

***Report on implementation of HELCOM Recommendations
within the competence of HELCOM LAND adopted since
HELCOM BSAP (2007)***

This document was a background document for the
2013 HELCOM Ministerial Meeting



REPORT ON IMPLEMENTATION OF HELCOM RECOMMENDATIONS WITHIN THE COMPETENCE OF HELCOM LAND ADOPTED SINCE HELCOM BSAP (2007)

The following summary reflects the status of implementation drawn on the basis of information submitted by the Contracting Parties on implementation of HELCOM Recommendations within competence of HELCOM LAND since adoption of the HELCOM BSAP (2007) – see more detailed information in

HELCOM RECOMMENDATION 28E/4 (adopted 15.11.2007)

Amendments to Annex III "Criteria and Measures Concerning the Prevention of Pollution from Land-Based Sources" of the 1992 Helsinki Convention

Deadline for implementation: establishes amendments to 1992 Helsinki Convention

Actions to reduce the nutrient load from waterborne and airborne inputs to reach GES not later than 2016

All countries responded, out of which

- Part II Annex III is ratified in 4 countries, ratification still ongoing in 4 countries
- Application rate for N is implemented in 7 countries and for P in 4 countries, implementation is ongoing for N in 2 and for P in 3 countries
- 6 months minimum storage capacity for manure is implemented in 8 reporting countries, in one country – only within Nitrate Vulnerable Zones; wastewater management for manure storages and prevention of emissions are still under implementation in 2 and 1 countries respectively
- integrated permit system for larger agri-installations and general rules or simplified permit system (for smaller entities) are in place for 7 countries, one country follows only EU regulations that do not require integrated permit for large cattle farms and in 1 country application is still ongoing; general rules or simplified permit system are not yet implemented for smaller farms in 2 countries
- Monitoring and evaluation systems including risk assessment tools are in place for 7 countries and are under development in 2 countries
- Education and training (advisory services) are in place in 8 countries, and in one implementation is ongoing

HELCOM RECOMMENDATION 28E/5 (adopted 15.11.2007)

Municipal wastewater treatment

Deadline for implementation: depending on the size of agglomeration and indicated below;

Actions to reduce the nutrient load from waterborne and airborne inputs to reach GES not later than 2016

8 countries responded, out of which

- combined or separated sewerage systems are developed in 6 countries and under development in 2 countries
- limit values for hazardous substances are established are set for 5 countries and 3 countries submitted no information on this issue
- HELCOM discharge requirements are met
 - for MWWTPs >200,001 p.e. (DL 31.12.10) in 5 countries, with implementation ongoing in 1 country and no information submitted for 2 countries
 - for MWWTPs 100,001-200,000 p.e. (DL 31.2.12) in 3 countries, with work ongoing in 3 countries and no information for 2 other countries
 - for MWWTPs 10,001-100,000 p.e. (DL 31.12.15) in one country, with work ongoing in 4 countries, not implemented in 1 country and no information for 2 other countries

- for MWWTPs 2,001-10,000 p.e. (DL 31.12.18) in 3 countries, with work ongoing in 2 countries, not implemented in 1 country and no information for 2 other countries
- for MWWTPs 300-2,000 p.e (DL 31.12.18) in 3 countries, with work ongoing in 2 countries, not implemented in 1 country and no information for 2 other countries
- one country reported implementation according to alternative 6 (minimum percentage of reduction of the overall load entering all urban wastewater treatment plants in the catchment area is at least 90% for total phosphorus when discharging directly or indirectly to the marine areas and 75% for total nitrogen for plants discharging directly or indirectly)

HELCOM RECOMMENDATION 28E/6 (adopted 15.11.2007)

On-site wastewater treatment of single family homes, small businesses and settlements up to 300 Person Equivalents (P.E.)

Deadline for implementation: A transitional period of 10 years for the households (with water flush toilets and 14 years without water flush toilets) to implement the Recommendation from the date of adoption is applied

Actions to reduce the nutrient load from waterborne and airborne inputs to reach GES not later than 2016

8 countries responded, out of which

- national legislation are established in 6 countries, under development in 1 country and not available in 1 country
- maximum permissible daily load per capita is set in 2 countries, with ongoing process in 2 countries and not implemented in 1 country
- on-site wastewater treatment plant requirements are under implementation in 2 countries, with on-site wastewater treatment plant using BAT applied in 4 countries and under implementation in 1 country
- sludge handling requirements are set in 4 countries, with considerations ongoing in 3 countries and not established in 1 country

HELCOM RECOMMENDATION 28E/7 (adopted 15.11.2007)

Measures aimed at the substitution of polyphosphates (phosphorus) in detergents

Deadline for implementation: as soon as possible but not later than by 2015 and to encourage voluntary use of P-free dishwasher detergents (2010 Moscow Ministerial)

Actions to reduce the nutrient load from waterborne and airborne inputs to reach GES not later than 2016

All countries responded, out of which

- substitution of polyphosphates (phosphorus) in laundry detergents is applied in 6 countries and is ongoing in 3 countries
- substitution of polyphosphates (phosphorus) in dishwasher detergents is applied in 4 countries, is ongoing in 3 countries and no information provided for 2 countries (pending acceptance of the EU ban on P-containing dishwasher detergents)

HELCOM RECOMMENDATION 28E/8 (adopted 15.11.2007)

Environmentally friendly practices for the reduction and prevention of emissions of dioxins and other hazardous substances from small-scale combustion

Deadline for implementation: with the adoption

Specific deadline 2008 set for developing specific efficiency requirements and emission limit values for small scale combustion appliances

5 countries responded, out of which

- low-emission combustion appliances are introduced in 2 countries, efficiency requirements and emission limit values for small scale combustion appliances set in 2 countries and enhanced public awareness implemented in 3 countries, implementation is ongoing in 1 country and not applied in 2 countries

HELCOM RECOMMENDATION 29/1 (adopted 05.03.2008)

Reduction of Emissions from Crematoria

Deadline for implementation: provisions of the recommendation applies immediately for installations established after 1 January 2010 and to existing installations within the scope of the recommendation from 1 January 2015. If existing installations are significantly changed, the recommendation applies to these immediately.

8 countries responded, out of which

- BAT is applied for pollution abatement in 4 countries and not applied in 4 countries
- Operation of the crematoria is according standard in 4 countries, implementation is ongoing in 2 countries and not implemented in 1 country
- Requirements for the reduction of emissions to the air and discharges to water are set in 2 countries, setting is ongoing in 1 country and not implemented in 4 countries
- Measurement and analyzing methods are applied in 4 countries, implementation is ongoing in 1 country and not implemented in 2 countries

HELCOM RECOMMENDATION 31E/1 (adopted 20.05.2010)

Implementing HELCOM's objective for hazardous substances

Deadline for implementation: immediately after adoption

7 countries responded, out of which

- National legislation is in general comparable with HELCOM Strategy, including the List of substances in 2 country, is under development accordingly in 4 countries and not in compliance in 1 country
- Guiding principles of Recommendation are applied in national legislation in 3 countries, implementation is ongoing in 4 countries
- Criteria for selection, priority setting and assessment of substances are set accordingly in 2 countries, setting is ongoing in 4 countries and not implemented in 1 country
- Criteria for the selection and implementation of measures are applied accordingly in 3 countries, implementation is ongoing in 4 countries

HELCOM RECOMMENDATION 31E/2 (adopted 20.05.2010)

Batteries and accumulators and waste batteries and accumulators containing mercury, cadmium or lead

Deadline for implementation: adopt measures for achieving high collection rates at least 25% in 2012 and 45% in 2016

All countries responded, out of which

- Placing on market of batteries with excessive Hg and Cd content is banned as well as labeling and collection regulation is implemented in 8 countries and not implemented in 1 country
- Recycling efficiencies is in accordance with recommendation in 6 countries, under implementation in 2 countries and not met in 1 country
- landfilling and incineration is banned and collection rates are met in 8 countries and not implemented in 1 country

HELCOM RECOMMENDATION 31E/3 (adopted 20.05.2010)

Cadmium in fertilizers

Deadline for implementation: Recommendation should be reviewed by the Ministerial Meeting in 2013

All countries responded, out of which

- limit value for Cd content in phosphate fertilizer is set in 7 countries, is under establishment in 1 country and in 1 country limit value is set for fertilizer application based EQS for Cd in soil

HELCOM RECOMMENDATION 31E/4 (adopted 20.05.2010)

Proper handling of waste/landfilling

Deadline for implementation: take measures by 1 January 2011 that amount of waste to be landfilled is minimized, national legislation is upgraded and enforced, proper landfilling is implemented, environmental risk of already closed landfills is assessed and pollution prevention measures implemented, only waste that has been subject to treatment is landfilled; criteria and procedures for acceptance of waste at landfills will be applied in the Contracting Parties as soon as possible, but not later than January 1st, 2013

All countries responded, out of which

- Existing landfills are closed (if incompliant) or brought in line with requirements in 8 countries and under implementation in 1 country
- Good landfilling practices are applied in 7 countries and under implementation in 2 countries
- Criteria and procedures for acceptance of waste at landfills are applied in 6 countries and under implementation in 3 countries.

