive advantage was assessed with respect to N management, and it was determined that the Centre for Ecology and Hydrology had relevant competencies. It was further noted that the proposal would likely not have gone through without the significant contributions and inputs of Mark Sutton. The PPG phase will provide an opportunity to review and come to a satisfactory project governance structure. GPNM could be part of the steering mechanism but it is up to the meeting (GPNM SC) to decide. Sweeney: offered the model of a Steering Committee and a Technical Advisory Group arrangement based on a large GEF project he previously managed (GEF-IWCAM) that may work for the INMS Project; in this case there is a need to make sure that there is adequate representation which includes the GPNM at both levels.

Van der Beck: presented the project management arrangements in a graphical presentation.

Discussion points:

There was much discussion on the representation of the GPNM on the PSC. On the project organogram it was suggested that the place where it says “Key Partners” that the GPNM be represented. The GPNM can then decide who may represent it on the PSC on behalf of the Partnership. GPNM should also be a member of the Scientific Policy Advisory Group. It was suggested that some options be presented to the GPNM for consideration and final decision. It was agreed that documentation will be shared with the GPNM SC for consideration as the full-sized project develops.

2015 Work Plan for GPNM

Vincent Sweeney, GPA Coordinator

Presentation slides in Annex 3.8. Available at

<http://unep.org/gpa/documents/meetings/gpnm/SteeringCommittee/GPNMActionPlan2015-16Sweeney.ppt>

Mr. Sweeney outlined the main elements of the work programme that include elements of advocacy and consensus building, stimulation of discussions and assessment of scientific evidence and informing the formulation of intergovernmental agreements. This all is referenced to the Manila Declaration and incorporates the two GEF projects. He highlighted the key outcome which is around improved knowledge and changed attitudes. He further highlighted the core components of the work programme that include (i) knowledge generation, (ii) extension and technical services, (iii) outreach and advocacy and (iv) partnership and network development. He outlined the areas for immediate action as follows:

- Building knowledge through sharing of lessons;
- Creation/development of a global knowledge-base on policy experiences;
- Promotion of activities that raise awareness and dissemination of information;
- Facilitation and/or development of new approaches and projects to complement governments' efforts;
- Offer opportunities to develop networks and strengthen a community of practice;
- Develop indicators to assess progress towards globally agreed targets;
- Setting of regional/national-specific targets on NUE & nutrient load;
- Secure commitments from stakeholders on regular reporting on the progress towards NUE;
- Holding periodic meetings with partners to share information;
- Identification, review and compilation of best nutrient management practices;
- Development of policy toolbox related to managing nutrient impacts;
- Development of policy briefs, guidelines;
- Facilitation of dialogues for policy reform;
- Facilitation and design of cost-effective on-the-ground interventions;
- Development of eXtension training programme and facilitation of exchange of scientific data, methodologies and research applications among stakeholders.

Under the GNC Project the following areas constitute the 2015 work plan:

- Finalization of modelling;
- Bringing together knowledge in toolbox;
- Testing application of models on Manila Bay watershed;
- Replication of the ecosystem health card in the Laguna de Bay;
- Develop training in impact modelling;
- Production of briefing notes that summarize model outputs;
- Support evaluation of the project.

Work under other initiatives includes:

- INMS Project - Working with partners for final submission of the FSP for GEF endorsement;
- Controlling nutrient loading in the south Asian waters;

- Nutrient loading into the Caribbean Sea;
- GPA wastewater management project (sister project will allow for synergies with the GPNM initiatives).

It is estimated that the Partnership will require US\$1.2 million to execute the workplan outside of the projects within 2015. The GPA will be putting in efforts to mobilize resources.

Discussion points:

Assessment of the impact of the work of the GPA: Bindraban: asked how is the impact of the GPA assessed? Sweeney: responded that the programme is evaluated by UNEP's Evaluation Office. In addition, all projects that the GPA is engaged in have built-in evaluation mechanisms. There is also an internal electronic evaluation system that senior management is required to update in order to report on progress.

The GPNM work programme: Crosby: noted that there are many other areas that can be considered as well; bioremediation, closing the nutrient loop, food security, etc. Lu: added recommendations for consideration (i) targeted reduction in nutrients (ii) facilitate demonstration regions (iii) annual conference for nutrient management may be considered – support policy and economy dialogues (iv) technology introduction (v) training and capacity building. Raghuram: noted that in the workplan, the GPNM does not have an official mandate to set targets. This should be modified in the text of the workplan. Further, this was agreed in the deliberations over the past 2 days. Santos-Borja: asked as to whether there is any research going on in the area of already-trapped nutrient releases from waterbodies, making reference to the Manila Bay and the Laguna de Bay; this is apart from the nutrient loading from the watersheds. Lu: suggested that this is an ambitious work programme in light of constraints adding that there are plenty of bilateral programmes globally. These can generate useful information that can be used as part of the work of the GPNM; hence the GPNM can be a knowledge broker. Koo-Oshima: stated that under US-China cooperation there is a large portfolio of work on water and nutrients and there are a number of opportunities to seize on this. A lot of work is ongoing through the FAO; the GPNM will need to bridge linkages with FAO in this regard (acknowledging that the FAO representative was not able to attend this meeting). The meeting agreed that Sasha Koo-Oshima will call the FAO (Caterina Batello) to follow up. Bindraban: asked who ultimately endorses the outputs of the work of the GPNM? Discussion response: that depends on where/who the outputs are directed at.

Addressing the GPNM work programme funding shortfall: Crosby: asked how can the members support the access to resources to make up the budget shortfall identified? Discussion response: can tap into the networks and capabilities resident in partner agencies; some of this will be staff time/research time; can also be in cash if it can be raised from donors. Proposed that bilateral discussions are held with partners to see what exactly can be brought on board as part of their work programme. In other words elements of the work of the GPNM can be done by partners; does not have to all be the work of the GPA. Heffer: suggested that the extensive study on fertilizer subsidies could be contributed to the GPNM work programme and contribute to unsecured financing. He noted however that the issue of nutrient mining seems to be ignored as most of the programme appears to be focused on pollution and nutrient surplus. Nutrient mining is related to expanding more intensive farming that

also has negative consequences. Datta: opined through work of the GPNM partners this US\$1.2 million funding gap for the work of the GPNM may actually not be so large. Passenier: volunteered that he will flag the resource mobilization need for GPNM with the EC Director General for Environment. He advised of the need for a specific narrative document/proposal that he can take around to seek out funding opportunities. He noted that the EU sustainable P platform will be the focus of discussion over the 5th and 6th March 2015 at a conference in Berlin; will be a good opportunity for the GPNM to be represented. He will send a draft programme to the GPNM members.

Major events for highlighting work of the GPNM: Need to look at International Year of Soils with respect to the GPNM's work. Roy: suggested that the Global Alliance on Climate Smart Agriculture is another useful forum. Koo-Oshima: advised that the World Water Forum World Water Forum 7 in Korea should be considered. It is proposed that the GPNM attends the 2016 Nutrient Conference in Beijing, China. A meeting on the sidelines of the GNC Project Steering Committee is a possibility. In addition, a side event may be hosted at the IWC8 in October-November 2015; this particular forum will facilitate access to ministers and policy makers. Hansen: stated that there are possibilities for partnerships with the IWLEARN platform. The meeting also considered as useful events the World Lake Conference to be held in Bali, Indonesia in 2016 and the 3rd Global Conference on Land - Ocean Connections (GLOC) slated for 2016 in Rio de Janeiro, Brazil which will also coincide with the 20th anniversary of the GPA.

Any other business and final thoughts

Draft communications plan: Bleeker: noted that he hoped there would have been discussion on the draft Communications Plan. Sweeney: encouraged members to comment on the draft plan and suggested that maybe have a separate committee or task team look at communications. Albert Bleeker volunteered to chair this committee.

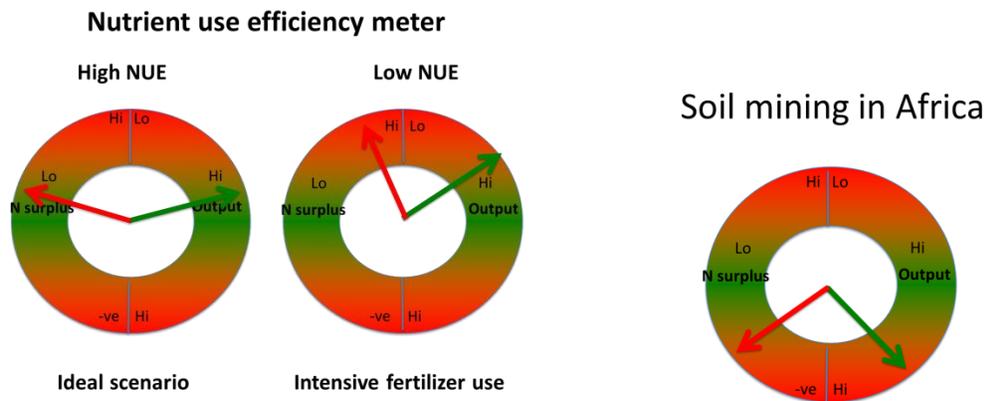
Representation at the next UN meeting on the SDGs: Roy: asked whether the GPNM be represented at next UN meeting on the Sustainable Development Goals, assuming that there will be side events at which the Partnership can launch advocacy efforts? Crosby: cautioned this will be a very competitive process and will have to be strategic in terms of where it will make the most sense. He asked whether UNEP be represented; if so, may be feasible to see whether a side event can be arranged. Sweeney: stated that the GPA will look into and advise. Datta: noted that previously they used the US government as entry points for such events as it was difficult via the UN.

Feedback to the INMS Project development process: Van der Beck: urged SC members to share with the GPA office, Mark Sutton and Claire Howard any comments on the INMS Project proposal so as to ventilate any issues as project development proceeds.

GPNM representation at local levels: Raghuram: noted that there will likely be important upcoming regional and national events that individual committee members can make representation on behalf of the GPNM; this will be an effective way to decentralize the awareness and outreach especially with

respect to events that are taking place within their local area. He advised that members should have the latest status reports and any generic presentations that will allow GPNM members to make consistent representation. This was agreed to by the SC.

Thoughts on another graphical (dashboard-type) tool for NUE: Raghuram: presented a simple graphical dial (below) that relates high vs low surplus and high vs low output. This may be considered by the nutrient indicators Task Team for refinement and perhaps development as an IT-based instrument.



Challenges with private sector buy-in: Roy: cautioned with respect to outreach by the Partnership that there tends to be pushback by the fertilizer industry on nutrient efficiency practices in that they often perceive that it goes counter to their business model in product sales. They need to start considering the concept of value to volume that is also based on a financially viable business model.

Other: Datta: thanked the Steering Committee for all their support and helping with his understanding of the process during his time with UNEP and the GPA. The committee thanked him for his services and support.

