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Estonian Law on Controlling Emissions of Nutrients in the Baltic Sea Region

Country study report within the research project Legal Approaches to Controlling Emissions of Nutrients in the Baltic Sea Region – a Comparative Study of National Laws. The research project is conducted at the Faculty of Law, Stockholm University 2012-2013.

Abstract
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As regards nutrient pollution, three sectors are dominant: regulation of agriculture, waste water treatment and general water quality planning and management.

Estonian regulation on agriculture for water protection purposes generally does not reflect the ecosystems approach. In the water management plans, neither regional targets nor concrete measures have been set to the reduction of nutrients to move towards achieving environmental objectives for water bodies affected by activities of relevant farms. Assessment of cumulative impacts of agricultural pollution from rivers on the Baltic Sea has not been undertaken. Very detailed rules to regulate agricultural activities have been enacted. Much emphasis is placed on implementing good agricultural practice, but it is mostly legally non-binding on farmers. The Water Act does not provide an operational and flexible legal mechanism to implement location or farm-specific measures.

Regulation on controlling pollution from domestic wastewater is not sufficiently dynamic to allow proper application of the ecosystemsapproach. There is no assessment in water management plans as to how wastewater directed into rivers may cumulatively affect the coastal sea. The Water Act provides only for the possibility to apply more stringent limit values in order to protect the concrete water body into which wastewater is directed.

Regarding water quality planning and management, Estonian law reflects ecosystem approach because it is based on the EU law. The national law is not sufficient for effective implementation of EU law. River basin management plans are inadequate for ensuring effective ecosystem based management. The monitoring system is weak. Marine issues are not sufficiently integrated.

Contents

Introducing the Research Project

Legal Approaches to Controlling Emissions of Nutrients in the Baltic Sea Region

In January 2012 a research project about legal approaches to controlling nutrient emissions to the Baltic was launched at the Faculty of Law of Stockholm University. The project was financed within the multidisciplinary programme BEAM (Baltic Eco-system Adaptive Management) at Stockholm University, headed by professor Jonas Ebbesson, and carried out by the post doc. researcher Annika K. Nilsson. This report is one of four country reports produced within this research project.

The research project

The research comprises investigation of Swedish, Danish, Estonian, and Polish law, and comparative study of approaches and regulatory means for controlling nutrient emissions – specifically from agriculture and sewerage – in order to avoid eutrophication of the Baltic Sea. In the search for effective marine ecosystem management approaches that are sensitive and adaptive to relevant ecological functions and changes, it is important to learn from the collected experiences from eutrophication control. The aim is that comparative study of differences and similarities in national legal approaches will enrich our understanding of the legal system and provide new insights and ideas of how to improve the quality of relevant regulation.

Analysing ecosystem adaptive management

The project takes its departure in ecosystem adaptive management theory. The legal order as a social structure for governance, realizing and supporting ecosystem management, should be sensitive and continuously adaptive to relevant ecological functions and change of sta-

tus. This perspective is also reflected in more recent international and regional law and policy, centrally under HELCOM and EU-law on water and marine environment. Under these legal strategies, environmental standards and levels of nutrient pollution input, and their reduction, have been or shall be formulated. The different countries implement national programmes, and specific measures to control the inputs from important sources of pollution. The management strategies and regulatory control of the actual input of nutrients vary in the different legal orders, thus taking different approaches to managing the same resources and abating a common problem. These different regulatory approaches are compared in the research project, and their ecosystem approach analysed.

The study relates to the countries' duties under international and EU law as well as the common regional strategies. The study has been limited to the regulation of water pollution, and focus on two main sources of nutrient pollution input: sewerage and agriculture.

Comparative study of national laws

Early on in the project, cooperation was initiated with Danish, Estonian and Polish researchers based at the Universities of Copenhagen, Tartu and Gdansk. In the second half of 2012, this international research cooperation conducted countrywise legal studies, which were reported in individual country studies in 2013. The resulting reports are made available digitally at **http://www.su.se/ostersjocentrum/english/beam/legal-aspects-of-the-ecosystem-approach/country-studies** , as well as on the Stockholm Centre for Environmental Law and Policy (SMC) web page to provide opportunity for further use of the data by the project group members, and other researchers.This is one of these reports.

The country studies were carried out and reported in accordance to a common template, thus ensuring comparability of the reported data. Consequently, all country base studies will show the following contents:

Chapter 1 provides an introduction to the national legal system, and the environmental problem from the national perspective. This introduction provides a context to the further study, and possibility for understanding differences and similarities.

Chapter 2 shows how, when and where central international law is implemented in the national legal order. This links national regula-

tions to the relevant international law, and provides materials for structural comparison and assessment of the level and method of implementation. It also provides a guide for further and more functionally oriented investigations of the regulation of nutrient emissions control. The chapter covers BSAP and other HELCOM documents, the WFD, the MSD, the Nitrate Directive, and the Waste Water Directive, etc.

In Chapter 3 and 4 of the study, the regulation of the sources of nutrients pollution chosen for this study are described. Together with **Chapter 5** on river basin management, these parts are central for the study. The purpose here is both to describe the regulatory system and to assess its potential for ecosystems approach, or lack thereof. First of all, the relevant regulatory order is to be described, including law on substantive standards and regulatory instruments for controlling compliance, and realizing the objectives and aims (which should have been mentioned above). The authors have been asked to note observations of legal and practical problems in such regulation, to not only describe "black letter law" but also "law in action".

Chapters 3–5 importantly also present reflections and some analytical observations pertaining to the presence and the realization of ecosystems approach in the relevant areas of national environmental law and management. The authors have looked for four characteristics or indicators of ecosystems approach, and have been asked to comment on a series of matters:

- **Ecological standards in regulating agriculture**. How are such standards prescribed, monitored, enforced, etc.?
- **Adaptiveness**. Is regulation adaptive to the status of the ecological systems and how?
- **Stakeholders involvement**. Are stakeholders effectively involved in the regulatory procedure, and are the effects on different kinds of stakeholders considered?
- **Legal measures in response to poor ecological status.** Is regulation flexible, so as to intervene and adjust to observed poor ecological status or changed environmental circumstances? Can stakeholders trigger such flexibility?

The reports are concluded with a closing **Chapter 6** (for the Estonian report some added information about other relevant legal measures have been presented under Chapter 6, leaving concluding remarks for Chapter 7).

