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**UNEP Working Group on Nitrogen**  
**Sixth meeting**  
Nairobi, 26 – 27 June 2024

## **Report of the sixth meeting of the UNEP Working Group on Nitrogen**

### **Introduction**

1. The UNEP Working Group on Nitrogen was convened by UNEP's Executive Director to facilitate the implementation of resolutions 4/14 and 5/2 on sustainable nitrogen management and to strengthen the engagement and ownership of the implementation process by Member States and stakeholders.
2. The sixth meeting of the UNEP Working Group on Nitrogen took place on 26 – 27 June 2024 online. To accommodate participants from different time zones, the meeting was held with two sessions each day. Both sessions covered the same content.

### **Item 1**

#### **Opening of the meeting.**

3. Ms. Heidi Savelli, Head of Source to Sea Pollution Unit, Marine and Freshwater Branch, Ecosystems Division of UNEP, delivered welcome remarks highlighting that the two UNEA Resolutions on sustainable nitrogen management call for enhanced coordination of policies across the global nitrogen cycle at national, regional, and global levels and the development of national action plans. She thanked the Co-Chairs for their unwavering dedication to advancing this crucial work and noted the progress made under their leadership. She also emphasized UNEP's efforts in fundraising to continue advancing this work and to support countries in developing their national action plans. Finally, she extended appreciation to the Government of Denmark for their generous financial contributions.
4. The Co-Chairs, Mr. Mihai Constantinescu, Director, Management Unit for the Pollution Prevention and Reduction in Rural Areas, Ministry of Environment, Waters and Forests of Romania, and Ms. Purvaja Ramachandran, Acting Director, National Centre for Sustainable Coastal Management, Ministry of Environment, Forest and Climate Change of India opened the sixth meeting of the UNEP Working Group on Nitrogen.

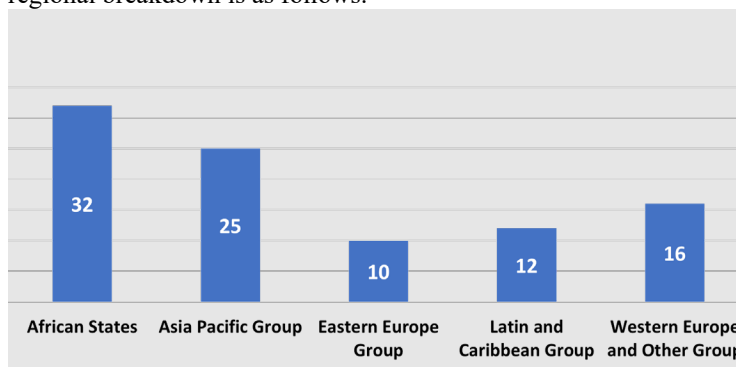
**Item 2****Update by the Co-Chairs.**

5. The Co-Chairs provided an update on the progress made by the Working Group, and relevant initiatives, since its fifth meeting which took place on 9 – 10 January 2024 in Nairobi, Kenya, both in person and online. The update included the following highlights:
  - a. In February 2024, the 9th International Nitrogen Conference was held under the theme “Balancing Global Change and Sustainability”. The voices of scientists worldwide were heard on the broad issues that nitrogen touches. The conference provided a forum for discussions on nitrogen governance, technology, and other key aspects of the nitrogen challenge.
  - b. The sixth session of the UN Environment Assembly was held from 26 February to 1 March 2024.
    - i. The Government of Pakistan organized an official UNEA-6 side event entitled “Making Nitrogen Visible through Sustainable Development Goals (SDGs)” in cooperation with partners including UNEP and Compassion in World Farming. The discussions included perspectives on the work of the UNEP Working Group on Nitrogen and concluded that it was important to continue activities under the Working Group.
    - ii. UNEA Resolution 6/10 on promoting regional cooperation on air pollution to improve air quality globally was adopted, which includes references to nitrogen management and the UNEP Working Group on Nitrogen.
  - c. Several discussions have been held, including:
    - i. Aligning the Working Group activities with those of the Convention of Biological Diversity (CBD), considering Target 7 on the reduction of excess nutrients lost to the environment by at least half, focusing on possible baseline and indicators.
    - ii. Nitrous oxide in the context of the Climate and Clean Air Coalition Secretariat (CCAC). The Co-Chairs mentioned that a new study on N<sub>2</sub>O will be presented by the end of this year.
  - d. On 7 June 2024, at the Bonn Climate Change Conference, Compassion in World Farming, with the support of the Global Partnership on Nutrient Management (GPNM), organized a side-event entitled “Making Nitrogen Visible Through the Rio Conventions”. The purpose of the event was to demonstrate the intersectional nature of nitrogen waste and pollution.
  - e. In June 2024, the Task Force on Reactive Nitrogen (TFRN) met in Aarhus, Denmark and online, to discuss how to improve measures for the reduction of ammonia waste from agriculture. Activities of the Working Group were presented.
  - f. The Co-Chairs, together with UNEP, initiated several informal consultations with the countries that requested support for the preparation of national action plans. The discussions identified specific needs, challenges and barriers to developing national action plans. UNEP will start supporting the countries with the necessary expertise for the elaboration of the national action plans.
  - g. The Co-Chairs also highlighted that the sixth meeting of the Working Group would focus on the vision for the next six years.

