



First e-briefing for the Nitrogen Working Group of the United Nations Environment Programme

Implementation of the UNEA-4 Resolution on Sustainable Nitrogen Management
Zoom Call: 8-9 June 2020

Report of the First e-briefing for the Nitrogen Working Group of the United Nations Environment Programme

A. Introduction

1. The first e-briefing for the Nitrogen Working Group of the United Nations Environment Programme was held online using the virtual webinar technology 'Zoom' on the 8th and 9th June 2020.
2. During Session 1 on the first day, participants heard presentations from a variety of panelists on the context of the International Nitrogen Management System (INMS) and the International Nitrogen Assessment (INA). This was followed by a discussion with Member States and intergovernmental conventions focusing on the priority issues, gaps, challenges and opportunities which should be addressed by the INA. During Session 2 on the second day, Member States, intergovernmental conventions and programmes reflected on the needs for establishing the Inter-convention Nitrogen Co-ordination Mechanism (INCOM), providing pointers for the development of its terms and reference.
3. The meeting was organized and hosted with the facilitation of the UNEP/GEF global targeted research project 'Towards INMS'.

B. Opening of the meeting

4. The meeting was opened by Prof Mark Sutton, Director of the International Nitrogen Management System, UK Centre for Ecology and Hydrology (United Kingdom), acting as facilitator of the e-briefing.

C. Organizational matters

Attendance

5. The meeting was attended by nominated focal points to the group from Belgium, Benin, Canada, China, Eswatini, Germany, Guatemala, India, Libya, Madagascar, Mexico, Oman, Paraguay, Poland, Romania, South Africa, Spain, Sri Lanka, Sweden, Turkey, Uganda and United States of America.

In cooperation with



6. Representatives were present from the following UN Agencies: UN Food and Agriculture Organisation, UNEP Ozone Secretariat, UNECE Convention on Long-Range Transboundary Air Pollution (Geneva Air Convention), UNEP Ecosystem Division, UNEP Law Division, UNEP GEF International Waters, UNEP Global Programme for Action on the Protection of the Marine Environment from Land-based Activities, UN Convention on Biological Diversity, UN Framework Convention on Climate Change
7. Up to 162 participants attended on the virtual platform Zoom, as either panelists or observers. A list of other organizations represented at the meeting (not already indicated above) can be found in Annex 1.

D. Agenda

8. The agenda was adopted on the basis of the agenda contained in document NWG Briefing-1/W.Doc.1 (Available at the updated portal at: <https://apps1.unep.org/resolution/UNEP-Nitrogen-Working-Group>) as follows:
 - a. Opening of the meeting (8th June 2020).

Session 1: INMS Briefing for the International Nitrogen Assessment

- b. Welcome Message by Leticia Carvalho on Globalization and the Nitrogen Challenge
- c. Presentation by Mark Sutton on INMS and Progress in developing the International Nitrogen Assessment
- d. Presentation by Jill Baron on INMS Component 1, Tools and Methods for nitrogen assessment
- e. Presentation by Wim de Vries on INMS Component 2, Scaling up nitrogen flows and impacts, including future scenarios
- f. Presentation by Cergele Masso on INMS Component 3, Developing Regional Assessments for Nitrogen Management
- g. Presentation by Clare Howard on INMS Component 4, INA awareness raising, process and complementary products
- h. Discussion with Member States and Intergovernmental Conventions with comments on the International Nitrogen Assessment
- i. Statement by Isabelle Van der Beck, UNEP, on the Progress, Successes and Remaining Challenges of INMS
- j. Statement by Steffen Hansen on the Reflection on INMS from the perspective of the Global Environment Fund (GEF) and the future needs and opportunities for sustainable nitrogen management
- k. Opening of the second day of meeting (9 June 2020).

Session 2: What do we need from inter-convention nitrogen coordination?

- l. Introduction from Mark Sutton on the needs and opportunities for an 'Inter-convention Nitrogen Coordination Mechanism' (INCOM) as well as the proposal for a Task Team to follow up development of the Terms of Reference.
- m. Presentation by David Cooper, United Nations Convention on Biological Diversity, on the needs and goals for nitrogen management to protect biodiversity
- n. Presentation by Anna Engleryd, UNECE Convention on Long-Range Transboundary Air Pollution (Geneva Air Convention) on the needs for Air Pollution Mitigation
- o. Presentation by Dirk Nemitz, UN Framework Convention on Climate Change, on Climate, nitrogen, the Koronivia Process and the road to COP26.
- p. Presentation by Habib El-Habr, Global Programme for Action on the Protection of the Marine Environment from Land-based Activities (GPA) on Co-ordination to protect the coastal and marine environments from nutrient pollution

- q. Presentation by Sophia Mylona, the Ozone Secretariat for the United Nations Environment Programme on the relevance of nitrous oxide for the Vienna Convention on stratospheric ozone depletion.
- r. Presentation by Aimable Uwizeye, United Nations Food and Agriculture Organisation (FAO) on the relevance of international coordination to mitigate nitrogen pollution in global livestock systems.
- s. Presentation by Ana Islas Ramos, United Nations Food and Agriculture Organisation (FAO) on Information and Coordination needs for nitrogen, food and health
- t. Statement by on the national perspective of India
- u. Statement by on the national perspective of Sri Lanka
- v. Statement by on the national perspective of Romania
- w. Statement by on the national perspective of Germany
- x. Statement by on the national perspective of Canada
- y. Statement by on the national perspective of Turkey

E. Summary of Session 1:

Opening and INMS Briefing for the International Nitrogen Assessment

Opening Statement

9. The welcome address on ‘Globalization and the Nitrogen Challenge,’ on World Oceans Day (8 June 2020), moving forward under COVID-19, was presented by **Leticia Carvalho**, Coordinator, Marine and Freshwater Ecosystem Division, UNEP. Ms Carvalho welcomed everyone to the first e-briefing of the UN Working Group on Nitrogen as part of the follow up to the UNEA-4 resolution on Sustainable Nitrogen Management (UNEP/EA.4/Res.14). The meeting was originally planned for March 2020 and was postponed to June 2020 due to the COVID-19 pandemic. Ms Carvalho thanked the INMS team for their collaborative work with UNEP on organising this virtual event. The event also provided a contribution to World Oceans Day 2020, which aims to raise global awareness on our collective duty to use resources sustainably. Ms Carvalho, highlighted how our ocean is essential to life on earth and we all directly and indirectly depend on the ocean. Action is needed to protect our oceans and helps achieve the UN SDG-14. Nutrients and nitrogen play a role in protecting the ocean and will be part of our way to recover from COVID-19. Ms Carvalho highlighted why nitrogen matters so much. Our existence relies on nitrogen and has allowed the human population to expand so rapidly. However, it is polluting our land, air and water. Most nitrogen is wasted entering rivers, lakes and seas, creating dead zones, which have quadrupled since 1970.
10. Ms Carvalho added that UNEP have seen great progress on the UNEA-4 resolution on sustainable nitrogen management, which was submitted under the lead of India. In following up the resolution, more than 40 countries attended the Launch of the UN Global Campaign on Sustainable Nitrogen Management in Colombo, with 14 member and observer states adopting the Colombo Declaration, including the ambition to halve nitrogen waste by 2030. This would have massive benefits offering savings worth 100 billion USD annually. Ms Carvalho emphasized that we need to boost recycling of nutrients and increase the use of organic fertilisers. She highlighted the need for policy makers to work together to address every stage of the nitrogen cycle, as well as to determine the best measures and procedures to manage nitrogen sustainably.