Attachment 1

HELCOM RECOMMENDATION 28E/4 (adopted 15.11.2007) Amendments to Annex III "Criteria and Measures Concerning the Prevention of Pollution from Land-Based Sources" of the 1992 Helsinki Convention										
Country	Implementation (tick the box ☺ - if implemented, ☹ - if ongoing, ☹ - if not implemented; supplementary detailed information can be provided on separate sheets)									
	Ratification	Application rate for nutrients		Manure storage			Permit system		Monitoring and evaluation system (risk assessment tools and cost-effectiveness analysis applied)	Education and training (advisory service)
		N (170 kg/ha)	P (25 kg/ha)	Waste handling (minimum storage capacity, 6 months)	Wastewater management	Prevention of emissions	Integrated (BAT) 40,000 poultry 2,000 production pigs 750 sows >400 AU cattle	General rules or simplified permits >100 AU		
	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹
DENMARK	n.i.	☺	see additional info	☺	☺	☺	☺	☺	☺	☺
ESTONIA	☹	☺	☺	☺	☹	☺	☺	☹	☺	☹
FINLAND	☺	☹	☹	☺	☺	☺	☺	☺	☹	☺
GERMANY	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
LATVIA	☺	☺	☹	☺	☺	☺	☹	☺	☺	☺
LITHUANIA	☹	☺	☹	☺	☺	☺	☺	☺	☺	☺
POLAND	☹	☺	☺	☹☺	☺	☺	☹☺	n.i.	☺	☺
RUSSIA	☹	☹ ¹	☹	☺	☹	☹	☺	☹	☹ ²	☺
SWEDEN	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺

DENMARK:

1. Application rate for nutrients

The yearly amount of nitrogen that is permitted at farm basis is calculated taking into account the characteristics of the area and is based on a balance between the foreseeable nitrogen requirement of the crops and the nitrogen supply to the crops from the soil and from fertilization.

The optimal relationship between the nitrogen requirements of the crops and nitrogen supply is set every year on basis of trials. This is done for four different soil types and for irrigated sandy soil. In addition, the relationship between prices for nitrogen and crops is taken into account, and the optimal fertilization is calculated. To reduce the risk of leaching the nitrogen standards is initially calculated as 10 % below the level of optimal fertilization. Further it is ensured, that the total potential amount of nitrogen that is applied by using the nitrogen standards, is not exceeding the total amount in 2003/04. This raises the reduction of the nitrogen standards with app. 5 % extra to a level of 15 % below the optimum in average.

Livestock manure

The content of nitrogen in livestock manure must be calculated using stipulated standards. Standards are set for different types of livestock, with respect to the housing system. An increased utilisation of fodder compared to the standard utilisation can lead to a decrease in the contents of nitrogen in the manure compared to standards. In these cases it is possible to correct the standard figures by using standard correction formulas.

Type of manure	Efficiency
Pig slurry	75%
Cattle slurry	70%
Mink and poultry slurry	70%
Liquid manure	65%
Deep litter	45%
Solid manure	65%

Since 2006, the submission of fertilizer accounts has been integrated with the farmers' yearly submission to the Central Husbandry Register (CHR). CHR is the central database used for registration of farm holdings and animals. The integration with the CHR has led to a very dependable registration of livestock units and the use of manure in the fertilizer accounts. Since cattle farms are registered in detail in the CHR, the information about number of cattle and the corresponding weight, age and milk yield is pre-printed in the fertilizer accounts.

A large percentage of the nitrogen contents of applied livestock manure must be included in the overall use of nitrogen on the farm. Thus, the farmer's possibility to use chemical fertilizer is restricted. As some of the nitrogen, contained in the manure applied to the fields, is not released during the first year following the application, some of this will be made available for plant utilisation during the following years.

This residual effect of manure from previous years is included. It is also a part of the calculation of the overall use of nitrogen on the farm holding and it is included in the efficiency rate of the manure.

The quantities of livestock manure applied to land must be calculated on the basis of the quantities of produced livestock manure at the farm holding adjusted for changes in the manure stored at the beginning and end of the relevant planning period (1 August to 31 July) and the supplied and received quantities during the planning period. The farm holding may deduct nitrogen in livestock manure, if the livestock manure is transferred to a registered farm holding¹, to a biogas plant or collective plant or to a processing plant. In addition, farm holdings which have their own biogas or processing plant, and which transfer the produced fertilizer outside the farm holding, may deduct the nitrogen from the farm holdings total nitrogen consumption. The transfer must be documented by a manure contract signed by the receiver.

The nutrients in livestock manure, silage effluent, and wastewater can only be applied to areas grown with crops having a nitrogen standard or an indicative standard for phosphorous or potassium. Furthermore, livestock manure can only be applied in areas where livestock manure may and can be applied with machinery. A calculation of areas available for application of livestock manure must be made for each planning period.

If fertilizers are applied on areas owned by another farmer the tenancy must be documented by an agricultural tenancy agreement. The agreement must include information on the size of the area; the names, addresses, and VAT nos. of the parties to the agreement; the start date, end date, or term of notice of the period of the agreement of validity; and the date on which the agreement was entered into.

The farm holding owner must be able to document compliance with the harmony rules (livestock density requirements). One unit approximately equals 100 kg nitrogen. Farm holdings

¹ Register of Fertilizer Accounts

must spread a livestock manure quantity equivalent to no more than 1.4 LUs per hectare per planning period (1 August – 31 July). Farm holdings with cattle, sheep or goats must spread a quantity of livestock manure from the livestock on that farm holding equivalent to no more than 1.7 LUs per hectare per planning period. Farm holdings on which 2/3 of the livestock herd are cattle must spread a quantity of livestock manure equivalent to no more than 2.3 LUs per hectare per planning period, if certain conditions are followed. In the fertilizer account the amount of manure and L.U. produced for the period is calculated. Corrections for storage fluctuations shall be calculated on the basis of 100 kg N per livestock unit.

Chemical and other types of fertilizers

The use of chemical fertilizers and other fertilizers (e.g. sewage sludge) must be accounted for in the fertilizer account. Companies delivering fertilizers to farms in the register must report yearly to the Danish AgriFish Agency about the deliveries (information about farm (VAT nos), quantity and N-content) and this information is printed in the fertilizer accounts in advance.

The total use of livestock manure, chemical fertilizers and other fertilizers must not exceed the standard nitrogen quota on farm level. Any surplus application of nitrogen fertilizers compared to the quota is regarded as a violation of the rules.

Register of Fertilizer Accounts

Farms registered in the Register of Fertilizer Accounts are obliged to submit a fertilizer account every year. Farms having livestock is obliged to register, and other farmers can register to avoid a tax on 5 dkr on nitrogen in chemical fertilizers. Farms with livestock can only subtract livestock manure from the total use of fertilizers, when the manure is delivered to a farmer in the register. In this way the authorities can follow the “flows” of manure.

Every year the Danish AgriFish Agency publishes guidelines to the farmers on the internet, which includes the standard permissible use of nitrogen for all individual crops, the standard nitrogen contents in livestock manure from different types of livestock and the required minimum utilisation rate. On the basis of this information, the maximum permissible amount of nitrogen that can be used on the farm holding is calculated - also termed the farm nitrogen quota – and the quantity of nitrogen in manure and slurry that has to be utilised (compulsory efficiency rates). The farm nitrogen quota and the content of nitrogen in livestock manure shall be calculated in accordance with stipulated standards.

By the 31st of March, after the growth season has passed, an annual fertilization account containing key-figures on the use of nitrogen and the farm nitrogen quota is prepared by the farmer and submitted to the Danish AgriFish Agency for registration and control. The fertilization status account covers a year, which is defined as the period from 1 August to the next 31 July.

Summing up the fertilization account shall include:

- total area and harmony area
- the farm holding nitrogen quota;
- use of nitrogen fertilizer expressed in livestock manure, mineral fertilizers as well as other organic fertilizers;
- the compulsory utilisation on nitrogen content in livestock manure and other organic fertilizers;
- storage of livestock manure, mineral fertilizer and other organic fertilizers from one year to the next;
- information on livestock manure contracts;
- information on livestock density
- area with catch crops
- information about using the derogation.

2. Manure storage

Animal housing and similar enclosures for animals shall be designed in such a way that ground water and surface water is not polluted. They shall have floors made of a material, which resists humidity. The floors shall be constructed to resist the effect of animals and the tools used at the premises. A system shall be established for appropriate drainage and collection of

all liquid wastes.

