

Improved coordination of policies across the global nitrogen cycle: Potential options and modalities

Background paper for the fourth meeting of the UNEP Working Group on Nitrogen

Introductory note

The present document has been prepared for the 4th meeting of the UNEP Working Group on Nitrogen that takes place on 28 September 2023 in Nairobi and online. The objective of the paper is to spur further dialogue amongst focal points of the Working Group under Item 5 of the provisional agenda. Inputs and perspectives will be sought on options and modalities for improved coordination of policies across the global nitrogen cycle in line with UNEA resolutions 4/14 and 5/2 on sustainable nitrogen management. The paper builds on the work done so far by the Working Group, including the report of the Task Team and feedback and experiences shared by the Working Group focal points, as well as relevant international developments.

I. Background

UNEA resolution 4/14 on sustainable nitrogen management subparagraph (a) calls on the Executive Director of UNEP to consider options for facilitating improved coordination of policies across the global nitrogen cycle at the national, regional and global levels, including consideration of the case for establishing an intergovernmental mechanism for coordination of nitrogen policies, based primarily on existing networks and platforms.

UNEA resolution 5/2 paragraph 3(b) asks the Executive Director of UNEP to identify possible modalities for the options being considered for improved coordination of policies across the global nitrogen cycle at the national, regional and global levels, including, among other options, for an intergovernmental coordination mechanism for nitrogen policies, as specified in subparagraph (a) of resolution 4/14.

II. Potential options and modalities for Improved coordination of policies across the global nitrogen cycle at the national, regional and global levels

Nitrogen in its various reactive forms is a significant source of water pollution, terrestrial and aquatic eutrophication, greenhouse gas emissions and air pollution. The impact on air, water and soil occurs at all levels and across the full nitrogen cycle, from fertilizer production to industrial processes, products use, transport and food waste.

Measures taken in one area can have unintended consequences in other areas. Sustainable use of nitrogen must therefore be considered at all levels and action plans put in place that cover the entire nitrogen cycle.

a) National level

National action plans and strategies can serve as instruments to improve policy coherence and ensure coordination within countries on laws, policies and practices that are relevant to sustainable nitrogen management.

A baseline screening of actions on sustainable nitrogen management at country-level among focal points of the Working Group resulted in several examples of options and modalities for improved coordination of policies at national level.

An essential element in developing and implementing action plans at national level to reduce nitrogen losses is setting up inter-ministerial or interdepartmental coordination mechanisms. Good examples were provided whereby inter-ministerial groups included up to seven different ministries coordinating their work. The establishment of inter-ministerial or interdepartmental committees was however also identified as a key priority where countries would need support in order to start developing integrated approaches to addressing nitrogen waste.

The analysis showed that countries are at different stages of action planning: some countries already have national action plans and strategies in place; others are at development stages, while yet others are working on an initial national nitrogen assessment. Of the 24 submissions analysed by 30 August 2023, over 60 per cent (15 countries) currently have in place action plans, guidelines and/or codes of good practice.

By exchanging information and sharing experiences between countries on national action plans and strategies that have either been completed or are still under development, governments learn from each other good practices for inter-ministerial collaboration and strengthened policy coordination while taking into account local circumstances.

The cross-references and ideas provided for cooperation demonstrate the willingness across countries to learn collaboratively and the usefulness of engaging internationally on the topic of sustainable nitrogen management. Modalities to foster further policy coordination at the national level include strengthening or establishing fora or partnerships for exchanging best practices and lessons learned, setting up twinning arrangements between countries, and providing technical assistance.