Presentations on the International Nitrogen Management System and the International Nitrogen Assessment

11. **Mark Sutton**, Director INMS, of the UK Centre for Ecology & Hydrology, summarized the activities of the International Nitrogen Management System (INMS) and the International Nitrogen Assessment (INA). He explained how nitrogen affects countries across the world and affects multiple sectors, emphasizing the need to join forces in order to address the nitrogen challenge. Mr Sutton noted that the UNEP Working Group on Nitrogen is allows

member states to follow up on the UNEA-4 resolution on Sustainable Nitrogen Management, with 40 countries having identified national focal points to the Working Group. He drew attention to the UN Global Campaign on Sustainable Nitrogen Management launched in October 2019, under the theme of “Nitrogen for Life”, which included, a science-policy-political dialogue, the first Nitro-Innovation Exhibition, plus Nitro-Concert and world premiere of the Nitrogen Song, by Grammy® award winner, Ricky Kej. The Colombo Declaration was adopted on United Nations Day 2019, as highlighted by the office of the UN Secretary General. Subsequently the President of Sri Lanka communicated the content of the Colombo Declaration directly with UN Secretary General Antonio Guterres

12. Mr Sutton described nitrogen pollution as one of the fastest-growing environmental problems, with serious impacts on the environment and human health. He invited participants to think about the different expertise in nitrogen science in different countries around the world and how the UN Working Group on Nitrogen and a future Inter-convention Nitrogen Co-ordination Mechanism (INCOM) could assist in sustainable nitrogen management. He emphasized that nitrogen is “everywhere and invisible” across the UN SDGs. Mr Sutton explained that INMS is a project funded by the Global Environment Facility (GEF) through UNEP, which mobilizes activities that help towards reducing nitrogen pollution. INMS works on creating tools and methods, up scaling techniques, raising awareness and assisting policy interaction. He noted that we currently have a linear nitrogen economy, with 80% of nitrogen is wasted to air and water, while a move to a circular nitrogen economy is both a financial opportunity and a way to create a cleaner environment. Mr Sutton introduced the approach of the International Nitrogen Assessment (INA), explaining that it is planned to include five major parts including an overview of current challenges and policies, approaches for assessments, nitrogen sources and how it flows through the environment, regional differences and grasping the future challenges and the key measures to best manage nitrogen and address key barriers. He noted that, if society wants to “halve nitrogen waste” by 2030, then we must assess what actions need to be taken.
13. **Jill Baron** (co-lead of Component 1 INMS) of the U.S. Geological Survey presented on **Component 1 of INMS**. Component 1 provides tools and methods for understanding the nitrogen cycle. It serves as the scientific foundation upon which reactive nitrogen can be traced and measured, and upon which its positive and negative impacts on humans and the environment can be documented. She explained the six activities of Component 1:
 - Activity 1.1: developing and documenting indicators of nitrogen systems, including national and farm scale nitrogen budgeting approaches, nitrogen use efficiency (NUE) approaches, and the relationship between budget, balance, and efficiency indicators to effect-based indicators of both societal benefits and environmental and health adverse effects;
 - Activity 1.2: development of a threat and benefit assessment methodology based off the DPSIR conceptualization of N flows (Driver, Pressure, State, Impact, and Response);
 - Activity 1.3: development of methodologies for assessing N flows through the Earth system, considering the linkages between air, land, water, and dispersion through trade;
 - Activity 1.4: refinement of approaches and development of new approaches for valuing threats and benefits derived from N across contrasting economies, and across food, health, ecosystem, climate and energy sectors;
 - Activity 1.5: developing flux-impact path models for assessments, future scenarios, and strategy evaluations; and
 - Activity 1.6: examination of the barriers (and incentives) to achieving better nitrogen management, linking the economic, social, cultural and other factors that affect adoption of measures.
14. Ms Baron referred to INMS products that are currently under preparation, including guidance documents, manuscripts, and several searchable tools. A searchable tool for linking impacts to indicators of pressures, states, impacts, measures of performance, and valuations is tied to a matrix that accompanies the methods for identifying and quantifying pressure-impact relations. Another searchable tool will allow policymakers and stakeholders to look

at the N flux pathways by which N moves through the Earth system, with links to relevant literature. Linkages among the Activities of Component 1 to share information, and provision of methods from Component 1 to other Components of INMS are underway. Ms Baron explained that methods provided in many of Component 1 activities are closely tied to their applications in the Demonstration Regions (Component 3), and the Barriers to Change Activity 1.6 uses data acquired from Demonstration Regions, in which the barriers are ranked and sorted by region and categorized by type, including structural, economic, cultural, policy, and behavioral. Ms Baron finished by explaining how Component 1 is contributing to different parts of the INA.

