**Nitrogen for Life**

**Concept for the Colombo Declaration**

**Everywhere and Invisible: Halve Nitrogen Waste**

**Background**

The resolution on Nitrogen Sustainable Management (UNEP/EA.4/Res.14) adopted by the Fourth Session of the United Nations Environment Assembly (UNEA-4) represents an historic agreement to embrace the global nitrogen challenge. Humans have more than doubled global nitrogen flows compared with natural levels. This has sustained global food production and population growth, but has also come at a cost: Nitrogen is polluting our rivers, seas, atmosphere and ecosystems, contributing to climate change and stratospheric ozone depletion.

The difficulty we face is that nitrogen is everywhere and invisible. As di-nitrogen (N2), it forms 78% of the Earth’s atmosphere. It makes the sky blue and provides a safe medium for the oxygen we breathe. Yet, once converted into reactive nitrogen (Nr) compounds it contributes to a plethora of unintended pollution problems.

To follow up the UNEA-4 Nitrogen Resolution and address these concerns, UN Environment is preparing to launch a global campaign to raise public, policy and business awareness of the nitrogen challenge. The campaign is planned under the theme of “Nitrogen for Life”. The campaign recognizes that we need nitrogen for our very survival: Every enzyme in our bodies, every molecule of protein, amino acid and DNA is a nitrogen compound. Yet human activity currently wastes around 80% of produced nitrogen compounds. It is bad for the environment, and it is bad for the economy. Globally, human activities waste US$200 billion of Nr annually, with even larger costs through nitrogen pollution for environment, health and livelihoods.[[1]](#footnote-1)

**The Nitrogen Vision**

The emerging vision is that nitrogen is not just another problem, but rather it must be part of the solution to so many of our environmental challenges. By improving the efficiency of overall nitrogen use across society and by developing a coherent strategy to reduce nitrogen waste, this can help overcome the barriers to many existing environmental goals simultaneously.

For example, nitrogen in rivers, lakes and oceans is causing dead zones and killing fish in combination with other nutrients, while threatening human health through pollution of drinking water. In the air, nitrogen pollution from fossil fuel burning and agricultural practices (here in combination with sulfur and volatile organic carbon) is contributing to fine particulate matter (PM2.5), nitrogen dioxide and tropospheric ozone, which together threaten human health and crop production. Humans have similarly increased emissions of nitrous oxide, a greenhouse gas 300 times more powerful than carbon dioxide, which also contributes to stratospheric ozone depletion. Nitrogen emissions to air, eventually return to earth, altering terrestrial ecosystems and threatening precious biodiversity. Finally, nitrogen pollution contributes to soil acidification, further exacerbating problems for drinking water and health.

*The vision of Sustainable Nitrogen Management is that all these issues are linked together through the nitrogen cycle. By developing a coherent approach that considers the opportunity for synergies, the goal is to harvest multiple co-benefits, while minimizing the risk of trade-offs between policies.*

**Rationale for the Colombo Declaration**

In launching the ‘Nitrogen for Life’ nitrogen campaign in Colombo under the championship of H.E. the President of Sri Lanka, the goal is to open with a bang, raising global awareness of the nitrogen challenge. We cannot live without nitrogen, but if we live with it wisely, it offers a key opportunity to help meet multiple SDGs, across environment, health and wellbeing.

In order to match this vision, the Declaration invites Environment Ministers to become global champions in embracing the nitrogen challenge. The attached draft of the Colombo Declaration is shared to stimulate discussion and refinement in advance of the campaign launch, in preparation for its finalization and adoption on 23-24 October.

At the heart of the Declaration, is the recognition that we now need to take forward the UNEA-4 Nitrogen Resolution. It is vital that we consider how each of our countries can mobilize awareness to support smart nitrogen policy development. We highlight a global aspiration to halve nitrogen waste by 2030, proposing to increase our efforts to show how meeting this goal would contribute to ambitious climate, air quality, water quality, biodiversity and food security goals, and help accelerate progress towards achieving them.

We aim to cooperate as a group of countries, preparing the way for UNEA-5 in February 2020. Drawing on the outcomes of the fourth Session of the International Nitrogen Management System (INMS-4, April 2019, Nairobi), we propose to accelerate our efforts in addressing policy fragmentation across the nitrogen cycle. A key element will be to affirming our commitment to work with UN Environment in establishing a UN mechanism to promote coordination and coherency between existing intergovernmental conventions and programs for nitrogen.