Effective policy coordination relies on good communication and collaboration across ministries and government agencies. Capacity-building and training of government officials is therefore needed for a good comprehension and application of the country's commitments at all levels of the government. In some countries, national action plans include information and training services for government officials in the form of e-learning, seminars and other learning platforms.

b) Regional level

At the regional level, the EU provides important examples of mechanisms to enhance policy coordination on nitrogen. At the first informal expert meeting on 28 April 2023 in Bucharest, Romania and online, experiences shared regarding the European Commission's integrated

nutrient management approach under the European Green Deal¹ highlighted how reducing nutrient losses is integrated in several strategies, including:

- Circular Economy Action Plan, EU's transition to a circular economy which will reduce pressure on natural resources and create sustainable growth and jobs. It is also a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss.
- Biodiversity Strategy: a comprehensive, systemic and ambitious long-term plan for protecting nature and reversing the degradation of ecosystems. The strategy also includes targets to reduce the losses of nutrients from fertilisers by at least 50% and fertiliser use by at least 20%.
- Farm to Fork Strategy: aims to accelerate the transition to a sustainable food system. The strategy sets targets, including amongst others, a reduction of nutrient losses by at least 50% while ensuring that there is no deterioration in soil fertility. This aims to reduce the use of fertilisers by at least 20% by 2030.
- EU Action Plan "Towards a Zero Pollution for Air, Water and Soil": an action plan that consists of key 2030 targets to speed up reducing pollution at source. These targets include, amongst others, improving soil quality by reducing nutrient losses and chemical pesticides' use by 50%.

The EU integrated approach to reduce nutrient losses to the environment considers:

- Integrated management of nitrogen and phosphorus;
- All compartments: air, water, soil, biodiversity and climate;
- All sources and sectors: agriculture, food, industry, transport, etc.;
- EU, national and regional level;
- Focus on hotspots;
- Coherent implementation and enforcement of EU legislation.

The European Commission, through its Technical Assistance and Information Exchange (TAIEX) instrument, supports public administrations with the approximation, application and enforcement of EU legislation as well as the facilitating of sharing of EU best practices. It is largely needs-driven and delivers appropriate tailor-made expertise to address issues through workshops, expert mission and study visits.

Other regional examples include the Water Convention and the Protocol on Water and Health, an international legal instrument and intergovernmental platform which aims to ensure the sustainable use of transboundary water resources by facilitating cooperation. Initially negotiated as a regional instrument, it has been opened for accession to all UN Member States in 2016. Parties work towards taking appropriate measures to reduce nutrient inputs from industrial and municipal sources as well as develop and implement appropriate measures and best environmental practices for the reduction of inputs of nutrients and hazardous substances from diffuse sources, especially where the main sources are from agriculture.

Established under the UK Global Challenge Research Fund (GCRF), the GCRF South Asian Nitrogen Hub, a partnership that brings together 32 leading research organisations with

¹ A package of policy initiatives, which aims to set the EU on the path to a green transition, with the ultimate goal of reaching climate neutrality by 2050.

project engagement partners from the UK and South Asia, is another good regional example. All eight countries of the South Asia Co-operative Environment Programme (SACEP) are included in the hub. The hub also includes research on how to improve nitrogen management in agriculture, saving money on fertilizers and making better use of manure, urine and natural nitrogen fixation processes. It highlights options for more profitable and cleaner farming for India, Pakistan, Bangladesh, Nepal, Afghanistan, Sri Lanka, Bhutan and the Maldives. At the same time, the hub considers how nitrogen pollution could be turned back to fertilizer, for example by capturing nitrogen oxide gas from factories and converting it into nitrate. The hub is also working with South Asian governments to further develop the policy conversation on nitrogen management at national and regional level.

Lessons can also be learned from the regional seas conventions and action plans, such as the Cartagena Convention. At the fifth Conference of Parties of the Cartagena Convention's Protocol Concerning Pollution from Land-Based Sources and Activities (LBS COP) held in 2021 a Regional Nutrient Pollution Reduction Strategy and Action Plan ([RNPRSAP](#)) was adopted. This Action Plan is a tool that guides national, sub-regional, and regional implementation of actions to address nutrient pollution of the Cartagena Convention area.