**Item 3****Briefing by the UNEP Secretariat.**

6. The Co-Chair invited UNEP to provide updates on the progress of the Working Group and the Global Partnership on Nutrient Management (GPNM) to the meeting.
7. Ms. Stephanie van der Poel, Programme Officer of the Source-to-sea Pollution Unit of UNEP’s Ecosystems Division, gave a brief presentation on the progress made since the 5th meeting:

- a. The Working Group webpage <https://www.unep.org/nitrogen-management-WG>, launched during the 4<sup>th</sup> meeting, is updated regularly.
- b. As of 25 June 2024, a total of 95 nominations to the Working Group were received. The regional breakdown is as follows:



- c. During the inter-sessional period, the GPNM organized a series of webinars to support the Working Group. The topics of these webinars were: Management of phosphate fertilizers for feeding the world sustainably (14 February 2024), Charting the Course: Exploring Ammonia as a Shipping Fuel and its Potential Impact on the Nitrogen Cycle (29 April 2024), and Advocating Organic Farming for Sustainable Nitrogen Management in Africa (19 June 2024). The GPNM also supported the organization of various events to raise awareness on nitrogen management.
  - d. The Secretariat also highlighted several key ongoing endeavours and bilateral consultations with the following partners: Convention on Biological Diversity (CBD), International Maritime Organization (IMO), Food and Agriculture Organization (FAO), Ozone Secretariat, Climate and Clean Air Coalition (CACC), Environmental Management Group (EMG), Compassion in World Farming (CIWF), and Environmental Investigate Agency (EIA).
8. The Co-Chairs thanked UNEP for the briefing and opened the floor for questions, comments, or reflections.

#### **Item 4**

##### **Development of national action plans on sustainable nitrogen management.**

9. The Co-Chairs invited the focal points to give a presentation on the development of national action plans.
10. Mr. Sundeep F, Scientist- Sustainable Coastal Management Division, Ministry of Environment, Forests & Climate Change, India, introduced the preparation of national action plan in India, including:
  - a. An overview of India's establishment of a National Nitrogen Steering Committee, including its composition.
  - b. An overview of actions taken by the National Nitrogen Steering Committee with regards to the preparation of a National Action Plan, including identification of key sectors.
  - c. An overview of air and water quality networks, norms on wastewater treatment and emission norms on combustion.
  - d. The presentation also included an overview of communication and campaign activities, programmes for public investment and scientific technologies, advancements and different policy interventions for reducing nitrogen losses.

The Co-Chairs thanked India and opened the floor for questions.

11. Ms. Andriamiarina Faratsianontaniana, Head of the Corporate Social Responsibility Support, Department of the Promotion of the Green and Blue Economy, Ministry of the Environment and

Sustainable Development, Madagascar, updated on the preparation of the national action plan in Madagascar, including:

- a. Madagascar, with its rich agricultural and industrial sectors, faces significant challenges in managing nitrogen sustainably.
- b. Madagascar's main sources of nitrogen are agriculture (chemical fertilizers, animal dung, atmospheric fixation and traditional farming practices), transport (fossil fuels, public transport and NOx emissions) and industrialization (factories, and agricultural factories).
- c. An overview of international and national regulations, rules, codes and guidelines linked to nitrogen management and nutrient pollution, ammonia, and nitrous oxide emissions was provided.
- d. Efforts linked to nitrogen management include identifying stakeholders, an inter-ministerial committee, and monitoring systems for nitrates, ammonium, ammonia, nitrogen oxides and NOx.
- e. Finally, the presentation provided an overview of challenges identified by policymakers.

The Co-Chairs thanked Madagascar.

12. Mr. Bruno Alves, National Focal Point, Soil Scientist, Embrapa Agrobiologia, Seropédica, RJ, Brazil, updated on the preparation of national action plan in Brazil, including:
  - a. A food security fact sheet of Brazil, as it is expected that Brazil will play a key role in providing agricultural products to meet the needs of the growing world population (FAO).
  - b. An overview of how soil fertility has impacted Brazil's need for fertilizer application, and the trends through the years of increased grain production and fertilizer use. Brazil has adopted a National Fertilizer Plan in 2021 to strengthen policies aimed at increasing the competitiveness of fertilizer production, distribution and use in Brazil in a sustainable manner.
  - c. An overview of capacity building activities, such as the 'Fertilizer Caravan' which aimed to promote the diffusion and transfer of best practices in soil fertilization to farmers.
  - d. Finally, an overview of the ABC Plan was provided, which is a national strategic agenda of the Brazilian government connected to the National Policy on Climate Change (PNMC), established in 2009.

The Co-Chairs thanked Brazil and opened the floor to questions.

