Document title	Revision of the Part 2 of Annex III to the Helsinki Convention
Code	6-6
Category	DEC
Agenda Item	6 - Matters arising from the HELCOM Groups
Submission date	12.11.2020
Submitted by	Executive Secretary
Reference	

Background

The Contracting Parties agreed in the 2013 Ministerial Meeting to review Part 2 of Annex III of the Helsinki Convention "Prevention of Pollution from Agriculture", in order to better serve the purposes of reaching good environmental status.

The revision based on the following principles was included in the Agri group working plan:

- the suggested glossary to Annex III should be in line but not be exclusively based on the legal terms of EU legislation but suited to all Contracting Parties to the Helsinki Convention and serve the purposes of the Convention;
- the Annex III requirements should not be weakened as the result of the revision, but the aim is to modernize the text to include recent developments in scientific knowledge on good agricultural practices;
- the revision should not imply any double reporting or otherwise increase the administrative burden.

According to the timeframe agreed by HOD 54-2018, the revision of Annex III Part 2 of the Helsinki Convention is to be accomplished by the end of 2020. The following scope for the revision has been agreed:

- Glossary of terms;
- Regulation 2 item 3 "Manure storage";
- Regulation 2 item 6 "Application of organic manures";
- Regulation 2 Item 7 "Application rates for nutrients" only starting from the sentence "The amount of livestock manure applied to the land each year…";
- New paragraph on nutrient recycling based on the outcome of MM 2018.

The revised texts for Regulation 2 Item 3 and Item 6 were agreed by AGRI 7a-2019 and AGRI 7-2019 respectively.

AGRI 10-2020 endorsed the glossary of terms, developed by Denmark, with the remark that some terms might need an adjustment when all regulations are endorsed by HODs for final adoption. HOD 53-2017 expressed concern regarding the potential consequences of adding the glossary of terms to the Annex for the whole text of the Convention and suggested to decide on its place after relevant consultations.

AGRI 10-2020 also endorsed the new paragraph for nutrient recycling, developed by Finland, also with the remark that some German experts had been of the view that the text of the paragraph might be strengthened.

AGRI 10-2020 considered two alternative proposals on the revision of Regulation 2 Item 7 proposed by Poland and Sweden. The group did not reach consensus on the proposal to be endorsed for submission to HOD 59-2020. The group also assumed that if consensus were not found, the regulation would remain unchanged, although it felt that keeping the original text was not the preferable solution.

This document contains the following annexes:

- Annex 1 Revised regulation 2 Item 3 “Manure storage” (endorsed by AGRI 7a-2019);
- Annex 2 Revised regulation 2 Item 6 “Application of organic manures” (endorsed by AGRI 7-2019);
- Annex 3 New paragraph on nutrient recycling based on the outcome of MM 2018 (endorsed by AGRI 10-2020);
- Annex 4 Glossary of terms (endorsed by AGRI 10-2020).
- Annex 5 Two alternative proposals to revise Regulation 2 Item 7 “Application rates for nutrients” (not agreed).

Action requested

The Meeting is invited to:

- Approve the revised Regulations 2 Item 3;
- Approve the revised regulation 2 Item 6;
- Approve the new paragraph on nutrient recycling;
- Approve glossary of terms and decide on its inclusion in the Convention;
- Decide on the solution for the regulation 2 Item 7;
- Decide on the procedure for adoption of the revised Part 2 of Annex III to the Helsinki Convention.

Annex 1

Revised regulation 2 Item 3

Revised version agreed by AGRI 7a-2019

Construction of Livestock Manure Storage

Livestock manures must be stored in environmentally friendly way and should be handled in such a way that it promotes as high utilisation efficiency as possible. Co-operation among farmers in the use of livestock manures has to be encouraged.

Storage capacity shall be at least 6 months and sufficiently large to store livestock manures that accumulate during the longest period when land application is prohibited. Livestock manure processing, and/or transfer to other farms for immediate application or for sufficient storage when land application is prohibited, may be taken into account when required capacity is determined.

