



4 May 2018

Questions and answers:

Nitrates directive implementation report 2012-2015

1. What are the effects of nitrates on the environment?

Nitrates and organic nitrogen compounds from fertilizer and manure applied in agriculture enter groundwater through leaching and reach surface water through runoff.

In the water, nitrogen and other nutrients such as phosphates stimulate the growth of algae. These algae can serve as food for aquatic organisms, including fish. However, excessive nutrients concentration in water systems will cause an intense growth of algae. This reduces oxygen levels in the water and many organisms such as fish, amphibians and water insects can no longer survive. This phenomenon, known as eutrophication, has negative consequences for drinking water sources, fisheries, and recreational activities.

Some of these algae can also be very toxic. For instance, in coastal and marine ecosystems, eutrophication changes the algal species composition, reducing the species diversity and leading to the proliferation of toxic algae.

2. Are there risks for human health?

Nitrates as such in food and drinking water are not toxic for consumers. However, in the body nitrates are transformed in nitrite which can cause methaemoglobinaemia. This prevents the normal transport of oxygen by the blood to the tissues leading to blue discoloration of the skin (cyanosis). At higher concentrations the deficient oxygen supply can be lethal in particular for babies.

Maximum admissible levels in water are therefore needed to protect infants, young children and pregnant women. For this reason, the World Health Organisation has set specific recommends a maximum concentration in drinking water of 50 mg/l. This is also the maximum amount set in the Drinking Water Directive¹.

¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01998L0083-20151027>

3. How does the EU protect the environment against pollution by nitrates?

The Nitrates Directive requires Member States to monitor the quality of the waters and to identify areas that are polluted or at risk of pollution i.e. waters that due to agricultural activities are eutrophic or contain or that could contain a concentration of more than 50 mg/l of nitrates. Those areas are defined as "Nitrate Vulnerable Zones" (NVZs). Some Member States consider their whole territory as NVZ.

In these NVZs Member States have to establish Nitrate Action Programmes to reduce and prevent water pollution. These Action Programmes help ensuring that the right amount of nitrogen are applied to land at the right time and place via a number of measures, such as limiting the periods when fertilizers can be applied, requirements for storage of manure, conditions for fertilizer applications, and limits to the maximum amount of fertilizers to be used. In addition, with their Action Programmes Member States need to ensure that the amount of livestock manure applied to the land each year stays within the limits set by the Directive.

The Action Programmes need to be revised at least every four year, to be able to update them in light of technological progress and the status of fresh- and groundwater, and if necessary additional measures have to be taken.

4. Why do some Member States consider the whole territory vulnerable and others only parts?

The Directive embeds subsidiarity at its core, and leaves to the Member States the choice between designating nitrates vulnerable zones with their corresponding action programmes with mandatory measures and applying action programmes directly to their whole territory. Some Member States might choose the whole territory approach because they consider that all waters in their territory are polluted or at risk of pollution or in view of widespread agricultural pressures, but they can also opt for this solution for administrative reasons or to ensure a level playing field between farmers at national level.

5. Who is responsible for making sure that the rules are correctly implemented?

The key responsibility for ensuring effective implementation and enforcement of the measures stemming from the Nitrates Directive lies with national authorities and very often at regional and local levels. As guardian of the Treaties, the Commission can use its enforcement powers to address a situation of non-compliance that leads to water pollution without any action taken by the competent authorities. An example of non-conformity is the non-correct introduction in the national legislation of the measures to be included in action programmes described in Annex III of the Directive.

6. Why is the use of manure more restricted than the use of mineral fertilizers?

One of the cornerstones of the Directive is the principle of balanced fertilisation. According to this principle the amount of nutrients applied on land should not exceed what the crops need

and can absorb. This applies to all type of fertilizers, including both animal manure and mineral fertilizers.