15. **Wim de Vries** (co-lead of Component 2 INMS), from Wageningen University in the Netherlands, presented on **Component 2 of INMS** which focuses on the global and regional quantification of nitrogen flows. He highlighted how some areas of the world have deficiency of nitrogen and some have excess. He suggested that Africa and Eastern Europe have not enough nitrogen, while areas like India and China have too much. If nitrogen is added to soil for crop production, it is meant to go into that crop. Unfortunately, however the majority of that added nitrogen leaks into the land, air or water causing a variety of environmental and health problems, while wasting reactive nitrogen resources. Mr de Vries highlighted how sustainable nitrogen management aims to reduce these losses of nitrogen.
16. Mr de Vries explained how INMS Component 2 looks applies models to quantify the benefits and threats of excess nitrogen and then links these to the socioeconomic drivers, while accounting for different climates and influencing factors that occur in different regions. As populations and affluence grow, this is expected to increase the demand for food and energy which in turn will impact land, air and water. He explained how models are used to evaluate and predict the effects of different nitrogen budgets (how much nitrogen is inputted and lost), which can be used to calculate the future air and water quality, biodiversity and other environmental parameters. Mr de Vries explained how Component 2 is providing the basis for Part C of the INA, looking at how nitrogen creates impacts now and into the future (2050) on water quality, air quality, greenhouses gases, ecosystems and soil. He noted how Component 2 is also providing information and guidance documents on the cost-benefit analysis of nitrogen and make recommendations on the best measures to mitigate nitrogen pollution.
17. **Cargele Masso** (co-lead of Component 3 INMS) of the International Institute of Tropical Agriculture (IITA) presented on **Component 3 of INMS** which focuses on regional demonstration activities (Demo regions), which work together to examine the needs, opportunities, barriers and successes in sustainable nitrogen management. Mr Masso explained how the challenges can vary widely between the different regions. The Demo regions work together through regional workshops, which focus on reducing the negative impacts of nitrogen pollution and look at the co-benefits of good nitrogen management. He noted how the priorities among nitrogen issues can differ between regions.
18. Mr Masso explained how Component 3 is developing a benchmarking of indicators to investigate nitrogen pollution in different regions, which can be used to support with plans and recommendations that can be used by the United Nations and national governments to focus on protecting environment. He noted that each Demo region is developing nitrogen budgets and identifying N sources. This will allow us to see what is happening in the different systems and sectors of the regions. It also allows the nitrogen losses to be quantified and their impacts on water, air, greenhouse gases, ecosystems and soil (WAGES approach) to be investigated.
19. Mr Masso explained how these activities are feeding in to Part D of the INA: Nitrogen challenges and opportunities for key world regions and provides regional context on the nitrogen sources, budgets and key nitrogen threats for each region. This is also exploring low cost solutions and future perspectives for each region, taking regional priorities into account. The demo regions represent a multiple country approach and work together to investigate potential solutions allowing mutual learning among country clusters. The regional demos include East Asia, South Asia, Africa, Latin America, West Europe, East Europe and North America.
20. **Clare Howard** (lead of Component 4 INMS) of the UK Centre for Ecology & Hydrology presented on **Component 4 of INMS**. She explained how INMS and INA includes awareness raising and will lead to a variety of complementary products. Awareness raising

and knowledge sharing is the key aspect of Component 4, which includes internal and external communication for the project, training and education as well as global and regional policy engagement. The component aims to bring things together outputs from the entire INMS project and share resources and information internationally.

21. Ms Howard explained how Component 4 is engaged with creating massive open online courses (MOOCs), including with the additional support of the GCRF South Asian Nitrogen Hub, supported with co-finance the UKRI Global Challenges Research Fund, enabling delivery in multiple languages. She explained how these online training courses would be launched in summer 2021, alongside other videos, summarize and other resources. Ms Howard explained how Component 4 is feeding into Part A of the INA: Setting the scene and problem definition and also Part E which looks at grasping the future challenge and taking it forward. As an illustration, Ms Howard highlighted that there have so far been three nitrogen revolutions and the aim is to enter a 4th revolution, focused on sustainable nitrogen management. She explained out the relevant INA chapters would include consideration of barriers and opportunities in an international context, and discuss the need for international coordination on nitrogen policies, linked the development of INCOM. Ms Howard noted how the INA Part E is looking at the most promising measures for reducing pollution such as the “top 10 measures” for better nitrogen management, as well as consider what may happen if necessary action is not taken. She highlighted how the INA is considering the need for smart nitrogen management to halve waste by 2030, and the need to identify possible action pathways.

Discussion with Member States

22. On behalf of **Uganda, Geoffrey Gokaka** suggested a draft title for the INA could include ‘Evidence and Actions for Sustainable Nitrogen Management’. A request was also made to ensure in INA Part D on challenges and opportunities, (perhaps in electronic supplementary materials) the rationale for the choice of the seven specific regional demonstrations. This could elaborate on why Lake Victoria was selected instead of other areas of Africa. He noted that information on individual countries to help inform national action plans which can then feed into regional and international action plans would be very helpful. Ms Gokaka emphasized how this would allow policy makers to more easily make changes to their individual countries.
23. On behalf of **Benin, Maurille Elegbede**, noted that countries need direct instructions to know what to do to address the nitrogen challenge. In terms of the INMS regional demonstrations, it was not clear how the information being provided could be generalized to the rest of the continent that they are supposed to represent, for example in relation to their size or location. Africa is a sizeable continent and it was therefore requested that the INMS project consider the issue that information from the INMS regional demonstration may not be realistic for other parts of Africa to allow stakeholders to make the necessary management decisions.
24. **Noluzuko Gwayi**, representing **South Africa**, echoed the comments from Uganda and Benin’s comments regarding the huge variety of cultures and climate and the difficulties in extrapolating the data from a few regions to the wider continent. They stressed that national data would of course be the most effective, but failing this being possible perhaps African sub-regions could be represented to give a better indication of the situation. It was emphasized that countries should work together in existing national, sub-regional and regional stakeholder committees so work can begin quickly.
25. **Koen Desimpelaere** representing **Belgium** asked whether the organisation of the INA was already determined or if there is a call for others to get involved, such as the UNECE and EU. He also asked how INMS sees the UN Working Group on Nitrogen National Focal Points contributing to the INA. Mark Sutton, Director INMS, responded that the process has been in preparation for the past 2-3 years, however INMS wants to hear member states advice and guidance and welcome inputs when taking INMS work into the chapters. INMS/INA will focus on drafting the material, but welcomes advisory input from national focal points.
26. **Aimable Uwizeye** from the **UN Food and Agriculture Organization** welcomed this comprehensive meeting and understanding comments from the governments. He asked whether it would be possible to extend the list of contributors to the chapters so that

countries not directly covered can input and review the chapters. He also commented that the range of the report and details presented is very ambitious and asked how confident INMS is of achieving its aims within the timeline. Mark Sutton responded by welcoming engagement from the countries. Mr Sutton explained that the INA is in the process of agreeing the authors and getting broad involvement; the INA aimed keep pressing forward despite the COVID challenges.

27. **Anna Engleryd** representing **Sweden** considered that the INA would be a very useful product for countries and policy makers and she found the outline very comprehensive. She highlighted the importance of summaries, especially for policy makers. It was also commented that it is useful to show that action in one area can have benefits in others. As an example, the Ms Engleryd drew attention to the UNECE Air Convention, which aims to reduce pollution nitrogen for human health benefit, while offering parallel benefits for biodiversity. If it is possible, when looking at costs and benefits, she noted that the INA should seek to monetise the benefits of sustainable nitrogen management, which helps set priorities and targets.
28. **Noluzuko Gwayi** representing **South Africa** suggested that there are two approaches to better nitrogen management globally: one approach is bottom-up and the other is a top-down approach. She suggested that the INCOM and INA represent a top-down approach, however, there also needs to be a bottom-up approach as well. Ms Noluzuko emphasized that it is known that we need to move now. This means that we need to partner with other relevant MEAs, farmers, schools and civil society, so that awareness raising can start as soon as possible.
29. **Ağca Gül Yılmaz** representing **Turkey** urged the Working Group to become more involved with other ministries such as environment, agriculture, marine, transport and water. Public awareness is also very important, as well as giving individuals actions they can do in daily life to reduce nitrogen pollution.