Abbreviations

BAT	Best available techniques
BOD	Biochemical oxygen demand
CAP	Common Agricultural Policy of the European Union
ERDP	Estonian Rural Development Plan 2007-2013
GPECA	General Part of Environmental Code Act
HELCOM	Helsinki Commission
IPPCA	Integrated Pollution Prevention and Control Act
MoE	Ministry of Environment
NSA	Nitrate sensitive area
p.e.	Population equivalent (1 p.e. is the organic biodegradable load having a five-day biochemical oxygen demand (BOD5) of 60 g of oxygen per day)
PoA	Plan of Action for Implementation of Programme of Measures
PoM	Programme of Measures
RBD	River basin district
RBMP	River basin management plan (river basin district management plan)
WFD	Water Framework Directive
WMP	Water management plan

1 Introduction

After Estonia's independence was regained in 1991 environmental law was completelyoverhauled in order to be in accord with the transition period in the economy and the substantial change in property relations. From 1992 – 1994, therefore during a very short period of time, new laws were passed in all major fields of environmental law including water law.

In 1995 Estonia signed an association agreement with the EU with the aim of becoming a full member of the Community. The period from 1995 until 2004 may be characterised as a period of extensive transposition of EU environmental directives. Unfortunately the transition of EU law was done hastily and unsystematically thus creating a considerable degree of chaos.

The codification of environmental law, which started in 2007, is presently carried out with the final aim of establishing the Environmental Code one chapter of which will bring together the redesigned water related (e.g. marine pollution) regulations.

Two reprehensible features are unfortunately characteristics of Estonian legal culture. First, the drafts of legal acts are predominantly elaborated within the ministries, in most cases without broader public debate and active involvement of stakeholders. This leads to unbalanced and in many cases too burdensome regulatory framework. Second, formalistic ("black letter") approach in formulation of regulatory schemes is still predominant. The main result of the latter is absence or inappropriateness of implementation mechanisms of statutory provisions. Formalistic approach is most obvious in cases of transposition of EU law into Estonian legal order. The worst examples of this are transposition of the Water Framework Directive and the Marine Strategy Directive.

From marine eutrophication point of view two sources are dominant; – diffuse agricultural pollution and point source pollution mainly from human settlements.

Estonian industry and agricultural sector has undergone dramatic changes during last decades. In the beginning of nineties of the last

century the above-mentioned tendency was mainly the consequence of the collapse of the Soviet style polluting industry in the north-eastern part of the country and the disintegration of collective agriculture. Although the intensity of production in animal husbandry has decreased dramatically compared to 1960s-1980s, agriculture still has a substantial impact on the environment, causing pollution of groundwater in areas where the surface cover is thin, deteriorating the quality of soil and reducing diversity of agricultural landscapes.

By now, almost all wastewater treatment plants and sewerage systems of the biggest settlements and most of the smaller plants and sewerage systems have been renovated or new plants/sewerage systems have been erected. This has resulted in a continuous decrease of pollution load from wastewater.

1.1 Nutrient Pollution in Estonia

According to the HELCOM PLC-5[1], total waterborne nitrogen input into the Baltic Sea has increased significantly for Estonia during last years. According to recently published edition "*Estonian environmental indicators 2012*" the nitrogen load has constantly increased in the last three years; from 1.75 thousand tons per year in 2009 to 1.78 in 2010 and to 1.89 in 2011.[2] The major part of nitrogen pollution was caused by diffuse sources, mainly riverine. Direct discharge from point sources increased insignificantly. The phosphorous loads have increased for Estonia as well, but insignificantly.

Initial assessment conducted according to article 8 and 12 of the Marine Strategy Framework Directive has revealed the same trends as described above. According to the mentioned assessment, the share of point sources pollution has constantly decreased and the portion of riverine sources to the contrary has continued to grow. The reason for this is claimed to be both natural and anthropogenic causes – changed climatic conditions, resulting in increased rainfall and intens+---ification of agricultural activities. The main problem in eutrophication segment is diffuse pollution from agriculture that at this moment is responsible for about 60% of the total nitrogen load and 33% of the

[1] http://www.helcom.fi/stc/files/Publications/Proceedings/BSEP128.pdf (12.01.2013).
[2] Eesti keskkonnanäitajad 2012 (Estonian Environmental Indicators, 2012), www.keskkonnainfo.ee/failid/kk_naitajad2012.pdf (12.01.2013).

phosphorus load on Estonian inland waters.[3] Most acute problems are related to manure storage facilities, manure stacks and also use of mineral fertilisers.

Reduction of point source pollution is mainly due to the fact that during last decade, the majority of the settlements received new wastewater collection systems and treatment plants and according to official data, by end of year 2012 99 9 % treatment of wastewater has been guaranteed according to the established requirements in wastewater collection areas.[4]

Problem of eutrophication is almost missing on political agenda and public debate. Only one policy document can be mentioned in this regard – Implementation Plan of the Baltic Sea Action Plan 2008 - 2011[5] – approved by the Government on 11.12.2008 – which highlights two main approaches to combat eutrophication namely more efficient urban waste waters treatment and upgrading of agricultural technologies. The Implementation Plan was rather detailed and prescribed specific measures as regards wastewater treatment and agricultural technologies (including legislative) as well as respective investments. HELCOM recommendations 28/E/4, 28/E/5 and 28/E/6 were set as main targets for the Plan in eutrophication segment. The Ministry of Agriculture was assigned as the principal responsible body in eutrophication segment of the Plan. Implementation cost of anti-eutrophication measures was estimated at the level of approximately 1, 5 billion Kroon (100 million EUR).

Currently the draft of a new version of the Implementation Plan of the Baltic Sea Action Plan for a period of 2013 - 2016 is being developed in the Ministry of Environment. Although no details of the new Plan are publicly available, two things are known. First the hierarchical level of the plan will be significantly lowered. While the previous plan was approved on the level of Government, the new version will be signed by the Minister of Environment. This is an alarming fact from the point of view of integration of environmental requirements into other policy areas. Second, the priority targets seem to re-

[3] Iital, A., Loigu, E., Leisk, U., Pihlak, M., Pachel, K. Recent trends in nutrient concentrations in Estonian rivers as a response to large-scale changes in land-use intensity and life-styles. Journal of Environmental Monitoring, 12, 2010, pp 178-188.

[4] Eesti keskkonnanäitajad 2012 (Estonian Environmental Indicators 2012), www.keskkonnainfo.ee/failid/kk_naitajad2012.pdf (20.01.2013).

[5] Eesti mereala keskkonnaseisundi esialgne hindamine (Initial assessment of the environmental status of Estonian sea area), p 168. http://www.envir.ee/orb.aw/class=file/action=preview/id=1188071/IA_aruanne.pdf(13.01.2013).

main the same – urban waste-water treatment and agriculture, above all livestock farming.