Closing remarks

Vincent Sweeney thanked the entire team for all the engaging inputs, expressing appreciation for the interaction and thanked Anjan Datta in particular for all his work on behalf of the GPA. Greg Crosby thanked Vincent Sweeney for his and the GPA's support and help and also thanked Anjan for his work and officially declared the meeting closed.

Summary action list

	Decision for action	Lead responsibility	Timeframe
	UNEA Process		
1	Resolution preparation for the next UNEA if consensus reached from the GPNM members	S. Koo-Oshima; supported by A. Passenier	Draft by Aug 2015 for Sept UNEP Perm Reps
2	UNEA, May 2016, Nairobi; liaise with member states to identify a sponsor for a nutrient Resolution	V. Sweeney (to look into and advise on best avenue for participation)	September 2015
	Technical matters		
3	NUE Task team to prepare a 10-page brief on the derivation of indicators	T. Roberts	Jan 2015 for Paris mtg and GPNM vetting
4	Formalize the P management Task Team within the GPNM	A. Passenier to lead	Feb 2015
	Partnership building		
5	GPNM Terms of Reference to be re-circulated to all members	GPA Secretariat	January 2015
6	Invite the regional platform chairs to the next SC meeting	G. Crosby	TBD
7	Extend invitation to the World Bank to sit on the GPNM; also a representative from the Global Partnership for Oceans	G. Crosby/GPA Secretariat	February 2015
8	Consult with the FAO to determine areas of mutual cooperation that can be integrated within the work of the GPNM	GPA Secretariat with G. Crosby	Teleconf call by February 2015
9	Formal submission/tabling of the EU fertilizer subsidy study to be adopted as part of GPNM contributions	P. Heffer	February 2015
	Projects		
10	GNC Project Mid-Term Evaluation to be circulated to the SC for comments	I. Van der Beck	January 2015
11	Options for the governance structure for the INMS Project presented to the GPNM SC	M. Sutton; C. Howard; I. Van der Beck	TBD
12	Post all relevant information on the INMS Project on project website	C. Howard	TBD
13	CEH develop a more non-technical audience-friendly version of the PowerPoint presentation	C. Howard	TBD
14	SC members to direct comments on the INMS Proposal to CEH	All GPNM SC members	Request before first stakeholder meeting
	Communications and outreach		
15	Formation of a Task Team on communications (including development of TORs); Source needed expertise; Review and strengthen the communications	GPA Secretariat, A. Bleeker will chair and N. Raghuram will assist	First teleconf call by March 2015

	Decision for action	Lead responsibility	Timeframe
	strategy		
16	Steering committee members to provide feedback on the draft Communications Plan	A. Bleeker to lead	March 2015
17	Articulation of guiding principles for communications and information dissemination between the GPNM and UNEP	Communications Task Team and GPA Secretariat	April 2015
18	Commence publication in different languages; (those to be determined)	GPA Secretariat	Input from communications task team
19	Develop a brochure to be used to field new partners to the GPNM	GPA Secretariat	March 2015
20	Develop a set PowerPoint presentation that SC members can use in their outreach	GPA Secretariat	February 2015
21	Review the new GPNM logo proposals	GPA Secretariat & Communications Task Team	April 2015
Resource mobilization			
21	Submit a proposal for resource mobilization to the EC Director General for Environment; based on GPNM workplan	GPA Secretariat submit to A. Passenier who will engage discussions on behalf of GPNM	April 2015
Meeting attendance			
1	SDSN meeting, Madrid, Spain, 12 th January 2015	A. Doberman	
2	SDSN-IFA Workshop on SDG Indicators in Paris, 15 th , January, 2015	GPNM members	January 2015
3	<meeting name>, Berlin, Germany, 5 - 6 th March 2015	A. Passenier	Draft programme to be circulated by A Passenier
4	GNC Project Steering Committee, Utrecht, Germany, March 2015	GPA Secretariat	dates TBD
5	INMS Project development Partners meeting, Lisbon, April, 2015	M. Sutton	April 2015
6	INMS Project development – integrated assessment modelling meeting, Edinburgh, UK, 5- 6 th May, 2015	M. Sutton	May 2015
7	7 th World Water Forum, South Korea, 12-17 th April, 2015	Participating GPNM members/S. Koo-Oshima	Possible integration with US pavillion
8	GEF International Waters Conference, Vietnam, Nov 2015,	GPNM members	November 2015
9	Global Alliance on Climate Smart Agriculture; location and date TBD	GPA Secretariat/Chair	February 2015
10	Nutrient Conference in Beijing, China, month TBD, 2016	TBD	TBD
11	World Lake Conference, Bali, Indonesia, month TBD, 2016	TBD	TBD
12	3rd Global Conference on Land - Ocean Connections,	GPNM members	TBD

	Decision for action	Lead responsibility	Timeframe
	Rio de Janeiro, Brazil, 2016 (TBD)		
13	Partner with Global Soils Partnership, FAO	GPA Secretariat/Chair	February 2015

Annex 1 Meeting Agenda



UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement Programa de las Naciones Unidas para el Medio Ambiente
 Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة

联合国环境规划署



Provisional Agenda

Global Partnership on Nutrient Management (GPNM), Steering Committee meeting

Date: December 10th-11th, 2014

Venue: US Department of Agriculture, South Building, Room 3109, 1400 Independence Avenue, SW, Washington, DC (hosted by USDA)

Objectives:

- Provide an update on progress since 3rd SC meeting
- Agree on resource mobilization strategy for GEF6
- Agree on the main inputs from GPNM to new INMS project

Day and Time	Topic/Item	Presenter
Dec 10th	Day 1 GPNM Steering Committee	
8:30 – 9:00	Registration of participants	All
9:00 – 9:30	Opening: - <ul style="list-style-type: none"> • Welcoming remarks • Remarks 	USDA & Patricia Beneke, Director, UNEP Regional Office for North America
9:30 -10:15	<ul style="list-style-type: none"> • Introductions of participants • Review of minutes of last GPNM meetings (March 12, & April 24, 2014) & matters arising 	Chair/USDA Secretariat
10: 15 -10:30	Tea/Coffee break	
	GPNM – status and way forward	
10:30 – 13:00	<ul style="list-style-type: none"> • Presentation of GPNM 2013 accomplishments and review of 2014 plan of work • Presentation of the work of Task Teams <ul style="list-style-type: none"> ○ Policy (Sasha Koo-Oshima) ○ Nutrient Use Efficiency (Terry Roberts) ○ Partnerships (Greg Crosby) ○ Toolbox (Chuck Chaitovitz) 	Secretariat Task Team leaders



	<ul style="list-style-type: none"> • Discussion <ul style="list-style-type: none"> ○ Scope of Task Teams 	
13:00 – 14:00	Lunch break	
14:00 – 15:15	<ul style="list-style-type: none"> • Presentation on status, accomplishments and future activities of GNC project <ul style="list-style-type: none"> ○ Preliminary observations from Mid-Term Review (I. Vanderbeck) ○ General discussion 	Secretariat, Albert Bleeker (ECN), C. Chaitovitz (GETF) & Wendy Selman (WRI)
15:15 – 16:30	Presentation on status of INMS project development and GPNM interface/involvement <ul style="list-style-type: none"> • General discussion 	Isabelle Vanderbeck & Clare Howard
16:30 – 17:00	Tea/Coffee break - end of day	
Dec 11th	Day 2 GPNM Steering Committee meeting	
9:00– 09:15	<ul style="list-style-type: none"> • Remarks from Host Government • Briefing of Day 1 outcomes & plans for Day 2 	Dr. Ann Bartuska, USDA Deputy Under Secretary for Research, Education, and Economics Secretariat
9:15-10:15	<ul style="list-style-type: none"> • Presentation on GEF6 priorities and opportunities plus related GEF projects 	Christian Severin & Steffen Hansen
10:15-10:30	Tea/Coffee break	
10:30-13:00	<ul style="list-style-type: none"> • 2015 Work Plan for GPNM • Strategic discussions (in small working groups):- <ul style="list-style-type: none"> ○ Resource mobilization for GPNM ○ Communications & outreach – review of draft Communications Strategy for GPNM 	Secretariat All
13:00 – 14:00	Lunch break	
14:00 – 15:00	Presentations from Working Groups	All
15:00-15:30	The Global Traps Phosphorous Transition	Arnoud Passenier
15:30-16:30	<ul style="list-style-type: none"> • Way Forward for 2015 • Summary of actions/plans/decisions • AOB • Date & venue for next meeting • Closing remarks • End 	Chair & Secretariat
16:30-17:00	Tea/Coffee break	

Annex 2 Meeting Participants

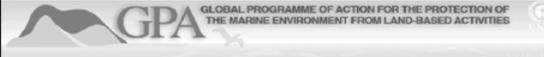
Title	Surname	Other names	Designation	Organization	Telephone	E-mail
Mr.	SWEENEY	Vincent	Coordinator	UNEP/GPA	2547625722	vincent.sweeney@unep.org
Dr.	COX	Christopher	Programme Officer	UNEP/GPA	2547625276	
Mr.	HEFFER	Patrick	Senior Director, Agriculture Service	IFA		pheffer@fertilizer.org
Dr.	CROSBY	Greg	National Program Leader	National Institute of Food and Agriculture, USDA	202 445-3459	GCROSBY@nifa.usda.gov
Mr.	PASSENIER	Arnoud	Director	Value Chains Sustainable Innovations, Ministry of Environment, Netherlands	31653474478	arnoud.passenier@minienm.nl
Ms.	VAN DER BECK	Isabelle	GEF IW Task Manager	UNEP		isabelle.vanderbeck@unep.org
Mr.	CHAITOVITZ	Chuck	Principal	Global Environment and Technology Foundation	703-597-8285	chuck.chaitovitz@getf.org
Mr.	HANSEN	Steffen	Jr. Professional Officer	Global Environment Facility	202-458-8796	shansen@thegef.org
Mr.	BINDRABAN	Prem	Executive Director	Virtual Fertilizer Institute	202-827-2800	pbindraban@vfric.org
Dr.	DATTA	Anjan	Consultant		4478-87-69-30-21 or +880-1795-949620	anjandatta@gmail.com
Dr.	ROBERTS	Terry	President	IPNI	+1 770-447-0335	TRoberts@ipni.net
Dr.	RAGHURAM	N.	Associate Professor, School of Biotechnology/ Secretary Indian Nitrogen Group	GGs Indraprastha University	(91-11) 25302308	raghuram98@hotmail.com
Dr.	HOWARD	Clare		Centre for Ecology & Hydrology	+44 (0)131 4454343	cbritt@ceh.ac.uk
Dr.	LU	Yuelai	Head of the Secretariat	UK-China Sustainable Agricultural Innovation Network	+44 (0)1603 59 3264	y.lu@uea.ac.uk
Prof.	SCHOLZ	Roland	Project Leader	Global Traps/University of Zürich	+41 79 422 44 01	roland.scholz@igb- extern.fraunhofer.de
Mr.	ENEVOLDSEN	Henrik	Head, IOC Science and Communication Centre on Harmful Algae	IOC/UNESCO		h.enevoldsen@bio.ku.dk
Ms.	SANTOS-BORJA	Adelina (Lennie)	Officer in Charge	Laguna de Bay Authority and Government of the Philippines		lennieborja@yahoo.com / lennieborja@llda.gov.ph
Dr.	ROY	Amit	President/Chief Executive Officer	International Fertilizer Development Center		ARoy@ifdc.org
Mr.	BLEEKER	Albert	Senior Researcher Environmental Assessment	INI & Energy Research Centre of the Netherlands	31-224-564130	a.bleeker@ecm.nl
Mr.	BROWNLIE	William	Scientist	Centre for Ecology & Hydrology	00441314454343	wilown@ceh.ac.uk
Ms.	BENEKE	Patricia	Director	UNEP Regional Office for North America		patricia.beneke@unep.org
Dr.	Koo-OSHIMA	Sasha	Senior International Water Policy Advisor	Office of Water, Environmental Protection Agency (EPA)		Koo-Oshima.Sasha@epa.gov
Dr.	ZHANG	Weifeng	Associate Professor	China agriculture University	(86)1062733941	fertrdc8@cau.edu.cn
Dr.	LEWSEY	Clement	Director, International Programme Office- US	National Oceanic and Atmospheric Administration (NOAA)	301-713-3078	Clement.Lewsey@noaa.gov