Drain from animal housing, manure yards and silage stocks, and from cesspools and pumps wells shall be placed in impermeable closed pipes. Drain and connected wells shall be installed by authorised sewer contractors in accordance with prescriptions for drains laid down in the building regulations. Drains which will be subjected to pump pressure shall be constructed to resist such pump-pressure impacts. Drains from animal housing and the like shall lead to containers for liquid animal manure.

In 2008 precautions in handling slurry was tightened to avoid discharge of slurry, among others a timer must be installed at the slurry pump to stop it from possible overload.

Wastewater from washing of products used in connection with the livestock production, milking machines, fodder utensils etc., may be led to a container for liquid livestock manure or to a separate container.

For properties with livestock production or storage of livestock manure, the *capacity of manure storage* facilities must be sufficient to ensure that land application may take place in accordance with the provisions on application of livestock manure and silage effluent, and that utilization of the nutrient content fulfils the requirements laid down in the Act on Farms' use of manure and on plant cover. However, the storage capacity must correspond to no less than six months' supply. Sufficient storage capacity will normally correspond to at least nine months' supply; this figure is, however, normally at least seven months' supply for cattle farms in which at least 2/3 of the livestock units are cattle and where the animals are outdoors in the summer grazing season.

Supply is calculated as the manure quantity produced in question on the basis of animals in stable, together with quantities otherwise supplied to the facility, for instance washing water and silage effluent. When carrying out calculation manure stored in accordance in the field under specific conditions, as described below, may be deducted. Where special conditions prevail, for instance beef cattle grazing outdoor most of the year, the storage capacity must as a minimum correspond to the period where the cattle is stalled.

The capacity of facilities used solely for storage of silage effluent and wastewater must be sufficient to secure environmentally sound land application.

The storage capacity requirement can be fulfilled by means of written agreements on supply of livestock manure for storage at another property, or delivery to common biogas plants, manure treatment facilities or storage facilities (manure contracts). Such agreements must be valid for at least five years. The municipal council may lay down detailed rules on the wording of agreements.

Solid manure must be stored in manure yards designed in accordance with the description below, or in closed containers placed in paved areas which are impermeable to water as specified below, and with drain to manure effluent taken or the like.

Manure yards shall be designed so that surface water from surrounding areas and roofs cannot run into the manure yard area. Manure effluent shall be drained off through outlet pipes designed for that purpose. Drains from manure yards and silage stocks shall be arranged so that liquid may drain off from the lowest point(s), that clogging is avoided, and that the discharge capacity per hour corresponds at least to 100 mm rain. The drain shall lead to a container that meets the requirements.

The sidewall of the manure yard shall as a minimum consist of a 1 m high wall or a border layer at least 2 m broad. The manure yard floor and bordering layer and the surface cover at the entrance to the manure yard shall be inclined at least 3 per cent towards the outlet. The municipal council can permit other forms of bordering resulting in a similar safe collection of manure effluent. Manure yard floors and sidewalls shall be made of material, which resists humidity and be constructed so that they can resist the effects both of vehicles and tools used for filling and emptying, and of the manure stored in the manure yard.

Compost with a dry matter content of 30% or more can, however, be stored in the field, provided the compost stored are covered by compost canvas or an air-tight material. The stocks shall comply with the distance requirements for location of animal housing, manure yards etc., and may not present risks of pollution of groundwater or surface water.

For farm holdings located in villages, the local council may in special cases permit storage of solid manure in field stacks, provided that proof is given that manure cannot be stored near the animal housing facilities in an environmentally sound manner. A permit shall be accompanied with conditional terms for location, design and operation of the field stack ensuring that risks of pollution of groundwater and preventing discharge into watercourses (including drains), lakes, and the sea. Field stacks shall comply with the distance requirements.

Silage which release liquid, including silage of beet leaves, beet waste and untended grass, shall be stored in silage sites or silage tanks. Silage sites must comply with requirements corresponding to the provisions applying to manure yards with border layer. The requirements also apply for silage sites for storage of silage, which does not release liquid. The floor of silage tanks shall be made of a material, which resists humidity. They must furthermore be constructed of durable materials and be able to resist the impacts of the tank content and of filling and emptying. They must be designed so that silage effluent can only drain off through outlets designed for this purpose.

Containers for liquid manure, silage effluent and wastewater shall be made of durable materials and be able to resist humidity. The containers shall be dimensioned in accordance with the contents load and be able to resist the impact of possible forces affecting walls and floor, including effects of stirring, covering, and emptying.

Where the municipal council detects a likely risk of a container cracking, bursting or similar, the local council shall order that remedial action be taken or possibly ban operation of the facility. And where one of the containers specified above is located in a manner which means that disruptions of operation or accidents can entail serious damage to water abstraction plants watercourses, and lakes, the municipal council may order that special measures be taken.

3. Permit system

Environmental Approval Act for Livestock Holdings

In 2007 a new Environmental Approval Act for Livestock Holdings was put into force, an approval system that is covering all livestock holding for more than 75 LU. It gave a National minimum requirement for environmental protection (odour, ammonia, nitrates, phosphorus, landscape, etc). With this system a level of allowable nitrate leaching was made to all the country's vulnerable watercourses depending on the denitrification capacity. In those Nitrate vulnerable areas with low denitrification capacity the demands for the Livestock holdings when applying for approval can be tighten more than the general harmony rules. Meaning that the farmer at some areas only is allowed to apply e.g. 0.7 LU/ha. On the Phosphorus side a map was made showing vulnerable zones divided into several categories. E.g. a very vulnerable area has demand on a maximum increase of phosphorous surplus and in another

Reduced number of LU/ha when in Nitrate vulnerable areas with low denitrification capacity			
Denitrification capacity, pct.	Very vulnerable recipient	Vulnerable recipient	Robuste recipient
0 – 50	50 %	85 %	Harmony rules
51 – 75	65 %	Harmony rules	Harmony rules
76 – 100	Harmony rules	Harmony rules	Harmony rules

category an increase in the phosphorus surplus is not allowed. Small agricultural units from 15-75 Livestock Units need a permission, and holdings with more then 75 LU needs an approval. In those Nitrate vulnerable areas with low denitrification capacity the demands for the Livestock holdings when applying for approval can be tighten more than the general harmony rules. Meaning that the farmer at some areas only is allowed to apply e.g. 0.7 LU/ha.

4. Monitoring and evaluation

Monitoring programmes must be implemented to assess the effectiveness of action programmes. As Denmark has applied Article 5 in the ND throughout the whole national territory, the nitrate content of waters (surface waters and groundwater) shall be monitored at selected measuring points which make it possible to determine the extent of nitrate pollution in the waters from agricultural sources.

References on monitoring are “Danish Centre for Environment and Energy (DCE), Aarhus University” and “the Geological Survey of Denmark and Greenland (GEUS), Ministry of Climate, Energy and Building”.

The nitrate action programme is reviewed and revised every four year on results, adequacy of tools and economic aspects.

5. Education and training

In Denmark the farmers' training is a 3½ years long education with a mix of practical training and schooling. The education is split up in 2 modules where the student must attend the school in periods and in between get practical training at different farms.

The first module introduces the student to livestock production, plant production, and nature-preservation, and as well the machinery at a farm. After the practical training the education also includes subjects on animal welfare, the agricultural impact on water and environment and production economy. During the training the student also can acquire a pesticide spraying certificate, which is a regulatory requirement.

ESTONIA:

1. Application rate for plant nutrients

In Estonia NVZ consists two regions Pandivere (2382 km²) and Põltsamaa (667 km²). NVZ area forms 7,7 % from the total Estonian territory (42 394 km²). Main legal act setting the requirements for handling of plant nutrients is Water Act with subsidiary legislation. Although the Nitrate directive sets the maximum limit of manure nitrogen 170 kg/ha only for designated vulnerable areas, this limit is valid for all over Estonia. In the NVZ it is allowed to use totally 170 kg/ha nitrogen (manure + mineral). Also for the whole territory is valid the recommendation to follow the rules of Good Agricultural Practice. The Water Act also establishes closed periods for the spreading of fertilizers as well as limitations of the use on the slopes.

2. Manure storage

A general requirement for the manure storage capacity is 8 month for installations over 10 AU. Urine and silage effluents should to be collected to the separate tanks or directed to the liquid manure tanks.

Draft provision - Wastewater from the farm is possible to collect and transfer to the manure tank or to handle in some other proper way.

3. Permitting

Integrated Pollution Prevention and Control Directive (IPPC-Directive) is implemented in Estonia by the Integrated Pollution Prevention and Control Act. As this directive is replaced, a new Industrial Emissions Act is prepared. All pig and poultry farms over the threshold set by directive should have special permit. In addition to this in Estonia there is the same requirement to the cattle farms over 300 AU (will be 400 AU). There are no simplified permit requirements to the cattle farms under 300 AU. If the farms daily ground water consumption is over 5 m³, there is requirement to apply for the water permit. On this permit authority prescribes the requirements for the water metering and as well for monitoring of the fresh and waste water.