Presentations on INMS from the Funder's Perspective

30. **Isabelle Van der Beck**, presented on behalf of **UNEP**, the Implementing Agency of INMS, on the progress, successes and remaining challenges of INMS. Ms van der Beck highlighted that INMS is a huge initiative and endeavour, as a “targeted research project” of the Global Environment Facility (GEF). She emphasized how INA represents the first comprehensive global assessment across the nitrogen cycle. It is critical and helps answer questions and gives countries a framework for implementing sustainable nitrogen management and halve nitrogen waste. She noted that INMS and the INA also help provide evidence to support future interventions funded by GEF and other donors.
31. Ms van der Beck highlighted that the INCOM process needs to be informed by science, which is being brought together through the INA. She considered that INMS capitalises on the various UNEP processes such as UNEA and the Committee of Permanent Representatives, with the work of this project being elevated to the highest level of UNEP. In this regard, she highlighted a chapter in the UNEP ‘Frontiers Report’ that drew attention to nitrogen the nitrogen challenge and considered four options for future intergovernmental action on nitrogen.¹ She emphasized the conclusion from the INMS-4 High Level Segment,² that countries do not want a new convention on nitrogen, and therefore the INCOM process is being designed to help the existing conventions address the issue of nitrogen. Ms van der Beck anticipated that change will come from changing diets, farming practices and policies. She agreed that looking at the economics of nitrogen will be essential to support the INCOM process, and that there may be an option to include the opinions and case studies from different sectors into INCOM.
32. **Steffen Hansen**, from the Global Environment Fund (**GEF**), commented on the progresses of INMS from the perspective of the funder GEF. He noted that the structure and ‘theory of change’ of INMS is very impressive, emphasizing that GEF have been a supporter of

¹ *The Nitrogen Fix: From nitrogen cycle pollution to nitrogen circular economy*. Chapter 4, in *UNEP Frontiers 2018/19*: <https://wedocs.unep.org/handle/20.500.11822/27543>

² Summary of the High-Level Segment of INMS-4, Nairobi (29-30 April 2019): [http://www.inms.international/sites/inms.international/files/INMS-4%20Summary%20Report%20of%20high-level%20segment%20\(30%20July%202019\)%20\(002\).pdf](http://www.inms.international/sites/inms.international/files/INMS-4%20Summary%20Report%20of%20high-level%20segment%20(30%20July%202019)%20(002).pdf)

nitrogen management for a long time. However, he noted that the involvement of GEF is usually in intervening in the management of an individual water basin, not on an international level. Mr Hansen emphasized that GEF is only successful due to its partnerships, and that INMS has enabled the global level approach which is needed. He added that GEF works with donor countries to help facilitate a number of investments and unfortunately public funding is very scarce. Therefore, GEF looks at more-integrated ways to develop solutions to global issues, including facilitating transboundary actions. Mr Hansen noted how INMS is at the forefront of how to address nitrogen better which affects almost all water bodies on earth. He suggested that INMS should also help inform the new GEF strategy, which starts negotiations in autumn, to make sure future projects address the nitrogen challenge.

Nitrogen Song

33. The meeting session finished with a discussion and performance of the ‘Nitrogen Song’ by **Grammy® Winner Ricky Kej**. Ricky Kej and Mark Sutton explained how the song had developed following engagement during World Environment Day 2018 in India, followed up during farm and village visits focused on zero budget natural farming. As a passionate environmentalist and UN representative, Ricky explained that nitrogen is not talked about enough. He stressed that we need to be serious about the nitrogen challenge now more than ever, where the COVID-19 pandemic shows we are capable of behavioural change. He considered that nitrogen is the forgotten piece of the puzzle for solving climate change. Ricky highlighted that every piece of music he makes is about the environment. He explained how the ‘Nitrogen Song’ is upbeat to get children singing in schools: nitrogen is “everywhere and invisible” and the song is about finding balance and making nitrogen cool.³

F. Summary of Session 2:

What do we need from inter-convention nitrogen coordination?

Presentations from the Conventions on the Inter-convention Nitrogen Co-ordination Mechanism (INCOM)

34. **Mark Sutton**, Director INMS, summarized the previous session (Monday 8th June) and introduced the current work to develop the Inter-convention Nitrogen Co-ordination Mechanism (INCOM). He emphasized the outputs of INMS, the plans for the INA and also the forward-look at sustainable nitrogen management, including financing perspectives from UNEP and GEF. Summing up, he recalled comments from the previous day, including the relevance of adding country-level estimates to the INA, and involving country experts to maximise representativeness and buy-in, as well as nominating further reviewers and additional co-authors. Mr Sutton noted that nitrogen is a transboundary issue and there needs to be an exploration on how an action in one country benefit others. He agreed that there is also a need for good summaries with the INA, especially for policy makers. He also noted the need to consider the impact of COVID-19 as part of future perspectives. He highlighted the potential for INA to engage with business, with opportunity for additional products such as a specific ‘Summary for Business’, subject to resources.
35. Mr Sutton summarized the tasks for the session including:
 - a. Gathering input from countries and conventions on how to make INCOM most useful.
 - b. To agree that the Working Group establish a ‘Task Team’ to develop proposals for the Terms of Reference (TOR) of INCOM,⁴ to be reported back for later discussion by the Working Group.
36. Mr Sutton reiterated the feedback from the UNEA resolution on Sustainable Nitrogen Management (UNEP/EA.4/Res.14) taken forward by INMS-4 (note ⁵), that INCOM needs to address the fragmentation of international conventions across the nitrogen cycle, with a consensus to improve coordination, cooperation and communication among existing conventions and their member states, which could help in improving coherency of actions,

³ *The Nitrogen Song* can be accessed on YouTube at: <https://www.youtube.com/watch?v=RS3-Sa8oaKo>

⁴ NWG Briefing-1/Inf.Doc.2: <https://apps1.unep.org/resolution/UNEP-Nitrogen-Working-Group>

⁵ See: <https://www.unep.org/environmentassembly/proceedings-report-ministerial-declaration-resolutions-and-decisions-unea-4> and Note 2, above for the INMS-4 summary report.

international awareness and the sharing of solutions.