## Item 5

### Lessons learned from international policy.

13. The Co-Chairs invited Professor Kentaro Hayashi, Research Institute for Humanity and Nature (RIHN), National Institutes for the Humanities, Inter-University Institute Corporation, Japan, and Professor David Hooper, Department of Biology, Western Washington University, to present an update on the International Nitrogen Assessment (INA). Key points from the presentation included:
  - a. An overview of the deliverables of the International Nitrogen Management System (INMS).
  - b. An overview of the contents of the INA, including emerging key messages and a timeline for completion of the assessment.

The Co-Chairs thanked the two professors for their presentation and opened the floor to questions. The focal point from Trinidad and Tobago inquired if the INA would also include the Caribbean region. Professor Hooper replied that the work of the INA regarding the regional and transboundary watersheds, aimed at understanding the broader context of nitrogen issues, had already been completed. Consequently, it would not be possible to add additional areas at current assessment. A compendium of the national estimates will be part of the assessment. One of the goals is to develop national estimates for different metrics of nitrogen, not just regional estimates.

14. The Co-Chairs invited Ms. Monica Kobayashi, Programme Officer, the Secretariat of the Convention on Biological Diversity (CBD), to give a presentation on the roadmap to achieve

Kunming-Montreal Global Biodiversity Framework Target 7. Key points from the presentation included:

- a. An overview of the biodiversity plan (framework consisting of 4 goals and 23 targets), with a specific focus on Target 7 and its indicators.
- b. The implementation of National Biodiversity Strategies and Action Plans (NBSAPs) requiring partners with diverse expertise to engage various constituencies in this collective effort. Additionally, the importance of coherent action to address multiple global challenges was highlighted.
- c. The pathway to COP-16, showcasing a timeline to October 2024 and the key recommendation from the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA)-26 which took place May-June 2024.
- d. And synergies with the Working Group where identified, including a set of guiding questions for National Targets.

The Co-Chairs thanked the CBD for their presentation.

15. The Co-Chairs invited Mr. Geoffrey Njenga, Ecosystems Division, UNEP, to give a presentation on the Global Partnership on Plastic Pollution and Marine Litter (GPML) Digital Platform. Key points from the presentation included:

- a. An overview of the Digital platform and its functions, workflows and process.
- b. A sample case study to provide an overview of how this could potentially benefit the process of the national action plan development on nitrogen.

The Co-Chairs thanked the GPML for their presentation.

16. The Co-Chairs invited Mr. Nathan (bp) Borgford-Parnell, Science Affairs Coordinator, the Climate and Clean Air Coalition (CCAC), to give a presentation on their work. Key points from the presentation included:

- a. An overview of the CCAC, its partners, and methodology for delivering (including political advocacy, scientific and integrated approach and country driven projects).
- b. The impacts of nitrous oxide as a super pollutant which is impacting a wide range of dimensions, including climate, health, food production, etc.

The Co-Chairs thanked the CCAC for their presentation.

17. The Co-Chairs invited Mr. Alvin John Gachie from UNEP's Law Division to present the "Guidance on an integrated approach to legal, policy and regulatory changes to reduce the nitrogen footprint from sectors". Key points from the presentation included:

- a. An overview of the background for the guidance which is rooted in i) UN Resolution 5/2, ii) the nexus dialogue on sustainable nitrogen management organized with the UN Environment Management Group (EMG), and iii) the fifth Montevideo Programme for the Development and Periodic Review of Environmental Law (Montevideo Programme V). UNEP's Law Division prepared a mapping of the international context in which excess nitrogen is addressed; and a specific guidance on legal, policy, and regulatory changes required to reduce the nitrogen footprint from sectors to lead to establishment of integrated regulatory and policy changes required to reduce nitrogen waste globally.
- b. The mapping report explores each treaty, agreement, institution, and initiative related to nitrogen, summarizing their contributions to reducing nitrogen pollution and promoting sustainable nitrogen management practices globally and regionally.
- c. The guidance document provides an overview of the sources of nitrogen pollution and their effects on human health and the environment. It also includes examples of national priorities and outlines a broader framework for addressing nitrogen using an integrated approach.

The Co-Chairs thanked Mr. Gachie for his presentation and opened the floor to questions. The focal point from Trinidad and Tobago inquired about the possibility of further liaising with UNEP to receive advice on the different relevant frameworks. Mr. Gachie replied that it would be possible, and that UNEP is ready to provide technical support, including through the Montevideo Environmental Law Programme.