Estonian Environmental Strategy 2030 deals with marine issues very fugitively and in general terms. Among the main problems, the trend - that the content of nutrients in the Baltic Sea, incl. in the coastal waters of Estonia, is increasing and this contributes to the eutrophication of the coastal waters has been outlined in the strategy. In section of main measures the strategy remains almost silent about marine eutrophication and vaguely speaks about the necessity to formulate and implement operational programmes for improvement and preservation of the status of surface water (incl. coastal water) and development and implementation of a system of incentives and benefits for reduction of human impact on bodies of water and for improvement of the status of surface water (incl. coastal water).

1.2 International Law

To outline the role of international conventions in the Estonian legal system, article 3(1) of the Constitution[6] should be pointed out. The mentioned constitutional provision provides that"… *generally recognised principles and norms of international law are an inseparable part of the Estonian legal system.*" Accordingly Estonia has accepted monistic approach as regards of relation between international law and national law.[7] On the basis of article 3 of the Constitution ratified international convention can be implemented directly by administrative bodies and courts. However, in practice direct application of international law is very rare. In environmental field there is still one exception –Arhus convention which has extensively been referred to in Estonian court practice.

Thus, although in theory international law is directly applicable in Estonia, in practice it is still inevitable to "transpose" these norms into domestic legal system in order to make international law really operational. Transposition of a number of HELCOM recommendations into Estonian law through Water Act and the Governmental and Ministeri-

[6] Constitution (EV Põhiseadus), adopted 28.June.1992, https://www.riigiteataja.ee/akt/633949 (21.01.2013).

[7] There are different opinions in Estonia as to how to interpret the notions of "generally recognised principles of international law" and "generally recognised norms of international law". One of the possibilities is to consider the concept of "generally recognised norms" as international customary law composed of international practice and *opinio juris*, and "generally recognised principles" as general legal principles recognised by nations. But the even more prevailing theory states that "generally recognised norms" should be considered as international conventions accepted by Estonia and "generally recognised principles" as international customary law.

al regulations stemming therefrom could be relevant examples in this respect.

Estonia is a party to considerable number of international marine conventions of global character. Convention on the Protection of the Marine Environment in the Baltic Sea Area, (1992 Helsinki Convention) was ratified by Estonia on April 19th, 1995.

Nearly all traditional areas of Estonian environmental law are strongly influenced by EU Environmental Law. However, the quality of transposition and the state of implementation of EU directives varies. The Commission has initiated a relatively large number of infringement procedures against Estonia, including several directives in water sector (e.g. Water Framework Directive, Nitrates Directive and Waste water Directive).

The Constitution of the Republic of Estonia Amendment Act[8], adopted in 2003 before accession to the EU stipulates that Estonia may belong to the European Union, provided the fundamental principles of the Constitution of the Republic of Estonia are respected. The notion of "fundamental principles of the Constitution" is ambiguous and disputable. When Estonia has acceded to the European Union, the Constitution of the Republic of Estonia is applied without prejudice to the rights and obligations arising from the Accession Treaty.

In administrative practice, EU law has relevance only if transposed into Estonian law as direct application and consistent interpretation takes place only in very exceptional cases. However in court practice, especially that of district courts and the Supreme Court, the situation is constantly improving and application of EU law in environmental cases has become almost a norm. There are not known cases when International law has been applied indirectly by EU law.

1.3 The National Legal Order

According to the Constitution, Estonia is a parliamentary democracy and a unitary state. Article 59 of the Republic of Estonia vests the legislative power in the parliament of Estonia - Riigikogu. The Riigikogu is elected by people by proportional representation for a four-year term. The Riigikogu has 101 members.

According to the Constitution, state authority is exercised pursuant to the Constitution and laws which are in conformity therewith. It fol-

[8] Constitution of the republic of Estonia Amendment Act (EV Põhiseasus täiendamise seadus), adopted 14. September 203, https://www.riigiteataja.ee/akt/631119 (23.01.2013).

lows from this principle that all major decisions of the state administration, especially those affecting rights and freedoms of persons, have to be implemented in the form of laws adopted by the Riigikogu.

The Government of Estonia - the executive branch of state administration - is formed by the Prime Minister of Estonia, nominated by the president and approved by the Riigikogu. The government exercises executive power according to the Constitution of Estonia and the laws of the Riigikogu. The government issues regulations and orders. In general, regulations and orders are issued only on the basis and for the implementation of the laws.

A minister (e.g. minister of environment) performs two sets of functions: firstly, a minister is a member of the government and therefore takes part in governing the state politically. Secondly, a minister directs the work of the ministry and performs administrative functions.

Besides ministers and ministries, important institutions of executive power are government agencies, e.g. the Environmental Board, with the task of directly carrying out the public authority. The activity of such establishments is strictly regulated by law and their discretionary powers are often limited.

According to Chapter XIII of the Constitution, justice is administered solely by the courts. The courts are independent in their activities and administer justice in accordance with the Constitution and the laws. The independence of the courts is guaranteed also by the requirement that judges are appointed for life. Judges may be removed from office only by a court judgment. The Estonian court system consists of:

- county and city courts, and administrative courts;
- circuit courts;
- the Supreme Court

County and city courts and administrative courts are courts of first instance. Circuit courts are courts of appeal and review judgments of the courts of first instance by way of appeal proceedings. The Supreme Court is the highest court in the state and reviews court judgments by way of cassation proceedings. The Supreme Court is also the court of constitutional review. The Supreme Court shall declare invalid any law or other legislation that is in conflict with the provisions and spirit of the Constitution.

With regard to environmental matters, the specific role of administrative court should be highlighted as far as the adjudication of dis-

putes in public law falls within the competence of these courts and no special – environmental courts or tribunals – have been established in Estonia.

As Estonia belongs to the Continental European legal system Estonian courts do not make law, at least from the theoretical point of view. However, in reality decisions of the Supreme Court have become very important sources of interpretation for lower level courts.

1.4 Environmental Law

Environmental protection has been expressly reflected in two articles of Estonian Constitution, which lay down the principle of the sustainable use of environmental resources as national richness (Art. 5), and impose an obligation on everyone to preserve the human and natural environment and to compensate for damage caused to the environment by him or her (Article 53).

Under Estonian legal tradition all significant issues, especially those affecting rights and obligations of persons, have to be regulated by the Riigikogu. Therefore, parliamentary acts have a dominant role in Estonian environmental law. Depending on the sphere of application, acts can be divided into horizontal and sectorial acts. Horizontal acts apply to all environmental spheres (media), while sectorial acts address the environmental protection issues exclusively in specific areas (media) i.e. air, water, nature, waste management.