Annex 3.1 Presentation



**GPNM Overview of Progress
2013-14**

**Presented by:
Vincent Sweeney
Coordinator, GPA**

Objective of Presentation

To provide a brief overview of GPNM accomplishments and review plan of work for 2014

For further details:
(unep.org/gpa/resources/GPNMSteeringCommittee.asp)



The **GPA**, adopted in 1995, is a voluntary, action-oriented, intergovernmental programme led by UNEP, to prevent the degradation of the marine environment from land-based activities.

The Manila Declaration in 2012, gave GPA the mandate to establish three global multi-stakeholder partnerships for the priority areas nutrients, marine litter and wastewater



The GPA now hosts and serves as Secretariat for the following partnerships:

- The **Global Partnership on Nutrient Management (GPNM)**, which was launched at the UN CSD in New York, May 2009
- The **Global Partnership on Marine Litter (GPML)**, which was launched at Rio+20, June 2012
- The **Global Wastewater Initiative (GWI)**, which was announced by UNEP's Executive Director, Achim Steiner in May, 2013



The GPNM was established 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 recognises the need for strategic advocacy and co-operation at the global and regional levels and foresees its role:

- to provide information and enhance capacities
- to support science policy interaction and translate science for policy makers
- to position nutrient issues as part of the international sustainable development agenda



GPNM highlights:

- GPNM is part of UNEP PoW, 2014/15
- Regional Platforms established in Asia and the Caribbean
- Task Teams established:
 - Policies
 - Toolbox
 - NUE
 - Partnerships



GPNM Secretariat & Governance:

- GPNM hosted by UNEP/GPA in Nairobi
- One full-time Programme Officer funded by UNEP (100%)
- Transition period May to December 2014; assisted by Chair & CEH
- Steering Committee/partners met twice in 2014



GPNM activities – Meetings/Events:

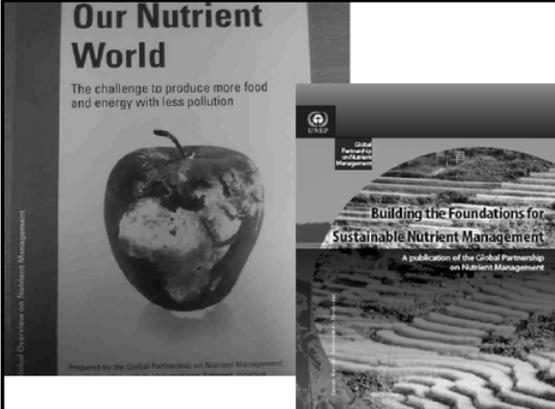
- GPNM Partnership Forum/Special event on Nutrient Challenge during the GLOC-II, Montego Bay, Oct. 2013
- IFA's 82nd Annual Conference in Sydney, Australia, May 2014
- Side Event on Nutrient Management, UNEA, Nairobi, June 2014
- Bi-lateral between IFA and UNEP Division Director, UNEA



GPNM Outreach:

The GPNM work featured in the most significant UNEP publication. The UNEP Yearbook 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




GPNM Outreach - The GPA hired a Communications Consultant, which resulted in the following products:

- GPNM draft Communications Strategy
- New GPA website with GPNM pages
- Revised GPNM logo recommendations
- Updated GPNM Fact Sheet
- Web articles highlighting nutrient issues
- Guest editorial on UNEP Home page
- Tweets

Jim Toomey "Nutrient Runoff" video won Blue Ocean Film Festival award



GPNM Logos!!



GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES



GEF Project development & implementation

Global Nutrient Cycle project:

- Quantitative modelling approaches
- Policy Tool Box
- Pilot testing/application of modelling for nutrient reduction (Manila Bay, Philippines)
- Support GPNM

INMS project:

- Concept approved by GEF
- Grant of \$6M expected
- Project Preparation Grant of \$150K
- Over \$35M in co-financing through GPNM network

GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES



GPNM Members' have contributed to the Post-2015 Sustainable Development discussion, on a possible nutrient goal through various channels (s.a. government), 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.

GPNM partners have also contributed to production of policy briefs, information documents and cases studies

GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES



Way forward - Outreach, advocacy and provision of technical services

The GPNM will seek to support members' work, in the following ways:

- Building knowledge through sharing of lessons learned
- 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
- Identifying key research needs that would fill gaps in knowledge
- Offering opportunities to develop networks among the members

GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES

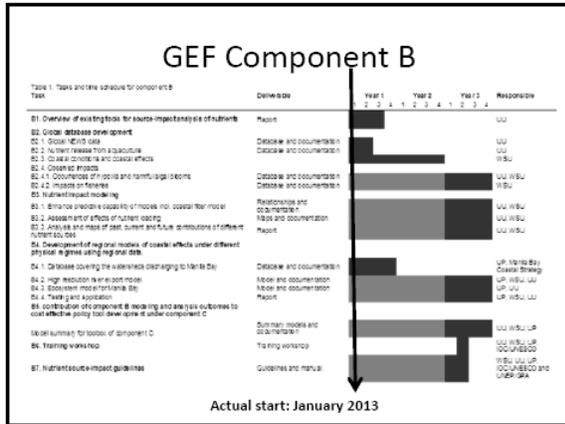


Thank you!

Questions/Comments?



Annex 3.2 Presentation (Henrik Enevoldsen)



GEF component B

- Italics: will be completed end 2014*
- Underlined: completed

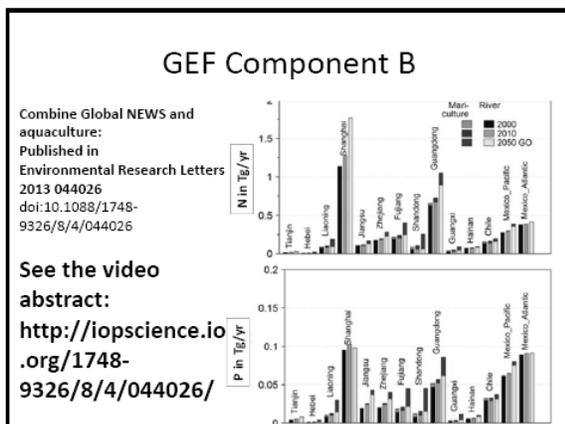
UP = Un. Philippines
 WSU = Washington State Un.
 UU = Utrecht University

Component B

- B1. Overview of existing tools for source-impact analysis of nutrients (UU)**
- B2. Global database development (UU, WSU)**
- B3. Nutrient impact modeling (UU, WSU)**
- B4. Manila Bay (UP)**
- B5. Toolbox Component C (UU, WSU)**
- B6. Training workshop (IOC/UNESCO, UU, WSU, UP)**
- B7. Nutrient source-impact guidelines (IOC/UNEP)**

GEF Component B

- B: Overview of existing tools for source-impact analysis of nutrients: draft delivered November 2014**
- B2: Global database development**
 - B2.1: Global NEWS: Completed and available on GPNM website (UU)
 - B2.2: Aquaculture: published (UU)
 - Reviews in Fisheries Science 21, 112-156 (2013)
 - Reviews in Fisheries Science 19, 331-357 (2011)
 - Spatial allocation freshwater aquaculture was completed in 2013 (UU together with UBC)
 - Spatial allocation marine aquaculture will be completed January 2015*



GEF Component B

- B2.3: Coastal conditions and coastal effects: in progress (WSU, UU) will be completed 2015**
- B2.4: Observed impacts**
 - B2.4.1: Occurrences of hypoxia and harmful algal blooms (WSU, UU), expected 2015**
 - B2.4.2: Impacts on fisheries (WSU), expected 2015**
- B3: Nutrient impact modeling: in progress**
 - B3.1: Enhance predictive capability of models (UU, WSU)**
 - McCrackin, M., J.A. Harrison, and J.E. Compton, (2014) Factors influencing seasonal export of dissolved inorganic nitrogen by major rivers. *Global Biogeochemical Cycles*, DOI: 10.1002/2013GB004713.
 - Liu, M., K. Rajagopalan, S. H. Chung, X. Jiang, J. Harrison, T. Netzer, A. Guenther, C. Miller, J. Reyes, C. Tague, J. Choate, E.P. Szeftel, C.D. Jodice, and J. C. Adam, (2014) What is the importance of climate model bias when projecting the impacts of climate change on land surface processes? *Biogeosciences*, doi:10.5194/bg-11-2601-2014.
 - B3.2: Assess effects of nutrient loading (WSU, UU)**
 - B3.3: Analyze maps of past, current and future contributions of different nutrient sources (WSU, UU)**
 - McCrackin, M., J.A. Harrison, and J.E. Compton, (2014) Future riverine nitrogen export to US coastal regions: prospects for improving water quality amid future population growth. *Journal of Environmental Quality*, 10.2134/jeq2014.02.0081
 - Sobotta D.J., J.E. Compton, and J.A. Harrison (2013) Reactive nitrogen in the United States: How certain are we about sources and fluxes? *Frontiers in Ecology and the Environment*, doi:10.1890/1523-1739-2013-0016
 - McCrackin, M., J.A. Harrison, and J.E. Compton, (2013) A comparison of NEWS and SPARROW models to understand sources of nitrogen delivered to US coastal areas. *Biogeochemistry*, doi:10.1007/s10533-012-9809-X.
 - Harrison, J.A., J. Magallon, A.F. Bouwman, and A.H.M. Beusen, *Insights from a New Accounting and Synthesis of Coastal Nutrient Delivery of the Global Scale*, Oral Presentation and Abstract, IWBIR, Bergen, Norway, 7/14

GEF Component B

B4. Development of regional models of coastal effects under different physical regimes using regional data