**Item 6****Revision of the Terms of Reference of the UNEP Working Group on Nitrogen.**

18. The Co-Chairs gave a brief overview of the revisions made to the Terms of Reference of the UNEP Working Group on Nitrogen and stressed that these revisions are directly derived from the stipulations of the two UNEA Resolutions on Sustainable Nitrogen Management.
19. The Co-Chairs opened the floor for questions. The focal point from Japan requested clarification on the possible update of the ToRs, stating that their understanding is that the ToRs are in line with UNEA Resolutions 4/14 and 5/2, and no resolution on nitrogen was proposed at UNEA-6. Given the proposed changes to the ToRs, they inquired about the resources UNEP has secured to work on the ToRs and support the work of this Working Group. Secondly, they inquired how the update to the ToR would be determined, as the session is meant for discussion rather than adopting the ToRs. They also recommended limiting the number of breakout groups to no more than two at a time, citing concerns for small delegations.
20. The Co-Chairs clarified that the Working Group was not set up for negotiations, and therefore no decisions are expected. Regarding the funding question, the secretariat explained that a small amount of core funding had been allocated from UNEP and that the secretariat has increased fundraising efforts. UNEP invited Member States interested in bilateral meetings on funding to approach the secretariat.
21. The focal point from Sweden asked if it would be possible to send written comments. The Co-Chairs confirmed that written comments on the ToR are welcome after the meeting.

**Item 7****Roadmap of the Working Group to 2030 on reducing nitrogen pollution.**

22. The Co-Chairs invited Professor Mark Sutton from the UK Centre for Hydrology and Ecology (UKCEH) to present a concept on the establishment of a scientific technical support team for the UNEP Working Group on Nitrogen. The concept note was made available ahead of the meeting. Key points from the presentation included:
  - a. A comparative overview of approaches taken by several different intergovernmental processes to the provision of scientific evidence and analysis.
  - b. Three examples of processes of scientific support were the UNECE Convention on Long-range Transboundary Air Pollution, the UN Framework Convention on Climate Change and Intergovernmental Panel on Climate Change, and the 3rd Intergovernmental Review of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.
  - c. An explanation for the need of science task force, a proposal of how such would interact with the Working Group, and a brief overview of potential products that could be produced by the science task force.
23. The Co-Chairs invited Ms. Tessa Goverse, the Principal Coordinator of the Ad Hoc Open-ended Working Group on a Science-Policy Panel to contribute further to the sound management of chemicals and waste and to prevent pollution to give an update on the process. Ms. Goverse explained the process so far, and how the proposals for the panel have been structured. The Co-Chairs thanked Ms. Goverse for the overview.
24. The Co-Chairs invited Ms. Lucile Roussel, SEVS/SDPPD3, General Commission for Sustainable Development France to give a presentation on their national strategy to reduce nitrogen pollution. Key points from the presentation included:
  - a. An overview of water quality trends in France since 1990, focusing on nitrate levels in surface water and groundwater and the impact this had on drinking water production and on the environment. The presentation also included an overview of nitrate-vulnerable zones at the national level.
  - b. An overview of the European regulatory framework: the Nitrates Directive – a Council Directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources.

- c. An overview of the regulatory framework in France on water pollution by nitrate; how monitoring and development is based on exchanges with various stakeholders.
- d. The national action programme, which consists of 8 mandatory measures (of which are from the Nitrates Directive and 2 are additional measures). An overview of regional action programs was also presented, along with other regulations and public policies on nitrogen pollution.

The Co-Chairs thanked France for the presentation.

25. The Co-Chairs invited Prof Tariq Aziz, Associate Professor, University of Agriculture Faisalabad, Pakistan to give a presentation on the South Asia Roadmap for Sustainable Nitrogen Management. Key points from the presentation included:
- a. An overview of the current status of Nitrogen pollution in South Asia.
  - b. An overview of recommendations to half Nitrogen waste, including science solutions.
  - c. Key elements of the South Asia Nitrogen Management Roadmap, including its scope, vision, and mission. The roadmap has the objective to: i) Reduce adverse effects of nitrogen pollution to levels that are not harmful to the environment and human health. ii) Enhance the efficiency of nitrogen use to harness multiple environmental benefits, iii) Improve food supply, reduce food wastage and save money enhancing food waste management, and promoting recovery and reuse of existing nitrogen resources. iv) Promote innovation in sustainable nitrogen management that can contribute to economic development while building smart connections across the nitrogen cycle. v) Secure adequate means of implementation including financial resources, capacity building, technical and scientific cooperation.
  - d. The presentation included its targets and sector-based targets, and the necessary actions across sectors.

The Co-Chairs thanked Prof. Tariq Aziz for the presentation.

26. The Co-Chairs invited Mr. Ning Liu from UNEP to give a presentation on the roadmap of the UNEP Working Group on Nitrogen on reducing nitrogen waste towards 2030, which was also a background document to the meeting. Mr. Liu provided an overview of the background document and invited focal points to submit written comments to the document.
27. The Co-Chairs invited Ms. Cecilia Aburto Schweitzer, International Affairs Office, Ministry of Environment, Government of Chile, to give a presentation on their national strategy to reduce nitrogen pollution. Key points from the presentation included:
- a. An overview of actions at national level regarding nitrogen in the air, where regulation of emissions from incineration facilities, co-incineration facilities and co-processing facilities, that use fuels different to traditional has been conducted since 2007.
  - b. An overview of actions at national level regarding nitrogen in the air and water, where regulation of pollutants associated with the discharge of liquid industrial waste to sewage systems was established in 1998.
  - c. An overview of actions at national level regarding nitrogen regarding chemicals and fertilizers, this included an overview of regulatory frameworks such as the 2019 standards to regulate the classification, labelling and notification of hazardous substances and mixtures.
  - d. And an overview of regulations that are currently being process, including a project to regulate the organic household waste, from which nitrogen in these matters could be addressed and the implementation of a pilot project focused on the management of phosphorus.