Another example is the regional strategy on nutrients management currently being developed by the Coordinating Body on the Seas of East Asia (COBSEA). At its 25th Intergovernmental Meeting a draft strategy on reducing nutrient excess in the watersheds and seas of East Asia was considered. The strategy was based on a [desk review](#) and developed in follow-up to UNEA resolutions on 4/14 and 5/12 for possible adoption at its 26th Intergovernmental Meeting. The draft nutrients strategy proposes six objectives in addressing the nutrients challenge in the region².

In general, regional strategies, conventions and action plans are implemented primarily through actions at the national level, with the support of international, regional and sub-regional institutions and partners. As such, they provide an important level of coherence and policy coordination within regions and across the policy cycle of countries, from data collection and synthesis, the provision of advice, decision-making, implementation, and the review and evaluation, each stage requiring different inputs from experts and stakeholders and providing opportunities for mutual learning.

c) Global level

At the global level, various options and mechanisms exist to foster sustainable nitrogen management. These range from UN inter-agency collaboration and implementation of multilateral environmental agreements (MEAs) to multistakeholder partnerships and intergovernmental science-policy panels.

UN entities

Many entities in the UN system work on issues related to nitrogen from their respective mandates and there is scope for enhanced policy coordination. For example, FAO provides up-to-date statistics on nitrogen fertilizer use and nutrient budgets and supports the

² The six objectives are: Optimizing nutrient use for crops, recovering and reusing water and nutrients, reducing effluents, accounting for nitrogen enriched submarine groundwater discharge, reduce risk of coastal eutrophication, and reduce risks to coastal ecosystems, livelihood, and public health.

implementation of the International Code of Conduct for the Sustainable Use and Management of Fertilizers. It also champions the Global Soil Partnership. UNEP has drawn attention to the issue of nitrogen through its emerging issues series, assessments, policy implementation, and multistakeholder fora, including the Global Partnership on Nutrient Management (GPNM) and the Global Wastewater Initiative. The UN Environment Assembly of UNEP has since 2019 adopted two resolutions on sustainable nitrogen management. The UN also supports global efforts to address the impacts of excessive nitrogen on the marine and coastal environment and biodiversity, including through the nutrients and coastal impacts research programme and the Harmful Algal Blooms Programme of UNESCO-IOC. Recently, the High-Level Panel for a Sustainable Ocean Economy adopted specific actions relevant to nutrients.³ Furthermore, a number of agencies implement nitrogen-related projects with the support of the Global Environment Facility.

The Environment Management Group ([EMG](#)) is a UN system-wide coordination body on environment and human settlements. The EMG membership consists of 51 specialized UN agencies, programmes and organs including the secretariats of the Multilateral Environmental Agreements (MEAs). The EMG identifies issues on the international environmental agenda that warrant cooperation and finds ways of engaging its collective capacity in coherent management responses to those issues. On 20 April 2023, an EMG held a [Nexus Dialogue](#) on sustainable nitrogen management to spur further understanding and collaboration on the topic amongst UN entities and pave the way for a more UN-wide approach to sustainable nitrogen management. The dialogue provided a space for concrete conversation about the linkages between nitrogen and food systems as well as climate change, biodiversity loss and environmental pollution.

In September 2023, the EMG senior officials endorsed a UN Common Approach towards a Pollution-free Planet [TBC], which was the result of a consultative process on pollution co-chaired by FAO, WHO and UNEP. This complements the UN Common Approach on Biodiversity and Nature-Based Solutions which is currently adjusted to reflect the GBF.

Global Partnership on Nutrient Management (GPNM)

The Global Partnership on Nutrient Management ([GPNM](#)) is a global mechanism to bring together and harmonize otherwise fragmented efforts to address the nutrient challenge amongst stakeholders. The GPNM recognizes the need for strategic global advocacy to foster dialogues among the governments and other key stakeholders to trigger actions in moving towards lower nitrogen and phosphorus inputs to human activities. It provides a platform for governments, private sector, scientific communities, civil society organizations and UN agencies to forge a common agenda, mainstream best practices and integrate assessments, so that policymaking and investments are effectively 'nutrient proofed'. The GPNM also provides a space where countries and other stakeholders can meet and initiate dialogues to forge more co-operative work across the variety of international and regional fora and agencies dealing with nutrients.

