UNEP Working Group on Nitrogen
Third Meeting
Hybrid, 27 April 2023
Bucharest, Romania

Agenda item 5: National action plans on sustainable nitrogen management

Discussion paper on the initial findings of the country level baseline screening on actions for sustainable nitrogen management

Background note

Based on the provision in the Terms of Reference of the UNEP Working Group on Nitrogen to "*share information on national action plans, as available, according to national circumstances*", a first analysis of actions taken towards sustainable nitrogen management was initiated on the basis of information collected through the "country baseline screening template on actions for sustainable nitrogen management".

Completed templates were received from 13 Member States: Cambodia, China, El Salvador, Ethiopia, France, Germany, Italy, Japan, Madagascar, Mauritius, Romania, Sweden and the United States of America. The preliminary analysis of results and its initial findings shall be updated / revised before the 4th meeting of the Working Group based on additional baseline screening information collected and taking into account feedback received from focal points at the 3rd meeting of the Working Group.

Full information received through the country baseline screening on sustainable nitrogen management may be disclosed only with prior consent from the focal points. An anonymised matrix has been compiled to show the aggregated results prior to the 3rd meeting of the Working Group, while more focal points are encouraged to share information.

Approach

A request was sent out to focal points of the Working Group on 31 March 2023 for inputs on actions on sustainable nitrogen management using a baseline screening template by 17 April. A total of 13 baseline screening documents were received by 20 April 2023. All screening templates were reviewed and analysed. The answers to each of the fourteen questions were compiled and grouped by UN region. The 'yes/no' answers provided for the first twelve questions were mapped in a matrix (Annex 1).

Results and initial conclusions

1. **Targets on addressing nitrogen losses**

- **National targets are largely missing** and, in general, are not expressed in nitrogen losses (with one exception, whereby a country set a quantified target on reducing nitrogen surpluses from agriculture). Nevertheless, in some countries there are ammonia emission targets under the Gothenburg Protocol (such as in all EU Member States under the EU Directive on National Emission Ceilings), standards for nitrogen dioxide concentrations in ambient air, maximum concentration of nitrates in drinking water and underground water, maximum loads for waste water discharges, etc.

2. **National monitoring systems for measuring nitrates concentrations**

- **Most of the countries possess a monitoring system/network for measuring nitrates** from surface and underground waters (9 out of 11 countries). Monitoring system density and frequency of data collection and reporting varies (but data availability might be sufficient to indicate some trends and certain nitrates hotspots).

3. **Measures in place to promote sustainable use of nitrogen**

- **All possible options are identified: there are countries without any measures in place, with incentivised or non-incentivised voluntarily measures, and/or with mandatory measures**. Generally, the responses suggest that incentivised measures are identified in countries with more regulated agricultural policy, promoting a wide range of measures aiming at addressing nitrogen losses. Under agricultural policy, some countries are imposing conditionalities for granting subsidies, including on sustainable use of fertilisers (e.g., preparation of farm-gate-balance). Other countries are focusing on some specific measures, such as chemical fertilisers reduction (in general, or with a clear target, for instance 20% reduction in nitrogen fertilization on average in the farm in nitrate-polluted areas)/replacement with organic fertilisers/sustainable use of fertilisers, etc. Systems to reduce NOx emissions for the combustion engines were also mentioned.

4. **Action plans / Guidelines / Codes of good practices on prevention and reduction of nitrates**

- **All possible options are identified: without or with actions plans / guidelines / codes of good practices, more or less ambitious.** Some countries have drafts prepared of action plans, while other countries have been using them for years, with more than 30 years implementation experience reported on nitrates action programmes that have been regularly revised / improved. Some countries are applying actions at local level, targeting vulnerable areas, while others are applying the actions at country level. There are actions led at

country level, at regional level / state level or at river basin level (e.g., there are control factors in place according to the needs of water ecological and environmental protection), while in some other countries actions are promoted by farmer organisations / local agricultural extension agents, with the support of public incentive programmes.