The Co-Chairs thanked Chile for the presentation.

28. The Co-Chairs invited Ms. Laverne Walker, Marine Pollution/AMEP Programme Manager, Cartagena Convention Secretariat, UNEP, to give a presentation on the Caribbean Regional Strategy on Sustainable Nitrogen Management. Key points from the presentation included:
- a. An overview of the convention and its protocols.
  - b. An overview of nitrogen in the Wider Caribbean Region (WCR) and the 2021-2030 Regional Nutrient Pollution Reduction Strategy and Action Plan (with the overall goal to

establish a collaborative framework for the progressive reduction of impacts from excess nutrient loads on priority coastal and marine ecosystems in the WCR). The presentation provided details on the approach, structure and timeline.

- c. The presentation provided an overview on how the Strategy and Action Plan is being implemented.

The Co-Chairs thanked the Cartagena Convention for the presentation.

#### **Item 8**

##### **Other matters.**

29. The Co-Chairs opened the floor for any other matters related to the work of the Working Group.

#### **Item 9**

##### **Closure of the Meeting.**

30. The Co-Chairs thanked the focal points for their participation and UNEP for their work in preparation of the meeting.
31. The Co-Chairs reminded the participants that the summary report of the meeting would be uploaded on the meeting webpage along with the presentations.
32. The Co-Chairs closed the sixth meeting of the UNEP Working Group on Nitrogen.

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## Annex I

The participants were divided into three groups on each day to discuss questions listed on the annotated agenda. The rapporteur note from each group is attached below:

### Rapporteur notes of the breakout sessions:

#### Session I: Development of National Action Plans (26 June 2024)

##### Questions for Group 1

1.1: How do we initiate the process of developing a national action plan (NAP) on sustainable nitrogen management? What are the constraints in the preparation of the NAP?

1.2: What are the key steps involved in developing a national action plan?

1.3: What are the primary challenges in establishing an inter-ministerial committee on sustainable nitrogen management, and how can we address them?

1.4 How can existent policies on nitrogen be more integrated and correlated?

##### *Nairobi morning time for Eastern hemisphere*

1.1

- Based on UNEA resolutions, governments shall adapt policies to have national action plan on sustainable nitrogen management. The main constraints are how to motivate the government to adopt NAPs, since the task is voluntary. It could be useful to explore the following:
  - Awareness raising
  - Showing the interconnection of N issue with different actions such as biodiversity strategy, decarbonization, restoration etc.
  - Showing the evidence and impacts of inaction
- Identification of the current status. Some of the challenges in this regard are
  - Lack of data & technologies
  - Understanding local/regional situation and its extrapolation on national level.
  - Different situations for different countries – hence a harmonization across might be also a challenge

1.2

- Nomination of national focal points
- Establishment of a communication committee among ministries, stakeholders and the public
- Summary of the current actions and identification of the gaps
- Adaptation of policy for the implementation the national action plan on sustainable N management
- Development of an action plan based on UNEA resolutions

1.3

- N.A

1.4

- N.A

In conclusion: a broader view from all member countries is desired. Taken notes are suggestions only of three member states

##### *Nairobi afternoon time for Western hemisphere*

- Participants discussed the importance of establishing policy coherence at the national level to create effective national action plans for sustainable nitrogen management. Participants acknowledged that nitrogen's intersectional nature meant that various national ministries considered nitrogen as part of their remit and may have conflicting perspectives on how to best manage nitrogen. Participants discussed India's interministerial coordination mechanism, established specifically to generate policy coherence among various ministries on sustainable nitrogen management.

##### Questions for Group 2

2.1: What baseline data are essential for developing the action plan, and how do we gather them?

2.2: In the absence of national-level baseline data, can we rely on regional or global data?

2.3: How do we establish a monitoring system, and what resources are required?