4. Monitoring

In Estonia monitoring of the environment status and implementation of the environmental regulations is generally coordinated by the Ministry of the Environment. Environmental Board is responsible for issuing of permits and also looking for the fulfillment of the conditions prescribed in the permits. Environment Information Center collects different information from monitoring reports, environment permits reports, performs analyses and publishes the results.

5. Education and training (advisory service)

Farmers who are taking obligations under the agri - environmental support scheme as well as organic farmers, must pass mandatory training program.

For farmers there is available advisory support. Farmers must pay for the service, but under advisory support scheme their expenses will be covered.

FINLAND:

1. Application rate for nutrients

Whole Finland is declared as nitrate sensitive area and thus the national implementation of the nitrate directive is valid on the whole agricultural area. Furthermore, the Environmental legislation concerns permission for animal farms. The Finnish rural development programme 2007-2013 gives several measures to control fertilisation management. The scale of use of nitrogen fertilizers is based on average crop yield, cultivation zone and crop rotation with the aim of retaining a balanced nutrient level in the soil. Farms may use the maximum amounts (less than 170 kg/ha for most crops) of nitrogen on fields as fertilizer, contained in both mineral and animal manure and organic fertilizers: Winter cereals up to 200 kg of nitrogen/ha/year in the spring, or if slowly dissolved nitrogen is used, up to 40 kg of nitrogen in the autumn and 160 kg of nitrogen in the spring. Grassland and pasture, silage and horticultural plants 250 kg of nitrogen/ha/year. For grasslands, the reduction is 10/ha on peat soil throughout the country. If the amount of permissible nitrogen fertilizer exceeds 170 kg/ha, this amount must be split into at least two doses with at least two weeks between applications. The amounts of phosphorus fertilizers have decreased greatly during the past decades. At present, the average application rates are less than 10 kg/ha. However, in the phosphorus poor soils, the amounts may exceed 25 kg/ha. The maximum amount of phosphorus fertiliser that may be applied on horticultural crops is 120 kg/ha/year

Manure may not be applied on frozen, snow covered or water-saturated ground. Manure may not be spread between 15 October and 15 April. Manure may be spread until 15 November and in the spring, manure may not be spread earlier than 1 April, provided the ground is not frozen and it is dry enough so that runoff into watercourses and any danger of subsoil compaction are avoided. Manure may not be applied on grassland after 15 September. Organic fertiliser applied in the autumn must always immediately, and within 24 hours at the latest, be incorporated, or arable land must be ploughed. The maximum amounts of manure that can be applied in the autumn are 30 tonnes/ha of solid manure, 20 tonnes/ha of cow slurry, 15 tonnes/ha of pig slurry or 10 tonnes/ha of poultry or fur animal manure. When spreading solid manure, liquid manure and urine on seedlings and grass lands during the growing season, alternatively either incorporation equipment, precision spreaders for solid manure or trailing hoses must be used to cover up unpleasant smells. In Finland, the reduction of greenhouse gases and ammonia emissions is based on several action plans and initiatives. The implementation of these plans helps Finland attain international and EU objectives. Environmental permission of livestock shelters will also estimate odor, ammonia and dust emissions.

2. Manure Storage

The Environmental Protection Act and Environmental Protection Decree define the necessary field hectares that should be available for manure application. Manure can be applied on the fields owned by the farmer or surrounding fields with application contracts. The farmer must show for the environmental permission that there exists sufficient area of field to apply manure. Animal manure storage for waste products excreted by animals must be sufficiently large for manure accumulated over 12 months, excluding manure remaining on pasture during the same grazing season. Manure storages and manure gutters must be watertight. Agricultural wastewater and silage effluents are generally collected and transferred into the manure tanks. For the construction of watertight floors and side walls of such tanks we have to technical guidelines published by the DIN (the German branch of ISO). These documents are integrated into the legal requirements.

In order to avoid emissions manure must be incorporated into the soil on arable land as soon as possible. In some federal states new regulations were set and farmers have to incorporate the manure during the first four hours after application to reduce ammonia emissions efficiently.

3. Permit System

In Finland, the EU Water Framework Directive (2000/60/EC) is transposed to national legislation through the Act on Water Resources Management (1299/2004). The EU target of preventing the degradation of the water quality and reaching a good quality for all water bodies is further defined in the national Water Protection Policy Outlines to 2015, which were approved by the Finnish Government 2006 (Ministry of the Environment 2007). In general, all the relevant EU legislation are fulfilled in Finland. The whole country has been evaluated as nitrate vulnerable area. The Environmental Protection Act and Decree that came into the force in 2000 determine the activities that may pose risk of pollution and for which an environmental permit must be sought. Environmental permit is required from livestock shelters housing at least 30 dairy cows, 80 beef cattle, 60 full-grown sows, 210 finishing pigs, 60 horses or ponies, 160 ewes or goats, 2,700 laying hens or 10,000 broiler hens, or other livestock shelters which correspond in terms of manure production or environmental impact of at least 210 finishing pigs (Environmental Protection Decree (169/2000). Permissions for new and modified livestock shelters are approved by the regional environmental authorities and they can use following instructions: Guidelines for environmental protection in animal husbandry (in Finnish).

4. Monitoring and evaluation system

The national monitoring is based on several different sources. Yearbook of farm statistics includes statistics of the Information Center of the Ministry of Agriculture and Forestry. The same ministry also has information on number of manure storage facilities and outdoor yards that have received funding as part of the environmental protection support scheme. Department of Agriculture in the Ministry of Agriculture and Forestry also delivers information on cautions made when the rules of the Government Decree are not conformed. The field plot register (i.e. "identification system of the fields") is a nationwide register, where all the field plots that have got area-based subsidies are digitized. The field plot register is owned by the Agency for Rural Affairs (Mavi), which runs under the Ministry of Agriculture and Forestry. The information on animal farms is available by the Finnish Food Safety Authority (Evira; Cattle, sheep, goats) and the Agency for Rural Affairs (Mavi; Poultry, pigs, horses). Besides the number of animals, the data included coordinates and the code number of each animal farm. There are a few experimental field data, which covers the loading of nutrients from plots fertilized with manure compared to the ones fertilized with mineral fertilisers. Unfortunately, all this field data is from the period around 1990's and therefore the application rates of fertilisers were much higher than today. The national monitoring programme of

water quality covers also areas with high animal density but areas are quite large ones and therefore the effect of manure or fertilizer usage is difficult to extract from the total load. Recently, a new small catchment was established in the region where animal density is high. The catchment is equipped with continuous on-line water quality monitoring system and therefore the effect of different measures might be possible to verify.

5. Education and training

One good example how training is organized in Finland is the ongoing TEHO project (Power to the agricultural water protection), which takes place in south-western Finland. This area is one of the main animal husbandry concentrations in Finland. The main goal of the TEHO-project is to increase the effectiveness of current agri-environmental subsidy measures, try out new water protection measures, and to make recommendations for the next agri-environmental schemes. The main target and result was to prepare environmental handbooks for all 122 farms selected to this project. TEHO-researchers interviewed all farmers individually three times in order to prepare and finalise the environmental handbooks. Some new water protection measures were also tested on these farms. The project also organized training sessions and seminars and project workers gave presentations in seminars organized by others. The project published many practical reports to inform about different water protection practices and measures, such as wetlands, catch crops and manure handling. Many actors in the agricultural sector give training how to put into operation the best available techniques. Recently, three EU-funded projects, Baltic Compass, Baltic Manure and Baltic Deal have given seminars, field tours and conferences on the topic.

GERMANY:

1. Application rate for nutrients

Whole Germany is regarded as a vulnerable zone, thus Good Farming Practice (GFP) is compulsory on the whole territory and the GFP rules are largely identical to the measures of the nitrate action programme. Measures of the nitrate action programmes are mandatory. One of the basic instruments in this context are the fertiliser law (Düngegesetz) and the Federal Fertilisation Ordinance (Düngeverordnung), which set detailed and precise legal requirements for good farming practice as regards the application of fertiliser. The Fertilisation Ordinance makes provisions on the calculation of plants nutrient demand and a compulsory nutrient balance on farm level, manure application, application rates of nutrients including application in autumn dependent on winter crop cover, water protection measures and nutrient reduction areas and measures to reduce ammonia emissions during the application of manure as required by the „NEC Directive. In addition, measures under the Nitrate Action Programme are set out in detail and made compulsory in the States “ordinances on the storage of slurry, liquid manure, farmyard manure and silage effluent (JGS-Anlagenverordnungen).