Livestock manure storage facilities should be constructed and regularly inspected to safeguard against spillages and be of such a quality that prevents losses. With regard to different types of livestock manures, the following principles should be considered:

- solid livestock manure should be stored in places with watertight floor and side walls;
- liquid livestock manure should be stored in containers whose bottoms and walls are made of material impermeable to moisture and resistant to impacts of livestock manure handling operations;
- manure storages should preferably be covered to prevent emissions.

It is possible to temporarily store solid livestock manure directly on utilised agricultural area, but it requires a set of coherent mitigation measures on site, which prevents nutrient losses under specific local conditions. The interim storage of livestock manure cannot be a part of required storage capacity of the farm.

These storage requirements should preferably be considered also for other types organic fertilizers.

Original text

Construction of manure storage

Manure storage must be of such a quality that prevents losses. The storage capacity shall be sufficiently large to ensure that manure only will be spread when the plants can utilize nutrients. The minimum level to be required should be 6 months' storage capacity.

Manure storage should be constructed to safeguard against unintentional spillages and be of such a quality that prevents losses. With regard to different types of manure, the following principles should be considered:

- solid manure should be stored in dung yards with watertight floor and side walls
- liquid manure and farm waste should be stored in containers that are made of strong material impermeable to moisture and resistant to impacts of manure handling operations.

Animal manure should be used in such a way that as high a utilisation efficiency as possible is promoted.

Co-operation between farmers in the use of manure has to be encouraged.

Annex 2

Revised regulation 2 Item 6

New draft agreed by AGRI 7-2019

Application of organic fertilisers and organic residual materials

Organic fertilisers and organic residual materials are valuable sources of nitrogen, phosphorous, potassium and organic carbon which are required for the replenishment of nutrients and humus in soil.

In addition to the amount of these nutrients, amounts of harmful substances, phyto-/ bioavailability and mineralisation rate of different organic fertilizers types should also be considered in order to ensure the optimal supply of the plants and to avoid eutrophication and contamination.

In order to facilitate high utilization efficiency, the best available application technique should be used, depending on the type of fertilizer, crop and location characteristics.

Organic fertilisers and organic residual materials should be incorporated as soon as possible after spreading and always in case of application on bare soils.

The nutrients should be available to the plants during the growing season taking into account the turnover rate of different fertilizers. If soils are frozen, water saturated, flooded or covered with snow no application of organic fertilisers and organic residual materials is permitted. Further periods with high risk of leaching shall be defined when no application is accepted.

Original text

Application of organic manures

Organic manures (slurry, solid manure, urine, sewage sludge, composts, etc) should be used in such a way that a high utilisation efficiency can be achieved. Organic manures shall be spread in a way that minimises the risk of loss of plant nutrients and should not be spread on soils that are frozen, water saturated or covered with snow. Organic manures should be incorporated as soon as possible after application on bare soils. Periods shall be defined when no application is accepted.

Annex 3

New paragraph on nutrient recycling agreed by AGRI 10-2020

In order to reduce nutrient loss to the Baltic Sea and to achieve nutrient saving, efficient use of nutrient resources in agriculture and recovery of nutrients from various flows in society back to agriculture, countries are encouraged to design and implement nutrient recycling strategies, which should include:

- providing current sub-national levelinformation about production of organic residual materials, especially livestock manure and sewage sludge;
- providing current sub-national levelinformation of the nutrient status of fields, and national soil maps particularly in regard to phosphorus;
- enabling the development of markets for recycled organic fertilizers with the aim of promoting sub- and/or transnational level reallocation of nutrients, including replacement of mineral fertilizers;
- developing actions for improved recycled fertilizer production, including information of product safety, usability, production technologies and logistical solutions;
- encouraging close cooperation between livestock and crop producers to use nutrients efficiently and to secure soil fertility;