##### *Nairobi morning time for Eastern hemisphere*

## 2.1

- Existing legal documents, policies, laws and guidelines related to sustainable management of N.
- Mapping of monitoring entities responsible for nitrogen management.
- Understanding of capacities of existing laboratories and other entities conducting diagnostic services
- Status of awareness raising any promotional items.
- Data on nitrates, ammonia, nitrous oxide and NO<sub>x</sub>, but also info on eutrophication.
- Data on N flows and their different impacts. Also, data on national N budgets (e.g., N inputs in agriculture, combustion and other activities, fixation and deposition, fates of the N input in crops, animals, air, water, soil, impacts of these N in the environment).
- Data on the quantity of the above-mentioned N budgets and estimates of the benefits and impacts of N through key indicators.
- Data on water quality, air quality, greenhouse gases, natural ecosystems (biodiversity), soil quality --> effects on human health and environment, links to SDGs.
- It is important to note that some indicators are already included in policies and guidelines (e.g. drinking water quality standards, WHO metrics for nitrate in drinking water, Ozone and PM<sub>2.5</sub> for air pollution, etc).
- Many countries already have monitoring plans but are often disconnected from other plans within the same country and are sometimes sector-based. Efforts to link monitoring results with the impacts are missing in a lot of monitoring activities.
- A third type of data that would be very useful are benefits of different actions of various N management practices in different sectors. It is most useful if these are locally and regionally appropriate.

## 2.2

- It is possible to a certain extent, but countries should try to add their own baseline data at the national level.
- FAO has a lot of national data on nitro fluxes in agriculture and food production but monitoring of the N fate (where it goes) is more difficult.
- It is important to understand that different countries have different capacities, and there is a need to encourage ministries of environment and agriculture to generate such data.

## 2.3

- Stronger national investment
- Coordination, consolidation and harmonization of data
- Better coordination among relevant entities conducting monitoring
- It is important to understand that no single agency is covering the monitoring of the entire lifecycle of N. Different entities are monitoring different sections, and these should be consolidated.
- Need for common indicators.

*Nairobi afternoon time for Western hemisphere*

## 2.1

- The essential data for a complete national action plan are a legal document of policy and a guideline for nitrogen management, a system of monitoring for nitrogen management, a diagnostic service for soil, water and air monitoring. It is necessary an awareness part for education in nitrogen knowledge.
- Nitrogen action plan must determine nitrogen flows and nitrogen impacts, nitrogen inputs in agriculture and the impact of nitrogen flows. Several key indicators are necessary to evaluate the impact of nitrogen.
- A national budget plan is necessary to evaluate nitrogen flows: inputs from agriculture and combustion and fates (crops, animal, water, air and soil).

## 2.2

- The answer is yes, but it is necessary to find the technical and economic capacity and to provide the baseline data. In general, the Environmental Ministry should adopt a national action plan and coordinate the activities of regional administrative and technical structures.

## 2.3

- It is necessary to have a large network of environmental agencies, able to monitor each environmental body (air, soil, water), and it is necessary to have a national investment in monitoring systems and financial capacities for monitoring. There are no single monitoring agencies able to do all the analysis for nitrogen, so it is useful to integrate the data and see them as a whole. We must consider that in many cases there are difficulties in collecting data.

**Questions for Group 3**

3.1: What strategies should be employed to communicate effectively about addressing nitrogen pollution, and what key elements should be included?

3.2: Given that nitrogen is crucial for food security despite significant environmental loss, how can we raise awareness among farmers, stakeholders and policymakers?

3.3: How can international organizations contribute to raising awareness about nitrogen pollution? And are there any best practices?

#### *Nairobi morning time for Eastern hemisphere*

##### 3.1

- Nitrogen pollution is very complicated as it exists in different reactive forms in the environment as clearly shown by the Nitrogen cascade diagram.
- The problem of nitrogen pollution also varies from country to country. In developing or emerging countries, the problem is often about eutrophication whereas for European countries it is about transboundary transport of pollutants.
- The strategies should be holistic and integrated involving government, private sectors, NGOs, the public, producers and consumers. The communication strategy should be multifaceted that cover all basis of communication, translated in different languages.
- These should be communicated to people in simple and fluent way by using media like TV, radio, pamphlets.

##### 3.2

- Workshops could enable policymakers, farmers and consumers to all sit together and find a common solution.
- Awareness should be done not only on the negative impacts of nitrogen but also on the beneficial aspects of nitrogen. It is now the best time for awareness as price of fertilisers is very high.
- In order to abide to the conventions, countries might have economic repercussions. The awareness economic benefit of nitrogen management should be highlighted to farmers and consumers.

##### 3.3

- Compilation of reports of nitrogen benefits and threats and share them on the website.
- Have better publicity of their work on nitrogen management in order to have funds from donor agencies like GEF and World Bank and so on.
- Creation of a platform for sharing knowledge, collaborations and innovative ideas. These can include graphics and videos.

#### *Nairobi afternoon time for Western hemisphere*

##### 3.1

- Key elements include: Identifying the audience, education/creating awareness of the problem through a whole-of-society approach including consumer engagement and coordination across sectors and ministries, going back to basics in terms of the science – explaining the nitrogen cycle and the impacts of nitrogen waste, degree of complexity may vary depending on the audience. Visual aids are helpful in this regard.
- Raise awareness on nutrient pollution – give examples to contextualize the extent of the problem - 60% of US surface waters have been eutrophied, how to mobilize resources to take action.
- Nitrogen pollution can be very daunting because it is a big problem so showing that there are things that can be done. Ex. Planning application of fertilizer according to – indirect measures on where we want to be in 30 years in terms of behaviour change. Short-term and long-term measures can be taken to mitigate nitrogen pollution. These will include simple and more complex measures.

