UNITED NATIONS ENVIRONMENT PROGRAMME

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Программа Организации Объединенных Наций по окружающей среде | برنامج الأمم المتحدة للبيئة

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UNEP

GPNM

Global Partnership on Nutrient Management (GPNM)
Proceedings of the
6th Steering Committee meeting

February 4th 2016

Laugna Lake Development Authority (LLDA)
Manila, Philippines

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

The 6th meeting of GPNM Steering Committee was convened on 4th February 2016 following the convening the 4th Project Steering Committee (PSC) meeting of the GEF-Global Nutrient Cycling Project at the Laguna Lake Development Authority headquarters in Quenzon City, Manila, Philippines. The meeting focused on updates on recent work of GPNM Task Teams, updating progress in the development of the full-sized GEF-INMS Project proposal and rotation of the GPNM Chair.

Participants:

Christopher COX	GPNM Secretariat, UNEP/GPA
Greg CROSBY	National Program Leader National Institute of Food and Agriculture, USDA
Sasha KOO-OSHIMA	Senior International Water Policy Advisor Office of Water, Environmental Protection Agency (EPA)
Yuelai LU	Head of the Secretariat UK-China Sustainable Agricultural Innovation Network
Arnoud PASSENIER	Value Chains Sustainable Innovations, Ministry of Environment, Netherlands
Ajit PATTNAIK	Chilika Development Authority
N. RAGHURAM	Indian Nitrogen Group
Roland SCHOLZ	Fraunhofer Institute for Interfacial Engineering and Biotechnology
Mark SUTTON (via telecon)	Environmental Physicist Centre for Ecology & Hydrology

Invited

Nancy BERMAS-ATRIGENIO	PEMSEA Resource Facility
Albert BLEEKER	Netherlands Environmental Assessment Agency
Lex BOUWMAN	Netherlands Environmental Assessment Agency
Henrik ENEVOLDSEN	IOC-UNESCO
Gil JACINTO	University of the Philippines, Marine Science Institute

Adrian ROSS	PEMSEA Resource Facility
Adelina SANTOS-BORJA	Laguna Bay Development Authority
Sara WALKER	World Resources Institute
Isabelle VANDERBECK	UNEP-GEF International Waters
Milcah NDEGWA	GPNM Secretariat, UNEP/GPA

GPNM 6th Steering Committee Meeting Proceedings

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 the GEF-GNC Project partners and expressed thanks for the continued support of all to the work of the GPNM.

Review of the Minutes of the 5th Steering Committee meeting

Dr. Crosby invited the GPNM Secretariat (Dr. Cox) to provide a status update on the action points from the last steering committee meeting. The following are the update on the various action points:

	Decision for action	Lead responsibility	Update
	GEF-GNC Project		
1	Steering Committee members to submit bios for the website	Secretariat (Project Manager)	Some SC members have submitted; several still outstanding
2	Consult with Isabelle Vanderbeck on the format for the close-out conference and the final steering committee meeting.	Secretariat (Project Manager)	Discussed within the 4th GNC Project PSC meeting. Agreement that this should be convened in early 2017 (refer to minutes).
3	Establish a sub-committee determine options for raising resources for the internal UNEP project		Discussed in the 4th GNC Project PSC meeting (refer to minutes)
4	Look at the project budget and advise on whether a publication on phosphorus can be produced (along lines of Our Nutrient World). Draft a concept note/proposal and consider approach to the Government of the Netherlands for funding *(linked to the Phosphorus Task Team action below)*	Phosphorus Task team (led by Passenier, Sutton)	No decision made; no further action. Discussion within meeting agenda
	GEF-INMS Project		
5	Circulate INMS project proposal draft	Sutton	Update to be provided within this meeting (see below)
	Task Team support		
6	Policy Task Team: Schedule a	Crosby	Update to be provided within this

	Decision for action	Lead responsibility	Update
	teleconference with Mark, Greg, Chris in preparation of UNEA resolution		meeting (see below)
7	Toolbox Task Team: Steering Committee to consider the allocation of US$10,000 under GNC Project for the upgrading of the nutrient management toolbox (calculator component)	Secretariat (Project Manager)	Decision conveying agreement at 4th GNC Project PSC meeting (refer to minutes).
8	Phosphorus Task Team: Circulate PTT meeting minutes to the Steering Committee when available	PTT and Secretariat	Done
9	Communications Task Team: Finalize the draft communications strategy for circulation to the Steering Committee	CTT and Secretariat	No further work by Task Team; challenges in following on. This task will be completed by Secretariat.
	Rotation of GPNM Chair		
10	Draft a proposal for rotation of the GPNM Chair	Crosby, Secretariat	Update to be provided within this meeting (see below)

The Secretariat reported that arrangements are being put in place to support the development of a Massive Open Online Course (MOOC) on nutrients and wastewater management in a joint collaboration between the GPNM and the Global Wastewater Initiative (GW^2I).