Annex 4

Glossary of terms endorsed by AGRI 10-2020

Term	descriptions within the context of the revised parts of the Annex	Occurrence in HELCOM Annex III, part 2, item #
Environmentally friendly way	ways (of doing something) that ensure minimal or least negative effects on adjacent waters, soils, atmospheric environments and habitats	3
Nutrient	Chemical element necessary for plant growth and/or plant metabolism In its absence, the plant is unable to complete a normal life cycle or the element is part of some essential plant constituent or metabolite. There are numerous nutrients for plants, of which carbon, hydrogen, oxygen (CHO) and nitrogen, phosphorus and potassium (NPK) are considered the main components and primary macronutrients, respectively.	3, 6, 7, new paragraph on nutrient recycling
Nutrient surplus	The positive saldo of a nutrient balance equates to the difference between nutrient inputs and nutrient outputs in relation to the utilized agricultural area (UAA). Input can contain N/P of crop residues, seed bound N/P, atmospheric N, N binding from legumes as well as mineral and organic fertilizers etc., while output consists of harvested crops/grass.	7
Nutrient loss	(unintentional) (co-)transport of nutrients beyond the reach of plants in a production system by/in water, air or particles to the atmos- or hydrosphere	7 & new paragraph on nutrient recycling
Nutrient status (of fields)	Amount of plant available nutrients in the soil (within a field), taking readily plant available and potentially plant available nutrient pools into consideration Nutrient status can differ considerably for the various nutrients at a time (within one field/soil) and should hence be determined for the individual nutrients.	7 & new paragraph on nutrient recycling
Fertilizer	Any matter or product containing one or more nutrients to enhance the growth of vegetation	3, 6 & new paragraph on nutrient recycling
Organic fertilizer	Any fertilizer product containing organic matter and nutrients, may be based on livestock manure, sewage sludge or other organic residual materials Examples for organic fertilizer are compost or digestate.	3, 6
Mineral fertilizer	Any fertilizer product free of organic matter, but containing nutrients, also sometimes	new paragraph on nutrient recycling

	referred to as “chemical fertilizer” or “inorganic fertilizer” [May also be produced by processing organic fertilizers, resulting in inorganic products such as ammonia sulphate or struvite]	
Livestock	Domesticated animals raised in an agricultural setting to produce labour and commodities, e.g. meat, eggs, milk, fur, leather and wool	3, 7 & new paragraph on nutrient recycling
Livestock manure	Any liquid or solid organic material from livestock production, including excreta (faeces and urine), bedding material etc.	3, 6, 7 & new paragraph on nutrient recycling
Solid livestock manure	Any manure from housed livestock that has a high dry matter content (typically above 12%), does not flow under gravity, cannot be pumped and hence can be stacked in a heap It may contain bedding material and/or fodder residues.	3
Liquid livestock manure/Slurry	Any manure from housed livestock that flows under gravity or can be pumped It may contain some bedding material or cleaning water from the housing unit or the milking system. Dry matter content is low (typically below 12%).	3, 6
Organic residual materials	Any organic material that supplies organic matter together with nutrients to soils, including livestock manure, sewage sludge, organic waste, industrial sludge, crop residues	6 (& (potentially) new paragraph on nutrient recycling)
Sewage sludge	Residual sludge from urban waste water treatment plants	new paragraph on nutrient recycling
Urban waste water	Mixture of domestic waste water, industrial waste water and/or run-off rain water	Nowhere, but used in other description
Total nitrogen in livestock manure	The sum of both the organic and inorganic nitrogen in readily plant available pools and in the organic matter, which will mineralize with time Total nitrogen in livestock manure is determined by methods including complete decomposition, e.g. of organic matter by the Kjeldahl total nitrogen method or by total combustion (Dumas method).	7
Phosphorus in livestock manure	The sum of both the organic and inorganic phosphorus in readily plant available pools and in the organic matter, which will mineralize with time Total phosphorus in livestock manures is determined by methods including complete decomposition.	7
Dry matter content	The dry fraction of the organic residual material remaining after evaporation of water until constant mass	Nowhere, but used in other descriptions