Total nitrogen via animal excrements is limited to 170kg/ha p.a. according to the Nitrates Directive; on grassland the local authorities may allow on request and in agreement with a decision of the European Commission up to 230 kg/ha, if certain basic preconditions are met to avoid water and air pollution. In these cases spreading is only allowed using modern low emission device such as dragging hose or injection techniques. The Fertilisation Ordinance has been revised in 2007 and now sets every year stricter limit values on farm level for tolerable nitrogen surpluses (90/80/70/60 kg/ha, surface balance up to 2012) and also for phosphorus surpluses (20 kg/ha).

2. Manure Storage

Storage capacity for manure must be sufficient for at least 6 months. To avoid ammonia emissions manure must be covered during storage. Cattle manure normally forms a natural floating cover. Pig manure needs either a solid cover or at least a 10 cm layer of small cut straw as a floating cover. Chicken manure has to be dried immediately and kept dry to stop all enzyme activities converting ureic acid into ammonia.

Agricultural wastewater and silage effluents are generally collected and transferred into the manure tanks. For the construction of watertight floors and side walls of such tanks we have technical guidelines published by the DIN (the German branch of ISO). These documents are integrated into the legal requirements.

In order to avoid emissions manure must be incorporated into the soil on arable land as soon as possible. In some federal states new regulations were set and farmers have to incorporate the manure during the first four hours after application to reduce ammonia emissions efficiently.

3. Permit System

In general the requirements of the Environmental Impact Assessment (EIA) Directive and other relevant EU legislation are fulfilled in Germany. A detailed check with regard to 28/E is ongoing. The Federal State of Mecklenburg Western Pomerania reports full implementation.

Under the IPPC-Directive and its implementation into German law by the Federal Immission Control Act (BImSchG) and the 4th Ordinance under the BImSchG (4th BImSchV) permits are inter alia compulsory for pig farms (>1500 pigs, > 560 sows including < 30-kg-piglets) and poultry farms (> 15 000 places). For cattle farms > 600 livestock units (except suckling cows with more than 6 months outside) a permit not necessitating public participation is compulsory, if a carried-out screening allows the conclusion that no Environmental Impact Assessment is required.

Under the EIA Directive and its implementation into German law (Act on Environmental Impact Assessment, UVPG) permits are compulsory for pig farms (> 3 000 pigs, > 900 sows including < 30-kg-piglets respectively) and poultry farms (> 60 000 places). For cattle farms >600 livestock units (except suckling cows with more than 6 months outside) a permit not necessitating public participation is compulsory, if a carried-out screening allows the conclusion that no Environmental Impact Assessment is required.

In Germany large pig and poultry farms have to be in accordance with the Integrated Pollution Prevention and Control Directive (IPPC-Directive) since October 2007 and thus there are no hot spots designated in Germany. This Directive requires industrial and agricultural activities with a high pollution potential to have a permit. This permit can only be issued if certain environmental conditions are met, so that the companies themselves bear responsibility for preventing and reducing any pollution they may cause. Farms with more than 10 000 kg ammonia emissions are listed in the German Pollution Release and Transfer Register (PRTR) (www.prtr.de).

Besides the compulsory requirements in the German law a national evaluation framework for livestock management systems was developed. This framework outlines detailed requirements for livestock management, farming techniques and welfare requirements for the most important species of productive livestock (also cattle and horses). Based on scientific evidence and practical experience around 140 different livestock management systems have been evaluated concerning their effects on the environment and animal welfare. This framework is an important instrument for regulatory authorities as it outlines detailed, comprehensible and transparent standards for the evaluation of livestock facilities.

4. Monitoring and evaluation system/Education and training

Implementation of environmental law, monitoring and evaluation is basically within the responsibility of the federal states. Several permanent working groups between the federation and the federal states have been established (e.g. for air quality, for water issues, for soil protection etc.) to collect and provide data for national and international reporting, to exchange ideas and to discuss legal and implementation requirements. Background information and results are published in the internet.

Germany used to have a quite elaborated system of publicly financed advisory and extension services in agriculture. Private extension services are gaining importance as well. German farmers are regarded as well educated and trained. Due to structural changes and an increase in average farm size the share of farmers holding an academic degree is continually growing. Moreover many federal states provide detailed background information of many agricultural topics and issues, they develop and provide guidelines and handbooks and offer training programmes for farmers.

POLAND

1. Ratification

Ratification process started in 2011. It has not been completed. Consultations between ministries are on-going. Among the main obstacles are: integrated permits for cattle and storage capacity.

2. Application rate for nutrients – N:

Implemented. Regulated directly. The amount of livestock manure applied to the land each year cannot exceed the amount of manure containing 170 kg/ha nitrogen.

3. Application rate for nutrients – P:

Implemented. Regulated indirectly. Limiting the application of phosphorus to 25 kg/ha (depending on kind of manure) derives from the fact that the amount of livestock manure applied

to the land each year cannot exceed the amount of manure containing 170 kg/ha nitrogen.

4. Waste handling - minimum storage capacity:

Implemented partly. According to the national law the minimum level of storage capacity is 4 months. However, in case of the nitrate vulnerable zones designated for 2012-2016 according to the EU Nitrate Directive (approximately 4.46% of territory of Poland) the minimum level of storage capacity is 6 months.

5. Wastewater management:

Implemented. Manure storage containers and platforms are tight, impervious and prevent losses.

6. Prevention of emissions:

Implemented. Manure storage containers and platforms are tight, impervious and prevent losses

7. Integrated (BAT):

Implemented partly. Installations for the intensive rearing of poultry and pigs with more than 40,000 places for poultry, 2,000 places for production pigs (over 30 kg), 750 places for sows have a permit fully co-ordinated by the relevant authorities according to EU law (regulated directly). The issue of permits for 400 animal units cattle is not regulated by the EU law. The PL stand is to go along the EU legislation process.

8. Monitoring and evaluation system:

Implemented. The monitoring of surface, underground, ground and drinking water are carried out.

9. Education and training:

Implemented. Systems for education, information and extension (advisory service) on environmental issues in the agricultural sector are carried out

RUSSIA:

1. In Russia, the calculation of the required quantity of fertilizers comes in light of the needs of plants and nutrients to the crop. Depending on the culture, the quantity of nitrogen and phosphorus contributed to fields, may be higher or lower than the requirements of HELCOM.

Monitoring is conducted by federal and regional authorities, but there is no system for internal monitoring by agriculture farms.

Implementation of HELCOM Recommendations within competence of HELCOM LAND adopted since 2007

HELCOM RECOMMENDATION 28E/5 (adopted 15.11.2007)																																		
Municipal wastewater treatment																																		
Country	Implementation (tick the box ☺ - if implemented, ☹ - if ongoing, ☹ - if not implemented; supplementary detailed information can be provided on separate sheets)																																	
	Sewerage systems are put in place (combined, separate)			Limit values for hazardous substances are established			MWWTPs >200,001 p.e.			MWWTPs 100,001-200,000 p.e.			MWWTPs 10,001-100,000 p.e.			MWWTPs 2,001-10,000 p.e.			MWWTPs 300-2,000 p.e.															
	☺	☹	☹	☺	☹	☹	deadline 31.12.10	BOD 80% (15 mg/l) P _{tot} 90% (0.5 mg/l) N _{tot} 70-80% (15 mg/l)	☺	☹	☹	deadline 31.12.12	BOD 80% (15 mg/l) P _{tot} 90% (0.5 mg/l) N _{tot} 70-80% (15 mg/l)	☺	☹	☹	deadline 31.12.15	BOD 80% (15 mg/l) P _{tot} 90% (0.5 mg/l) N _{tot} 70-80% (15 mg/l)	☺	☹	☹	deadline 31.12.18	BOD 80% (15 mg/l) P _{tot} 80% (1 mg/l) N _{tot} 30%	☺	☹	☹	deadline 31.12.18	BOD 80% (25 mg/l) P _{tot} 70% (2 mg/l) N _{tot} 30% (35 mg/l)	☺	☹	☹			
connected p.e. (%)			connected p.e. (%)			connected p.e. (%)			connected p.e. (%)			connected p.e. (%)			connected p.e. (%)			connected p.e. (%)			connected p.e. (%)			connected p.e. (%)										
DENMARK	☺			n.i.			n.i.	☺			n.i.	☺			n.i.	☺			n.i.	☺			n.i.	☺			n.i.	☺			n.i.	☺		
ESTONIA	☹			☺			ca.95	☺			ca.85	☺			ca.92	☹			ca.72	☹			n.i.	☹			n.i.	☹			n.i.	☹		
FINLAND	☺			☺			n.i.	☺			n.i.	☹			n.i.	☹			n.i.	☺			n.i.	☺			n.i.	☺			n.i.	☺		
GERMANY	☺			☺			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.		
LATVIA	☺			n.i.			n.i.	☹			n.i.	☹			n.i.	☹			n.i.	☹			n.i.	☹			n.i.	☹			n.i.	☹		
LITHUANIA	☹			☺			91,77	n.i.			90	n.i.			81,24	n.i.			70,61	n.i.			n.d.	n.i.			n.d.	n.i.			n.i.	n.i.		
RUSSIA	☺			n.i.			n.i.	☺			n.i.	☹			n.i.	☹			n.i.	☹			n.i.	☹			n.i.	☹			n.i.	☹		
SWEDEN	☺			☺			32*	☺			15*	☺			39*	☹			10*	☺			4*	☺			4*	☺			4*	☺		
POLAND*	n.i.			n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.			n.i.	n.i.		