The following acts should be considered horizontal acts: the General Part of Environmental Code Act (the GPECA)[9], the Act on Sustainable Development[10], the Environmental Impact Assessment and Environmental Management System Act[11], the Environmental Monitoring Act[12], the Environmental Supervision Act[13], the Environmental

[9] General Part of Environmental Code Act (keskkonnaseadustiku üldosa seadus), adopted 16 February 2011, https://www.riigiteataja.ee/akt/128022011001,(17.01.2013).
[10] Act on Sustainable Development (Säästva arengu seadus), adopted 22 February 1995, https://www.riigiteataja.ee/akt/13148461, (27.01.2013).
[11] Environmental Impact Assessment and Environmental Management System Act (keskkonnamõju hindamise ja keskkonnajuhtimissüsteemi seadus), adopted 22 February 2005, https://www.riigiteataja.ee/akt/121122011015, (13.12.2012).
[12] Environmental Monitoring Act (Keskkonnaseire seadus), adopted 20 January 1999, https://www.riigiteataja.ee/akt/13315995, (18.01.2013).
[13] Environmental Supervision Act (Keskkonnajärelevalve seadus), adopted 06 June 2001, https://www.riigiteataja.ee/akt/125102012011, (18.01.2013).

Liability Act[14], Integrated Pollution Prevention and Control Act (IPPCA)[15] and the Environmental Charges Act[16].

The most important sectorial acts are: the Water Act[17], the Ambient Air Protection Act[18], the Waste Acts[19], the Radiation Act[20], The Chemicals Act[21] , the Forest Act[22], and the Nature Conservation Act.[23]

In addition to acts, ministerial and governmental regulations play an important role in practice. According to the Constitution, the government and ministers are entitled to adopt regulations and orders on the basis and for the implementation of the Acts. The government and ministers may issue only *intra legem* regulations, which are based on delegating authority, stipulated in the act.

Management or action plans also have certain regulatory impact. These are adopted in different fields of environmental protection, e.g. water management plans, waste management plans, plans of action for reducing emission levels of pollutants of an area, plans of action for reducing ambient noise levels, management plans of protected areas. It should be noted that in most cases the obligation to adopt plans and the main requirements for the content thereof stem from EU law. Relatively precise content and legal meaning attributed to these plans mean that the plans should be considered as administrative acts, more precisely, general orders – a type of administrative act which, unlike individual acts, is directed at persons determined on the basis of general characteristics. In this way, these plans create obligations (or rights) to administrative institutions responsible for the implementa-

[14] Environmental Liability Act (Keskkonnavastutuse seadus), adopted 14 November 2007, https://www.riigiteataja.ee/akt/121122011016, (18.01.2013).
[15] Integrated Pollution Prevention and Control Act I (Saastuse kompleksse vältimise ja kontrollimise seadus, adopted 10 October 2001, https://www.riigiteataja.ee/akt/130122011028, (12-12-2012).
[16] Environmental Charges Act (Keskkonnatasude seadus), adopted 07 December 2005, https://www.riigiteataja.ee/akt/121122012005, (18.01.2013).
[17] Water Act (Veeseadus), adopted 11 May 1994, https://www.riigiteataja.ee/akt/122122012024, (17.01.2013).
[18] Ambient Air Protection Act (Välisõhu kaitse seadus), adopted 05 Mai 2004, https://www.riigiteataja.ee/akt/115112012004, (17.01.2013).
[19] Waste Acts (Jäätmeseadus), adopted 28 January 2004, https://www.riigiteataja.ee/akt/104012013034, (17.01.2013).
[20] Radiation Act (Kiirgusseadus), adopted 24 March 2004, https://www.riigiteataja.ee/akt/109112011006, (17.01.2013).
[21] Chemicals Act (Kemikaaliseadus), adopted 06 May 1998, https://www.riigiteataja.ee/akt/130122011055, (17.01.2013).
[22] Forest Act (Metsaseadus), adopted 07 June 2006, https://www.riigiteataja.ee/akt/105012011016, (17.01.2013).
[23] Nature Conservation Act (Looduskaitseseadus), adopted 21 April 2004, https://www.riigiteataja.ee/akt/130122011013, (22.12.2012).

tion of a plan and to private entities as well, who are affected by these implementation measures.

Land–use plans have also important regulatory effect. The objective of these plans is not only to define the general principles for and directions in the spatial development, but also to prescribe more or less detailed requirements for land use and building activities, which are mandatory for private entities.

The central legal instrument in the area of marine eutrophication is the Water Act adopted in 1994. Since its adoption the Water Act has been amended more than 30 times. The frequent and unsystematic amending of the act is caused by two main reasons. Firstly, it is driven by a casuistic style of legislation. The particular and casuistic style entails an incessant need for the amendment of the legislation in force, because in the case of overly detailed regulation it is not possible to predict all the problems that may arise during the implementation of the act. Secondly, the frequent amending of the Water Act is caused by the transposition of EU water directives. Nearly all directives from this sector are transposed either by the Water Act or regulations issued on the basis of this act.

Due to the constant amending of the Water Act, it has become an inconsistent and piecemeal piece of legislation. The Estonian water law is one of those areas of environmental law which needs a major upgrade in the course of the codification of environmental law.

The second principal act governing marine eutrophication issues is Public Water Supply and Sewerage Act[24] which regulates the organisation of supply of registered immovables with water and the leading off and treatment of waste water of the registered immovables, rain water, drainage water and other soil and surface water through the public water supply and sewerage system, and provides for the rights and obligations of the state, local governments, water undertakings and clients.

The codification of environmental law, which was started in 2007, is presently carried on with the final aim of establishing the Environmental Code. On the 16th of February 2011, the Riigikogu adopted the GPECA, which sets forth the fundamental concepts of environmental law, the principles of environmental protection, the main environmental obligations, environmental rights, and the procedure for the new integrated environmental permit.

[24] Public Water Supply and Sewerage Act (Ühisveevärgi ja -kanalisatsiooni seadus), adopted 10 February 1999, https://www.riigiteataja.ee/akt/13349255 , (21.11.2012)

However, the GPECA is still just the first step in the codification of environmental law and is currently not yet in force. The GPECA is expected to enter into force this year. In December 2010, the Environmental Law Codification Working Group presented the first version of the voluminous draft (with more than 1,100 articles) of the Special Part of the Environmental Code Act (hereinafter SPECA), which includes Chapter of water protection . The work with the SPECA is still going on in the Ministry of Environment and according to current plans the whole Environmental Code will come into force in 2014. However, due to practical reasons the SPECA will not be adopted as a single text, as originally proposed, but will be split into separate acts (e.g. Water Act) and approved step by step.

In case of nutrients emissions first and foremost two structures of GPECA may have relevance - basic legal principles of environmental protection and general environmental obligations.