³ These include promotion of agriculture farming practices and technology that minimizes the discharge of excess pesticides, fertilizers, manure, and soil particles to eliminate eutrophication and ocean dead zones in coastal waters; Implementation of integrated watershed management practices; Encouragement of the aquaculture industry to apply best practices in order to reduce the amount of nutrient leakage in connection with feed formulation and application, and minimize the discharge of excess antibiotics.

Multilateral environmental agreements and instruments

At the first meeting of the UNEP Working Group on Nitrogen in June 2020 a Task Team was established to examine possible terms of reference for an interconvention nitrogen coordination mechanism. The Task Team reported back to the Working Group at its second meeting in January 2023 and presented a [discussion paper](#) on options for facilitating improved coordination of policies across the global nitrogen cycle. The work of the Task Team mainly looked at conventions/MEAs and focused on four options for improved coordination of policies across the global nitrogen cycle:

- i. Continue with the status quo, essentially a fragmented approach with nitrogen issues being dealt with between multiple MEAs, organisations and processes;
- ii. One (existing) MEA taking the lead in addressing interactions across the nitrogen cycle between water, air, climate, ecosystems and biodiversity, soils, stratospheric ozone etc;
- iii. Negotiation of a new nitrogen treaty; and
- iv. Establishment of an intergovernmental mechanism for coordination of nitrogen policies, based primarily on existing networks and platforms.

The discussion paper contained an overview of the advantages and disadvantages of the four options identified by the Task Team for improved coordination of policies across the global nitrogen cycle. Focal points were invited to provide feedback and comments on the discussion paper on options for facilitating improved coordination of policies across the global nitrogen cycle; [these](#) were made available prior to the third meeting of the Working Group held in Bucharest and online on 28 April 2023.

In December 2022, the Kunming-Montreal Global Biodiversity Framework ([GBF](#)) was adopted setting out an ambitious pathway to reach the global vision of a world living in harmony with nature by 2050 and committing Parties of the Convention on Biological Diversity to setting national targets to implement it, while inviting all other actors to develop and communicate their own commitments.

[Target 7](#) specifically references nutrients: *“Reduce pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use; reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and also preventing, reducing, and working towards eliminating plastic pollution”*

Failure to address nitrogen in a coherent and coordinated way may impact on the world’s ability to meet the biodiversity goals, especially Target 7.

In September 2023, the International Conference on Chemicals Management (ICCM) is expected to adopt a new chemicals and waste framework. The ICCM undertakes periodic reviews of the Strategic Approach to International Chemicals Management ([SAICM](#)), a policy framework that promotes chemical safety around the world [to be updated after [ICCM-5](#)].

In March 2022, UNEA 5.2 decided, by [resolution 5/8](#) to establish a science-policy panel to contribute further to the sound management of chemicals and waste and to prevent

pollution. An [ad hoc open-ended working group](#) was established to prepare proposals for an intergovernmental science-policy panel that started its work in 2022 with the ambition to completing it by 2024. The panel would aim to strengthen the science-policy interface to contribute to the sound management of chemicals and waste and to prevent pollution for the protection of human health and the environment.

III. Further considerations

Sustainable nitrogen management can significantly contribute to addressing the triple planetary crisis of climate change, biodiversity loss, and pollution by enhancing synergies between institutions that work on aspects of climate change, agriculture, water quality, food systems, biodiversity, etc.

Governments increasingly recognize the need and benefits of preventing and addressing nitrogen pollution and are acting upon this at all levels. The global landscape of policies to reduce nitrogen waste remains however fragmented and there is a need to unify approaches throughout the entire life cycle.

The work of the Working Group to date has identified where countries are in taking action on sustainable nitrogen management and in developing/ implementing national action plans to reduce nitrogen waste. With the voluntary participation of Member States, the Working Group has identified key areas where further action and policy coordination may be needed [see background document to Item 4].