- **B4.1: Database covering the watersheds discharging to Manila Bay (UP)**
 - Will be updated to include results from concluded studies from partner agencies (BSWM, PNRI, PEMSEA)
 - Nutrient data from earlier draft database will be updated (PEMSEA)
 - Final to be delivered April 2014 (original timeline)

In progress: Preparation to modelling; interaction and cooperation of PEMSEA

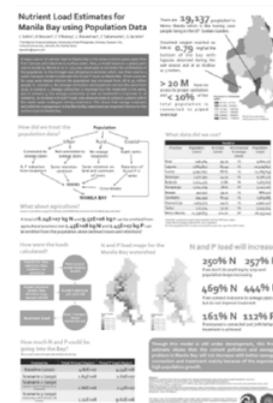
GEF Component B

- **B4.2: High resolution river export model (UP)**
 - Preliminary nutrient load model completed after working visit at Utrecht with Bouwman and Beusen (UU) (100%)
 - Currently updating data and maps needed for improvement of nutrient load model (80%)
 - Processing of inputs in a finer resolution grid
 - Addition of agricultural and aquaculture component to model (80%)
 - Update for export of other N forms as input to DELFT3D
- **B4.3: Ecosystem model for Manila Bay (UP)**
 - Work in progress
 - 2D model has been set up, work on 3D model (60%)
 - B4.3: set up DELFT3D WAQ for B4.3 to complement the hydrodynamic and water quality models
 - Review of related literature for model parameters (local values, emission rates, etc) (50%)
 - Set up of grid system, boundary conditions (50%)

GEF Component B

- **B4.4. Testing and application (UP)**
 - Scenario building (50%)
- Sabbatical John Harrison (WSU) at UU (October 2013-April 2014) worked together and shared experiences, models and data
- Working visit of UU to UP last April 2014
 - Modeler's workshop with PEMSEA and other partners (April 2014)
 - Follow up workshop in October 2014
- Work visit Lara Sotto (UP) (October 2013) to Utrecht.
- Working visit of UP to UU (April or May 2015)
- **Publications:**
 - Sotto, L. Jacinto, G., Villanoy, C. 2014. Spatiotemporal variability of hypoxia and eutrophication in Manila Bay, Philippines during the northeast and southwest monsoons. *Marine Pollution Bulletin* 85: 446-454.
 - Oral presentation of "Nutrient load estimates for Manila Bay using population data." at the IOC WESTPAC in Vietnam (April 2014)
 - Paper submitted for publication, under review, *Ocean Science Journal*

Poster presentation as a result of working visit of Lara Sotto and Cesar Villanoy; UU (Bouwman, Beusen) will travel to Manila 6 April



Component B

- **B5: Develop summary models of nutrient impact on coastal eutrophication for use in toolbox under component C**
 - Summary model for impact of nutrients on harmful algal blooms: in progress, to be completed spring 2015 (UU)
 - Model for impacts of nutrients on hypoxia: in progress, to be completed 2015 (WSU)
 - Analysis of relationships between N loading, hypoxia, and fisheries (WSU): in progress, to be completed 2016.
- **B6: Training workshop (IOC/UNESCO, UU, WSU, UP)**
 - Completion: Preliminary scheduled for IWC8 VN late 2015

Component B

- **B7: Nutrient source-impact guidelines (IOC/UNESCO and UNEP/GPA, WSU, UU, UP)**
 - Completion: WP says Mid-term review (24 months): first version; 30 months: final version

Draft Conclusions/ Recommendations Mid-Term Review

Global Foundations for Reducing Nutrient Enrichment and
Oxygen Depletion from Land-Based Pollution, in Support of
Global Nutrient Cycle




GPNM PSC
USDA - Washington, DC
10-11 December, 2014

Isabelle Van der Beek

MTR - OBJECTIVES

- o Consistent with UNEP and the GEF expectations to evaluate/review project at Mid-Term
- o Determine project achievements against design/logframe and assess:
 - o Effectiveness
 - o Efficiency
 - o Relevance
 - o Sustainability
 - o Project design and execution aspects
 - o Implementation arrangements
 - o M&E
 - o Financial management

GENERAL CONCLUSIONS

- o Project investigations critical to understanding of nutrients in general and specific to many GEF IW projects
- o Project team – appropriate, highly competent and motivated
- o Pilot projects – very successful, effectively implemented and with signs of local impacts
- o Low visibility of the project (website more of a 'document' repository)
- o M&E reporting of financial and technical progress not as expected
- o Project actual costs not available on a component/activity basis
- o EA/PCU needs to prepare workplan, budget and revise logframe/indicators/targets (asap)

LESSONS

- o Importance of 'ground truthing' through pilots (good examples from L Chilika and Manila Bay work)
 - E.G. From PEMSEA pilot:
 - o 'Nutrient management entails building awareness, understanding and commitment across economic sectors that normally do not work together (cities, agriculture aquaculture, forestry, manufacturing). An adaptive learning process can build partnerships and strengthen collaboration across these sectors. By example, the innovative modelling and forecasting tools developed under this project provide a focus for communications and data sharing among the different local stakeholders and a means to improve understanding of perspectives, problems and solutions'.
- o Lack of Communications Strategy & 'informative' website have negative impact on overall project
- o Important that changes in PCU staff and interim reporting mechanism be made clear

RECOMMENDATIONS

- o Project Management
 1. Logframe and indicators
 2. Technical and financial reports
 3. Workplan and budget for revised time-line
 4. Project actual costs
 5. Gender
 6. Exit Strategy
- o Communications
 1. Communication Strategy
 2. Website
 3. Experience Notes

OVERALL CONCLUSIONS

- o Project has potential to be very successful and have is expected to have significant benefits to understanding of nutrient management
- o Addressing the project management and communications aspects will help with the 'impact' of the actions beyond the project partners/GPNM PSC

Targeted research on the global N cycle: towards an International Nitrogen Management System (INMS)

Clare Howard
Centre for Ecology & Hydrology, Edinburgh

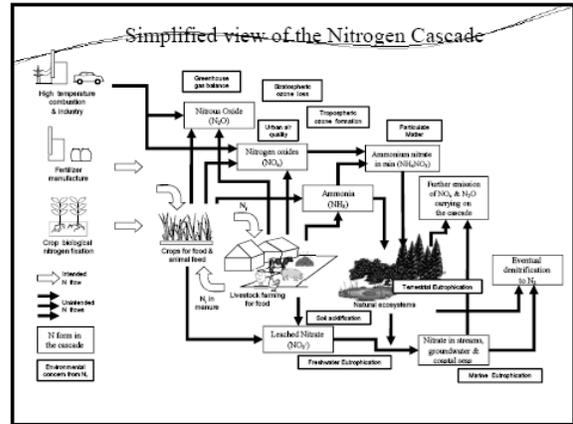
GPNM Steering Committee Meeting
9 Dec 2014, Washington DC

Overview

- What is INMS and why is there the need for such a project?
- The global policy perspective – how and where to tackle the issues?
- How does INMS fit into all this and how is the project structured?
- Where are we now and the existing landscape

The big idea

- Joined up management of the nitrogen cycle would strengthen the common cause of international waters & other global challenges
- What would a global science policy support process for nitrogen look like?
- What are the issues to connect?
- What are the main, research, demonstration and communication challenges?



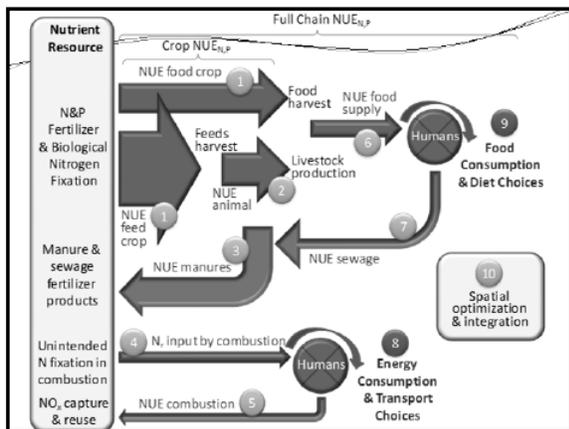
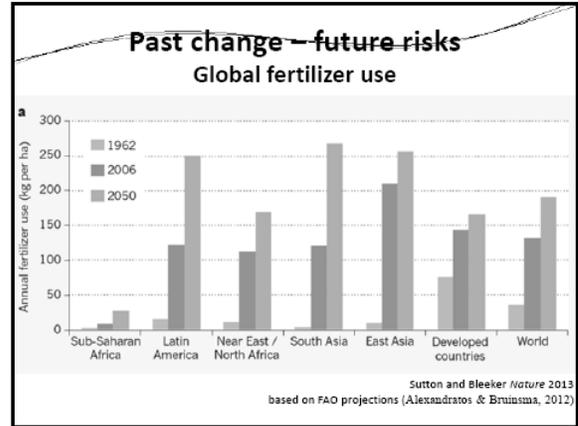
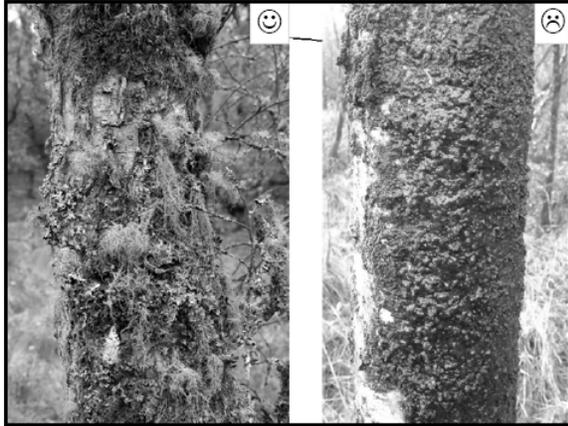
Five key threats

The WAGES of too much nitrogen

Water quality
Air quality
Greenhouse balance
Ecosystems
Soil quality

European Nitrogen Assessment, 2011 & Our Nutrient World, 2013





Nitrogen for environment, food & energy security

- There is no global treaty that links the many benefits and threats of the altered N cycle.
- How can the different frameworks work together?

Key MEAs

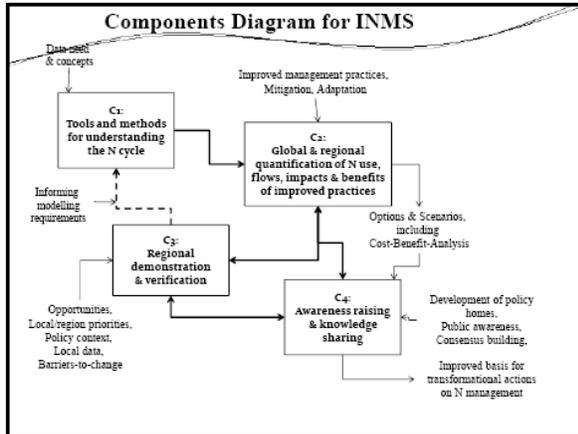
- UN Framework Convention on Climate Change
- UN Convention on Biological Diversity
- Montreal Protocol on stratospheric ozone
- LRTAP convention and other regional agreements
- Global Programme of Action for Protection of the Marine Environment from Land-based Activities (GPA) and regional agreements

Parallel Tracks

- Track 1: International governance involving countries and linking nitrogen challenges of too much and too little.
- Track 2: A better coordinated science-policy support process – gathering evidence to support decision makers (INMS)
- Track 3: Basic and applied field research
- Track 4: Extension, training, action etc.