GPNM Task Team updates

1. Policy Task Team

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

- Key events and initiatives of note of relevance to GPNM policy support include the OECD Reactive Nitrogen Project, Water Governance Initiative, implementation of the SDGs, the United Nations Environment Assembly (UNEA) in May 2016, the 20th Anniversary of the GPA, the approval and implementation of the GEF-CReW+ Project (Caribbean) and the Our Oceans Conference in September 2016.
- Have been involved in the development of EPA policy reports, WHO DW Guidelines (HABs) and the UNEP WQ Guidelines.
- Engaged in an on-going OECD Study; Human Impacts on the Nitrogen cycle, with focus on economic aspects and the environmental impacts of nitrogen flows on air, land and water. A U.S. Case Study is on the 'Nitrogen Cascade and Unintended Consequences in Conservation'.
- In the US consideration is being given to Concentrated Animal Feeding Operations (CAFOs) to meet a nutrient standard for land application. Ammonia emissions have increased by 3.4%, mainly because more land is receiving manure.
- Implementation of actions to meet Sustainable Development Goal 14 associated with oceans pollution will be significant to the work of the GPNM and the Global Wastewater Initiative (GW^2I).

- The US State Department's Our Oceans Summit will draw attention to nutrient pollution. There are other fora that will pay attention to nutrient pollution. These include the GEF-CReW+ Project's next meeting in February will look at wastewater infrastructure financing mechanisms, the 4th IWA International Wastewater Symposium in September that will consider wastewater technologies, and IFA's Annual Conference in May on nutrient stewardship. The 7th International Nitrogen Initiative Conference will take place in December in Australia. This year is the 20th anniversary of the GPA; an anniversary event was hosted in November 2015 in Washington D.C.
- The 2nd UNEA in May will consider resolutions from the EU on Oceans, from Japan on the sound management of chemicals and waste, from the US on food waste, and from Norway on marine debris (plastics).
- In the United States notable actions include recommendations from the Hypoxia Task Force to reduce the areal extent of the Gulf of Mexico hypoxic zone to less than 5,000 km^2 by 2035. An interim target of a 20% nutrient load reduction by the year 2025 is being set as a milestone.

Refer to presentation in Annex.

2. Nutrient Use Efficiency Task Team

Dr. Christopher Cox, UNEP/GPNM Secretariat – on behalf of Dr. Terry L. Roberts

- The NUE paper by the Task Team has been very useful in offering directions that can be backed by the GPNM. This document has been shared with the US State Department where it has generated interest.
- There should be opportunities for the development of communications products (e.g. 2-pager formats) around the paper.
- The GPNM may consider the development of a P use efficiency indicator mindful of the fact that there may already be existing literature out there. This will need to be looked into.

3. Partnership Task Team

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

- Recognized the World Resources Institute as the newest GPNM partner.
- Active work continues on strengthening of the regional nutrient platforms as the primary avenues for reach of the GPNM to the country level. The Regional Seas Programmes are recognized to be important existing inter-governmental mechanisms that should be used to promote the regional platforms. This approach was agreed to at the Asia nutrient platform meeting held in Vietnam in November 2015.
- The aim is to get countries, through these mechanisms, to submit designates to the platforms. Representative members from these regional platforms then should sit on the Steering Committee of the GPNM; e.g. 2 or 3 reps from Asia, 1 from the Caribbean, 1 from Africa and so on.
- Partners are encouraged to solicit interest from more organizations to join the GPNM.
- The launch meeting of an Africa GPNM platform is being considered tentatively for July 2016.

Discussion points:

Passenier: The government of the Netherlands has been opening up collaboration with Brazil in terms of investment solutions. There has been a compilation of case studies around the circular economy that includes nutrient management.

5. Phosphorus Task Team

Arnoud Passenier, Ministry of Environment, Netherlands

- The first GPNM Phosphorus Task Team meeting, held in Edinburgh in September 2015 was well-attended with representation by key partners in the phosphorus management agenda.
- There was much good discussion at the meeting but prioritization of the task team agenda is needed.
- In moving the agenda of the task team forward it was recognized that the differences between the cycles of phosphorus and nitrogen must be considered; specifically (i) excess use of P has consequences for soil and water, not for air quality and climate, (ii) phosphorus builds up in soil after long time application while nitrogen does not, and (iii) P is mined and is thus a finite resource, whereas N can be infinitely generated provided enough energy.
- The main pillars plan of action for the PTT for 2016 were agreed as follows:
    - Promoting healthy rivers, lakes and oceans by reducing wastage P in whole value chain: Less in feed, food, detergents, recover/recycle P from WWTP, animal manure & bones, organic waste households/industry.
    - Securing sustainable access farmers to phosphorus fertilizers: Innovations & indicators: high productivity & cheaper (recycled) P-fertilizers.
    - Promoting soil health/fertility and productive agriculture: Optimizing LT soil fertility, P storage in soil good/bad?
    - Promoting healthy diets for the global population: Some studies suggest that excess P can have adverse effects on health (e.g. kidney disease).
- The PPT should not seek to duplicate but build on existing work and must focus on influencing agendas, specifically in government policy, the innovation agenda for industry and the knowledge agenda for science.
- The possibility of access to funding from the government of the Netherlands is relatively low in light of recent budget cuts across government.
- There is need to involve relevant fertilizer and detergent companies in conducting research.

Refer to presentation in Annex.

Discussion points:

Scholz: There is a sense that we are going back to the start with this effort and must be mindful. Suggest a co-chair arrangement with a rep from research from a developing region, e.g. Africa where losses and efficiency are major issues. There is science in the health arena concerning phosphorus but would not necessarily place this on the top of the agenda.

6. Communications Task Team

Mr. Albert Bleeker, Netherlands Environmental Assessment Agency, Milcah Ndegwa, UNEP/GPNM Secretariat

- The Task Team managed to have three meetings, admittedly with challenges in convening.
- The areas for consideration of the task team included the reformulation of the Jim Toomey video on nutrient management, the redesign of the GPNM logo and the finalization of the communications strategy. There has been very limited progress in finalizing the communications strategy.
- The GPNM website re-design is ongoing (under support of the GEF-GNC Project).
- Five 2-page fliers highlighting various different topics around nutrient management and impacts are under development (the drafts were presented to the meeting).
- A GPNM e-newsletter is now issued every quarter.