*- percentage of total population connected to UWWTPs

DENMARK

employs alternative 6. *“Alternatively, the requirements for individual plants set out in paragraphs 1, 2, 3, 4 and 5 need not apply where it can be shown that the minimum percentage of reduction of the overall load entering all urban wastewater treatment plants in the catchment area is at least 90% for total phosphorus when discharging directly or indirectly to the marine areas and 75% for total nitrogen for plants discharging directly or indirectly to marine areas sensitive to nitrogen.”*

DK realizes a treatment efficiency to the effect that 90% of phosphorus on the inlet side will be retained and at the same time the treatment efficiency is 75% for nitrogen. These figures are based on a calculation of data in 2010 from all Danish WWTP, e.g. also WWTP-with less than 300 pe connected.

ESTONIA

In Estonia in 2010 80 % of the total population was connected to public urban sewage system. The current data (%) reviews the progress in the implementation of the Urban Waste Water Directive by data status 2010 Estonian Government approved new regulation No 99 “Requirements for Waste Water treatment and Waste Water and Storm Water management, Waste Water and Storm Water pollution indicators and verification measures” (29.11.2012). Since 01.01.2013 this becomes to effect. Regulation consists measures agreed in HELCOM Recommendation 28E/5.

FINLAND

MWWTPs > 200 000 pe are compliant with Recommendation 28E/5

All MWWTPs > 100 000 pe are compliant with Recommendation 28E/5 regarding phosphorus and BOD5. The need to recover nitrogen from municipal wastewaters is decided on a case-by-case basis in the environmental permits of WWTPs, depending on the type of loading and the area affected. Requirements for nitrogen are compliant in all coastal areas of Finland except in Oulu, where the requirements are already set and the implementation is on-going.

All MWWTPs 10 000 -100 000 pe are compliant with Recommendation 28E/5 regarding phosphorus and BOD5. The need to recover nitrogen from municipal wastewaters is decided on a case-by-case basis in the environmental permits of WWTPs, depending on the type of loading and the area affected. Requirements for nitrogen are compliant in coastal areas from south of the Quark to the eastern end of the Gulf of Finland (including the Archipelago Sea) except Vaasa and Hanko, where the requirements are already set and the implementation is on-going.

All MWWTPs 300-10 000 are compliant with the Recommendation 28E/5.

GERMANY:

Industrial branches, discharging wastewater to municipal sewer systems, have to fulfill limit values for hazardous substances like heavy metals, AOX. For household-wastewater no limits of hazardous substances are established.

To column 4-8: Due to the high connection rate to public sewer systems and highest technical standards in wastewater treatment as such, as well as due to very strict obligations for private wastewater treatment there is hardly any room for further improvement in this field. The wastewater treatment plants (>100,000 p.e.) purify municipal wastewater of more than 50% of German inhabitants (DESTATIS 2007 publ. in 2009) and the plants are running in accordance with BAT. Actual information about municipal wastewater treatment from the implementation of the EC WWT Directive will be available from the EU Commission on WISA (Water Information System of Europe) (<http://water.europa.eu>) according the German Status Report March 2011. The current data reviews the progress in the implementation of the Urban Waste Water Directive by data status 2007/2008. Data on the agglomeration level will be reported for all agglomerations > 2000 p.e. (population equivalents).

LITHUANIA

Regarding implementation of Recommendation 28E/5, Lithuania follows the provisions of article 6, setting the alternative for the implementation of the Recommendation 28E/5. In 2011

reduction of total phosphorus and total nitrogen was 90,9% and 83,3% respectively.

***POLAND**

Modernised and largest WWTP Czajka in Warsaw started operation in line with HELCOM Recommendation 28E/5 since 2012, Szczecin WWTPs (Zdroje and Pomorzany) were removed from HELCOM Hot Spot List as operating in compliance with HELCOM requirements since 2010-2011

Implementation of HELCOM Recommendations within competence of HELCOM LAND adopted since 2007

HELCOM RECOMMENDATION 28E/6 (adopted 15.11.2007)																		
<u>On-site wastewater treatment of single family homes, small businesses and settlements up to 300 Person Equivalents (P.E.)</u>																		
Country	Implementation (tick the box ☺ - if implemented, ☹ - if ongoing, ☹ - if not implemented; supplementary detailed information can be provided on separate sheets)																	
deadline 15.07.17 (15.07.21)	Maximum permissible daily load per capita	Alternative 1 on-site wastewater treatment plant			Alternative 2 on-site wastewater treatment plant using BAT			Alternative 3 in areas where water quality is poorer due to the influence of discharged wastewater			Relevant national legislation enforced			Sludge handling / recycling of nutrients promoted				
	BOD ₅ 8 g/prs/day (ca.80%) P _{tot} 0.65 g/prs/day (ca.70%) N _{tot} 10 g/prs/day (ca. 29%)	BOD ₅ 20 mg/l P _{tot} 5 mg/l N _{tot} 25 mg/l			BOD ₅ 40 mg/l COD 150 mg/l			Class 1 (EOP) BOD ₅ 95%, P _{tot} 90%, N _{tot} 90% Class 2 (EOP) BOD ₅ 95%, N _{tot} 90% Class 3 (OP) P _{tot} 90%, N _{tot} 90% Class 4 (O) BOD ₅ 90%										
	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹	☺ ☹ ☹			
DENMARK	n.i.	☺									☺			☺				
ESTONIA					☺						☺			☹				
FINLAND	☹	☹			☹			☹			☺			☹				
GERMANY	☺				☺						☺			☺				
LATVIA	☺	☺			☺			☺			☺			☺				
LITHUANIA					☹						☺			☹				
RUSSIA	☹	☹			☹			☹			☹			☹				
SWEDEN	☺	☺			☺			☹			☺			☺				
POLAND	n.i.	n.i.			n.i.			n.i.			n.i.			n.i.				

DENMARK

Denmark has implemented alternative 1 (requirements for settling tanks for scattered housings). The sludge is collected via collection scheme from the municipalities

ESTONIA

For small wastewater treatment plants Estonia did choose alternative 2. Estonian Government approved new regulation No 99 "Requirements for Waste Water treatment and Waste Water and Storm Water management, Waste Water and Storm Water pollution indicators and verification measures" (29.11.2012). Since 01.01.2013 this becomes to effect. Regulation consist measures agreed in HELCOM Recommendation 28E/6.

GERMANY:

In Germany in 2007 96 % of the total population was connected to public urban sewer systems (4% were not connected but served by individual on-site treatment systems). In comparison to the total load the load produced by the population that is not connected is negligible. Because of the great number of on-site treatment systems the data acquisition effort will be in no relation to the benefit of information.

SWEDEN

The Swedish Agency for Marine and Water management has since 1 of July 2011, the responsibility for on-site wastewater treatment of single family homes and small settlement up to 200 persons. In terms of legislation the Swedish EPA published general recommendations (NFS 2006:7) for systems up to 25 persons. These recommendations are used for small systems up to 200 persons. The local authorities determine two levels of sensitivity of the environment (based on six criteria), where normal or high level of treatment, is required. According to the recommendations the normal treatment reduction is 90% BOD and 70% P. High treatment level (in vulnerable areas) is 90% BOD, 90% P and 50% N. In addition all systems should use water saving technology; phosphate free detergents, enable recycling of nutrients and possess no threat to human health. In addition stricter requirements for specific plant or property suited to locality may be required. A rough estimation is that 60% of the small wastewater systems have an approved system, according to the recommendation.

The sale and supply of textile detergents containing phosphates to consumers for their private use was prohibited 1 of March 2008, but were allowed to be marketed and supplied until 31 Aug 2008. In July 2011, the content of phosphates in dishwasher detergents was restricted in Sweden, but may be marketed and supplied until 31 December 2011.