UNEP – GEF INMS-targeted research

- Outline proposal (\$6M + \$40M partner contributions)
- Targeted Research on Global nitrogen cycle, toward the *International Nitrogen Management System (INMS)*
- **Opportunities**
 - Indicator refinement, moving to operational delivery to support countries, inc benchmarking
 - Sharing and development of mitigation and management practices – understanding barriers
 - Regional demonstration on contrasting challenges, e.g. Lake Victoria basin, East Asia, South Asia, East Europe



- ## Regional Demonstrations
- Gaining an understanding of the nitrogen issues specific to a region
 - Implementing management plans (during project lifetime) to address the problems
 - Charting progress made
 - Sharing best practice and knowledge gained, across the project
 - Will also connect with regional modelling activities

- ## Regional Demonstrations
- Should cover the four 'cases' outlined in the PIF
 - Existing activities
 - maximise achievement
 - develop sustainability
 - 3 or more countries - knowledge exchange
 - Network - scientific through to extension organisations
 - Core team of director and 1-2 post-doctoral personnel
 - Reasonable budget for travel for the network

South Asia
India, Nepal, Sri Lanka, Bangladesh
Lead: INI South Asia
Policy: SACEP

Developing countries: Excess nitrogen

South America
Brazil, tbc
Implementation: INI South America
Policy: Links to GPA

East Asia (western Pacific seaboard)
China, Japan, S. Korea, Philippines
Network: INI East Asia, GPNM, OECD
Policy: PEMSEA, GPA

Dniester, Dnieper, (part of) Danube
Ukraine, Moldova, Romania, Belarus
Implementation: EPN-EECCA, TFRN
Policy: UNECE -CLRTAP & Transboundary Waters, Black Sea Commission, Danube River Basin Commission

	Dniestr	Dniepr	Danube
basin area km ²	71 462	503 888	782 306
runoff mm/yr	107	119	258
pop density inhab/km ²	102	61	192
agricultural area %	78	83	88
N load input to water system t/yr	2 204	2 050	3 002
N delivery at outlet t/yr	152	99	498

Economies in transition

Lake Victoria
Kenya, Tanzania, Rwanda, Burundi
Lead: INI Africa
Policy: Lake Victoria Commission

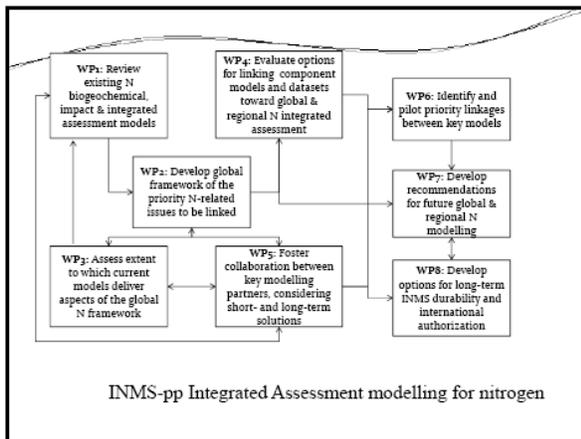
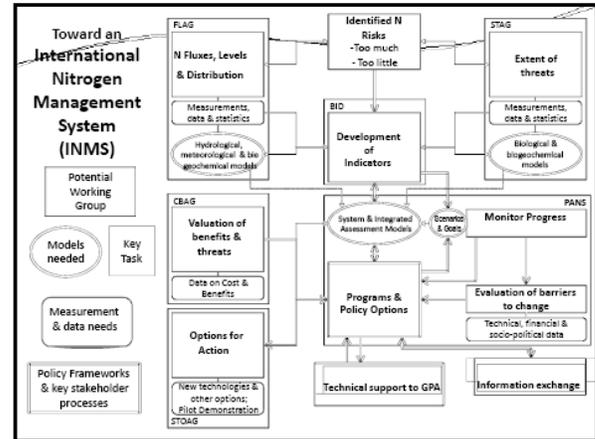
Developing countries: Insufficient nitrogen

Developed countries: Excess nitrogen

Western Europe, Atlantic Seaboard
France, Spain, Portugal
Unfunded - supported through existing projects, adding value to the global network.

Regional Demonstrations

- Development meetings
 - Japan, February 2015
 - Ukraine, Spring 2015
- BASF Fireside Meeting
 - Regional case studies
 - Scientists, policymakers, farmers
 - Synergies with INMS



INMS – building up to PPG

- PIF Development Phase
 - Distribution and collation of pro-formas to express interest - co-financing
 - Final submission in 2013
 - PIF agreed this year
 - Ongoing discussions with potential demonstration areas - India, Eastern Europe
- Post PIF development
 - Request for updated pro-formas July 2014
 - Further development of demonstration activities

Project Preparation Grant Phase

Milestones & events (now until July 2015)

Addressing GEF and STAP comments (at PIF approval)

- Avoiding overlap with GNF (Annex to FSP)
- Details on Policy Options for track 1 (FSP)
- Strengthen stakeholder participation/communication processes (C4)
- Better explain the global trade of N based products
- INMS sustainability plan (as part of review of 'homes for nitrogen'/FSP formulation)

INMS –PPG Timescale

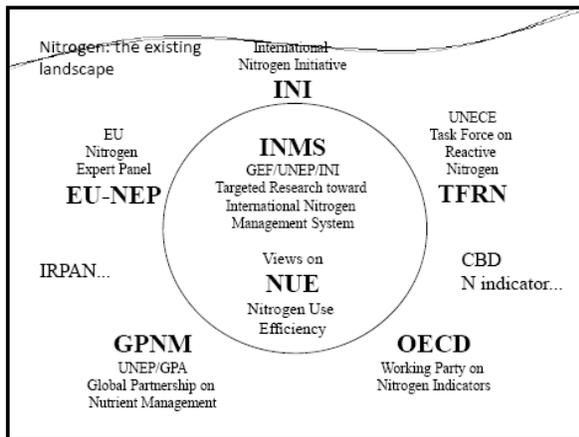
Co-financing commitment written confirmation	By June 2015
CEO endorsement documentation validation meeting or thru circulation	June 2015
STAP Review of CEO endorsement package	July 2015
UNEP's review by the UNEP Project Review Committee	July 2015
Submission to GEF Sec for CEO endorsement	August 2015
Launching of the FSP at IWCS	October 2015

INMS Engagement

- Full Partner meeting
 - 13th & 14th April, Lisbon, Portugal (tbc)
 - Further discussion on commitment of co-financing, refining demonstration activities, developing project components
 - Followed by a meeting of the UNECE Task Force on Reactive Nitrogen
- INMS and Integrated Assessment Modelling
 - INMSpp Meeting, 5th & 6th May, Edinburgh
 - Followed by a meeting of the UNECE Task Force on Integrated Assessment Modelling
- Open meetings

INMS Engagement

- Website
 - Core place for information exchange
 - Documents and discussion
 - Section on demonstration areas – to refine the approach – open for comments by the community
 - List of partners to the project and other groups
- Newsletter
 - Monthly e-mailed newsletter, starting this month, updates to partners and all other interested parties
- Pro-forma
 - Submit if not done so to establish an interest



INI & Nitrogen Assessments

- IGBP-SCOPE-Future Earth: science community
- Regional Centres
 - European Nitrogen Assessment (2011)
 - US Nitrogen Assessment (2012)
 - Africa, South Asia, Latin America, East Asia (work in progress)
- What about global assessment?

UNEP: Global Partnership on Nutrient Management (GPNM)

- Focus on agriculture, linking N P and other nutrients
- Emphasis on practice improvement, and sharing between stakeholders globally (industry, science, UN).
- Now has a Task Group on NUE (focused on field scale)

UNECE Task Force on Reactive Nitrogen (TFRN)

- UNECE CLRTAP: Convention on Long range Transboundary Air Pollution
- N and air pollution – but toward integrated approach
- Gothenburg Protocol, Annex IX, Ammonia Guidance Doc, Ammonia Framework Code – adopted yesterday in Geneva, Guidance Doc N budgets
- Framework Code adopted (yesterday)
- WGSR Dec 2015 – full day with all countries in UNECE on Agricultural Air Pollution
- ENA reporting, with input NEU, NinE and COST
- Nitrogen and Food, scenarios
- Nitrogen and EECCA countries a key priority
- NECD National Emission Ceilings Directive-Framework Code revision and Annex III.

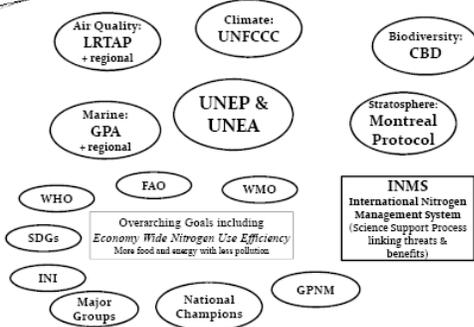
OECD – regional N indicators

- Agricultural N balances over territories
- Move towards regional indicators: economy wide N indicator
- Nitrogen to complement carbon indicator set

Others...

- **IRPAN**: International Research Programme on Agricultural nitrogen – **under development**; **strong biotech focus** e.g. a world without fertilizers....?
- **UN-CBD**: Convention on Biological Diversity: nitrogen indicator
- There are definitely more...

Multiple relevance of the nitrogen challenge



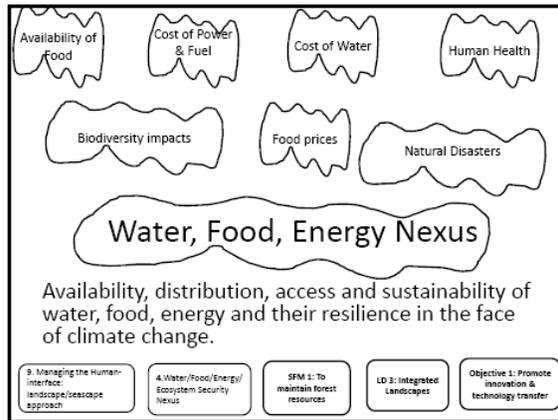
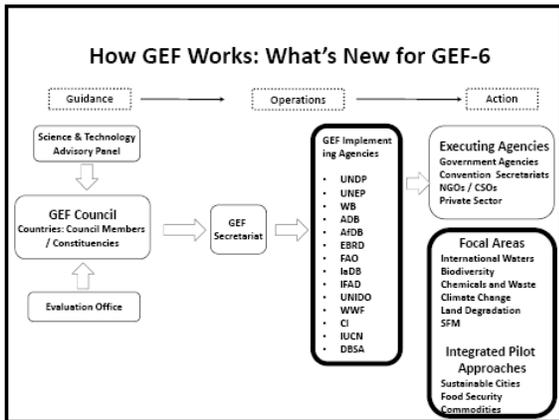
Thankyou – and questions!