Discussion points:

Crosby: The newsletter has been proving to be very effective in getting information out and raising awareness on the GPNM.
Passenier: the factsheets are great communication concepts.

Given that Albert Bleeker has moved to a new job position, this now presents challenges in his ability to continue to lead the task team. His replacement needs to be sought.

Update on GEF-INMS Project development

Dr. Mark Sutton, Centre for Ecology & Hydrology, Edinburgh, UK *(via telecon)*

- The full scale project proposal is being finalized; the GEF funding to be secured is US$6 million with some US$50 million in co-financing from partners.
- The four project components are (1) Tools and methods for understanding the N cycle, (2) Global and regional quantification of N use, flows, impacts & benefits of improved practices, (3) Regional demonstration and verification and (4) Awareness raising & knowledge sharing.
- INMS is supported by UNEP as the Implementing Agency and executed through NERC.
- Under Component 4 regional demonstrations will be undertaken; Case 1: Developing areas with excess N_r; Case 2: Developing areas with insufficient N_r; Case 3: Regions with transition economies and Case 4: Developed areas with excess N_r. Accordingly, the regional clusters considered are (1) South Asia: India, Sri Lanka, Bangladesh, Nepal, (2) East China Sea: China, Japan, South Korea, Philippines, (3) Lake Victoria Basin: Kenya, Uganda, Tanzania, Rwanda, Burundi, (4) La Plata: Brazil, Paraguay, Uruguay, Argentina, Bolivia, (5) Black Sea: Diester, Prut & Lower Danube. North America expected to join later.
- The project administrative components will include a Project Coordination Unit (PCU), Project Management Board (PMB), Stakeholder & Policy Advisory Group (SPAG) and the General Assembly comprising of all Funding Partners.
- Annexes for C1, C2 and C4 are now available for comment (web site); Annexes for C3 demonstrations being finalized (to be up shortly).
- Letters of support and co-financing commitments being sent by partners and the budget is being finalized.
- Final documentation is to be submitted to the GEF Secretariat within the first part of March.
- Some of the documents are already posted at www.inmsinternational.com

Refer to presentation in Annex.

Discussion points:

Passenier: How can we ensure effective engagement from governments? Resp - Sutton: this is expected to be an incremental process where governments' engagement will be stepped up over the course of implementation. Contributions from the work of the OECD and the Task Force on Reactive Nitrogen will be blended into the project. There is signal from the EU that the process must be an integrated one.

Scholz: The project seems to be well-designed but need to know how the process will effectively engage the various stakeholder interactions against the project goals. May perhaps call for a specific group to look at the methodologies for this.

Rotation of GPNM Chair

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

- The Secretariat is to prepare a Terms of Reference (ToR) for the GPNM Chair.
- There are some members on the GPNM Steering Committee in capacity as government representatives who can be considered eligible for consideration; Ajit Pattnaik, R. Ramesh, Sasha Koo Oshima, Arnoud Passenier and Fusuo Zhang.
- It is recommended that the Chair now rotates to representation from the Asia region.
- A Nomination Committee (NC) to manage the selection process (supported by the Secretariat) was recommended. The NC is composed of representation from the main stakeholder groups on the GPNM; industry, academia and NGOs. In this regard, the members delegated to serve of the NC are Patrick Heffer, N. Raghuram and Yuelai Lu. Yuelai Lu was designated to lead the NC.
- The NC is to solicit potential candidates.
- It was recommended to complete the process with nomination of a new chair before the GEF-International Waters Conference in Sri Lanka in May.

Closing remarks

Dr Crosby expressed his deep thanks for all the support he has received from GPNM colleagues during his tenure as Chair over the past 3 years and for having been given the opportunity to lead such a great team, and declared the meeting closed.

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Summary action list

	Decision for action	Lead responsibility	Timeframe
	Task Team support		
1	NUE Task Team: Develop concepts for information leaflets/brochures	T. Roberts	As soon as practical
2	NUE and Phosphorus Task Teams: Consider whether P indicator development is needed	T. Roberts, A. Passenier	Not defined
3	Partnership Task Team: Continue effort to widen partnership membership (government and non-government)	Secretariat	ongoing
4	Communications Task Team: Replace A. Bleeker as head of Task Team	CTT and Secretariat	Immediately
5	Communications Task Team: Finalize the draft communications strategy for circulation to the Steering Committee	CTT and Secretariat	Not defined; as soon as possible
	Rotation of GPNM Chair		
6	Finalize ToRs for Chair	Secretariat	Immediately
7	Solicit expressions of interest from potential candidates	Nominations Committee	March into April

Agenda

Global Partnership on Nutrient Management (GPNM)