In the context of the Directive, nitrogen from manure is treated more cautiously because its agronomic behaviour is different from that of nitrogen from mineral fertilizers. Nitrogen from manure is not readily available for crops as the one from mineral fertilizers. Unlike nitrogen from mineral fertilizers, the nitrogen available in manure needs to be mineralized before being taken up by the crops. The possible time gap between mineralization and the crop demand increase the risk of losses to the environment, notably into water.

7. How can further progress be achieved?

Further strengthening water monitoring in some Member States can help to improve the understanding of the extent and trends in nutrients pollution in order to establish more accurate nitrate vulnerable zones and nitrate action programmes.

Some further progress can also be achieved by combining clear environmental targets, effective advice and efficient enforcement mechanisms together with a more flexible approach at farm level. This can also contribute to increasing farmers' engagement in the implementation of the measures under the nitrates action programmes.

Improvements in the field of balanced fertilization taking into account all nutrient inputs, including those from sources other than mineral fertilizers and manure, such as digestate from a biogas installation, can further help preventing additional nutrient losses into the water. In addition, more advanced manure management and innovative manure processing technologies can allow more efficient use of its nutrients.

8. Why is the number of animals not more drastically limited?

The Nitrates Directive requires Member States to take the necessary actions if waters are polluted or at risk to be polluted by nitrogen from agricultural sources. These actions include setting a maximum amount of nitrogen from livestock manure that can be applied on land each year.

Having fewer animals can result in less manure produced and consequently in a reduction of the agricultural pressure on the environment. However, the Directive does not establish the number of animals that can be held in Member States. It is up to the Member States to decide if, as one the actions they want to take to reduce pressure on the environment, they want to set limits to the number of animals in one area or region.

9. Why do measures differ among Member States?

The Nitrates Directive incorporates subsidiarity in its functioning and provides significant flexibility to Member States for the achievement of their water quality objectives. An action programme may relate to all vulnerable zones in the territory of a Member State or, where the Member State considers it appropriate, different programmes may be established for different vulnerable zones or parts of these zones.

The Directive establishes a number of minimum requirements, but also provides the possibility of differentiated approaches based on the type and size of farm, the climate conditions, the soil type, the level or risk of water pollution. These are the reasons why specific measures in action programmes can vary across Member States, but also within Member States. This allows Member States to target action in a very efficient and effective manner.

10. Why are some Member States allowed to use more manure than others?

The Directive sets out only a specific maximum limit of nitrogen from manure to be applied on land (i.e. 170 kg/ha/year of Nitrogen from livestock manure). This limit only applies in areas identified as nitrates vulnerable zones (i.e. polluted or at risk of pollution).

The flexibility embedded in the Directive envisages that Member States may propose different amounts, when 1) certain conditions are met (e.g. long growing seasons, crops with high nitrogen uptake, high net precipitation, and soils with exceptionally high denitrification capacity) and 2) water quality is not put at risk. In these cases, the Commission, with a favourable vote of the Nitrates Committee composed by representatives of all Member States, can adopt implementing decisions (“derogations”) allowing higher maximum limits of nitrogen from manure to be applied on land, when this is scientifically justified.

However, derogations do not exempt Member States from the objectives of the Directive. Derogations do not imply higher application of *total* nitrogen, but only a higher share of livestock manure instead of mineral fertilisers, which can only be applied under specific conditions and strict controls.

11. Where does the data used in the report come from?

The data on water quality (i.e. nitrates concentrations and eutrophication) is directly submitted by Member States every four years in the context of the Directive. The information concerning agricultural pressures is mostly based on EUROSTAT data.

12. How frequent does the Commission prepare these reports?

This is the third time that 27 Member States have submitted a report under Article 10 of the Nitrates Directive, and the first time Croatia has. While the submission of the reports and the accompanying water quality data by the 28 Member States were due in June 2016, the complete set of information was only available to the Commission in early July 2017.

With the publication of this report, the Commission fulfils its obligations under Article 11.