GEF-6 Strategic Programming

Blending Integrated Thinking with
Focal Area Objectives

Examples of Integrated Thinking

- Water, Food, Energy Nexus

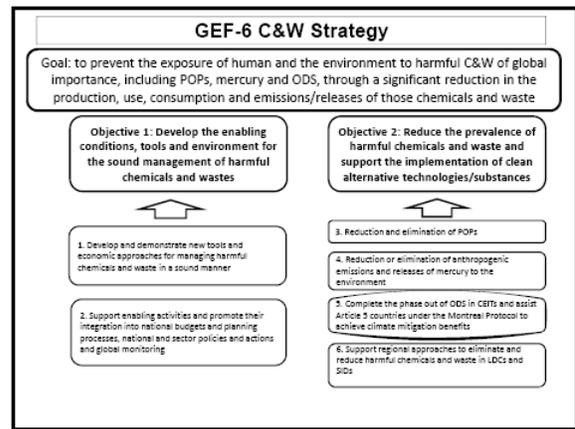
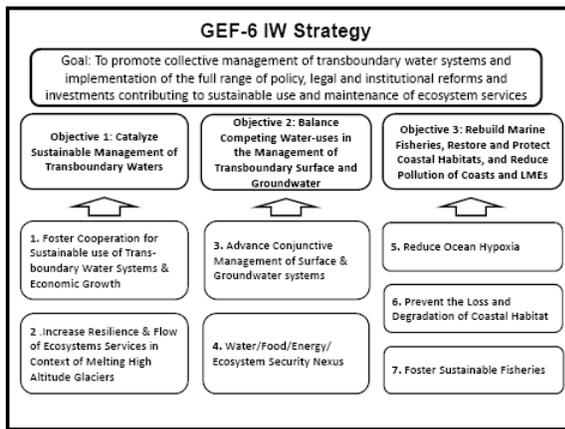
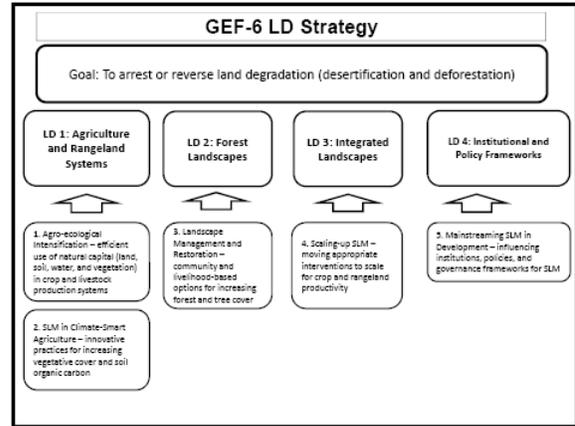
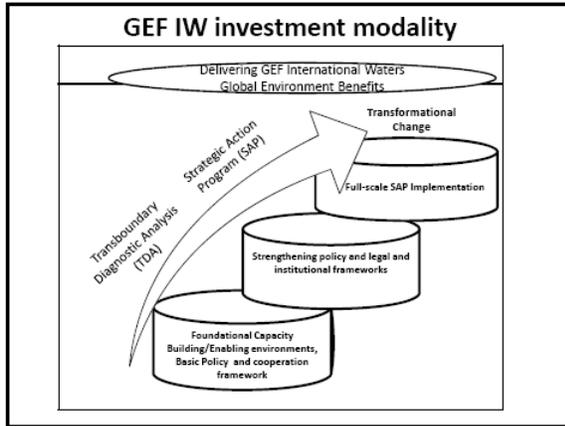


Integrated Thinking

- Drivers of environmental degradation are linked in complex ways
- Single issue analysis leads to “silo” thinking
- Systems analysis leads to integrated thinking
- Integrated thinking inspires creative and inclusive solutions
- Creative and inclusive solutions deliver environmental benefits aligned with GEF focal area objectives

Focal Area Objectives

- The solutions should deliver results that align with GEF-6 focal area objectives



- **IW Program 4, Nexus**

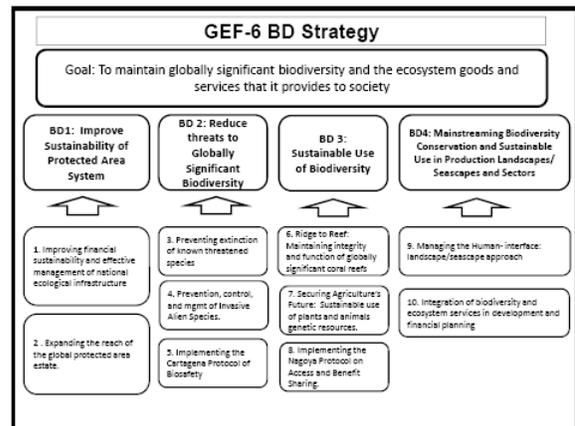
In order to address transboundary pollution from industrial, agricultural and municipal sources, including by heavy metals from mining, tanning and/or dying industries, organic pollutants, sediments, as well as introduction of invasive species, regionally agreed regulatory approaches, incentive mechanisms, and innovative technologies involving both public and private sector actors are needed. Therefore, GEF is promoting integrated 'ridge-to-reef' approaches, including proactive strategies and innovative investments directed at pollution reduction from different sectors to address hypoxia in lakes and coastal areas. Active stakeholders in these investments include policy makers and civil society, including private sector players such as capital providers, large corporations, SMEs, local business councils and other groups of small scale individual entrepreneurs.

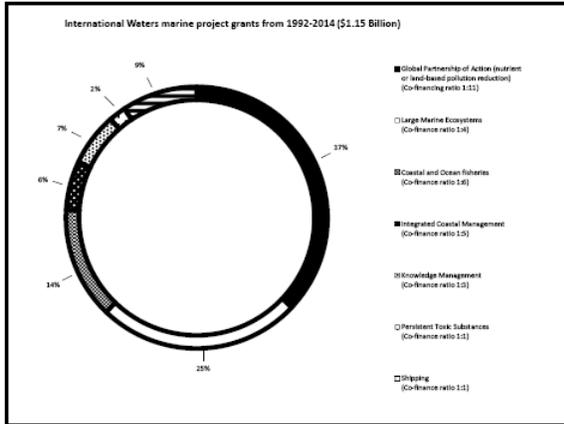
- **IW Program 5, Reducing Ocean Hypoxia:**

Innovative policy, economic, and financial tools, public-private partnerships and demonstrations will be pursued with relevant governments and sectors towards 'closing the loop' on nutrient production and utilization and restoring nutrient balance within planetary boundaries and eliminating or substantially decreasing the extent of dead zones.

Recognizing the IW portfolio gaps identified in the GEF STAP Hypoxia report, GEF will initiate collaboration through targeted research as well as with the private sector, including capital providers, large corporations, SMEs, and groups of small scale individual entrepreneurs.

Actions under GEF-6 will be closely tied to, and in instances directly combined with, support under the GEF Land Degradation Focal Area.





WB cross support exercise
- Thinking out of the box

Blue Biomass

Marine nutrients: an unutilized resource

...The Danish example

Macro algae cultivation and utilization as a new instrument within the Danish water schemes

Examples of existing portfolio
WB/GEF Investment Fund for Pollution Reduction in the LMEs of East Asia

- Tranche 1: US\$35 million
Tranche 2: US\$30 million
Tranche 3: US\$15 million
- Total: US\$80 million
- The first phase of the Investment Fund was approved by the GEF Council in two tranches: in November 2005 (Tranche 1a; US\$25 million) and in November 2007 (Tranche 1b; US\$10 million).
- The IF is to co-finance projects in support of infrastructure, technical assistance, capacity building, and information dissemination and replication. All projects would be associated with other sources of funding, in particular World Bank operations (providing significant co-finance).
- Expected outcomes of the Fund would be increased investment in activities that reduce land-based pollution and the replication of cost-effective pollution reduction technologies and techniques demonstrated by the Fund.

Reality

High level of conflict between farmers and policy objectives on Water Framework Directive targets.

- 9,000 (19,000) tons N per year reduction targets.

GEF 5 related projects (with possible synergies/ opportunities)

- UNEP (UNDP)/GEF - Integrating Water, Land and Ecosystem Management in Caribbean Small Island Developing States (IWEco)
- UNIDO/GEF - Gulf of Mexico
- UNEP/GEF- African Small Island Development States
- UNEP/GEF Blue Forest
- WB/GEF Capturing Coral Reef and Related Ecosystem Services (CCRES)

Reality

- Production of animal protein and grains is highly effective, but...
- An annual 1400 ton/P and approx. 60.000 ton/N is still lost to marine ecosystems.
- Effect on environment:** eutrophication, causing habitat loss and expansion of coastal dead zones.
- Political reaction:** Three decades of heavy regulation of agricultural/aquacultural industries have lead to high level of conflict (nature vs. competitiveness).
- Prevailing Danish environmental approach:** Nutrients considered a source of pollution, not an unutilized productive resource.

Green growth solutions needed: **combining economically and environmentally intelligent solutions...**

Upwelling within Danish inner waters



New opportunities?

Sugar kelp as a cost effective bio-filter capable of mitigating eutrophication and creating green growth synergies?



Indicative yield data

- Average wheat yield per hectare in DK = 8 tons per year.
- A two year sugar kelp production cycle produces an average of 5.26 tons (dry weight) per year, corresponding to 66 % of the yearly wheat yield.

Placing of rope seedlines	Growing periods in months	Harvest time	Yield pr m rope in kg wet weight	Yield pr long line in ton wet weight	Yield pr hectare in tons wet (W) and dry (D) weight
Sep - Nov	22 - 24	August	17.55	14.62	58.48 (29.24) W 10.53 (5.26) D

Indicative data from Seaweed Seed Supply's Danish based production

A good yield depends on selection of right cultivation areas

- Temperature
- Light
- Depth and sedimentation
- Current
- Salinity
- Nutrient flows



Conversion of political nitrogen reduction targets to biomass

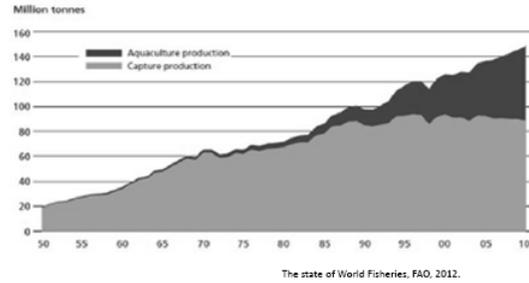
Nitrogen reduction target	Production in wet weight	Production in dry weight	Phosphorus loss from agriculture	Biomass phosphorus fixation	Difference: phosphorus loss/capture	Required area (ha)
19,000	4,269,663	768,539	1,400	3,846	-2,446	146,021
9,000	2,022,472	364,045	1,400	1,822	-422	69,168
1,000	224,719	40,449	1,400	202	1,198	7,685

- Dry matter nitrogen content: 2.47 % (+/- 0.13) - Gevaert et al (2001).
- Dry matter phosphorus content: 0.5 % - Murata et al (2001).
- August harvest: 130 kilo N per hectare per year.