6th Steering Committee meeting

Date: 4th February 2016
Venue: LLDA Headquarters, Manila, Philippines

Session 9. GPNM Steering Committee dialogue			
13:30-14:00	**9a)** Review of minutes from last meeting (October 2015)		Christopher Cox, UNEP
14:00-16:30	**9b)** GPNM Task team updates	**Policy** - Planning for UNEA 2 – organizing for a side-event	Sasha Koo-Oshima, US-EPA
		NUE - paper publication and further outputs; update on SDG indicator contribution	Christopher Cox, UNEP
		Partnership - new/priority members; outreach to countries; Regional nutrient platform strengthening – Asia, Caribbean, Africa	Greg Crosby, USDA-NIFA; Christopher Cox, UNEP
		Toolbox development - focus on the training for IWC8, expectations and format (main elements covered in prior agenda)	Chuck Chaitovitz, GETF *via teleconference*
		Phosphorous - outcomes of the Edinburgh meeting; focus on elements of the draft work plan	Arnoud Passenier, Gov't of the Netherlands
		Communications - update on comms products; discussion on successor to lead task team	Albert Bleeker, PBL; Milcah Ndegwa, UNEP
16:30-17:00	**9c)** Update on GEF-INMS Project development	Overview of accomplished work on the development of the full-sized project; outstanding matters and outlook	Mark Sutton, CEH *via teleconference*
17:00-17:30	**9d)** GPNM Chair rotation	Presentation of proposal for rotation of the GPNM Chair; open discussion toward consensus	Greg Crosby, USDA-NIFA
17:30-17:45	**9e)** Upcoming events	Identification of upcoming events for 2016 the GPNM may participate/contribute to.	Steering committee contributions
17:45-18:00	Wrap up and reflections	Summary of day's proceedings and main conclusions	Greg Crosby, USDA-NIFA

Annex - Presentations

GPNM POLICY TASK TEAM UPDATE

Sasha Koo-Oshima

GPNM Policy Task Team Chair
Director / Senior Advisor -
U.S. EPA Office of Water
U.S.-China Clean Water Action Plan

Linkages with Global Developments on Nutrient Management

- OECD Reactive Nitrogen Project, Water Governance Initiative
- SDGs
- UNEA May 23-27, 2016
- GPA 20th Anniversary – GW2I – my work IWA
- CReW+
- Our Oceans Conference
- EPA policy reports – WHO DW Guidelines (HABs), UNEP WQ Guidelines

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WPBWE
Oct. 2015

On-going OECD Study: Human Impacts on the Nitrogen cycle

Gérard Bonnis, OECD Secretariat, ENV/CBW

Sasha Koo-Oshima, Bureau Member &
U.S. Delegate to the OECD WPBWE/EPOC

SCOPE OF OECD GOVT PROJECT

- **Holistic** approach to examining the impact of nitrogen flows on the environment and economic activity and the associated policy issues.
- Covers nitrogen **flows** from agriculture, industry, transport and households.
- Include analysis on impacts and economic policy options for managing the negative externalities from nitrogen.
- Focus will be on the impacts of nitrogen flows on air, land and water.

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OECD Nitrogen Project 2015-16

- Identified intervention points in the N cycle – Impact-Pathway-Source (IPS) approach as framework
- Comparative analysis of policies – advantages and disadvantages → address unintended consequences

U.S. Case Study: Nitrogen Cascade and Unintended Consequences in Conservation

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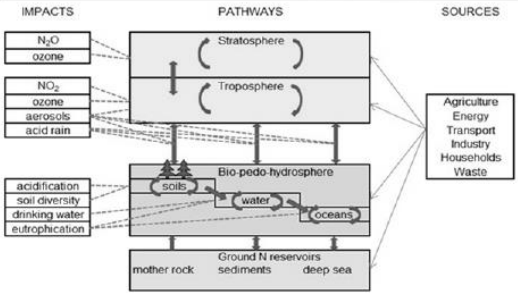
Impact-Pathway-Sources



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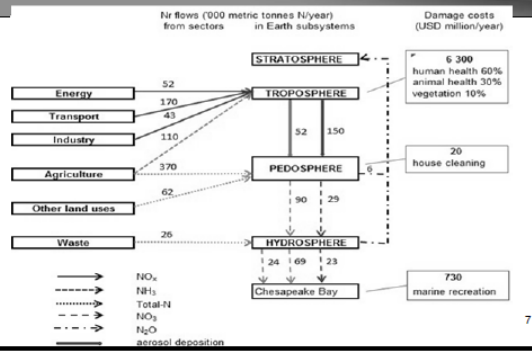
Nr flows and cascading damage costs in the Chesapeake Bay watershed



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Watershed & Airshed N Cycle Policy Considerations - ongoing effort

U.S. Case Study: Nitrogen Cascade and Unintended Consequences in Conservation

Concentrated Animal Feeding Operations (CAFOs) to meet a nutrient standard for land application to keep nitrates out of ground and surface water → more land is required for spreading manure

→ Ammonia emissions increased by 3.4 percent, mainly because more land is receiving manure

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SDG Indicators Development

- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Target 14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution. This target is directly related to addressing nutrient loading into the marine environment from land-based sources that include agricultural runoff (crop and livestock production), discharge of untreated domestic and industrial wastewater – NUE, GW2I

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Our Oceans Conference 2014-2016 Action Plan on Nutrients

- Numerous advances in ML programs: TFW Innovation Initiative, TFW Sister Cities, ML reduction in the Caribbean
- 2015 Action Plan: Reduce nutrient pollution to the marine environment from land-based by 20% by 2025 in order to reduce hypoxic zones and HABs
- Upcoming: Seek country-to-country partnerships on nutrient reduction commitments

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GPA 20th Anniversary

- **Global Wastewater Initiative –**provide information, tools and policy mechanisms to initiate comprehensive, effective programs addressing wastewater management and marine pollution; facilitate joint efforts addressing wastewater reuse, nutrient removal and biogas production, water-energy-food nexus (efficiency and conservation).
- **GEF CReW+** -next meeting Feb. 15-20, 2016 Trinidad & Tobago ; Wastewater infrastructure financing mechanisms
- **4th IWA International Wastewater Symposium,** Sep. 17-19, Coimbra, Portugal, wastewater technologies