It is important to recognize relevant action that is already undertaken by countries, including any actions taken nationally under intergovernmental agreements related to water quality, air quality, climate and biodiversity.

The baseline screening done by the Working Group has provided good insights on existing actions and where countries stand on developing national action plans on sustainable nitrogen management. The examples highlighted various options and modalities that exist at national level that assist, including the establishment of interministerial committees and the coordination of policies and sharing of best practices. There is no “one-size-fits-all”, however, key elements or action areas have been identified and brought together in a draft voluntary national action plan that can be adapted to national (or regional) needs [see background document to Item 4].

The first action area is the establishment of an interministerial or interdepartmental committee or working group that will coordinate policies on reducing excess nitrogen or fostering sustainable nitrogen management in various domains.

Facilitating communication and collaboration among entities working on (potentially) overlapping or inter-related topics pertaining to nitrogen is critical. There is plenty of scope for countries to learn from each other’s approaches. This could for example be done through setting up twinning arrangements between countries on developing approaches to sustainably manage nitrogen.

Advocacy and outreach to raise awareness on sustainable nitrogen management across the nitrogen cycle is another practical (and efficient where it concerns producers) approach to engaging nitrogen producers as well as farmers and other relevant sectors to take the necessary action.

At the intergovernmental level, a wide range of organizations and institutional mechanisms exist that are relevant to sustainable nitrogen management. This is partly testimony to the various dimensions and complexities of the topic, but also provide opportunities to obtain multiple benefits by enhancing policy coordination and help achieve multiple Sustainable Development Goals through sustainable nitrogen management.

Countries can also importantly benefit from regional policy coordination. Regional strategies and agreements often require national implementation allowing for a level of policy coherence as well as in the joint development of (transboundary) solutions and approaches.

UNEP 5.2 requested the identification modalities for options to improve the coordination of policies across the global nitrogen cycle at the national, regional and global levels, including for an intergovernmental coordination mechanism for nitrogen policies, as specified in subparagraph (a) of resolution 4/14.

UNEP resolution 5.2 also encouraged Member States to accelerate actions to significantly reduce nitrogen waste globally by 2030 and beyond through the improvement of sustainable nitrogen management.

The consideration of options and modalities at the global level need to take into account recent international development and ongoing activities in the work programmes of UN entities (beyond relevant MEAs). It also would need to take into account the ambition to deliver by 2030 and beyond and consider approaches and solutions that generate the highest impact within this timeframe. Due consideration should be given to the recently agreed GBF Target 7 of halving nutrient waste by 2030, which is fully aligned with the call from UNEP to significantly reduce nitrogen waste by 2030 and beyond. A roadmap for achieving this objective may be needed to show how sustainable nitrogen management can contribute to achieving this.

On the Task Team report, it was noted by some focal points that options towards the establishment of new mechanisms (iii and iv) would require a long period for reaching agreements, having a bearing on the ambition expressed in UNEP resolution 5.2 to significantly reduce nitrogen waste by 2030 and beyond. Some focal points suggested therefore that existing institutions, such as UNEP, FAO, the Global Environment Facility and development banks, take the lead on securing funds for sustainable nitrogen management and implementing projects to step-up existing efforts. In this regard, deeper discussion and analysis might be needed on opportunities to replicate successful best practices and optimizing nitrogen consumption whilst reducing nitrogen waste in different regions⁴. Sharing of best practices and capacity building projects would be essential to further scale up actions.

For any of the options under consideration by the Working Group to enhance policy coordination the mandates and governance structure of multilateral environmental agreements (MEAs) involved will need to be respected.