Implementation of HELCOM Recommendations within competence of HELCOM LAND adopted since 2007

Implementation (tick the box ☺ - if implemented, ☹ - if ongoing, ☹ - if not implemented; supplementary detailed information can be provided on separate sheets)																					
HELCOM RECOMMENDATION 28E/7 (adopted 15.11.2007) <u>Measures aimed at the substitution of polyphosphates (phosphorus) in detergents</u>						HELCOM RECOMMENDATION 28E/8 (adopted 15.11.2007) <u>Environmentally friendly practices for the reduction and prevention of emissions of dioxins and other hazardous substances from small-scale combustion</u>										HELCOM RECOMMENDATION 31E/3 (adopted 20.05.2010) <u>Cadmium in fertilizers</u>					
Country	Laundry detergents			Dishwasher detergents			Introduction of low-emission combustion appliances			Enhanced public awareness			Setting efficiency requirements and emission limit values for small scale combustion appliances				Setting a limit value for Cd content in fertilizer applied in the Baltic Sea catchment area with P content > 1 %				
	☺	☹	☹	☺	☹	☹	☺	☹	☹	☺	☹	☹	☺	☹	☹	efficiency requirements, emission limit value, if established	☺	☹	☹	limit value, if established	
DENMARK	☺			☹			☺			☺			☺				see notes	☺	110 mgCd/kg P2O5		
ESTONIA	☹			☹			n.i.			n.i.			n.i.				n.i.	☺	60 mg Cd/kg P2O5 in P fertilizers, 3 mg Cd/kg in other fertilizer		
FINLAND	☺			☺			☹			☹			☹					☺	Max conc. 1,5 mg/kg dw. product. If P2O5 over 2.2 %, then max conc. 50 mg/kg P2O5		
GERMANY	☺			☺			☺			☺			☺				See notes	n.i.	50 mg Cd/kg P2O5 für Düngemittel ab 5 % P2O5 je kg imProdukt (Frischmasse), für alle übrigen Düngemittel 1,5 mg Cd/kg TM		
LATVIA	☺			n.i.			☹			☺			☹				n.i.	☺	60 mg Cd/kg P2O5		
LITHUANIA	☹			☹			☹			☹			☹				n.i.	☹	n.i.		
POLAND	☺			☺			n.i.			n.i.			n.i.				n.i.	☺	50 mg Cd/kg of mass of fertilizer or plant conditioner		
RUSSIA	☹			n.i.			n.i.			n.i.			n.i.				n.i.	n.i.	n.i. ³		
SWEDEN	☺			☺			n.i.			n.i.			n.i.				n.i.	☺	100 mgCd/kg P (currently, but the application is submitted to EU in April 2011 to lower it to 46 mgCd/kg P)		

DENMARK

Danish EPA informs that presently no additional activities are ongoing, since the adoption of the ban on phosphates in detergents that will come into force from 2017 unless an impact assessment will show it is not a good idea.

In DK we have been phasing out phosphates in detergents for textiles washing to the effect that nearly 90% is without phosphates according to the information obtained by the authorities. In general it is difficult to produce dishwasher detergent completely without phosphates, as the hardness of the water is very high due to the bedrock in DK is rich in calcium and potassium.

The Danish EPA has made a [guideline for choosing a new stove](#). As part of the grant scheme for eco-efficient small scale solid fuel combustion a tool for calculating the correct size of the stove in relation to the heating needs of their house has been developed. The Danish EPA has published the [free tool](#). Several information campaigns have been conducted regarding all of the mentioned modes of operation. Most recent the campaign "Quit Smoking for Wood Stoves" had a special focus on a [new recommendation on the best practise for ignition of the wood](#). All chimneys are swept at least once a year by the local chimney sweeper. In December 2007 the Danish Minister of the environment issued the [Statutory Order](#) regulating air pollution from wood burners and boilers and certain other fixed energy-producing installations

ESTONIA

HELCOM RECOMMENDATION 28E/7 Polyphosphates in laundry and dishwasher detergents are regulated in EE with: (EU) REGULATION No 259/2012 of the European Parliament and of the Council of 14 March 2012, amending Regulation (EC) No 648/2004 as regards the use of phosphates and other phosphorus compounds in consumer laundry detergents and consumer automatic dishwasher detergents. In accordance with its annex VIa, Limitations on the content of phosphates and of other phosphorus compounds: phosphorus limitation for the consumer laundry detergents takes effect at 30 June 2013, as for consumer dishwasher detergent, limitation for phosphorus takes effect at 1 January 2017.

HELCOM RECOMMENDATION 28E/8 Estonia has carried thorough study of dioxin emissions from 3 most used types of domestic stoves in 2012-2013. The measurements allow to compare emission factors from different stoves and also compare emission factors for wood of different humidity (>33% and <20%). Based on this data, awareness of combustion characteristics in different stoves and with different humidity can be raised. Outcome of research is in analyse phase.

HELCOM RECOMMENDATION 31E/3 EE Minister of Agriculture regulates a concentration of cadmium in fertilisers in its regulation „Requirements for the content of the different types of fertilizers“ (regulation from 10.03.2005 nr 23, amended at 28.11.2012 – in effect from 01.12.2012)

GERMANY (on Rec. 28E/8)

Efficiency and emission requirements introduced in the ordinance on small and medium size combustion installations (1.BImSchV), BGBl I, 1.2.2010: Efficiency-requirements for roomheaters, emission requirements for CO and dust at type test for roomheaters and at regular inspection for boilers in 2 tiers, the second (more stringent one) coming into force in 2015; PCDD/PCDF limit values exist for small combustion installations for straw and agricultural biomass.

SWEDEN (on Rec. 28E/7)

The sale and supply of textile detergents containing phosphates to consumers for their private use was prohibited 1 of March 2008, but were allowed to be marketed and supplied until 31 Aug 2008. In July 2011, the content of phosphates in dishwasher detergents was restricted in Sweden, but may be marketed and supplied until 31 December 2011.

RUSSIA (on Rec. 31E/3)

³⁾ In Russia limit allowable concentration (LAC) of Cd in soil is 1 mg/kg, taking into account the background Cd concentration for acidic soil. When agricultural fertilizers insertion into soil, Cd concentrations should not exceed LAC

Implementation of HELCOM Recommendations within competence of HELCOM LAND adopted since 2007

HELCOM RECOMMENDATION 29/1 (adopted 05.03.2008)												
<u>Reduction of Emissions from Crematoria</u>												
Country	Implementation (tick the box ☺ - if implemented, ☹ - if ongoing, ☹ - if not implemented; supplementary detailed information can be provided on separate sheets)											
	Application of BAT			Operation of the crematoria			Requirements for the reduction of emissions to the air and discharges to water			Measurement and analyzing methods		
	The Co-flow filter The Solid-bed filter Gas Scrubbing Honeycomb Catalytic Adsorber			T flue gas before chimney should be at least 110°C T in the afterburn chamber should be at least 800°C Addition of combustion air should be controlled by influx of oxygen (O ₂ at least 4%).			Total dust 10 mg/normal m ³ CO 50 – (500)** mg/normal m ³ Hg 0.1 mg/normal m ³			The installation should be equipped with technique to control, regulate and monitor the combustion process Internationally accepted standardized sampling, analyzing and quality assurance methods should be used whenever available.		
	☺	☹	☹	☺	☹	☹	☺	☹	☹	☺	☹	☹
ESTONIA	☺			☺			☹			☺		
FINLAND	☹			☹			☹			☹		
GERMANY	☺			☺			☺			☺		
LATVIA	☺			n.i.			n.i.			n.i.		
LITHUANIA	☺			☺			☺			☺		
POLAND	☹			☺			☹			☺		
RUSSIA	☹			☹			☹			☹		
SWEDEN	☹			☹			☹			☹		
DENMARK	n.i.			n.i.			n.i.			n.i.		

ESTONIA

One EE Crematory is registered with emission permit and uses for its purposes BAT (US system Power Pak II Ultra model IE43-PPII). Permitted crematory installation is equipped with regulating and monitoring capacity to control whole process. Table above is modified based on data acquired from the inspection carried out on permitted crematory. Result of it showed good CO but poor dust data. Altogether EE has 5 institutions that have modern cremation capacity (<http://www.krematoorium.ee/tallinn/en/cremation>, <http://www.linnuteekrematoorium.ee/firmast>,). Detailed further assessment is under consideration.

FINLAND

At present less than 5 plants out of 22 have plans to install of Hg removal with carbon filters or with other treatment within few years. First operational in 2013.

SWEDEN

1. Application of BAT

This is fulfilled by those plants which have carbon-filter treatment but is not fulfilled by plants with selen treatment. There are also a few plants which have licenses according to the Swedish Environmental Code without having carbon filter treatment.

2. Operation of crematoria

All plants with carbon filter treatment have a after burn chamber and fulfill the requirement as far as I understand it.

Some plants with selen treatment have an after burn chamber (on account of particle treatment), but not all plants with selen treatment.

A few plants with licenses according to the Swedish Environmental Code without having carbon filter treatment, have probably not either an after burn chamber.

According to our information about the plants that are not able to fulfill the requirements they are not at present in the process to do so (if ongoing).

3. Requirements for the reduction of emissions to the air and discharges to water

For total dust and CO, see point 1. For Hg-treatment, see point 1.

4. Measurement and analyzing methods

Probably all plants that are covered by the Recommendation fulfill this requirement, but we are not quite sure that all plant fulfill the requirement.