In reality commercial interests, nature conservation and recreational interests must be balanced



Global aquaculture production of fish for consumption has 12-doubled over last three decades (1980-2010)



Production costs

Business case today (Danish production costs):

Production costs (including overheads and R & D): 77€ ton/wet weight

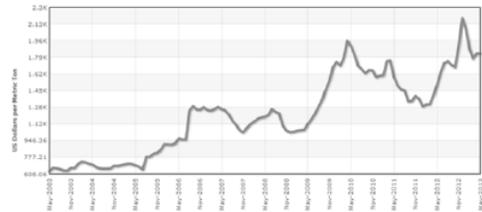
Breakdown:

- o 22,47 € hatchery
- o 35,49 € growout

Revenue:

- Produce sold to pig feed producer: 100 €/ton wet weight.
- Additional revenue of approx. 40€/ton wet weight achieved through N-kvotas to fish producers.

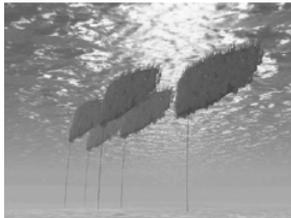
May 2003: 640 USD per MT
May 2013: 1835 USD per MT



Peru Fish meal/pellets 65% protein, CIF, US Dollars per Metric Ton
<http://www.indexmundi.com>

The future?

Concepts suited for implementation in high seas areas are under development and expected to reduce production costs to below 30 €/ton.



Key trial results

Use of non fermented Sugar Kelp meal in fish pellets (5-10 % blend) as a substitute for fishmeal:

The kelp seaweed protein level is lower (approx. 10-15 %) than the standard protein requirement for fish, however:

- The seaweed inclusion doesn't compromise with growth performance, while feed intake is similar to standard feed.
- Reason: most likely due to better digestion of the overall protein material.

Effect:

- o Increased digestibility leads to a reduction in overall protein content by 14% compared to conventional feed.
- o When calculating both fish intake/deposition of protein the overall nutrient loss is reduced by 24% compared to conventional fish feed.
- o Further, feed containing seaweed is proved to reduce salmon fish lice outbreaks and the improve coloring of fish meat when slaughtered.

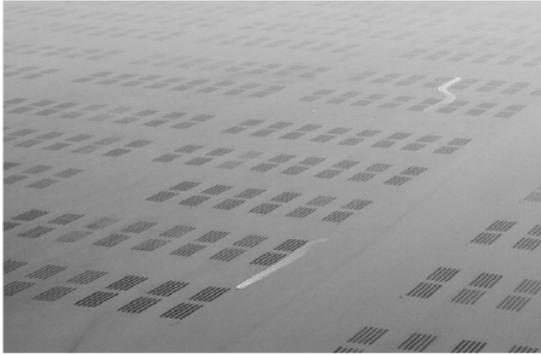
Timeline: within 12 onts a fully developed fish feed is expected to be introduced to market.

Danish fulfilment of EU renewable energy directive	
Data should be verified as the different assumptions are tested on a commercial basis.	
➤ Sugar kelp biomass yield	
29.2 tons (wet weight) per ha per year	
5.3 tons (dry weight) per ha per year	
➤ Bioethanol yield (laboratory scale)	
80 % conversion of carbohydrates: 0.281 l bio-ethanol per kg dry weight (Wargacki et al, 2012)	
1,489 l bioethanol per ha per year	
➤ EU renewable energy directive fulfillment (25 million l): biomass and areal requirements	
Biomass (dry weight): 90,000 per year	
Areal requirements: 17,000 ha per year	
➤ Nutrient and CO2 fixation	
Nitrogen: 2,200 ton/year	
Phosphorus: 450 ton/year	
CO2: 162,000 ton/year (Bruhn et al, 2010)	

So, is it really that simple?

- LARGE AREA AVAILABLE
- NO NEED FOR FRESH WATER
- HIGHER GROWTH RATE
- LOW COST BIOMASS WITH MANY APPLICATIONS
- NO DRAUGHTS, FROST, FLOODS, FIRE
- NO FOOD VS. FUEL ISSUE
- NO NEED FOR FERTILIZER
- NO NEED TO CLEAR AREAS – (No Indirect Land Use Change)
- MULTIPLE CROP ABILITY
- MOVABLE FARMS
- SCALABILITY
- ECONOMICS OF SCALE
- LOW COST LOGISTICS
- LOW CO₂ FOOTPRINT
- NO WATER POLLUTION
- BIOFILTER- CLEAN UP
- STRONG DEMAND FOR A SUSTAINABLE BIOMASS

Asian seaweed production



<https://www.facebook.com/photo.php?v=10201016509194577&set=vb.118720564900442&type=2&theater>



Future perception of green growth

- Mutual dependencies between healthy land and sea based production systems increases the overall value within both systems and thereby industry incentives to preserve them...

GEF IW and aquaculture

- Forms only a minor part of the GEF 6 IW strategic objectives
- There should be strong country buy-in and International Waters investments should form part of the TDA/SAP approach
- Focus on innovation and optimal resource use within multi-tropic systems



GPNM
↔
Global TraPs

Advise Global TraPs
& GPNM phosphorus
mandate

Arnoud Passenier
Terry Roberts
Jim Dobrowolski

GPNM Steering Committee
11 dec 2014



Common grounds for a common mission

- Shared ambition to steer dialogues and actions => effective nutrient management => improve food security and environmental quality, and provide benefits for the poor
- Both networks bring together stakeholders on global level
- Complementary: GPNM more focused on Nitrogen, Global TraPs focused on phosphorus.





Assignment triumvirate

Arnoud Passenier
Terry Roberts
Jim Dobrowolski (replaced Tom Sims)

1. Propose how to merge the platforms of Global TraPs and GPNM
2. Explore possible synergies of both platforms
3. Take notice of the different areas of knowledge & experience.




2



Elements relevant for the integration of the heritage of Global TraPs in GPNM

- Two main characteristics of the networks:
 - Ambitions to create a system of nutrient management based on efficient & effective use of nutrients
 - Multistakeholder dialogue
- Structure of GPNM: task teams
- Best of both worlds: focus on innovations, transdisciplinary working methods, system approach, UNEP based
- Linking different knowledge networks to GPNM
- Specific P issues to be addressed: mining, environmental issues, markets & geopolitical perspectives



Process

1. Start Skype call concerning:
 - common grounds
 - working methods
 - structures
2. Next defining relevant elements for our advise
3. Third to define interviews and interviewees
4. Interviews
5. Final report





Proposals (1)

1. We found consensus to protect heritage of Global TraPs within GPNM. Network most welcome to achieve our common goals
2. No big fund to finance research, both for Nitrogen and Phosphorus, so IPI as counterpart of an INI isn't viable. Apart from that: research is only instrumental to the common goals of GPNM in a transdisciplinary approach.
3. Create special Task Team Phosphorus for coming year to make merger of both global networks work smoothly, look for synergies where possible within other Task Teams



Proposals (2)

4. Task Team Phosphorus:

- Knowledge & expertise, focus on sustainable innovation
- Three perspectives: ecological, economical, geopolitical
- Multidisciplinary: science, business, governments
- Max around 10 people
- Arnoud Passenier prepared to lead Task Team through initial phase
- Within next couple of months agenda developed

➤ **Steering Committee GPNM: do you approve?**

TARGETED RESEARCH FOR IMPROVING UNDERSTANDING OF THE GLOBAL NITROGEN CYCLE TOWARDS THE ESTABLISHMENT OF AN INTERNATIONAL NITROGEN MANAGEMENT SYSTEM (INMS)

**KICK OFF PPG MEETING, WASHINGTON, DC
7-10 OCTOBER**

Session with Partners, 8 October
2014



Objectives of the session

Objectives

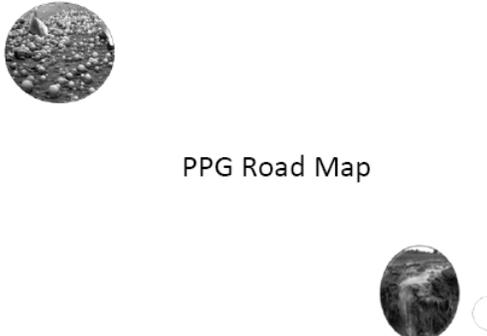
- To ensure there is a common understanding about the Project objective, its scope and outcome as presented in conceptual form in the PIF
- To outline the PPG process
- To seek comments on Component activities and the governance structure for the FPS execution
- To seek collaborative opportunities (especially component 3 – demos) & be made aware of other on-going baseline activities in reactive nitrogen management
- To clarify the steps needed for securing co-finance including engaging with the private sector
- To agree on the communication modalities throughout PPG execution

About INI and GPNM

The International Nitrogen Initiative (INI) is a scientific partnership that addresses the problems of **too much nitrogen** in some parts of the world and **too little nitrogen** in others. It is a joint initiative of the International Geosphere Biosphere Program (IGBP) and the Scientific Committee on Problems of the Environment (SCOPE). CEH provides the Secretariat of INI

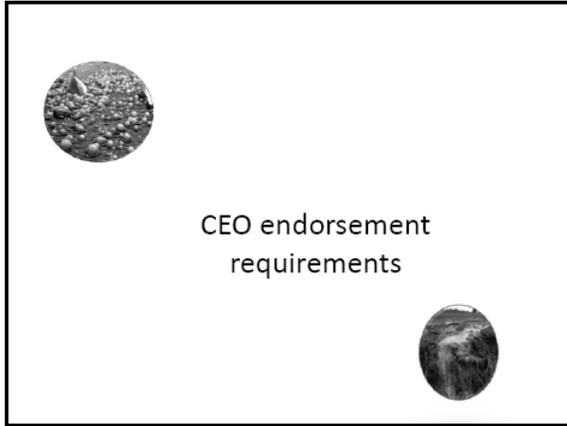
The Global Partnership on Nutrient Management (GPNM) of the GPA is a multi-stakeholders partnership comprising of governments, private sector, scientific community, civil society organizations and UN agencies committed to promote effective **nutrient management** to achieve the twin goals of food security through increased productivity and conservation of natural resources and the environment. UNEP provides the Secretariat of GPNM.