An additional option proposed by focal points for consideration by the Working Group is to focus on promoting and sharing of national action plans to reduce nitrogen waste. A focus on coordination of efforts to develop national action plans, as emphasized in UNEP resolution 5/2, could be taken forward independent of the various MEAs and would hold

⁴ See for example UN Frontiers Report (p.59)

promise in making progress to influence national actions, leading to potentially meaningful reductions of nitrogen waste at all levels: nationally, regionally, and globally. In the proposed option, the Global Partnership on Nutrient Management (GPNM) could facilitate encouragement and sharing of draft national action plans. Such a new focus on promoting the development and sharing of national action plans could redirect the work of the GPNM and provide a pathway for reducing nitrogen waste through multistakeholder engagement.

The Working Group may wish to further discuss elements of possible options and modalities to improve actions to reduce nitrogen pollution more in-depth and explore the framing of potential solutions more fully during its fourth meeting.

It is clear that there are a range of options beyond the status quo and elements proposed to enhance policy coordination, which could be further examined and possibly combined and enriched. The discussion on improved policy coordination should also consider political barriers to potential solutions. In this regard, further consideration of options would also benefit from a more thorough review of the challenges and opportunities of existing initiatives and funding mechanisms.

IV. Proposed next steps.

The UNEP Working Group on Nitrogen may wish to:

- Further discuss elements of possible options and modalities to improve actions to reduce nitrogen pollution more in-depth (see Annex I)
- Provide written inputs and have further discussions on improving policy coordination around sustainable nitrogen management.
- Request a mapping of the existing nitrogen work within UN entities, including MEAs.
- Invite the GPNM to provide further webinars on nitrogen-related work under UN conventions, bodies and others.

With aim to conclude at its 5th meeting on the recommendations for options and modalities based on the elements presented and discussed at the 4th meeting of the Working Group and further work in the lead-up to the 5th meeting of the Working Group and UNEA-6.

Annex 1: Options /elements and modalities for enhanced policy coordination

Elements of options and modalities for enhanced policy coordination on nitrogen	Source of proposals	Comments
Inter-ministerial or interdepartmental coordination mechanisms (committee or working group)	Working Group	Policy coordination within countries
Partnerships for exchanging best practices and lessons learned, twinning arrangements between countries, and technical assistance on action planning	Working Group	Exchange between countries and regions on approaches to policy coordination, with focus on national action plans
Continuation with the status quo, essentially a fragmented approach with nitrogen issues being dealt with between multiple MEAs, organisations and processes	Task Team report	Task Team report - option i
One (existing) MEA taking the lead in addressing interactions across the nitrogen cycle between water, air, climate, ecosystems and biodiversity, soils, stratospheric ozone etc.	Task Team report	Task Team report - option ii
Negotiation of a new nitrogen treaty	Task Team report	Task Team report – option iii
Establishment of an intergovernmental mechanism for coordination of nitrogen policies, based primarily on existing networks and platforms	Task Team report	Task Team report – option iv

Existing institutions, such as UNEP, FAO, GEF and development banks, to lead on securing funds to step-up existing efforts on nitrogen and implement projects	Working Group feedback	Potentially linked to changing 'status quo' by addressing the barriers
Promoting and sharing of national action plans to reduce nitrogen waste. In the proposed option, the GPNM could facilitate encouragement and sharing of draft national action plans.	Working Group feedback	A focus on coordination of efforts to develop national action plans as emphasized in UNEA resolution 5/2
Consolidate policy coordination under new global targets under the Global Biodiversity Framework (GBF) and SAICM Beyond 2020 (Chemicals and Waste Framework)	Outcome of the Post-2020 and Beyond 2020 process under CBD and SAICM	Contributing to Target 7 of the GBF and the new chemicals and waste framework (pending the outcome of ICCM-5)
Enhance policy coordination through the EMG and benefit from UN Common Approaches	EMG consultative processes and nexus dialogue	Possible Issue Management Group under the UN Common Approach to Biodiversity or Pollution to include/ focus on nitrogen waste
Consideration of nitrogen under the science-policy panel on chemicals waste and the prevention of pollution (once established)	UNEA 5.2	Strengthening the science-policy interface
Elevate the status of the UNEP Working Group on Nitrogen	UNEA 6?	Pending further guidance from UNEA