##### 3.2

- Make them feel as if they are the problem.
- Champion farmers groups where farmers educate other farmers.
- Educate on the trade-offs. Engage the fertilizer industry.

##### 3.3

- So many things happening on Nitrogen across International Organizations, we need better coordination/communication on how to take advantage of synergies and avoid duplication.
- IOs have a global platform and convening power for awareness raising – focus on the science – provide formula/template that countries can follow to develop best practices.
- Global and Regional perspectives and then not every country is at the same level in terms of measuring/monitoring so IOs have an important role in capacity building and sharing of best practices at the regional and country level.

## **Session II: Roadmap towards 2030 on Reducing Nitrogen Pollution (27 June 2024)**

### **Questions for Group 1**

- 1.1: Considering UNEA resolution 5.2, what specific actions can be taken to significantly reduce nitrogen waste by 2030 and beyond, and how do we implement them? What milestones can we set?
- 1.2 How can we promote knowledge sharing on policy preparation and implementation between Member States?
- 1.3. How can we ensure scientific expertise is available across Member States?
- 1.4. How can trans-boundary cooperation be facilitated for significantly reducing Nitrogen wastes

*Nairobi morning time for Eastern hemisphere*

- 1.1
- Establishment of national committee to identify various stakeholders from all sources and enhance their coordination (ministries, research, private sectors).
  - If need to measure the progress on nitrogen waste reduction, the baseline should be flexible to accommodate the circumstances of each country.
  - Actions should be promoted in accordance with the regional directive, strategy and target based on them. (ex. EU CAP or target)
  - Adoption of new technologies contributing to sustainable nitrogen management (ex. Nano urea, organic fertilizer)
- 1.2
- UNEP and WGN website
  - GPNM webinar
  - Training/workshop for stakeholders (ex. Farmers, coastal areas...)
- 1.3
- International workshops with member states for awareness raising and training.
  - Keep in mind the timing and costs for scientific knowledge sharing.
- 1.4
- Important to assess the role and work of existing MEAs, initiatives and regional strategies (ex. Regional Sea programme) and seek cooperation with/within them.

*Nairobi afternoon time for Western hemisphere*

- 1.1
- Participants discussed the importance of setting a baseline for which the full nitrogen cycle, the transboundary nature of nitrogen waste and pollution, sectors and contributors need to be taken into account. With the baseline set, specific actions can follow which should be informed by other internationally agreed targets and processes (such as KMGBF's Target 7), regional directives (such as EU directives), existing regulatory and sectoral policies. Next/other steps include: promoting best management practices, education, scientific knowledge sharing as well as capacity building and financing.
- 1.2
- Participants discussed that milestones depend on national circumstances. An example from India was shared: There is an effort to reduce the use/waste of fertilisers and/or promote practices such as organic farming. However, in reality, it is hard to convince or onboard farmers. To identify/define milestones action plans are needed first. For such action plans existing policies can be a good starting place but other elements are needed such as: understanding better the 50% reduction target (for which a baseline is needed; see above); pilot studies that can be replicated/shared; budgeting
  - Regarding the promotion of knowledge, participants discussed the importance of the UNEP Working Group on Nitrogen; multistakeholder partnerships such as the GPNM; regional coordination/knowledge sharing which can enhance partnerships or put in place joint action plans.
- 1.3
- Participants discussed the need for capacity building, workshops, and funding for science. In the absence of country-specific data or guidelines, international or regional guidelines can be helpful for the development of standards and protocols. They can help countries start working on sustainably managing nitrogen and adapt according to country-specific context.
- 1.4
- Participants discussed the cases/examples of SACEP and EMG. Cooperations such as SACEP help inform policies at country level. Synergies between MEAs can function as a vehicle for transboundary cooperation. Funding is important when it comes to transboundary cooperation.

**Questions for Group 2**

2.1: What are the future directions of the UNEP Working Group on Nitrogen? Apart from information exchange and sharing of best practices, and technical support in the development of national action plans, what could be other potential activities for the Working Group?

*Nairobi morning time for Eastern hemisphere*

- UNEP nitrogen working group must; provide links between agriculture and water to reduce nitrogen pollution, harmonize activities related to nitrogen and implement training for the development of nitrogen management plans. It is necessary to get better organization of the working groups and to listen to other colleagues' activities and to make a prioritization of activities. A problem now is the presence of lots of fragmented policies.

UNEP group must collect more detailed results from the regional levels and a detailed assessment for nitrogen management. It is necessary to promote more regional cooperation, to organize more meetings at regional level, and to enforce the role of National Focal points to find solutions. UNEP working group have the role of promoting a good understanding of the nitrogen policies, integrating the different monitoring initiatives, and linking the existing data to better integrate nitrogen policies.

