

## **REGULATION ON THE PROTECTION OF WATERS AGAINST POLLUTION CAUSED BY NITRATES FROM AGRICULTURAL SOURCES**

### **Objective**

**Article 1-** The objective of this regulation is to determine, reduce and prevent further water pollution caused or induced by nitrates from agricultural sources.

### **Scope**

**Article 2-** This regulation covers the related technical and administrative bases to determine, control and prevent the pollution of ground waters, surface waters and soil caused by nitrogen and nitrogen compounds.

### **Legal Basis**

**Article 3-** This regulation has been prepared on the grounds of Article 2, paragraph (b) of decree law numbered 441 on the establishment and tasks of Ministry of Agriculture and Rural Affairs; and article 20 of Fisheries Law of 1380; and article 8 of Environment Law of 2872, dated 9 August 1983; and Article 2 and 9 of decree law of 443 on the establishment and tasks of Ministry of Environment and Forest

### **Definitions**

**Article 4-** For the purpose of this regulation;

**Ground water:** means all water that is below the surface of the ground in the saturation zone and in direct contact with the ground and subsoil;

**Surface water:** means natural and artificial water areas like seas, rivers, lakes, pools, dams and lagoons on earth;

**Fresh water:** means naturally occurring water having a low concentration of salts, which is often acceptable as suitable for abstraction and treatment to produce drinking water;

**Nitrogen compound:** means any nitrogen-containing substance except for gaseous molecular nitrogen;

**Livestock:** means all animals kept for agricultural use or profit;

**Fertilizer:** means any organic or inorganic substance containing a nitrogen or nitrogen compounds utilized on land to enhance growth of plant cultivation and quality of vegetation;

**Livestock manure:** means waste products excreted by livestock or a mixture of litter and waste products excreted by livestock;

**Soil:** means live natural resource which is easily destroyable and irreplaceable substance covers surface of the land as a thin layer and occurs as a result of break down of rocks and organic waste decomposition;

**Land application:** means the addition of materials to land whether by spreading on the surface of the land, injection into the land, placing below the surface of the land or mixing with the surface layers of the land;

**Eutrophication:** means the enrichment of water by nitrogen compounds, causing an accelerated growth of algae and higher forms of plant life to produce an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned;

**Pollution:** means the discharge, directly or indirectly, of nitrogen compounds from agricultural sources into the aquatic environment, the results of which are such as to cause harm to living resources, fisheries and to aquatic ecosystems, damage to amenities or interference with other legitimate uses of water;

**Vulnerable zone:** means the natural fresh water lakes, other fresh water resources, bays, areas affecting coastal waters that are specified as eutrophic or could become eutrophic if the required measures are not taken;

**Good Agricultural Practices:** means agricultural production techniques and methods that do not cause harm to the ecological balance;

**Sampling station:** means sampling points at the receiving places whose coordinates are already specified.

#### **Pollution determination**

**Article 5-** Considering physical and environmental features of water and soil and the quantities of nitrogen compounds in water and soil, Ministry of Agriculture and Rural Affairs, Ministry of Environment and Forest, Ministry of Health and Ministry of Energy and Natural Resources shall determine following;

- a) All surface and ground waters used or could be used in the future as drinking water which contain nitrate over 50 mg/l or could contain if the measures according to the article 8 of this regulation are not taken,
- b) Whether natural fresh water lakes, other fresh water resources, bays, coastal waters and sea waters are eutrophic or not , and also whether these waters could be eutrophic if the measures cited in the article 8 of this regulation are not taken.

#### **Determination of vulnerable zones**

**Article 6-** Vulnerable zones shall be determined according to the below criteria;

- a) In two years after the publication of this regulation and in subsequent periods, all the areas which cause pollution, either by filtering or carrying, in the waters specified in the article 5 of this regulation will be determined as vulnerable zones.
- b) Vulnerable zones are reviewed at least every four years by taking unforeseeable changes and factors of previous determination into consideration. If needed vulnerable zones shall be revised or additional measures shall be taken.

#### **Good Agricultural Practices**

**Article 7-** In two years after the publication of this regulation, to ensure general protection level in all the waters against pollution, good agricultural practices fundamentals shall be developed by related institutions under the coordination of Ministry of Agriculture and Rural Affairs. The fundamentals of good agricultural practices shall include following;

- a) Periods when the land application of fertiliser is inappropriate;
- b) The land application of fertiliser to steeply sloping ground,
- c) The land application of fertiliser to water-saturated, flooded, frozen or snow covered ground,

- c) The conditions for land application of fertilizer near water courses,
- d) The capacity and construction of storage vessels for livestock manures, including measures to prevent water pollution by run-off and seepage into the ground water and surface water of liquids containing livestock manures and effluents from stored plant materials such as silage,
- e) procedures for the land application, including rate and uniformity of spreading, of both chemical fertilizer and livestock manure, that will maintain nutrient losses to water at an acceptable level,
- f) Land use management, including the use of crop rotation systems and the proportion of the land area devoted to permanent crops relative to annual tillage crops,
- g) The maintenance of a minimum quantity of vegetation cover during rainy periods that will take up the nitrogen from the soil that could otherwise cause nitrate pollution of water,
- h) The establishment of fertilizer plans on a farm-by-farm basis and the keeping of regular records on fertilizer use,
- i) The prevention of water pollution from run-off and the downward water movement beyond the reach of crop roots in irrigation systems.