The GPECA is based on the assumption that the principles laid down in the act are not addressed to persons in private law but to the administrative bodies that implement the law, along with the courts. For the administrative bodies and for the court, these principles serve as interpretation guidelines. The impact of the principles on persons in private law is indirect. For instance, the principles are used in interpreting basic obligations of the persons under private law set out in the GPECA.

The precautionary principle and preventive principle have predominant role in Estonian environmental law. The precautionary principle is implemented for the reduction of environmental risks covered by scientific uncertainty. Preventive principle applies as regards certain environment hazards.

Another innovation for Estonian environmental law is the stipulation of general horizontal environmental obligations, which might potentially have an important role in combating pollution by nutrients from diffuse sources. The source of general environmental obligations is Article 53 of the Constitution, which sets out a general duty of care in respect of the environment and specifies that everyone has a duty to preserve the human and natural environment and to compensate for damage caused to the environment by him or her. It is important to note that the GPECA differentiates between everybody's obligations (e.g. individuals in their daily activities) and obligations of the operator (a qualified person) because the likelihood and magnitude of environmental impacts is quite different when comparing the eve-

ryday non-professional activities and professional activities. The duty of care for the operator is more demanding.

Articles 14 and 15 provide for everybody's obligations in the field of environment. Article 14 establishes an obligation of diligence (duty of care), under which everybody must apply reasonable measures for reducing the environmental impact caused by own activity or inactivity. The duty of care requires persons, whose behaviour is liable to create an adverse impact on the environment, to take steps to keep such an impact as low as possible and reasonable.

Articles 16–22 of the GPECA set up the operator`s obligations. The obligations are framed in a very abstract manner. Future case law will have a crucial role in the interpretation of these obligations. An operator's failure to comply with these general obligations cannot be cause for the imposition of misdemeanour or criminal sanctions. Certainly, failure to comply with the obligations mentioned can have consequences in the sphere of environmental or civil liability, but they are particularly applicable in the context of environmental permitting. Enforcement of these obligations is a prerequisite for the issuance of a permit and the basis for determining permit conditions. Failure to comply with these obligations can be the basis for amending the conditions of the permit or even its revocation. Amongst operators' obligations, Article 16 of the GPECA has predominant role. Article 16 of the GPECA sets out the obligation to take precautionary measures and prevent environmental hazards.

Institutions

One of the specific and, compared to many other countries, relatively unique characteristic feature of the Estonian system is centralisation. The Ministry of Environment is clearly a dominating institution. The Ministry of Environment and agencies under its governance – Environmental Board, Land Board and Environmental Inspectorate, govern almost all issues related to pollution control, nature protection and use of natural resources. Such a centralised system of governance was created almost immediately after regaining independence in the end of the last century. The scope of matters that the Estonian Ministry of Environment has to govern is ample. The main responsibility areas of the Ministry of Environment also include water and marine issues. The wide responsibility of the Ministry of Environment is reflected in its structure. Among the basic structural units of the Ministry are also Water Department and Marine Department.

The Environmental Board serves as the main executive institution within the jurisdiction of the Ministry of Environment. Its task is to implement the state policies on the use of the environment and nature conservation. Although, the central apparatus is located in Tallinn, the Environmental Board has also six regional offices. The Environmental Board is also responsible for the organisation of a variety of monitoring activities.

The Environmental Inspectorate is an institution under the auspices of the Ministry of Environment which exercises supervision in all areas of environmental protection, including those related to marine eutrophication. The Environmental Inspectorate is an institution dealing with environmental violations, which since September 1st, 2011 also carries out investigations in criminal cases. The Environmental Inspectorate has the right to suspend unlawful activities related to the use of natural resources if such activities endanger the life, health or property of persons.In a few cases the competence is wholly or partly vested in other governmental bodies: in case of pollution from agricultural sources to the Ministry of Agriculture.

The main environmental related responsibilities of the Ministry of Agriculture include elaboration and implementation of agricultural policy, which significantly contributes to emission of nutrient from agricultural sources. Agricultural Board, a governmental agency under the jurisdiction of the Ministry of Agriculture, also performs supervisory functions.

1.5 Concluding and Summarising Remarks

According to available data, the nitrogen load has constantly increased in the last years. The major part of nitrogen pollution was caused by diffuse sources (mainly riverine) from agriculture that at this moment is responsible for about 60% of the total nitrogen load and 33% of the phosphorus load on Estonian inland waters. Most acute problems are related to manure storage facilities and manure stacks and also use of mineral fertilisers. Direct discharge from point sources increased insignificantly. The phosphorous loads have increased for Estonia as well, but insignificantly.

Problem of eutrophication is almost missing on political agenda and public debate. Only one policy document can be mentioned in this regard – Implementation Plan of the Baltic Sea Action Plan 2008 -

2011 – approved by the Government on 11.12.2008. Currently a new action plan is being drafted in the ministry of Environment.

Estonia has accepted monistic approach as regards of relation between international law and national law. However, in practice direct application of international law is very rare. Thus, it is still inevitable to "transpose" these norms into domestic legal system in order to make international law operational.

Nearly all traditional areas of Estonian environmental law are strongly influenced by EU Environmental Law. In administrative practice the EU law has relevance only if transposed into Estonian law, direct application and consistent interpretation takes place only in very exceptional cases. However in court practice, especially that of district courts and Supreme Court, the situation is constantly improving and application of EU law in environmental cases has become almost a norm. There are not known cases when International law has been applied indirectly by the EU law.

According to the Constitution, state authority is exercised pursuant to the Constitution and laws, which are in conformity therewith. It follows from this principle that all major decisions of the state administration, especially those affecting rights and freedoms of persons, have to be implemented in the form of laws adopted by the Riigikogu.

As Estonia belongs to the Continental European legal system, Estonian courts do not make law, at least from the theoretical point of view. However, in reality decisions of the Supreme Court have become very important sources of interpretation for lower level courts.

The principal act in eutrophication sector is Water Act adopted in 1994. Since the year 1994 the Water Act has been amended more than 30 times. Due to the constant amending of the Water Act, it has become an inconsistent and piecemeal piece of legislation. The Estonian water law is one of those areas of environmental law which needs a major upgrade in the course of the codification of environmental law. The codification of environmental law, which was started in 2007, is presently carried on with the final aim of establishing the Environmental Code, one chapter of which will bring together the redesigned water related (e.g. marine pollution) regulations.

The second principal Act governing marine eutrophication issues is Public Water Supply and Sewerage Act which regulates the organisation of supply of registered immovables with water and the leading off and treatment of waste water.