- UNEP nitrogen group needs some more harmonization between countries within technical and policies meetings. Financial resources and contributions for developing countries are necessary, so the Nitrogen Working Group should help developing countries obtain funding. It is necessary to continue with technical sharing between members and all the other sectors to remediate nitrogen pollution, especially from boarding countries. It is also necessary to sustain relations and cooperation between different states. And share programmes related to nitrogen and support and assistance to share information, especially for the use of organic fertilizers. Now nitrogen issues are lacking visibility, there are good examples of sharing information with other groups, especially with CBD or climate change and air pollution.

It is important to obtain funding to support actions for national action plans, and the UNEP working group on nitrogen should support several nations to develop and to implement the national action plans.

So, UNEP working group have a lot of work to do in the future, looking ahead to collaborate with other groups, sharing more opinions and implementing more sustainable farming practices.

There is a need for more dissemination of information about nitrogen state.

*Nairobi afternoon time for Western hemisphere*

- Participants discussed the possibility of the WGN providing Member States consultancy-type support in developing national action plans. Participants discussed that UNEP may leverage existing resources (i.e., Law Division) to support Member States to this end. Participants also discussed the possibility of leveraging the WGN to 'soft launch' draft text for future UNEA resolutions dealing with nitrogen. Member States could use the WGN to informally present text and seek feedback ahead of formal UNEA negotiations. Participants also discussed the critical importance of regional collaboration and cooperation and welcomed further regional workshops in which regional Member States can work to align sustainable nitrogen management policies. Finally, participants discussed a desire to see the WGN's objectives and expectations outlined in the new Terms of Reference, currently in draft.

### Questions for Group 3

3.1: How do we address synergies between air, land, water, and climate pollution through sustainable nitrogen management? How are they measured? Are there any existing country-specific standards or are the international standards used?

3.2 What are the key elements and approaches, and what implications do they have for the nitrogen circular economy?

*Nairobi morning time for Eastern hemisphere*

3.1

- Members states need coherent approaches from all stakeholders and awareness campaigns will play a crucial role in this, as policymakers control the financial resources of their countries.
- National action plans must be multi-sectoral, with the roles for each sector clearly stated/ defined and all identified sectors need to work together.
- Science is key in our approach to better management of nitrogen pollution, policies thus need to be science-based.
- Measurements should be done in two parts either by modelling in order to predict and cover gaps that may be left out and by actual measurements to validate the findings from modelling/ predictions. Both technical and financial resources are required.
- Countries have national standards for nitrogen pollution but enforcement of these standards in developing countries is mostly voluntary as opposed to developed countries where strict penalties are enforced.

3.2

- Optimisation of nitrogen use and minimising losses to the environment are key aspects of nitrogen management.
- Reduction of the use of nitrogen fertilizer for more organic agricultural practices.
- The use of sludge from treated wastewater will also help reduce the large amounts of nitrogen pollution from this sector.
- Consider recycling of nitrogen waste but this may need technological advancements.

### *Nairobi afternoon time for Western hemisphere*

#### 3.1

- PM2.5 is related to this, and we can measure ammonia. Eutrophication we can also measure. We have lots of indicators ⇒ PM2.5 is a very strong indicator. However, Nitrogen is very fragmented.
- There aren't many countries that are doing this synergistic holistic approach, but it is necessary.
- Some have climate change ministries, and other specific, devoted ministries.
- Synergies are easy to see and talk about, but the integrated management isn't in practice
- The nitrogen cycle needs to be mapped in the air, land, and sea cycle ⇒ this is a major challenge. There is a need to tie values at each point (how does air values relate to land vs sea nitrogen values, etc?). This can be extended beyond nitrogen, but nitrogen needs this attention.
- what about the agriculture sources? Once they enter the waterways, they can be difficult to trace back to the origin. Which fertilizer company? Which farm? The holistic source-to-sea approach is missing the legal framework to address fragmented monitoring efforts. Real-time air quality tools are available in China and India, and this may be ideal for water quality to help us identify eutrophication.
- Is part of the way to do this as setting targets that don't just target specific locations and blur accountability from sectors. Maybe sector targets that work together? For example, the agriculture sector working together to meet their targets.
- We need a baseline; we need a target.

#### 3.2

- Agriculture ⇒ address this and waste? Let's recycle the nitrogen there. Similar to plastics, recycling to reduce pollution and losses.
- What role do plants in a marshland have in not only buffering for water quality, but air quality?
- We need an economist.
- What about nutrient trading? This is where regulatory agencies set nutrient reductions targets/caps for a watershed or region for nutrients like nitrogen and phosphorus. Entities that struggle to meet those reduction limits can purchase credits from those who have excess credits.
- Also, organic foods are a great incentive. They sell for a higher price and can also help the environment.
- We need to reframe subsidies ⇒ instead of subsidizing cheap fertilizers and large-scale, environmentally taxing practices, subsidize other, environmentally sensitive practices.
- Education and perception: it is needed but is hard. It may be a key element for helping consumers and farmers choose organic foods and practices.

**Annex II****Annotated agenda****Annex III****Participant List:****Co-Chairs of the Nitrogen Working Group**

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