Programs shall be developed in required areas to train and inform farmers and to promote the implementation of good agricultural practices.

### **The essentials of establishing action programmes:**

#### **Article 8:**

- a) Different action programmes shall be established by the Ministry of Agriculture and Rural Affairs, regarding different determined vulnerable zones in order to realize the objectives designated in Article 1 within one year, after the initial determination referred to in Article 6 (a) and after each additional determination referred to in Article 6 (b).
- b) Action programmes shall take into account available scientific and technical data, mainly with reference to respective nitrogen contributions originating from agricultural and other sources and environmental conditions in the relevant regions.
- c) In the framework of the action programmes, such additional measures shall be taken as it is considered necessary if, at the beginning or in the light of experience gained in implementing the action programmes, it becomes apparent that the measures referred to in Article 1 will not be sufficient for achieving the objectives.
- d) Action programmes shall be reviewed and if necessary revised, including additional measures, at every four years.

## **Action Programmes:**

### **Article 9:**

Action programmes shall be implemented within four years of their establishment and shall consist of the following measures:

- a) Fertilizer and periods when the land application of fertilizer shall be designated.
- b) The capacity of storage vessels for livestock manure shall be determined.  
The capacity must exceed that required for storage throughout the longest period during which land application in the vulnerable zone is prohibited, except where it can be demonstrated to the competent authority that any quantity of manure in excess of the storage capacity will be disposed of in a way that will not cause harm to the environment.
- c) The land application of fertilizers shall be limited as to consistent with the definition of good agricultural practice, soil conditions, rainfall, irrigation, land use, available agricultural practices, crop rotation systems, and to be based on a balance between the foreseeable nitrogen supply to the crops from the soil and from fertilization.
- d) The amount of nitrogen supply from soil to the crops shall be designated corresponding to:
  1. the amount of nitrogen present in the soil at the moment when the crop starts to use it,
  2. the level of the supply of nitrogen through the mineralization of the reserves of organic nitrogen in the soil,
  3. the supply of nitrogen compounds from fertilizers.

The amount of livestock manure for vulnerable zones shall be determined by the Ministry of Agriculture and Rural Affairs, with respect to region, soil, climatic conditions and specific agricultural activities to be implemented.

Nitrogen amounts per hectare may be calculated on the basis of animal numbers.

## **Monitoring Programmes:**

### **Article 10:**

The Ministry of Agriculture and Rural Affairs shall establish the monitoring programmes, which assess the effectiveness of action programmes referred to Article 9, by means of obtaining the opinions of the Ministry of Environment and Forest, the Ministry of Health and the Ministry of Energy and Natural Resources. The nitrate content of both ground waters and surface waters at selected measuring points shall, for the determination of pollution caused by nitrates from agricultural sources, be monitored by the Ministry of Agriculture and Rural Affairs, The Ministry of Health and The Ministry of Energy and Natural Resources, with the coordination of the Ministry of Agriculture and Rural Affairs.

- a) Monitoring programmes, to be established in order to designate vulnerable zones or to revise designations, shall be established as follows:

Within two years of notification of this regulation, monitoring the nitrate concentration in fresh waters over a period of one year shall be:

- 1) implemented at surface water sampling stations, used as potable waters, at least monthly and more frequently during flood periods,
  - 2) implemented 6 times a year at sampling stations which are representative of the ground water aquifers, used as potable waters,
  - 3) implemented at sampling stations which are representative of groundwater and surface water aquifers not used as potable waters at regular intervals.
- b) Monitoring programme shall be repeated at every eight years where the nitrate concentration is below 25mg/lit and no new factor likely to increase the nitrate content is appeared. Monitoring programme shall be repeated at every four years except for the cases set out above.
- c) The euprophic state of fresh waters, estuarial and coastal waters shall be revived at every four years.

### **The Reference Methods of Measurement:**

#### **Article 11:**

The reference methods of measurement used for monitoring programmes are as follow:

- a) The methods shall be determined according to analyzing methods, described in the annex of “The regulation of Chemical Fertilizer Inspection” of official journal, No:24736 of 25 April 2002 for chemical fertilizers.
- b) The requirements of “Water Pollution Control Regulation”, issued in official journal, No: 19919 of 04 September 2003, and seawaters and the provisions of Fisheries Regulation, shall be implemented.
- c) The requirements of the regulation for livestock manure, which has been put into force on 22.04.2003 of Official Journal, No: 25087, concerning the production, importation, exportation, market offer and controlling of microbial fertilizer, organic, organ mineral and soil regulators used for agriculture shall be implemented.

### **Enforcement:**

#### **Article 12:**

This regulation shall come into force on the day of its publication.

### **Execution:**

**Article 13:** The provisions of this regulation shall be executed by the Ministry of Agriculture and Rural Affairs and the Ministry of Environment and Forest.