The eutrophication issues are shared competence of Ministry of Environment and Ministry of Agriculture. Ministry of environment

governs the environmental protection policy on general level, Ministry of Agriculture is responsible for elaboration and implementation of agricultural policy, which significantly contributes to emission of nutrient from agricultural sources.

2 International and EU Law on Control of Nutrients Emissions in Estonian Law

2.1 Introduction

Estonia is a member of a number of international organisations and institutions, which play important role in the framing and coordination of environmental policy and law on global or regional level. Estonia is a member of the European Union, the Council of Europe, the United Nations and the Organisation for Economic Co-operation and Development (OECD).

Estonia is a party to considerable number of international marine conventions of global and regional relevance. Convention on the Protection of the Marine Environment in the Baltic Sea Area, (1992 Helsinki Convention) was ratified by Estonia on April 19th, 1995.

Although Estonia follows monistic approach as regards the relation between international law and national law, direct application of international law by authorities is very rare. To make provisions of international law applicable in practice these provisions need to be transposed into domestic legal order.

2.2 HELCOM

2.2.1 1992 Helsinki Convention

Convention on the Protection of the Marine Environment in the Baltic Sea Area, (1992 Helsinki Convention) was ratified by Estonia on April 19th, 1995. Act on approval of amendment to the Helsinki Convention stemming from HELCOM Recommendations 21/1 and 28/E/4 was approved by the Riigikogu on 17.03.10.[25] The amendments were

[25] Act on approval of amendment to the Helsinki Convention (Läänemere piirkonna merekeskkonn kaistse konventsiooni muudatuste heakskiitmise seadus), adopted 17 March 2010, https://www.riigiteataja.ee/akt/13297338, 23.01.2013)

published in Official Journal and are respectively (at least theoretically) directly applicable.

The best available technology standard stemming from Helsinki convention is introduced by two articles of the Water Act. First § 9 - permits for special use of water and temporary permit for special use of water – stipulates that among all the allowable amounts and time for discharge of pollutants into a recipient by outlets and pollutants, taking into consideration the best available technology shall be prescribed by the permit. In addition the best available technology for the use of water and the treatment of waste water, taking into consideration the up-to-dateness and efficiency, the availability of water to special users and the financial and technical acceptability may also be prescribed by the permit. Second,§ 26^5 -protection of catchment areas against pollution with hazardous substances, which stipulates that in the case of water discharge which contains hazardous substances, the allowable amount of hazardous substances per raw material or production unit, taking into consideration the best available technology shall be entered on a permit for the special use of water.

What is more; the BAT requirement is stipulated in IPPCA and incoming Industrial Emissions Act, which will transpose Industrial Emissions Directive.

Under Estonian law BAT is up to now considered not as a strict rule but as legal principle, which should be "considered", "taken into account". Furthermore, there are no clear criteria for BAT neither in the legislation nor in the court practice up to now.

2.2.2 Recommendation 24/3; Measures Aimed at the Reduction of Emissions and Discharges from Agriculture

This recommendation has been transposed into Estonian law mainly by the Water Act – in particular its articles 26^1 and 26^2 and regulations of ministries of environment and agriculture stemming from these two articles. Article 26^1 - protection of catchment areas against pollution arising from agricultural production - stipulates that in order to protect groundwater and surface water by preventing or restricting pollution arising from agricultural production requirements for the storage and use of manure, silage and other fertilizers shall be established by the Government of the Republic. The requirements for the composition of fertilizers shall be established by a regulation of the The requirements for the composition of fertilizers shall be established by a regulation of the Minister of Agriculture. Requirements for the use of

waste water sediment in agriculture, green area creation and recultivation shall be established by a regulation of the Minister of the Environment. For the purposes of this Act, waste water sediment is a suspension separated from waste water by using physical, biological or chemical methods.Article 26^1 also states that agricultural producers are recommended to follow good agricultural practice.

Article 26^2 of the water act is specifically dedicated to requirements for storage of manure and liquid manure which are compatible with the above-mentioned recommendation.

2.2.3 Recommendation 28E/5; Municipal Wastewater Treatment

Regulation of the Government concerning the requirement of treatment and discharge of waste water, which entered into force on 1^{st} of January 2013, transposed in addition to the Waste Water Directive also the requirement of HELCOM Recommendation 28E/5 which goes partly beyond the requirement of the directive. The abovementioned regulation prescribes new stricter limit values for total phosphorusfor wastewater treatment plants. Namely, 1 mg/L for plants with a load of 2,000–10,000 person equivalents, and 0,5 mg/L for wastewater treatment plants with a load of more than 10,000 person equivalents. Recommendation 18/4; Managing Wetlands and Freshwater Ecosystems for Retention of Nutrients

There is no evidence that this recommendation has been transposed into Estonia Law.

2.2.4 Baltic Sea Action Plan (BSAP) (eutrophication segment)

On 11.12.2008, the Government approved Implementation Plan of the Baltic Sea Action Plan which highlights two main approaches to combat eutrophication – more efficient urban waste waters treatment and upgrading of agricultural technologies. This plan goes into details and prescribes quite specific measures as regards wastewater treatment and agricultural technologies (including legislative) as well as respective investments. As an example under this Plan abovementioned Governmental Regulation concerning the requirements of treatment and discharge of waste water has been elaborated. Concerning nutrients flowing from agriculture, the Plan prescribes among all such measures as afforestation of water protection zones of water bodies

and development of land improvement system for reduction of nutrient load.

In 2013 adoption of Implementation Plan for a new period of 2013-2016 is being elaborated in the ministry of Environment as described in section 1.2. of this report.

2.3 EU Law

2.3.1 Nitrate Directive (91/676/EEC)

The primary transposition instrument of this Directive is Water Act. Special requirements are introduced for the protection of catchment areas against pollution from agricultural production in Article 26^1 of the Water Act. In order to protect groundwater and surface water by preventing or restricting pollution arising from agricultural production requirements for the storage and use of manure, silage and other fertilizers are established by the Government of the Republic. Requirements for the use of waste water sediment in agriculture, green area creation and cultivation are established by a regulation of the Ministry of the Environment. Agricultural producers are also recommended to follow good agricultural practice (GAP). For the purposes of the Water Act, GAP means commonly accepted production techniques and methods which, when followed correctly, do not endanger the environment. These methods and techniques are based on the balanced fertilization principle and deal with amounts of manure and mineral fertilizers that can be introduced into soil, the time and methods of fertilization, storage of manure, balance of nutrients, etc.