5. **Legislation for promoting sustainable use of chemical and organic fertilizers**

- **Most of the countries are missing detailed legislation.** Some countries have relevant legislation in place in some critical (environmental sensitive) areas, and others appear to have only certain provisions on the sustainable use of fertilizers in national plans (approved under the law). There are also countries with clear and detailed rules on prohibition periods for fertilizers application on land, storage of livestock manure, limitation of the land application of fertilizers according to soil and climatic, conditions and foreseeable nitrogen requirements of the crops, fertilizer plans on a farm-by-farm basis and record keeping on fertilizer use, limitation of the amount of nitrogen from livestock manure applied to the land each year, specific conditions regarding sloping grounds, water-saturated, flooded, frozen or snow-covered ground, vegetation cover during (rainy) periods, etc.

6. **Action plans / Guidelines / Codes of good practices on prevention and reduction of ammonia emissions**

- **All possible options are identified: without or with actions plans / guidelines / codes of good practices, more or less ambitious.** Some countries are applying the provisions of the Gothenburg Protocol, and some others are applying voluntary best management practices promoted by agricultural extension agents, at state and county levels.

7. **Norms on wastewater discharges**

- **Most of the countries have approved norms, not only on nitrates, but extended to ammonia and total nitrogen.** There are countries with norms imposing prior authorisations for any wastewater discharge and maximum concentration levels for discharges into effluents or the sea. Some norms are regulated at country level, while in other countries this is done at municipal level. In some countries, the norms are linked with total number of (equivalent) inhabitants and with declared sensitive areas. The responses showed for only one country the initiation of actions on imposing norms.

8. **Awareness campaigns on the prevention and reduction of nitrogen waste**

- **Most of the countries (except one) have different types of awareness raising activities.** The awareness is not necessarily delivered through a national campaign, but regularly occurs through the means of agricultural extension agents / universities / farmer organisations

(with the support of public funds or implemented under different projects funded by international organisations), industry associations, or under the national plans / implemented through state centres / agencies.

9. **Training campaigns for farmers on sustainable use of fertilizers**

- **Most of the countries (except three) have different types of trainings.** The implementation method differs from one country to another. While some countries are having mandatory (legal) provisions for delivering training, including on digital tools on nitrogen balances, through public advisory services or through scientific sessions organised by the ministry for agriculture, other countries are implementing training sessions through universities, professional or scientific societies and farmer organisations/producer rings, thus more at local level. Funding is ensured through either public sources or project based, and private advisory firms also provide support.

10. **Programmes for public investments on reducing nitrogen losses**

- **Most countries are having investment programmes on sewage systems, but only more economically developed countries appear to have consistent financing programmes / projects for farmers.** Some countries are having wide national financing programmes, tackling not only nitrates pollution, but also reactive nitrogen air emissions from agricultural sources. Other countries are having financing schemes limited at fertilisers or compost, while some countries have no investment programmes. Role model farms are mentioned for knowledge transfer .

11. **Scientific/ technological advancements on reducing nitrogen losses**

- **There are various research programmes, especially in more economically developed countries, while other countries are having limited research programmes or none.** Some research programmes are more farm oriented, covering topics such technical methods for composting, commercial organic fertilizer application, biogas digestate return to the field, low emission fertilisation methods, sinking fertilizers to the bottom of the roots to stimulate nitrogen absorption, and others more linked to nitrogen cycle, such as studies on nutrient balance, ammonia emissions from agriculture, nutrient enrichment of terrestrial and aquatic ecosystems and mitigation options, etc.

12. **Actions taken at the subnational level**

- **Most of the countries have specific actions at regional / local level.** An observation was made that for air, actions tend to be at national level, while for water, most actions are taken at the subnational level (at region/state/municipal level or water basin level). In some countries, there are stricter provisions in areas with higher risk and environmental impact.