37. The participants were introduced to **Mahesh Pradhan** and **Milcah Ndegwa** from the **UNEP Ecosystem Division**, as the Focal points for UNEA Resolution 4/14 on Sustainable Nitrogen Management. Mr Pradhan emphasized his role as Secretariat to the Global Partnership on Nutrient Management (GPNM), which is a multi-actor partnership, encouraging collaboration across the different sectors of science, policy and business. Ms Ndegwa welcomed the strong international engagement in the Nitrogen Working Group and how this was building the basis for effective cooperation. They welcomed the attendance by representatives from across the regions to working at how to mainstream sustainable nitrogen management into policy, and emphasized the invitation for member states interested to join the Task Team to develop the TORs for INCOM.
38. On behalf of the Secretariat of the **United Nations Convention on Biological Diversity**, **David Cooper** presented the needs and goals for nitrogen management to protect biodiversity. He welcomed the increased attention on nitrogen and improved co-ordination between the conventions. Mr Cooper highlighted that excess nutrients are among the major drivers of biodiversity loss, while nitrogen supply is also essential to function of ecosystems. He noted that nitrogen is over double the natural levels and if business as usual scenarios occur into the future, then nitrogen is likely to double again, affecting plants, soil microbes and aquatic systems. He described how this excess nitrogen causes algal blooms and eutrophication, which damages fisheries and impacts food security, while threatening sensitive habitats such as coral reefs. Mr Cooper emphasized how nitrogen also links to sustainable agriculture, with sustainable nitrogen management is vital to reach the UN Sustainable Development Goals (SDGs) for 2030.
39. Mr Cooper, noted that nitrogen was introduced into the convention in 2004 through Biodiversity Target 8. This stated that nitrogen needs to be brought to levels that are not detrimental to ecosystem function. He noted that some regions have put measures in place, but we are still at globally bad levels, especially in Central America and South Asia. He recognized however, that there are good examples which we need to build on, such as zero budget natural farming which has been used in India. China also had a study with 100 researchers and 200,000 extension agents and millions of farmers which showed that it is possible to yield while reducing nitrogen use. He noted that China has been phasing out direct fertiliser subsidies. Mr Cooper suggested that there is a need for subsidy reform to decouple supporting farmers and increased fertiliser use. He also noted a role for natural ecosystems and nature-based solutions to reduce downstream pollution: waste is in no one's best interest and therefore it is a common goal.
40. Mr Cooper recommended we ask ourselves if we could we be more ambitious with our targets. The Convention on Biological Diversity was to meet during 2020 in Kunming, China, but instead due to the COVID-19 pandemic it will be held later. He emphasized that negotiations are ongoing and the convention is drafting targets to reduce nutrient pollution by 50%.
41. Mr Cooper recognized that there is also a need for a good set of indicators to monitor process and viable pathways to reduce waste further. He noted that the scientific bodies of the convention are to meet in October/November 2020 to look at the rationale for these new targets, with a focus on highlighting the direct and indirect health impacts of excess nutrients. He recognized that nitrogen has so many impacts on ecosystems, as well as health impacts, so integrating this issue into the broader health issue is very important.
42. On behalf of **UNECE Convention on Long-Range Transboundary Air Pollution (Geneva Air Convention)**, **Anna Engleryd**, Chair of the Executive Body of the Convention, presented on the needs for air pollution mitigation related to nitrogen. She noted that the convention was established in 1979, being the oldest multi-lateral environmental convention in the world. She explained how the convention works to reduce impacts on ecosystems and health and puts limits on substances such as emissions of nitrogen oxides (NO_x) and ammonia (NH₃). Ms Engleryd highlighted how nitrogen pollution is transported by through the atmosphere with deposition causing acidification, eutrophication and particulate matter, which in turn cause damage to crops, ecosystems and human health. Ms Engleryd explained that the convention has established the Task Force on Reactive Nitrogen (TFRN), which, since 2007, has used technical information to inform policy processes and protocols. She noted that there has been a substantial reduction in nitrogen pollution Europe

since 1990, however many ecosystems are still damaged while secondary formed particles are still impacting health. She pointed to the convention long-term strategy up to 2030, which includes action on nitrogen and increasing co-operation with countries outside the UNECE region.

43. On behalf of the Convention, Ms Engleryd greatly welcomed the Colombo Declaration and the UNEA-4/14 resolution on sustainable nitrogen management. She emphasized that we need to better understand the ecosystem recovery process for nitrogen, the role of nitrogen on health impacts of air pollution and the effect of climate change on nitrogen compounds. She highlighted the need to identify and address barriers to better nitrogen management, especially within the agricultural sector, and especially during COVID-19.
44. Ms Engleryd recognized the need for improvement in communication of the nitrogen challenge with stakeholders such as the agriculture industry. She suggested that governments should focus on build-on existing policy platforms and agreements. She welcomed the INCOM concept, which could help us to better reflect, estimate and understand reducing nitrogen emissions across sectors and conventions. She noted that it is also important to see how action in one area affects others. For example, we need to make it clear to countries that action on nitrogen works to help reach existing agreements and targets. Ms Engleryd highlighted the need to share tools, knowledge, models and methods on nitrogen science, and welcomed that the proposed INCOM Task team included representatives from INMS, member states and conventions.
45. **Dirk Nemitz**, representing the Secretariat of the **UN Framework Convention on Climate Change**, presented on climate, nitrogen, the Koronivia Process and the road to COP26. He noted that mitigation of nitrous oxide (N₂O) emissions is being considered by the Koronivia process, following up Decision 4/ CP.23 regarding the joint work on agriculture under SBSTA and SBI. He recognized that the agricultural industry is very wide and diverse, and society needs a more holistic approach to managing nitrogen. Mr Nemitz emphasized the need to consider the vulnerability of agriculture to climate change and create pollution reduction approaches that also address food security. Mr Nemitz reported that, in 2018, the convention adopted a roadmap on six topics. This included consideration of how to deal with nitrogen among submissions from parties and observers, as well as an in-session workshop held at COP26 in Madrid. The process engaged with farmers, gender, youth, local communities, indigenous communities and looked to ensure that relevant stakeholders were involved in the workshops. He noted that there is also a special role for GEF and smaller funders in this process.
46. Mr Nemitz reported that the Koronivia workshop is also planned to take place at COP 26 in November 2021 Glasgow, on improved nutrient use and manure management. He reported that 11 submissions from countries and 11 from observers were made at the COP-25 Madrid workshop on nutrient management. Mr Nemitz highlighted the massive losses of nitrogen are due to inefficient use, which needs to be reduced to fight climate change, environmental degradation and to improve economic performance. Mr Nemitz mentioned other workshops under the Koronivia Process planned for October 2020 and November 2020 on livestock management, socioeconomic factors, land and water management. He noted that a nitrogen workshop report could be considered which to focus on scaling up and implementation.
47. **Habib El-Habr**, coordinator of the **Global Programme for Action on the Protection of the Marine Environment from Land-based Activities (GPA)** presented on action to protect the coastal and marine environments from nutrient pollution. He noted that GPA focuses on nutrient management, wastewater and marine litter, with past work on managing persistent organic pollutants (POPs), heavy metals and more. He drew attention to the UNEA 4/11 Resolution on protecting the marine environment from land-based activities,⁶ which looks at enhancing capacity building and collaboration with relevant stakeholders such as civil society. He noted that Indonesia submitted the resolution and they have developed a regional activity centre in Bali for clean seas.
48. Mr El-Habr, reminded the participants that the focal point of the UNEA-4/14 resolution on Sustainable Nitrogen Management is provided in UNEP by the Secretariat of the GPNM. He noted that since adoption of the resolution, the CPR subcommittee met on the 7th Oct 2019 in Nairobi, Kenya. Following activities included **Launch of the UN Global Campaign on**

⁶ See note 5.