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Related Policy Initiatives by Partners and Governments

- **IFA Annual Conference** (May 30-June 1, 2016, Moscow) & SDN – nutrient stewardship SDG goal 14
- **UNEA May 23-27, 2016** [EU on Oceans, sound mgmt. of chemicals & waste, Jpn: water mgmt. & tech, US: food waste, Norway: MD] 17 Resolutions & 2 Decisions
  - INMS – Mark submission for side event?
- **APEC Summit 2016 –** Climate Smart Agriculture- resource efficiencies, food security, etc. (Feb.13-20,2016 Peru)
- **7th International Nitrogen Initiative Conference (INI 2016)**
  December 4-8, 2016, Melbourne, Australia

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OECD Water Governance Initiative: Principles of Good Water Governance

1. Multi-level governance
2. Managing water at the right scale
3. Policy Coherence
4. Capacity
5. Data and Information
6. Governance-Financing nexus
7. Regulatory Frameworks
8. Governance and innovation
9. Integrity and transparency
10. Stakeholder Engagement
11. Equity across users, people and places
12. Monitoring and evaluation

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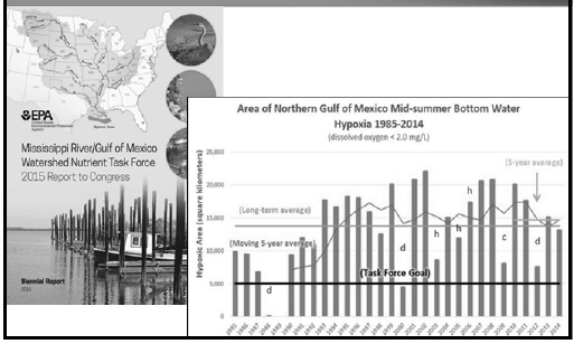
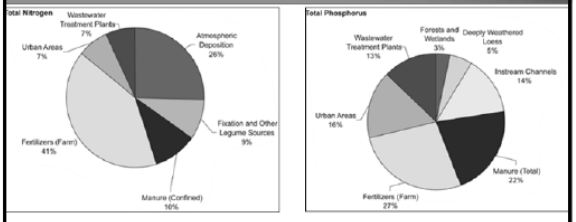
OECD Principles on Water Governance

Related National Nutrient Policy Developments



Comparison by Sources



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Information from Minnesota Pollution Control Agency

Nutrient source	Mississippi River	
	P	N
Cropland runoff	35%	5%
Atmospheric [b]	8%	6%
NPDES permitted wastewater discharges [c]	18%	9%
Streambank erosion	17%	--
Urban runoff	7%	1%
Nonagricultural rural runoff [d]	4%	--
Individual sewage treatment systems	5%	2%
Agricultural tile drainage	3%	43%
Feedlot runoff	2%	0%
Roadway deicing	1%	--
Cropland groundwater [e]	--	31%
Forest	--	4%

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Hypoxia Task Force Recommended Goal

Goal of reducing the areal extent of the Gulf of Mexico hypoxic zone to less than 5,000 km^2 by 2035.

- An interim target of a 20 percent nutrient load reduction by the year 2025 as a milestone
- Adopt quantitative measures to track progress in reducing point and nonpoint source inputs

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GPNM
Inaugural Meeting
Phosphorus Task Team
Edinburgh, Sept 2015

Short reflection on results

Arnoud Passenier

Process 15-16th of September

- High attendance (16 stakeholders)
- Great quality input stakeholders
- Connection with GPRI, CEH, IPNI
- Experiences shared by ESPP and Global TraPs, new NAPPS coming up
- Good results, but… : specification and prioritization needed

Different accents P vs N

- Excess use of P has consequences for soil & water, not for air quality & climate
- P is mined and thus finite resource, access N is infinitely provided enough energy
- P builds up in soils after over application, N does not
- Different networks in policy, knowledge and industry

Pillars Plan of Action PTT 2016

1. Promoting healthy rivers, lakes and oceans by reducing wastage P in whole value chain
   - Less in feed, food, detergents, recover/recycle P from WWTP, animal manure & bones, organic waste households/industry
2. Securing sustainable access farmers to phosphorus fertilizers
   - Innovations & indicators: high productivity & cheaper (recycled) P-fertilizers
3. Promoting soil health/fertility and productive agriculture
   - Optimizing LT soil fertility, P storage in soil good/bad?
4. Promoting healthy diets for the global population
   - Some studies: excess P can have bad effect on health (e.g. Kidney disease)

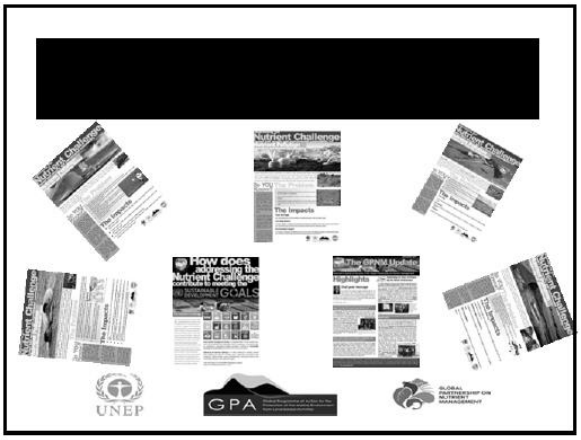
Follow up

- PTT: no research, builds on existing knowledge in network
- No replication TaskTeams/previous work
- Action focused on influencing agendas:
  - Political / policy agenda for governments
  - Innovation agenda for industry
  - Knowledge agenda for science
- No studies, twopagers involving stakeholders; focused on specific subjects:
  - independent & authoritative, helping decision making process