Utilisation efficiency	In the case of nitrogen, the percentage of total nitrogen content in an organic fertilizer or an organic residual material that is and will become utilized by plants Reflects that the total nitrogen content in organic fertilizers and organic residual materials is not immediately accessible to plant consumption Utilization efficiency is considered to be "high" if the (utilization) percentage considerably exceeds the ammoniacal/mineral nitrogen share of the total nitrogen content.	6
Phytoavailability	= "Plant availability": (degree of) a plants' possibility to uptake a compound, e.g. nutrient, (harmful) substance, etc., via sub- or above-surface parts of a plant	6
Bioavailability	(degree of) an organisms' possibility to uptake a compound, e.g. nutrient, (harmful) substance, etc.	6
Harmful substance	Any substance that can disturb, reduce, deteriorate or destroy the metabolism of one or more organisms or the equilibrium of an ecosystem	6
Storage capacity	Storage capacity is the total volume of storage for liquid and solid manure living up to the criteria for environmentally favourable storing. Sufficient capacity includes the volume of waters from sources such as facility cleaning etc., and (depending on whether the storage container is sheltered from rain or not) the maximal volume of rainwater entering the storage.	3
Best available application technique	The application technique, which – at the current state of technology development – results in the lowest (nutrient) loss and emissions, respectively	6
Application/Spreading	Addition of fertilizer to land, including spreading on the soil, injection into the soil or mixing with the surface soil layers	3, 6, 7 & new paragraph on nutrient recycling
(coherent) mitigation measures	(a suited set of) measures, which limit, stop or reverse the magnitude and/or rate of environmental contamination	3
Emission(s)	Loss of substances to the air/atmosphere, for example of gaseous nutrient-containing compounds such as ammonia or greenhouse gases (e.g. methane)	3
Mineralisation	Mineralisation [in soil science] is the decomposition of organic matter in soil by microorganisms to simple inorganic substances and minerals, which may be available to plants.	6

	Its rate depends on the material to be mineralised, and the living conditions for the microorganisms such as temperature, oxygen availability, soil moisture etc.	
Leaching	The loss of plant nutrients by gravimetric water transport from the soil's root zone, due to rain, snowmelt and/or irrigation, resulting in a downward water movement	6
Soil characteristics	Entity of soil properties, such as texture, structure, porosity, pH, nutrient stocks, sorption and desorption, soil organic matter content, bulk density, etc. , which determine the processes in soil and soil functions with regard to supporting plant growth, filtering water, suitability as habitat, etc.	7
Bare soil	Soil without any plant cover	6
Humus	All dead organic material in soil originating from the decay of plants and animals, being natural or anthropogenically added Humus is mainly amorphous, causes greyish to black colours, and is relatively stable to decomposition by microorganisms. Humus can be persistent for many years. Standard measuring is the determination of organic carbon (Corg; Corg content [% by weight] x 1.72 = Humus content [% by weight]; in some cases the factor 2.0 is used). Humus normally decreases bulk density of soil and increases retention of water and nutrients, so it is valuable for plant growth and soil fertility.	6
Growing season	The period of the year where conditions allow for plant growth The (climate-dependent) growing season does not necessarily coincide with periods of plant nutrient uptake during a crop's growing cycle (crop-dependent).	6

Annex 5

Two alternative proposals to revise Regulation 2 Item 7

Alternative 1 proposed by Poland (not agreed)

Application rates for nutrients

[…] The amount of nutrients in livestock manure applied to agricultural land each year, including excreta from grazing livestock, should as a general rule not exceed an amount containing:

- 170 kg total nitrogen per hectare
- 25 kg phosphorus per hectare

Subject to the precondition of preventing nutrient losses to sensitive environment and avoiding nutrient surplus by taking soil characteristics, soil nutrient status, multi-year accounting method of P limit, agricultural practices, climatic conditions, and crop types into account, more specific, national or regional rules may deviate from these general application rates.

Alternative 2 proposed by Sweden (not agreed)

Application rates for nutrients

[…] The amount of nutrients in livestock manure applied to agricultural land each year, including excreta from grazing livestock, should as a general rule not exceed an amount containing:

- 170 kg total nitrogen per hectare
- 25 kg phosphorus per hectare.

Subject to the precondition of preventing nutrient losses to sensitive environment and avoiding nutrient surplus by taking soil characteristics, soil nutrient status, agricultural practices, climatic conditions, and crop types into account, more specific, national or regional rules may deviate from these general application rates.

Original text

Application rates for nutrients

[…] The amount of livestock manure applied to the land each year including by the animals themselves should not exceed the amount of manure containing:

- 170 kg/ha nitrogen
- 25 kg/ha phosphorus

with a view to avoiding nutrient surplus, taking soil characteristics, agricultural practices and crop types into account.