PPG Road Map

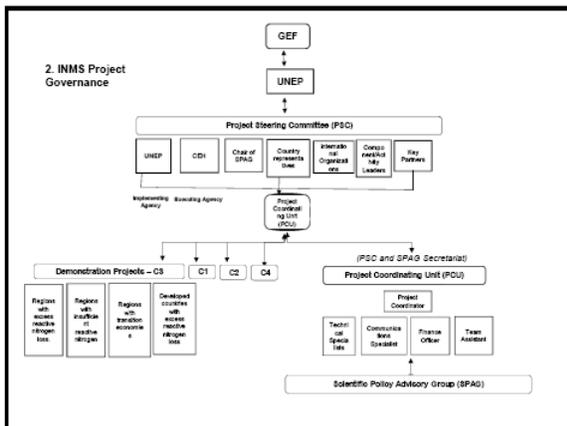
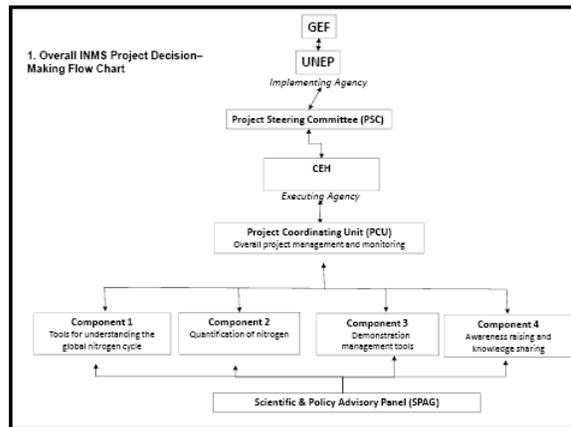


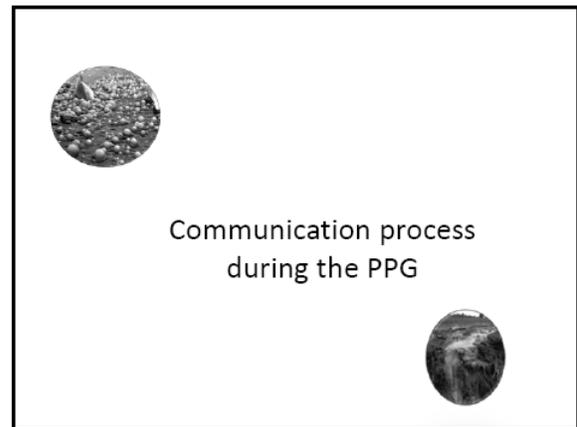
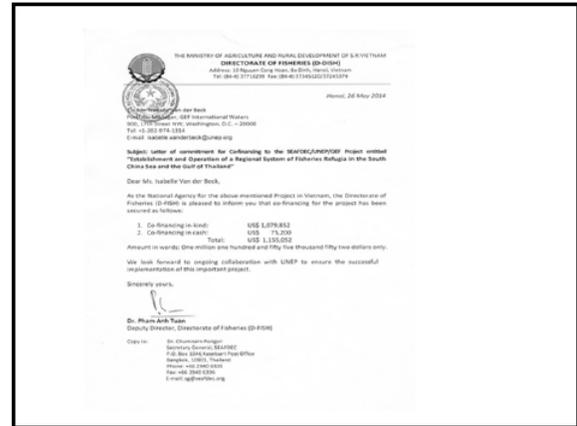
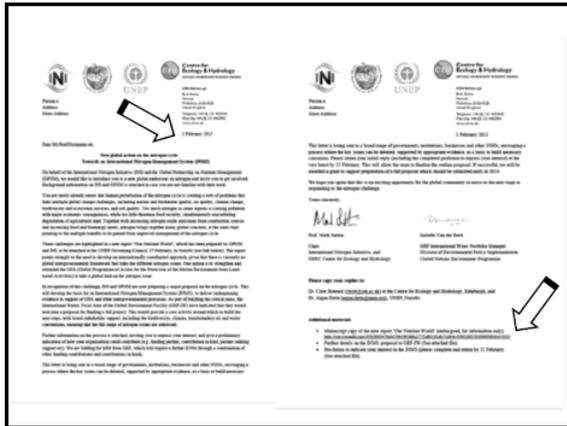
Milestones & events	Dates
PPG Kick-off meeting	October 2014
N PPG Website with workspace (IW:LEARN)	Oct – Nov 2014
Monthly communication via Email updates (CEH)	Monthly
Project write up	Oct 2014 to July 2015
FSP Costed outline	October 2014
FSP Logframe	November 2014
Demonstration sites selection criteria formulation	November 2014
Selection Demo sites	November 2014
Baseline data gathering for demos	November – Feb 2014
GPA Review	Nov. 14 to Jan 2015

Milestones & events	Dates
Addressing GEF and STAP comments (at PIF approval) (Annex B1 of CEO DOC)	Oct. 2014 to July 2015
Avoiding overlap with GNF (Annex to FSP)	
Details on Policy Options for track 1 (FSP)	
Strengthen stakeholder participation/communication processes (C4)	
Better explain the global trade of N based products	
INMS sustainability plan (as part of GPA review/FSP formulation)	
Partner consultation meeting	March 2015
Co-financing commitment written confirmation	By June 2015
CEO endorsement documentation validation meeting or thru circulation	June 2015
STAP Review of CEO endorsement package	July 2015
UNEP's review by the UNEP Project Review Committee	July 2015
Submission to GEF Sec for CEO endorsement	August 2015
Launching of the FSP at IWCS	October 2015



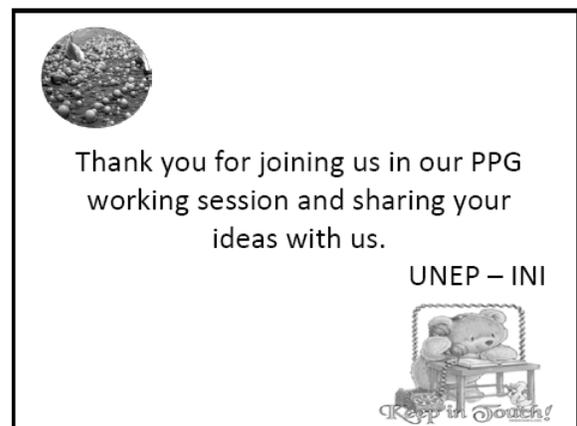
File Nbr	Appendix #	Documents
01		CEO Endorsement Document
02		UNEP ProDoc
03	Appendix 01 & 02	GEF and CF Budget by component and UNEP budget categories
04	Appendix 3	Incremental cost analysis
05	Appendix 4	Results framework (logframe)
06	Appendix 5	Workplan and Timetable
07	Appendix 6	Key deliverables
08	Appendix 7	Costed M&E plan
09	Appendix 8	Summary of reporting requirements and responsibilities
10	Appendix 9	Standard ToR for Terminal Evaluation
11	Appendix 10	Decision making flowchart and organization chart
12	Appendix 11	Agreements and TORs
13	Appendix 12	Co-financing commitment letters
14	Appendix 13	Draft procurement plan
15	Appendix 14	GEF IW Tracking tool
16	Appendix 15	Component 3 - Demonstration projects (3 + 1)
17	Appendix 16	Component 1 - Tools for understanding the Global Nitrogen Cycle
18	Appendix 17	Component 2 - Quantification of Nitrogen
191	Appendix 18	Component 4 - Awareness raising and knowledge sharing





Communication mechanisms	Timeline
N PPG Website with workspace (IWLEARN)	Oct – Nov 2014
Monthly communication via Email updates (CEH)	Monthly

Events	Dates
PPG Kick-off meeting	October 2014
Partner consultation meeting	March 2015
CEO endorsement documentation validation meeting or thru circulation	June 2015





GPNM proposed Action Plan
2015-16




Main Elements

- Advocacy & consensus-building
- Stimulate discussion & assessment of scientific evidence
- Inform intergovernmental agreements



Main Activities

- Build consensus to promote nutrient use efficiency and facilitate on-the-ground actions
- Support implementation of the current GEF funded Global Nutrient Cycle project
- Facilitate PPG phase of INMS



Outcome: Improved knowledge and changed attitudes towards nutrient management by governments, business and CSO sectors, through a strong and vibrant GPNM, in order to address the root causes of eutrophication world-wide and to deal with nutrient losses.

Core Components:

- (1) Knowledge Generation,
- (2) Extension and Technical Services,
- (3) Outreach and Advocacy, and
- (4) Partnership and Network Development



Immediate Actions:

- Building knowledge through sharing of lessons learned to assist governments and other stakeholders in the analyses of policies, development of business models and choice of technological options for sustainable production and use of nutrients
- Creation/development of a global knowledge-base on policy experiences and ways to adapt such experiences to specific national circumstances and make it available to all stakeholders
- Promotion of activities that raise awareness and dissemination of information for enhancing capabilities of partners
- Facilitation and/or development of new approaches and projects to complement governments' efforts to reform/develop policy frameworks for sustainable nutrient management




Immediate Actions:

- Offer opportunities to develop networks among the members in order to establish and strengthen a community of practice
- Develop indicators to assess progress towards globally agreed targets (e.g., Aichi target 8, GPA/IGR-3 Manila Declaration, Rio+20 outcomes etc.)
- Setting of region/nation specific targets on NUE & nutrient load into coastal waters (e.g. Aichi target 8)
- Secure commitments from stakeholders on regular reporting on the progress towards NUE and publish periodic reports on progress



GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES

Immediate Actions:

- Holding of periodic meetings of partners to share experiences and define agenda for action
- Identification, review and compilation of best nutrient management practices and dissemination through web and meetings/workshops
- Development of a “policy toolbox” related to managing nutrient impacts from key source/sectors, to support national actions, especially development of nutrient reduction strategies, and designing of training module and associated curriculum

GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES

Immediate Actions:

- Production of policy briefs, information documents and case studies to promote sustainable nutrient management.
- Facilitation of dialogues for policy reform in support of technological and management innovation to promote NUE
- Facilitation and design of cost-effective on-the-ground interventions reflecting interests of the partners
- Development of eXtension training programme and facilitation of exchange of scientific data, methodologies and research applications among various stakeholders to support research and extending the BMPs to the small holder farmers

GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES

UNEP/GEF Global Nutrient Cycle project

- Finalization of the quantitative modeling
- Synthesizing available scientific, technological and policy options and their bringing together in Policy Tool Box;
- Testing and application of the model and tool box in the Manila Bay watershed;
- Replication of the ‘Ecosystem Health Report Card’ approach in the Laguna de Bay

GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES

UNEP/GEF Global Nutrient Cycle project

- Training in source impact modeling and use of the policy tool box;
- Production of briefing notes summarizing the model's results, analyses and training outcomes;
- Continuation of support to GPNM for the effective development, replication, up-scaling and sharing of these key outcomes; and
- Facilitation of the Final Evaluation of the project.

GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES

Other projects

- INMS;
- Controlling Nutrient Loading and Eutrophication of Coastal Waters of the South Asian Seas Region;
- Nutrient loading into the Caribbean Sea
- GPA's Wastewater Management project

GPA GLOBAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM LAND-BASED ACTIVITIES

Indicative Budget

	2015	2016
GEF	955K	115K (GNC & INMS)
Other:		
• Secured	150K	50K (SACEP)
• Unsecured	1,292K	702K
Total	2,397K	867K