We here invite comments on the Draft Colombo Declaration, and look forward to hearing your proposals on how to improve and strengthen it.

**Draft text of the Colombo Declaration**

**Everywhere and Invisible: Halve Nitrogen Waste**

We, the Environment Ministers of Member States of the United Nations Environment Programme (UNEP), participating in the Ceremonial Launching of the United Nations Campaign on Sustainable Nitrogen Management “Nitrogen for Life”, held in Colombo, Sri Lanka,

*Acknowledging* Nitrogen as a critical element for building structures of living organisms and as an essential element for the survival of all living things,

*Recognizing* that unreactive di-nitrogen is extremely abundant in the atmosphere and is converted naturally to reactive forms through lightning and biological nitrogen fixation, which cycle through roots of plants into food chains and made available to life,

*Appreciating* agricultural wisdom and traditional best practices of ancient civilizations relevant for sustainable nutrient management, as this has descended over generations,

*Noting* that humans are used to fertilize soil with reactive nitrogen in order to sustain global food and feed production,

*Reaffirming* the resolution on Sustainable Nitrogen Management (UNEP/EA.4/Res.14), adopted at the Fourth Session of the United Nations Environment Assembly (UNEA-4), emphasizing that global economy – wide nitrogen use is extremely inefficient with over 80% of anthropogenic reactive nitrogen lost to the environment,

*Concerned* that nitrogen overuse has negative impacts on air, land, water, biodiversity and climate change,

*Recognizing* the International Nitrogen Initiative’s commitment, made at the Our Ocean Conference 2018 in Bali, Indonesia, to support a global goal to halve nitrogen waste by 2030, which would offer quantified co-benefits for water quality, air quality, biodiversity, climate resilience, food and livelihoods,

*Acknowledging* the efforts being made by the United Nations Environment Programme, the Global Environment Facility and the International Nitrogen Initiative, in their establishment of the International Nitrogen Management System to link science and policies on sustainable nitrogen management, including contributions from the Global Partnership on Nutrient Management, the South Asia Cooperative Environment Programme and the ‘GCRF South Asia Nitrogen Hub’ established with support from the Global Challenges Research Fund of UK Research and Innovation,

*Noting* the outcome of the Fourth Session of the International Nitrogen Management System, held at UN Environment in Nairobi on 29-30 April 2019 as a follow-up to the UNEA-4 resolution (UNEP/EA.4/Res.14) and the proposed ‘Roadmap for Action on Sustainable Nitrogen Management 2020-2022’,

1. Endorse the proposed Roadmap for Action on Sustainable Nitrogen Management, including its activity to establish an inter-convention nitrogen coordination mechanism to better facilitate communication and coherency across nitrogen policies, including for water, air, climate, ecosystems, soils and stratospheric ozone;

2. Call upon UN agencies and other international organizations, development partners, philanthropic agencies, academic and civil society organizations to support the implementation of this Declaration, and to mobilize human, financial and technical resources for this purpose;

3. Agree at national level to:

3.1 Conduct a comprehensive assessment on quantitative and qualitative nitrogen cycling covering policy, implementation, regulation, and scientific aspects;

3.2 Promote innovation on anthropogenic nitrogen use and recycling, emphasizing the opportunities for the circular economy;

3.3 With a target to halve nitrogen waste by 2030, develop country roadmaps for sustainable nitrogen management;

3.4 Sensitize the citizens to understand the natural nitrogen cycle and how human impacts alter its balance;

3.5 Identify the best of descended traditional agricultural wisdom and assess the opportunities offered for nitrogen management, where appropriate mainstreaming it through policy, implementation and regulatory channels;

3.6 Develop and introduce policies on Sustainable Nitrogen Management;

3.7 Cooperate to submit a joint resolution to the Sixth Session of the United Nations Environment Assembly; and

3.8 Report on the progress of implementing this Colombo Declaration at the Fifth Session of the United Nations Environment Assembly;

4. Request the UNEP Executive Director to:

Catalyze a global comprehensive analysis on global nitrogen budgeting, impacts and solutions, including valuation of natural nitrogen fixation.

Colombo, Sri Lanka

24 October 2019

1. Further details can be found in the UN Environment *2018/2019 Frontiers Report* in the chapter: “[The Nitrogen Fix: From Nitrogen Cycle Pollution to Nitrogen Circular Economy](https://www.unenvironment.org/resources/frontiers-201819-emerging-issues-environmental-concern)”. [↑](#footnote-ref-1)