Sustainable Nitrogen Management, Colombo, Sri Lanka (October) and the formation of this UNEP Nitrogen Working Group. He reported that 1400 people attended the inaugural session of the Colombo ‘Nitrogen for Life’ event including Joyce Msuya, the Deputy Executive General of UNEP, and the Speaker of Parliament of Sri Lanka. Over 30 countries participated and 14 have formally adopted the resulting **Colombo Declaration**⁷ which has the ambition to halve nitrogen waste by 2030. He noted that the declaration aims to mobilize policies on sustainable nitrogen management including emphasis on developing the circular economy for nitrogen, which connects numerous UN SDGs. Mr El-Habr highlighted that the launch also included the premiere of the ‘Nitrogen Song’ by Grammy® Winner Ricky Kej.

49. Mr El-Habr recalled that the **Roadmap for Action on Sustainable Nitrogen Management 2020-22** (see note ⁸) was discussed at this meeting and endorsed by the resulting Colombo Declaration. He suggested that this be considered as a ‘living document’ building on the UNEA 4/14 resolution. The roadmap proposes actions for acting on the resolution, co-ordinating platforms of scientific evidence, facilitating capacity building and preparing the way for UNEA-6, including development of a financing plan, options for better nitrogen management and the INCOM development process.
50. **Sophia Mylona**, UNEP Ozone Secretariat, provided an overview of the relevance of nitrous oxide for the Ozone Treaties, which comprise the **Vienna Convention on the Protection of the Ozone layer** and its **Montreal Protocol** on Substances that Deplete the Ozone Layer. The Vienna Convention was adopted in 1985 to protect human health and the environment from the adverse effects of human activities on the ozone layer, such as the production and use of various man-made synthetic gases which had been found to destroy ozone. Ms Mylona noted how the ozone layer shields life on earth from the harmful UV radiation from the sun, which can cause cancer and cataracts in humans and can damage ecosystems. She reported that the Vienna Convention is a framework Convention promoting cooperation by means of systematic observations, research and information exchange on ozone-related issues and adoption of legislative or administrative measures to protect the ozone layer. By Article 3 of the Vienna Convention parties undertake to promote or establish joint programmes for the observation of the state of ozone layer and related parameters. Such parameters include nitrogen substances which have the potential to modify the chemical and physical properties of the ozone layer such N₂O and NO_x. Ms Mylona indicated that sources of N₂O are predominantly natural, but other anthropogenic contributions are becoming increasingly important.⁹ Being the primary source of stratospheric NO_x, N₂O plays a vital role in controlling the abundance of ozone in the stratosphere.
51. Ms Mylona noted that the Montreal Protocol, adopted in 1987, identified and banned many chemicals to date including ozone-depleting substances (ODS), such as chlorofluorocarbons (CFCs), halons, methyl chloroform, methyl bromide, HBFCs, HCFCs and more recently HFCs that are used as ODS substitutes in many applications and do not harm the ozone layer but are powerful greenhouse gases. She noted that the Protocol controls consumption and production of these substances, not emissions, through a common but differentiated approach where reductions are carried out first by developed nations, allowing developing countries to follow with a delay of about 10 years. She noted that there have been 7 Montreal adjustments to accelerate reductions and 5 amendments to control new chemicals. Under the Protocol, there are three assessment panels: the Scientific Assessment Panel (SAP), the Environmental Effects Assessment Panel and the Technology and Economic

⁷ Launch of United Nations Global Campaign on Sustainable Nitrogen Management, 23-24 October 2019, Colombo, Sri Lanka. <https://apps1.unep.org/resolution/node/286>

⁸ See <https://apps1.unep.org/resolution/node/286> :

- a. UNEP-SL/UNGC/ Res.L.14/4. Concept note to the Roadmap: https://apps1.unep.org/resolution/uploads/roadmap_for_action_on_sustainable_nitrogen_management_concept_note1.1_draft.pdf;
- b. Revised Roadmap itself: https://apps1.unep.org/resolution/uploads/roadmap_for_action_on_sustainable_nitrogen_management_roadmap1.1.pdf

⁹ Further information is available in the UNEP report, *Drawing down N₂O* from 2013:

<https://wedocs.unep.org/handle/20.500.11822/8489>, see page x: “Natural emissions including those from terrestrial, marine and atmospheric sources are estimated at roughly 11 Tg N₂O-N/yr (uncertainty range: 10.2 to 12.1). However, these emissions do not lead to a build-up of N₂O in the atmosphere because the atmosphere and biosphere have adjusted to them over a long period of time. A best estimate of current total gross anthropogenic emission is 6.2 Tg N₂O-N/yr, while a best estimate of current total net anthropogenic emissions is 5.3 Tg N₂O-N/yr (taking into account reduced emissions due to land-use change).”

Assessment Panel (TEAP). These Panels produce comprehensive assessment reports on ozone-related issues every four years as well as various other reports at the request of the parties. Ms Mylona highlighted that, in its recent 2018 Quadrennial Assessment report on Ozone Depletion¹⁰, the SAP reiterated their earlier findings that increasing CO₂ and CH₄ are estimated to increase global ozone levels, while increasing N₂O are estimated to deplete stratospheric ozone. The report noted how N₂O is growing steadily at 0.8 ppb per year. Ms Mylona emphasized that future emissions of CO₂, CH₄ and N₂O levels will be very important to the future of the ozone layer, where mitigation of N₂O would have a small to modest benefit in protecting the ozone layer in coming decades. However, Ms Mylona emphasized that it is hard to make accurate assessments of the fate of ozone layer in the future due to the wide range of possible future levels of CO₂, CH₄ and N₂O.