13. <u>Stakeholders (e.g., farmers, fertilizer producers and associations etc.) who work or have contributed to the preparation of legislative actions, action plans, inventories, guides and/or good practice manuals</u>

The documents preparations are in general undergoing a wide public consultation which is carried-out with farmers, industry, municipalities, NGOs, civil society, public etc. Farmers and fertiliser manufacturers are given the opportunity to comment on the draft (legal) texts.

The process is usually conducted by ministries with the support of research institutes/ scientific councils. In some countries the members of the national assembly are also involved.

14. <u>Other relevant information on action on sustainable nitrogen management</u>

- **The responses indicated a wide range of other relevant aspects and development of which a few are here presented.**
- There are actions implemented towards an integrated approach to reduce nitrogen emissions. Currently a regionally resolved emission ceiling is calculated for nitrogen from an ecological perspective. (Where and how far would we have to reduce emissions to keep e.g., critical loads in all ecosystems?). Based on this ecological emission ceiling, a political national overall emissions target for nitrogen with proposed measures to achieve this target will be set. The overall political emission target should meet ecological requirements as far as possible. The target year will probably be 2040. The current work should deliver results by 2025,
- Institutional support is given for strengthening individual farm management of nutrient cycling and efficiency,
- Payments for Ecosystems Services (PES) schemes, with focus on expected environmental impact, proved efficient as implemented by the farmers. Where applied nitrogen related indicators, such as: the quantity of mineral nitrogen used, early drainage residues, the ratio of mineral nitrogen to organic nitrogen, soil cover etc.
- Efforts are made to develop specific standards for effluents discharges to the environment,
- There is an interest to produce and use organic fertilizers, especially in countries without industry for chemical fertiliser production /imports dependent,
- The use of leguminous plants (shrub and herbaceous) is recommended in soil fertility management, as method for the reduction of the chemical fertilizers need / use.

Annex 1: Preliminary mapping of national policy provisions on prevention and reduction of nitrogen waste

No.	Relevant policy provision /scientific/ technological interventions	AP			AF & LAC					EEC & WEOG				
1	Does the country have targets on addressing nitrogen losses (e.g., on NOx, nitrates, ammonia emissions etc.)?													
2	Does the country have a monitoring system for measuring nitrates from wastewater, surface, underground and coastal water bodies, and the marine environment?													
3	Does the country have measures in place to promote sustainable use of nitrogen?													
4	Does the country have any **Action plan /** Guideline / Code of good practices (on voluntary or mandatory basis) on prevention and reduction of nitrates waste from agricultural and other land-based sources?													
5	Does the country have any legislation for promoting sustainable use of chemical and organic fertilizers? (e.g., prohibition periods, maximum limits, conditions to be stored and applied etc.)													
6	Does the country have any Guideline / Code of good practices (on voluntary or mandatory basis) on prevention and reduction of ammonia emissions from agricultural and other land-based sources?													
7	Does the country have norms on waste water discharges? (e.g., prior authorization, minimum percentage of reduction for nitrates concentrations etc.)?													
8	Does the country have any awareness campaign on the prevention and reduction of nitrogen waste? (e.g., for the efficient use of fertilizers, reducing ammonia emissions from farms, connecting households to sewage systems etc.)?													
9	Does the country have training campaigns for farmers on sustainable use of fertilizers?													
10	Does the country have programmes for public investments on reducing nitrogen losses (e.g., financially supporting farmers to invest in efficient fertilizers management facilities, machinery and equipment, governmental programs													
11	Does the country have any new scientific/ technological advancements on reducing nitrogen losses (e.g., for the efficient use of fertilizers, waste to wealth, reducing ammonia emissions from farms, reducing coastal nutrient													
12	Are there actions taken at the subnational level (e.g. states; provinces; municipal; territories)? Please identify / list these, if available.													

	yes
	no
	yes/no
	no response