Addressing the
Nutrient Challenge
Toward food security and environmental sustainability

COMMUNICATION UPDATE

UNEP GPA GLOBAL PARTNERSHIP ON NUTRIENT MANAGEMENT



UNEP GPA GLOBAL PARTNERSHIP ON NUTRIENT MANAGEMENT

- What is NUE?
- The problem i.e. soil degradation, food insecurity, lack of knowledge etc.
- The impacts i.e. food shortage, soil acidification, environment impacts etc.
- Facts from other countries/regions.
- Solution i.e. implementing the 4R Nutrient management stewardship.

UNEP GPA GLOBAL PARTNERSHIP ON NUTRIENT MANAGEMENT

- What is Eutrophication ?
- The problem i.e. increased Dead zones, increased algae bloom, over-enrichment of coastal water etc.
- The impacts i.e. fish kills, low income for dependencies, diseases etc.
- Facts from other countries/regions.
- Solution i.e. organic farming, enforce law etc.

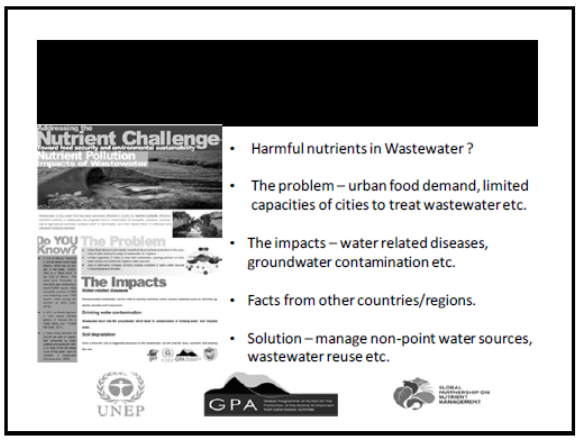
UNEP GPA GLOBAL PARTNERSHIP ON NUTRIENT MANAGEMENT

- Pollution on recreation waters?
- The problem i.e. water can become over-enriched with nitrogen and phosphorus etc.
- The impacts i.e. health impacts, reduced clarity of waters etc.
- Facts from other countries/regions.
- Solution i.e. wastewater reuse, explore alternative farming methods etc.

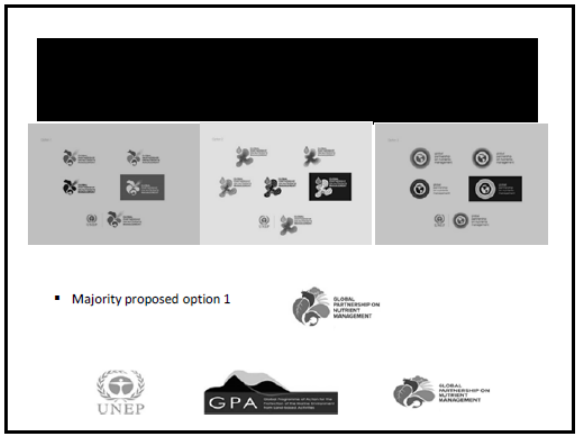
UNEP GPA GLOBAL PARTNERSHIP ON NUTRIENT MANAGEMENT

- Nitrates pollution on drinking water?
- The problem – human activities contribute greatly.
- The impacts – blue baby syndrome, contamination etc.
- Facts from other countries/regions.
- Solution – proper control of animal waste, industrial waste and wastewater etc.

UNEP GPA GLOBAL PARTNERSHIP ON NUTRIENT MANAGEMENT


Nutrient Challenge
Nutrient Pollution
The Problem
Do YOU Know?
The Impacts
• Harmful nutrients in Wastewater ?
• The problem – urban food demand, limited capacities of cities to treat wastewater etc.
• The impacts – water related diseases, groundwater contamination etc.
• Facts from other countries/regions.
• Solution – manage non-point water sources, wastewater reuse etc.
UNEP
GPA


Published in December 2015
• GPA 20th anniversary
• The Chilika Lake 2014 Ecosystem Health Report Card
• GPNM Asia Regional Nutrient Platform
Published in September 2015
• New partner – WRI
• Partners update
• Sargassum update
UNEP
GPA


▪ Majority proposed option 1
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GLOBAL PARTNERSHIP ON NUTRIENT MANAGEMENT