Implementation of HELCOM Recommendations within competence of HELCOM LAND adopted since 2007

HELCOM RECOMMENDATION 31E/1 (adopted 20.05.2010)												
Implementing HELCOM's objective for hazardous substances												
Country	Implementation (tick the box ☺ - if implemented, ☹ - if ongoing, ☹ - if not implemented; supplementary detailed information can be provided on separate sheets)											
	National legislation in relation to the HELCOM Strategy											
	General comparability			Guiding principles			Criteria for selection, priority setting and assessment of substances			Criteria for the selection and implementation of measures		
	adopted and applied in line list of HELCOM substances included			applies precautionary principle; polluter pays principle; BAT and BEP; substitution / replacement by less hazardous; sustainable chemistry; sound chemicals management including precautionary risk management			based on a) threat to the aquatic environment; b) potential to reach the marine environment from different sources c) risks for marine environment or human health (PBT/CMR); d) relevance for the Baltic Sea			cost-effectiveness of measures taking into account - sustainability of the marine ecosystem; polluter-pays principle; advantages and disadvantages of measures extended producer responsibility reflected as promotion of environmentally sound products; substitution; sustainable waste management		
	☺	☹	☹	☺	☹	☹	☺	☹	☹	☺	☹	☹
ESTONIA	☹			☹			☹			☹		
FINLAND	☹			☹			☹			☹		
GERMANY	☺			☺			☺			☺		
LATVIA	☺			☺			☺			☺		
LITHUANIA	☹			☺			☹			☺		
RUSSIA	☹			☹			☹			☹		
SWEDEN	☹			☹			☹			☹		
DENMARK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
POLAND	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ESTONIA:

In general, measures agreed in HELCOM recommendation 31E/1 are still in ongoing process of implementation. Polluter pays principle is applied – hazardous substances concentrations in effluent are regulated in EE acts and regulations. Pollution fee is established when exceeding the limit values. As of 1 January 2013 much lower limit values apply in effluent. Criteria for selection, priority setting and assessment of substances are based on EU directives and are generally IAW the HELCOM recommendation 31E/1. Criteria for the selection and implementation of measures are based on HELCOM recommendation 31E/1. Currently EU directives 2008/105/EU ja 2000/60/EU are in process of change, this also means that new priority substances will be included where part of are also listed in HELCOM priority substances list. When implementing the changed directives, we can say that EE is controlling and monitoring with half of the priority substances listed in HELCOM priority substances list.

Implementation of HELCOM Recommendations within competence of HELCOM LAND adopted since 2007

HELCOM RECOMMENDATION 31E/2 (adopted 20.05.2010)															
<u>Batteries and accumulators and waste batteries and accumulators containing mercury, cadmium or lead</u>															
Country	Implementation (tick the box ☺ - if implemented, ☹ - if ongoing, ☹ - if not implemented; supplementary detailed information can be provided on separate sheets)														
B/A-s – batteries and/or accumulators	Ban on placing on market			Labeling and collection regulation			Recycling efficiencies			Ban landfilling and incineration			Collection rates		
	B/A-s containing > 0.0005 % Hg by weight (except button cells with Hg < 2% by weight) portable B/A-s containing > 0.002 % Cd by weight (except B/A-s for emergency and alarm systems, medical equipment or cordless power tools)			labeling requirements established for B/A-s more than 0.0005% Hg by weight B/A-s more than 0.002% Cd by weight B/A-s more than 0.004% Pb by weight			(a) 65 % lead-acid B/A-s by average weight (b) 75 % Ni-Cd B/A-s by average weight (c) 50 % other waste B/A-s by average weight B/A-s containing Hg, Cd and Pb should be substituted Waste B/A-s containing Hg, Cd and Pb should be recovered or disposed safely			storage of separately collected B/A-s containing Cd or Pb in landfills or underground storage thermal treatment (incineration) before dismantling of waste B/A-s on material parts			at least 25% in 2012 and 45% in 2016 for portable B/A-s a) collecting waste B/A-s separately; b) discard waste B/A-s at accessible collection point at no charge		
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ESTONIA	☺			☺			☺			☺			☺		
FINLAND	☺			☺			☺			☺			☺		
GERMANY	☺			☺			☺ ☺			☺			☺		
LATVIA	☺			☺			☺			☺			☺		
LITHUANIA	☺			☺			☺			☺			☺		
POLAND	☺			☺			☺			☺			☺		
RUSSIA	☹			☹			☹			☹			☹		
SWEDEN	☺			☺			☺			☺			☺		
DENMARK	☺			☺			☺			☺			☺		

ESTONIA

Acts and regulations where relevant HELCOM Recommendations measure have found its place to be regulated: Waste Act, Regulation No. 64 of the Minister of the Environment of 21 December 2007 "Requirements and Procedure for Marking Batteries and Accumulators"; Regulation No. 5 of the Minister of the Environment of 10 January 2008 "Requirements for Handling Waste Batteries and Accumulators"; Regulation No. 135 of the Government of the Republic of 23 July 2009 "Statutes of Register of Products of Concern" (replaces the Regulation of Government No. 28, 30.01.2006); Government of the Republic Regulation No. 124 of 7 August 2008 "Requirements, Procedure and Targets for Collection, Return to Producers and Recovery or Disposal of Waste Batteries and Accumulators and Time Limits for Reaching Targets"; Regulation No. 12 of the Minister of the Environment of 16 February 2011 "Forms of registry cards of Register of products of Concern"; Regulation No. 30 of the Minister of the Environment of 9 May 2011 "Deadlines of Prohibitions and Restrictions Provided for Products of Concern and Limits of Hazardous Substances in Products of Concern" (replaces the Regulation of Government No. 154, 06.07.2006)

Implementation of HELCOM Recommendations within competence of HELCOM LAND adopted since 2007

HELCOM RECOMMENDATION 31E/4 (adopted 20.05.2010)									
<u>Proper handling of waste/landfilling</u>									
Country	Implementation (tick the box ☺ - if implemented, ☹ - if ongoing, ☹ - if not implemented; supplementary detailed information can be provided on separate sheets)								
	Existing landfills			Landfilling practices			Criteria and procedures for acceptance of waste at landfills		
	<ul style="list-style-type: none"> CLOSED if not fulfilling the criteria of proper landfilling practices required for obtaining a permit BROUGHT IN LINE if granted a permit and do not implement proper handling of waste not later than 1 January 2011, except for small landfills - by 1 July 2012 			a) amount of landfilled waste to be minimised and its hazard level to be decreased; b) national legislation to be upgraded and enforced in order to reach proper handling of waste and proper landfilling practices and to prevent illegal waste dumping c) proper design, construction of new landfills and their operation, closure and aftercare phases should be implemented; d) environmental risk of already closed landfills should be assessed and pollution prevention measures should be implemented. e) only waste that has been subject to treatment is landfilled			- <u>procedure</u> to determine the acceptability of waste at landfills <u>is set</u> , consisting of basic characterisation, compliance testing and on-site verification. - <u>acceptance criteria</u> for each landfill class <u>are set</u> , waste may be accepted at a landfill only if it fulfils the acceptance criteria of the relevant landfill class - <u>methods</u> for the sampling and testing of waste <u>are set and used</u> - <u>safety assessments</u> for underground storage <u>are carried out</u> - <u>list of landfill options and examples</u> of possible sub-categorisation of landfills' non-hazardous waste <u>is available</u> and applied		
	☺	☹	☹	☺	☹	☹	☺	☹	☹
ESTONIA	☺			☺			☺		
FINLAND	☺			☺			☺		
GERMANY	☺			☺			☺		
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RUSSIA	☹			☹			☹		
SWEDEN	☺			☹			☹		
DENMARK	☺			☺			☺		

ESTONIA

The Directive 1999/31/EC on the landfill of waste has been transposed into the Waste Act and the Regulation of Ministry of the Environment 29.04.2004, No 38 on "Requirements for establishment, operation and closure of landfills". According to the Waste Act all landfills had to be in compliance with the requirements for the 16 of July 2009 or to be closed. The Decision 2003/33/EC on which the HELCOM Recommendations refer has been transposed into the Landfill Ordinance. Currently (April 2013) an amendment of the Landfill Ordinance is in process (will be adopted in a nearest weeks), making corrections on transposing the WAC Decision (2003/33/EC), as so far is mainly referred to it, which is found insufficient legally.)

In EE, prohibition of acceptance and deposit of unsorted municipal waste applies to all landfills is in effect from 1. January 2008. The ban of landfill of unsorted municipal waste with basic requirements to the municipalities for organizing source separation of paper and cardboard, green garden waste and hazardous waste, as well as packaging waste through the public collection system have been enacted in 2008. Landfilling of non-hazardous waste had decreased by 20 % in 2008, due to higher landfill taxes and decreasing economy.