Pursuant to Articles 26^3 and 26^4 of the Water Act, specific requirements are stipulated for the protection of groundwater and surface water in nitrate sensitive areas. An area where agricultural activities have caused or may cause the concentration of nitrates in groundwater to be greater than 50 mg/l or where surface water bodies are eutrophic or in danger of becoming eutrophic due to agricultural activities is deemed to be a nitrate sensitive area. Nitrate sensitive areas and limestone and karst areas which are located therein and which have unprotected groundwater are designated and the extent of re-

strictions which apply in such areas are established by the protection rules approved by a regulation of the Government of the Republic.

In order to evaluate the efficiency of water protection measures implemented in a nitrate sensitive area, a monitoring program has to be approved by the Minister of Environment. Restrictions and obligations established in the nitrate sensitive area shall be revised every four years on the basis of monitoring results.

Although various measures have been implemented in Estonia to reduce diffuse pollution from agriculture, it is not, in many cases, reflected in positive changes in the quality of surface water or in reduced pollution.[26] This can be partly attributed to a relatively modest application of GAP, as there are other factors in play that affect the quality of surface water. For example, it can be argued that it is complicated to specifically attribute changes in the nutrient content of surface water and groundwater to measures implemented in agriculture and to measures implemented in land use. Many of the measures implemented so far do not take into account the cumulative effect with other factors and measures.

Infringement procedures have been brought against Estonia due to several gaps in transposition and incorrect transposition of the directive.

2.3.2 Waste Water Directive (91/271/EEC)

This Directive has been transposed by two major acts -Water Act and Public Water Supply and Sewerage Act; in addition several regulation of the Government and Ministry of Environment are relevant as well.

The Accession Treaty of Estonia to the European Union (2004) provides for a transposition period for the implementation of the requirements of the Council Directive 91/271/EEC concerning urban waste-water treatment (the Urban Wastewater Directive), and stipulates that the requirements for the collection and treatment of wastewater for agglomerations with a pollution load above 10 000 p.e. shall not be applied until 31 December 2009, and for agglomerations with a pollution load between 2000-10 000 p.e. shall not be applied until 31 December 2010.27.

[26]Iital, A., Loigu, E., Leisk, U., Pihlak, M., Pachel, K., 2010. Recent trends in nutrient concentrations in Estonian rivers as a response to large-scale changes in land-use intensity and lifestyles. Journal of Environmental Monitoring, 12, pp 178-188.

[27]Report „Asulareovee puhastamise direktiivi nõuete täitmine Eestis“ (*Compliance with the requirements of Urban Wastewater Directive in Estonia*), Ministry of the Environment, Tallinn 2012, p 4. Available at:

In Wastewater sector the Implementation Plan of the Baltic Sea Action Plan provides for a list of activities accruing from HELCOM Recommendations 28E/5 and 28E/6 that need to be fulfilled in order to reduce eutrophication caused by domestic wastewater. Most of these activities relate to updating of requirements for wastewater, including establishing a limit value for phosphorus at the level of 0,5 mg/l by 2013. The primary authority responsible for ensuring the achievement of these goals is the Ministry of the Environment.

According to Water Act wastewater collection area (agglomeration) is an area with enough residents or economic activity for wastewater to be collected in a wastewater treatment plant through a sewerage system or to be discharged to a recipient. Wastewater collection area is delimited on the basis of the Water Act.[28]

In Estonia, criteria for determining agglomerations are enacted by Government Regulation No. 57 of 19 March 2009 "*Criteria for designating wastewater collection areas (agglomerations)*", taking into account the protection level of groundwater and surface water and socio-economic aspects.

The general framework for the establishment of public sewerage systems is provided for in the Public Water Supply and Sewerage Act. All public sewerage service providers (water undertakings) need to have a water permit for operation on the basis of article 9(2)4) of the Water Act where it is stipulated that a water permit is required if wastewater or pollutants is/are directed into the (receiving) environment. The Water Act stipulates that upon issue of permits for the special use of water, the possibility of waste water being treated and effluent being discharged through the public sewerage system shall be taken into consideration.[29]

Implementation of Urban Waste Water Directive is in general quite a success story. In Estonia, the public sewerage system is used by private individuals and companies. There were 42 settlements, the pollution load of which is more than 2000 p.e in 2007. In these urban areas reside 67% of the total population of Estonia of which 92% use the services of a public sewerage system.As of 2010, 80% of the population is covered by public sewerage system,30 compared with 74% in 2007.

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http://www.keskkonnainfo.ee/failid/Art%2016_aruanne_2012_LOPLIK.pdf. Accessed on 27 January 2013 at 13.00.

[28]Public Water Supply and Sewerage Act, article 4(2^2).

[29]Water Act, article 9(6).

[30]Ibid., 2010, p 5.

In the course of last decades, the pollution load on water bodies resulting from wastewater of urban areas and from the industry has decreased considerably. Good progress has been made mainly by building new treatment plants and renovating old ones. The efficiency of wastewater treatment in Estonia has also improved considerably. By now, almost all wastewater treatment plants and sewerage systems of the biggest settlements and most of the smaller plants and sewerage systems have been renovated or new plants/sewerage systems have been erected. This has resulted in a continuous decrease in pollution load from wastewater. In 2011, 99,9% of all the wastewater that required treatment was treated.[31]

Despite aforementioned successful implementation of the directive, infringement procedures have been brought against Estonia regarding gaps in transposition and instances of incorrect transposition.

2.3.3 Water Framework Directive

The main transposition instrument of this directive is the Water Act and the dominant implementation institutions are the Ministry of Environment and governmental agencies under its jurisdiction.

Chapter 1^1 of the Water Act, which was adopted in September 2010 and was mainly meant for the transposition of Water Framework Directive (2000/60/EC)[32], is dedicated to the planning and organising of water use and protection and to the corresponding environmental objectives. It should be noted that the transposition of this directive was done formalistically. Formal repetition of directive's provisions, in many cases almost word by word, is frequent. EU Commission have initiated infringement procedures as regards transposition of this Directive.

According to the Water Act (Article 3^3), the planning and organising of surface- and ground water use and protection is performed on the basis of identified river basins and river basin districts. River basins and sub-river basins are delimited by the Government. At the moment three river basins and nine sub-river basins are identified.

Article 3^5 of the Water Act specifies that environmental objectives (good status) stemming from the Water Framework Directive should

[31] Eesti keskkonnanäitajad 2012 (*Estonian Environmental Indicators 2012*), Estonian Environment Information Centre, Tallinn 2012, p 31. Available at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1190570/Eesti+keskkonnan%E4itajad+2012.pdf. Accessed on 14 October 2012 at 15.25.

[32] O.J. L327/1.

be achieved by 22 December 2015. Where more than one of the environmental objectives relates to a given body of water, the most stringent shall apply. Pursuant to the Water Act in certain cases the above mentioned deadline may be extended. It is also allowed to set up less stringent environmental objectives than those required under general rule. The Water Act (Article 3^{11}) also provides for veniality of temporary exceptions.