THE GLOBAL GOALS
For Sustainable Development
UNEP
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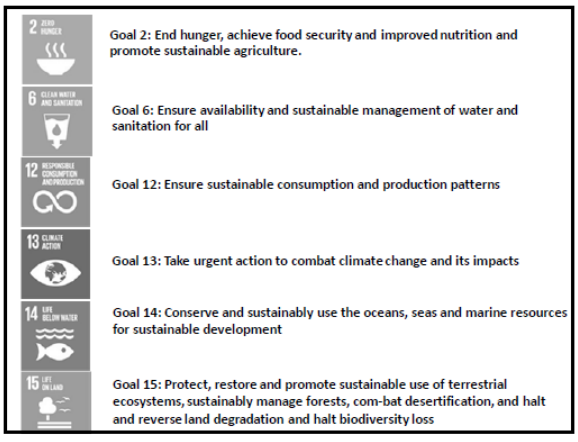
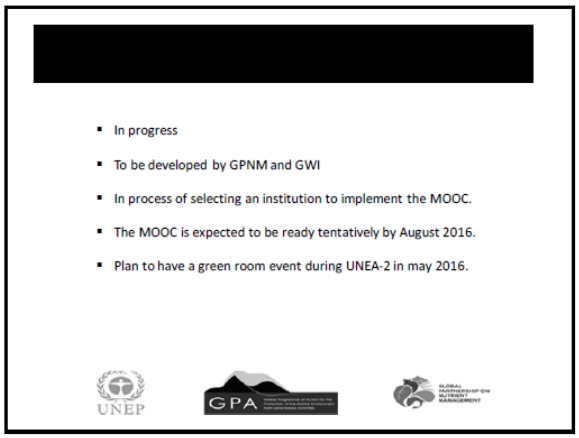

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
Goal 6: Ensure availability and sustainable management of water and sanitation for all
Goal 12: Ensure sustainable consumption and production patterns
Goal 13: Take urgent action to combat climate change and its impacts
Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, com-bat desertification, and halt and reverse land degradation and halt biodiversity loss


In progress
To be developed by GPNM and GWI
In process of selecting an institution to implement the MOOC.
The MOOC is expected to be ready tentatively by August 2016.
Plan to have a green room event during UNEA-2 in may 2016.
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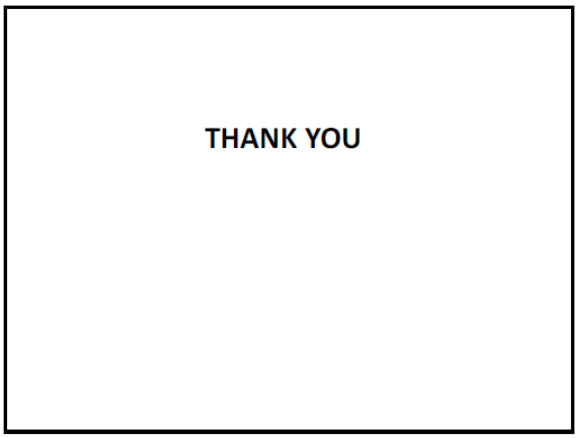

THANK YOU

Towards INMS

Centre for Ecology & Hydrology

International Nitrogen Management System

Towards INMS

The current State-of-Play

Mark Sutton

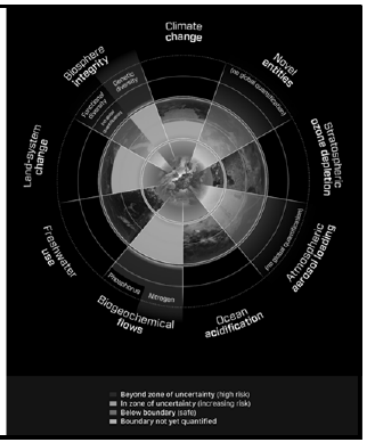
GPNM SC Manila
4 Feb 2016

Planetary Boundaries

Good communication, but an idea needing improvement

How much would higher NUE increase the boundary for N inputs?

Steffen et al. 2015
Science



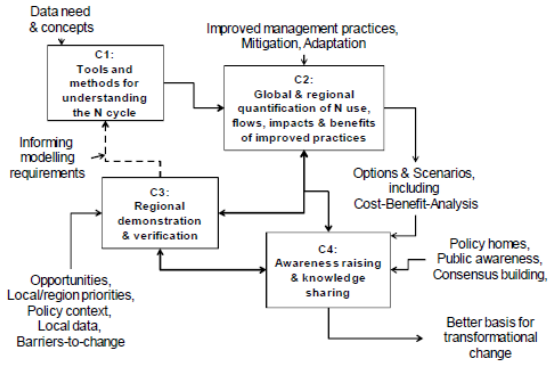
Towards INMS — Global science support for international N policy development

- INMS focuses on bringing scientific evidence together to inform policies and the public on the multiple benefits and threats of reactive nitrogen and how we can all benefit by addressing it
- Being developed as an international process with funding from the Global Environment Facility (GEF)
- Builds on and links together existing nitrogen networking activities

Towards INMS — Current Funding Development

- **Coordination**
  - Implementation Agency: UNEP
  - Execution Agency: INI (through NERC)
- **Supporting Projects**
  - GEF *"INMS Project Preparation Grant"* running (2015)
  - UK NERC International Opportunities Fund *"INMS Pump Priming"* project (2014-2017) ($600k)
  - Proposal for full scale project being developed: *"Towards INMS"* ($6 M + $50 M partners) (Cash + Contributions in Kind)

Towards INMS — Towards the International Nitrogen Management System (INMS)



Towards INMS — First Element of INMS

C1: Tools and methods for understanding the N cycle

- **Development of N system indicators**
  - National N budgets
  - Farm N budgets
  - NUE approaches
  - Relating different N indicators
- Threat assessment methodology
- Methodology for N fluxes and distribution
- Approaches for N threat-benefit valuation
- Flux-impact path models for assessment, scenarios & strategy evaluation
- **Barriers to achieving better N management**

Towards INMS — Second Element of INMS

- Quantifying N flows, threats and benefits at global and regional scales
- Preparation of **Global Nitrogen Assessment** flows, impacts, opportunities
- **Integrating methods, measures & good practices** to address N_r issues
- **Future N storylines & scenarios** with management / mitigation options & CBA
- Collation & synthesis of experience & measures adopted by GEF and others

