



## Questions and answers on Nitrates Directive Implementation Report

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### **What are the effects of nitrates on the environment and human health?**

Nitrates and organic nitrogen compounds from fertilizer and manure applied in agriculture enter groundwater through leaching and reach surface water through runoff from agricultural fields. Livestock production is responsible for an estimated 81% of agricultural nitrogen input to aquatic systems and 87% of the ammonia emissions from agriculture to the atmosphere.

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 nutrient 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 and deadly for humans and animals. For instance, in coastal and marine ecosystems, eutrophication changes the algal species composition, reducing species' diversity and leading to the proliferation of toxic algae.

Nitrates put human health at risk notably by polluting drinking water. 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 recommends no more than a maximum concentration in drinking water of 50 mg/l. This is also the maximum amount set in the Drinking Water Directive.

Nitrate pollution has also significant economic impacts in terms of cleaning the water for human consumption and for the communities who depend from the polluted waters, such as fisheries and the tourism sector. The overall environmental costs of all reactive nitrogen losses in Europe are estimated at EUR 70–EUR320 billion per year, much beyond the costs of reducing pollution at source.

At a global level, nutrients are exceeding safe planetary boundaries, representing a severe threat to life on Earth as well as to the climate.

### **How does the EU protect the environment against pollution by nitrates?**

The [Nitrates Directive](#) is an important instrument to achieve the objective of the [Water Framework Directive](#) of good chemical and ecological status of all water bodies by 2027 at the latest. The Directive sets out a number of steps to be fulfilled by Member States, notably: monitoring of all water body types; identification of waters that are polluted or at risk of pollution; designation of "Nitrate Vulnerable Zones"; and establishment of codes of good agricultural practices and national action programmes.

In line with the Nitrates Directive, Member States have to monitor the quality of the waters and to identify areas that drain into polluted waters or at risk of pollution. This includes waters that are eutrophic due to agricultural activities or contain or 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 a Nitrate Vulnerable Zone.

In these NVZs Member States have to establish Nitrate Action Programmes to reduce and prevent water pollution. These Action Programmes help to ensure that the right amount of nitrogen is applied to land at the right time and place via a number of measures, such as limiting the periods when fertilizers can be applied, putting in place 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 to avoid pollution.

The National Action Programmes must be revised at least every four years, to update them in light of technological progress and the status of fresh- and groundwater. Additional measures may be

required in light of the water quality data.

### **How does the Commission follow the implementation of the Directive?**

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 with the obligations of the Directive.

Every four years, Member States send a report to the Commission including the designated Nitrates Vulnerable Zones, monitoring results of surface waters and groundwaters concerning nitrates concentrations and eutrophic status, and a summary of their Action Programmes. On the basis of this information, the Commission publishes a report every four years on the implementation of the Nitrates Directive and communicates it to the European Parliament and to the Council.

Throughout the whole time, the Commission is in regular contact with Member States, providing advice when appropriate and discussing with them the implementation of the Directive. In the Nitrates Expert Group the Commission updates national authorities about major relevant policy or scientific developments and promotes the sharing of best practices among Member States. When deemed necessary, the Commission takes legal action against the Member States if they fail to properly implement the Directive.

### **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 nutrient pollution in order to establish more accurate Nitrate Vulnerable Zones and measures in the nitrate action programmes.

Combining clear environmental rules with effective advice to farmers and manure operators and efficient enforcement mechanisms by public authorities can lead to further progress. This can also contribute to increasing farmers' engagement in the implementation of the measures under the nitrates national action programmes.

Improvements in the field of balanced fertilization taking into account all nutrient inputs, including those from sources other than mineral fertilizers and animal manure, such as digestate from biogas installations, can further help preventing additional nutrient losses into the water. Furthermore, more advanced manure management and innovative manure processing technologies can allow more efficient use of its nutrients and the export from the nutrient surplus areas to the areas where supplementary nutrients are needed.

### **For more information**

[Press release](#)

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