52. **Aimable Uwizeye**, representing the **United Nations Food and Agriculture Organisation (FAO)**, presented on the relevance of international coordination to mitigate nitrogen pollution in global livestock systems. He noted that food waste is a massive problem and there is a need to improve nitrogen use in agriculture systems. He emphasized that multi-stakeholder initiatives are important, as well as livestock environmental assessments. Mr Uwizeye considered that, through performance partnerships, a global agenda for sustainable livestock can be created, while the circular bio-economy offers cost-effective solutions for the sustainability of food systems. Mr Uwizeye concluded that nitrogen pollution deserves a global convention with a prominent role of livestock scientists and stakeholders to address the multifaceted aspects of nitrogen pollution. He recommended that INCOM needs to be inclusive with not just government representatives, but different stakeholders as observers.
53. **Ana Islas Ramos**, representing the **United Nations Food and Agriculture Organisation**, presented on Information and Co-ordination needs for nitrogen, food and health. Ms Ramos emphasized that there is a global challenge of malnutrition, as well as the sustainability of food production and consumption. She reported that the World Health Organisation (WHO) has created guiding principles for Sustainable Healthy Diets¹¹ as 821 million people suffer from hunger with 2 billion in moderate or severe food insecurity and 2 billion people lack key micronutrients like iron or Vitamin A. As part of this, she noted that 88% of countries face a malnutrition burden. Ms Ramos, reported that dietary risks are also a major risk factor of disease as well as air pollution, high blood pressure and child/maternal malnutrition, food consumption also impacts greenhouse gas (GHG) emissions. She noted that, in high income countries, meat/fish/dairy emissions, make up 70% of food-related emissions; a shift is needed to meet the challenges of malnutrition, land degradation and reduction of biodiversity, otherwise this generation will live less-well than their parents. Ms Ramos emphasized that FAO/WHO's Sustainable Healthy Diet Principles promote well-being and focus on options with low environmental impact that are easily accessible, equitable, culturally acceptable and affordable. From a health aspect, she noted that a sustainable healthy diet can include moderate amounts of eggs, poultry, fish, and a small amount of red meat are good for health. She noted that GHG emissions need to be reduced and reducing food loss and waste is very important. In addition, a Global Nutrition and Food Systems Agenda was an output of ICN-2 which was jointly organised by FAO and WHO in November 2014.¹² Ms Ramos reported upcoming events that could be of interest, including the Tokyo: Nutrition for growth Summit 2020, where the aim is to secure meaningful commitments for nutrition through safe, sustainable and healthy diets, while the UN food systems summit was scheduled for 2021.

Statements from Member States

54. **Ramesh Ramachandran**, Director of the National Centre for Sustainable Coastal Management and chair of the UNEP GPNM, reported on the national perspective of **India**. He reported that the First Indian Nitrogen Assessment was launched in 2017 and is currently being updated by the UKRI GCRF South Asian Nitrogen Hub (SANH). Mr Ramesh noted

¹⁰ 2018 Quadrennial Assessment of Ozone Depletion: <https://ozone.unep.org/assessment-reveals-healing-ozone-untapped-potential-climate-action>

¹¹ Guiding Principles for Sustainable Healthy Diets, FAO and WHO: <https://www.fao.org/documents/card/en/c/ca6640en/>

¹² FAO/WHO Second International Conference on Nutrition (ICN2): [https://www.who.int/news-room/events/detail/2014/11/19/default-calendar/fao-who-second-international-conference-on-nutrition-\(icn2\)](https://www.who.int/news-room/events/detail/2014/11/19/default-calendar/fao-who-second-international-conference-on-nutrition-(icn2))

that India has many challenges, with NO_x emissions in India being 11-fold higher than N₂O emissions. He noted that NH₃ is contributing to particulate matter, while nitrogen deposition is contributing to hypoxia and eutrophication in water bodies, alongside point and diffuse water pollution sources, which are affecting both sides of India. Mr Ramesh noted that there have been many nitrogen initiatives, such as the neem coated urea policy which aims to slow down urea consumption, and reduce nitrogen pollution. He reported that there is also action to replace traditional fuel cars with electric vehicles and efforts to reduce emissions from waste.

55. Mr Ramesh, noted that a national committee in India has also been established to oversee sustainable nitrogen management. The key players in assisting India's sustainable nitrogen management include the UN legal instruments, UN bodies, UKRI GCRF SANH, GEF-UNEP INMS and former GEF/UNEP Global Nutrient Cycles project (GNC) and other international scientific bodies. He emphasized the need for robust, inclusive and transparent intergovernmental and stakeholder engagement to succeed. He suggested that UNEP Nitrogen Working Group should meet at least once to facilitate the exchange of issues and challenges faced by each country. He emphasized that meetings of the International Nitrogen Initiative, the ToR 'Task Team' and INCOM should would be important to ensure scientific inputs to developing the policy process.
56. **Gamini Wijesinghe** reported on the national perspective of **Sri Lanka** for sustainable nitrogen management. He emphasized that nitrogen expresses life on the planet, while the security of a nation is not just on military terms, but all aspects of life, including food, health care, agriculture, environment and education. As Mr Wijesinghe highlighted, nitrogen relates to all these aspects. Mr Wijesinghe, noted that the Colombo Declaration works to address these issues.¹³ He reported that Sri Lanka has established an Inter-ministerial task force and Intra-ministerial action group and expert group to work on nitrogen. As Mr Wijesinghe summarized: We need clear, convincing, scientific messages on nitrogen linked to national security and nitrogen's importance to reach the SDGs.
57. **Naiana Milea** reported on the national perspective of **Romania**. She noted that Romania has invested a lot in sustainable nitrogen management as 1/3 of the Danube, which flows into the black sea comes from Romania. Ms Milea noted that the Government of Romania started working with farmers in 2002 to control nitrogen losses, which included 3 GEF projects. These had examined what are the best investments for nitrogen reduction, soil and water protection and assisting farmer behavioural change. They concluded that investments in manure management, sewage and improvement in water monitoring systems are important, as well as institutional strengthening.
58. Ms Milea noted that Romania is home to the biggest European farm, but there are also one million farmers each with less than one hectare. She emphasized the need to support smallholder farmers and those who farm not just for subsistence, but also as part of cultural traditions. Ms Milea noted that in Romania there are 3 million small holder farmers and nitrogen losses from these farms are important. Knowledge exchange networks, public information as well as communal and individual platforms have been created to help create change. These activities had found that community-level solutions, farmer training, information dissemination and phone and email giving ongoing support help achieve results. Through farmers associations the government found that it can acknowledge local priorities and find socially acceptable pollution mitigation measures. Ms Milea emphasized that scientific innovation and practice need to work with communities in order to best manage nitrogen.
59. **Stefanie Wolter** reported on the national perspective of **Germany**. Germany has high nitrogen emissions such as nitrate in ground water in rural areas and nitrogen levels are exceeded in urban areas. She reported that an integrated approach is need to reduce cross-sectoral pollution. Germany has an action program with a national nitrogen target for 2030. Germany aims to close the gap between current levels and future targets by identifying reduction measures. An action program will be drafted soon in summer and which is expected to be signed late next year. The INI conference was going to be in Berlin in May this year, however it has been postponed to 2021 due to the COVID-19 pandemic.¹⁴

¹³ See note 7.