C2: Global & regional quantification of N use, flows, impacts & benefits of improved practices

Towards INMS — Third Element of INMS

Case 1: Developing areas with excess N_r
Case 2: Developing areas with insufficient N_r
Case 3: Regions with transition economies.
Case 4: Developed areas with excess N_r

C3: Regional demonstration & verification

- Design methodology & conduct demos on **regional N_r assessments**
- Workshop to synthesize outcomes from demonstration activities
- Build regional **consensus on benchmarking** N indicators
- **Demonstrating the benefits** of joined up regional N management

Towards INMS — INMS Regions & Partners

- Country clusters: Major N sources, N flows, opportunities, NUE, barriers, sharing successes in country clusters

South Asia: India, Sri Lanka, Bangladesh, Nepal
- *N. Raghuram & INI South Asia*

East Chi …es
- *Xia*

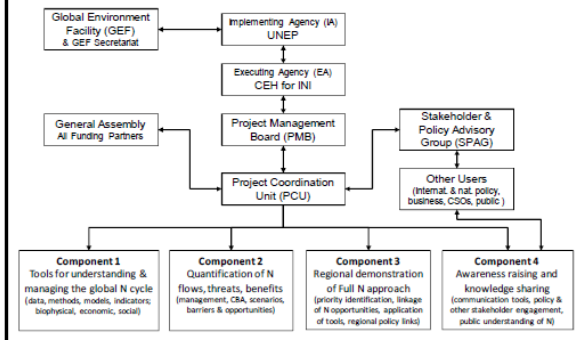
Lake Vic …nda, Burundi
- *Car*

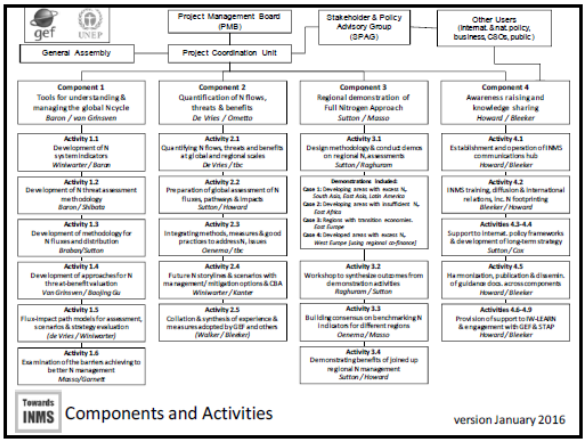
La Plata: …via
- *Jea*

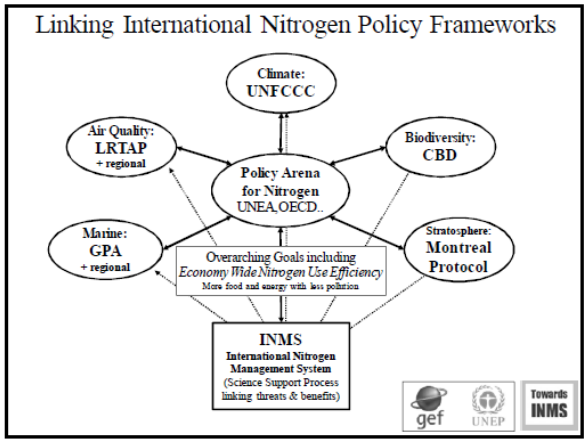
Black Sea: Diester, Prut & Lower Danube
- *Lidiya Molychuk & Serge Medinets, EPN-EECCA & INI Europe*

[[West Europe: Atlantic Coast catchments]]
- *Josette Garnier & INI Europe*

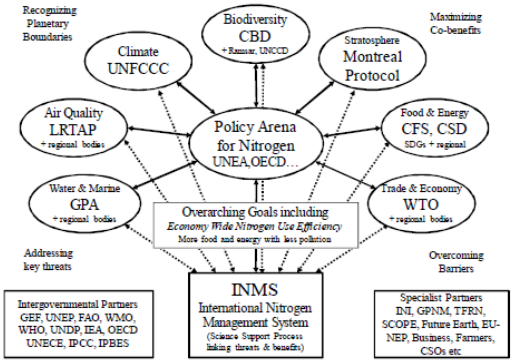
North America to join later
Options discussion with
INI North America, OECD, Environment Canada, US-EPA
Gulf of Mexico? Ontario-Michigan?







Version including stakeholder requests: but the message is less clear



Towards INMS

INMS as a catalyst for synergies

- **Newton Fund: Investing €15M in Agricultural Nitrogen** UK-India, UK-China, UK-Brazil research centres.
- **European Union:** Call for research on closing farm nutrient cycles. The community is now developing the **FarmCircle** proposal on Circular Economy opportunities for better N, P & C management at farm & landscape scale (call February 2017)
- **And more on the way!**

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Towards INMS

Documents and Next Steps

- **Completion of Documents.**
  - Note the composition of the team: Component and Activity Leaders. Provisional: to be confirmed at inception by General Assembly
  - Annexes for C1, C2 and C4 now available for comment (web site)
  - Annexes for C3 demonstrations being finalized (to be up shortly)
  - **Welcome suggestions, reflections** (expertise, resource balance etc)
- **Letters of Support and Budgeting**
  - Largely in place. More than enough
  - Budget tables being finalized
- **Next steps**
  - Continue feedback from Partners
  - Final documentation submitted first part of March

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