¹⁴ 8th Global Nitrogen Conference: <https://ini2021.com/>

60. **Maurille Elegbede** described the national perspective of **Benin**. Nitrogen in Benin is agricultural and with high usage of nitrogen fertiliser, which are understood to impact water quality. They reported that effective organisation is lacking to manage emissions, and it is not possible to determine nitrogen levels. Conversely, data are available on greenhouse gases. It was proposed that a regional committee representing West Africa would be helpful, which can look at impacts for the whole region.
61. **Craig Drury** made a statement on the national perspective of **Canada**. He reported that nitrogen management is critical in Canada, as shown by agricultural and environmental indicators. There have been changes in many nitrogen indicators such as ammonia, N₂O, water quality and residual soil indicators. Mr Drury reported that Canada is also working on reducing GHGs and enhancing carbon storage in soils. He noted that Canada will continue to participate in this critical work of the UNEP Nitrogen Working Group.
62. **Agca Yilmaz** reported on the national perspective of **Turkey**. She noted that Turkey has facilitated the creation of nitrogen reduction targets, which now need to be completed. Turkey recognizes that the air quality problem is global and awareness is important. In Turkey, technical issues, access to information and agriculture are the main issues in the nitrogen challenge. Ms Yilmaz recognized that the world needs food, but it needs to be managed well, especially production and consumer problems. Turkey has a management portal for air quality data. She noted that sustainable nutrition coordination is important and Turkey is looking forward to participating in this UNEP Working Group on Nitrogen.

G. Conclusions and Close of the e-briefing

63. **Mark Sutton** recapped some of the main points of discussion and ways forward. It was agreed to move forward in establishing the *ad-hoc* Task Team to examine possible Terms of Reference for INCOM (INCOM ToRs Task Team), as described in NWG Briefing-1/Inf.Doc.2. (note ¹⁵). Additional member states were invited to join the INCOM Task Team to ensure regional balance. Mr Sutton noted that there had been some suggestions to include non-state actors as observers, however, it was equally recognized that member states and conventions needed to be at the centre of the process. In this regard, Mr Sutton noted that the Global Partnership on Nutrient Management (GPNM) is already established as a multi-actor body relevant for nitrogen, which could complement the future work of INCOM. It was agreed that the INCOM ToRs Task Team will develop proposals on the Terms of Reference, which will be shared with the UNEP Nitrogen Working Group, as a basis for subsequent revision, to allow eventual sharing with all member states through the Committee on Permanent Representatives.
64. On behalf of the **International Nitrogen Initiative (INI)**, its chair, **N. Raghuram** of Guru Gobind Singh Indraprastha University, provided a closing reflection for the e-briefing. He highlighted that this is a unique opportunity for INI, UNEP, GEF, INMS and the UN Working Group on Nitrogen members and stakeholders to work on ways to implement the UN resolution on Sustainable Nitrogen Management. Mr Raghuram emphasized that INI works to assist intergovernmental mechanisms through catalysing provision of scientific evidence. INI is actively involved in the INMS project at global and regional levels and provided scientific support to the first UN resolution on Sustainable Nitrogen Management at UNEA-4, under the lead of India. He considered it essential that society co-operate in implementation of better nitrogen management: nitrogen has complex challenges from many species and sources and is different in different countries. As Mr Raghuram noted: If we all work together, we can address it.
65. Concerning specific challenges and opportunities, Mr Raghuram emphasized that mapping regional and national variation in nitrogen indicators will be important as a foundation for action. He noted that regional components in INMS address this, and time and resources will be needed to get a grip on this challenge. Mr Raghuram suggested that National Focal Points for the UNEP Nitrogen Working Group should aim to pledge to make a significant impact on nitrogen pollution in half the time it took for carbon. On behalf of INI, Mr Raghuram thanked the representative of India for suggesting inclusion of INI in the task team and INCOM, concluding: “We are all in it together”.

¹⁵ See note 4.

Annex 1: Other organisations represented at the meeting (not including nominated national focal points or UN Agencies, which are explicitly listed in paragraphs 1 & 2).

Agriculture and Agri-Food Canada;
AirClim; Makerere University;
All-Russian Scientific Research Institute of Organic Fertilizers and Peat;
Artec Sustainability Research Center, University of Bremen;
Bangabandhu Sheikh Mujibur Rahman Agricultural University;
Bangladesh Rice Research Institute (BRRI);
BASF SE;
Boston University;
China Agricultural University;
Citepa;
CNRS Laboratoire d'Aérodynamique;
Department of Environment, Iran;
East African Community, Lake Victoria Basin Commission;
EMRC, UK;
European Commission - Joint Research Centre;
French Ministry of Agriculture;
German Environment Agency;
Global Environment Facility (GEF);
Government College University Faisalabad, Pakistan;
Government of Flanders; National Environment Commission, Bhutan;
Hellenic Agricultural Organization "DEMETER";
Hokkaido University;
ICAR National Rice Research Institute;
IEEP – branch of FSBSI FSAC VIM;
INRAE (Institut National Recherche en Agronomie, Alimentation et Environnement);
Institute for Agro-Environmental Sciences, NARO;
Institute for Nature Management, Belarus; European Environmental Bureau, Belgium;
Institute for Sustainable Development and Research, ISDR India;
Institute of Agriculture and Animal Science, Tribhuvan University;
Institute of Ecology and Geography, Moldova;
Institute of Soil Science, Chinese Academy of Sciences;
Istituto Superior de Agronomia;
International Fertilizer Association;
International Nitrogen Initiative;
IPNI Canada; College of Natural Resources and Environment, Northwest A&F University;
Jawaharlal Nehru University New Delhi;
Kabul University;
KIIT University;
Latvia University of Life Sciences and Technologies;
Leibniz Institute for Agricultural Engineering and Bioeconomy; University of Bonn;
London School of Hygiene and Tropical Medicine;
Ministerio de agricultura, pesca y alimentación, Spain;
Ministry of Agriculture Fisheries and Food, Spain;
Ministry of Agriculture, Hungary;
Ministry of Agriculture, Spain;
Ministry of Climate Change Government of Pakistan;
Ministry of Environment, Estonia;
N2 Applied;
National Institute for Environmental Studies;
National Institute for Public Health and Environment, Netherlands; RIVM;
National Institute for Space Research, Brazil; International Institute of Tropical Agriculture;
NERC-UKRI;
New York University;
Nourish Scotland;
Odessa National University;
OECD;
Peking University; Ministry of Environment and Food of Denmark;

Research Institute of Agricultural Economics, Hungary;
Rothamsted Research;
Royal University of Bhutan;
SACEP;
SEI, University of York;
South Asia Nitrogen Centre;
State Institution "Institute of Soil Protection" of Ukraine (ISP);
TERI SAS;
Toulouse University;
U.S. EPA Chesapeake Bay Program Office;
UK Centre for Ecology & Hydrology;
Universidad Politécnica de Madrid;
University of Aberdeen;
University of Agriculture Faisalabad;
University of Birmingham;
University of Bristol;
University of California, Davis;
University of Edinburgh;
University of Maryland Center for Environmental Science;
University of Peradeniya;
University of Rajshahi;
University of Virginia
US Environmental Protection Agency;
WDR, Germany;
Western Washington University;