Pursuant to Articles 3^{14} and 3^{15} of the Water Act for each river basin, or for the part of an international river basin within Estonian territory, a programme of measures should be drawn up and approved by the Government. The main purpose of the programme is to provide for a concrete set of instruments for the improvement of the status of water bodies and the timely achievement of environmental objectives. Programmes of measures are prepared in open proceedings.

As regards each river basin and the part of an international river basin within Estonian territory, a water management plan should also be elaborated and approved by the Government. Unlike the programme of measures, a management plan is more general in nature and should be considered first of all as a strategic document which provides for the overview of the impact of the sources of pollution on water status and an analysis of water use, and an overview of the status of the aquifer and water bodies and of their compliance with the water quality requirements resulting from the peculiarities of water use and protection, and environmental objectives together with executive summary of programme of measures. Like the programmes of measures, water management plans are also prepared in open proceedings.

Unfortunately various uncertainties exist as regards the legal nature and legal impact of the programmes and plans, which could considerably lowen their usefull effect in achieving environmantal objectives of the directive.

What is more, infringement procedures have been brought against Estonia regarding gaps in transposition and instances of incorrect transposition of the ditrective.

2.3.4 Marine Strategy Directive (MSD)

Legal framework of the protection of marine environment is piecemeal and deficient. There are no legal acts specifically devoted to these issues. There are only some pieces of law in this regard and even those are scattered throughout different legal acts.

The Water Act, in its Article 1, merely states that insofar as the protection of water is concerned, the provisions of the Water Act also apply to the exclusive economic zone. However, this statement partly solves only the problems related to land-based pollution, and leaves alone the problem of pollution from other sources. The Water Act also deals with the transposition of the Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) but performs it formalistically in only two articles, which word by word transposes the definitions of `marine waters`, `marine region`, `environmental status` and `good environmental status` and then just declares that the good environmental status of marine waters must be achieved or maintained by 2020, without stipulating any mechanism for that.

In the end of 2012, Estonia reported according to articles 8, 9, 10 and 12 of the Directive about the result of initial assessment of the status of marine waters, determination of good environmental status and environmental targets.

No infringement procedures have been lauched by the Commission as yet.

2.4 Concluding and Summarising Remarks

Convention on the Protection of the Marine Environment in the Baltic Sea Area, (1992 Helsinki Convention) was ratified by Estonia on April 19th, 1995. Despite the fact that Estonia follows monistic approach as regards the relation between international law and national law, direct application of international law by authorities is very rare. To make provisions of international law applicable in practice these provisions need to be transposed into domestic legal order. A number of HELCOM recommendations have been implemented in Estonia. Helsinki convention is one of the few international law instruments which has had significant impact on national legal system and institutional arrangements.

One of the cornerstones of the Helsinki convention is best available technology standard, which has been transposed by Water Act. However under Estonian law BAT is up to now considered not as a strict rule but as legal principle, which should be “considered”and “taken into account”. Furthermore there are no clear criteria for BAT neither in the legislation nor in the court practice.

The HELCOM recommendation 24/3 has been transposed into Estonian law mainly by the Water Act – in particular its articles 26^1 and 26^2 - and regulations of the Government and ministries stemming from these two articles. Article 26^1 provides for a legal framework of protection of catchment areas against pollution arising from agricultural production. Under the mentioned article the more precise requirements for the storage and use of manure, silage and other fertilizers, the requirements for the composition of fertilizers and the requirements for the use of waste water sediment in agriculture, green area creation and recultivation are established by regulations of the Government and the MinistryMinister of the Environment. Article 26^1 also states that agricultural producers are recommended to follow good agricultural practice. Article 26^2 of the water act is specifically dedicated to requirements for storage of manure and liquid manure which are compatible with the above-mentioned recommendation.

HELCOM Recommendation 28E/5 was transposed by the regulation of the Government concerning the requirement of treatment and discharge of waste water, which which came into force on 01.01.2013 This regulation goes partly beyond the directive. The abovementioned regulation prescribes new stricter limit values for total phosphorus for wastewater treatment plants. Namely, for plants with a load of 2,000–10,000 person equivalents - 1 mg/L and for wastewater treatment plants with a load of more than 10,000 person equivalents - 0,5 mg/L.

Estonian Government approved on 11.12.2008 the Implementation Plan of the Baltic Sea Action Plan which highlights two main approaches to combat eutrophication – more efficient urban waste waters treatment and upgrading of agricultural technologies. This plan goes into details and prescribes quite specific measures as regards wastewater treatment and agricultural technologies (including legislative) as well as respective investments. In 2013 adoption of Implementation Plan for a new period of 2013-2016 is being elaborated in the ministry of Environment. It could be expected that the main focus of the plan will continuously be on agriculture and waste water treatment.

Recommendation 18/4 has not been transposed into Estonian law

Estonian water law is to a great extent influenced by EU law. The Nitrates Directive, the Waste Water Directive, the Water Framework Directive and the Marine Strategy Framework Directive have all been transposed by the Water Act and Governmental and ministerial regulations stemming from the latter.

The quality of transposition varies but as regards all the mentioned directives (except of Marine Strategy Framework Directive) infringement procedures have been launched against Estonia due to several gaps in transition and instances of incorrect transposition.

The state of implementation of the mentioned directives varies as well. The implementation of the Nitrates Directive may be estimate as modest. Implementation of the Waste Water Directive is a case of more or less successful implementation. Implementation of the Water Framework Directive is undermined by considerable legal uncertainties in implementation mechanism, in particular management plans and programme of measures. The state of implementation of the Marine Strategy Framework Directive is still on the initial phase.

3 Regulation on Sewerage

3.1 Introduction

Pollution from point source installations has had a decreasing trend in 1992-2004. A very stark decrease took place in 1992-1994 which was caused by reduction in industrial production in the beginning of 1990s. The following decrease in pollution can be attributed to updating of production, construction and renovation of sewage treatment plants, better regulations and increased pollution charges.[33] The indicator of the accepted base level of organic pollutants in wastewater is 1399 BOD tons per year.[34]

The Environmental Action Plan 2007-2013 lists the following goals relating to wastewater treatment:[35] under the section on development and implementation of benefits and support payment systems for minimizing human impact on water bodies and improving the status of surface water and groundwater - by the end of 2010 guaranteeing 100% collection and treatment of wastewater to comply with the established requirements in wastewater collection areas above 2000 p.e.;

- by the end of 2013 guaranteeing 100% treatment of wastewater according to the established requirements in wastewater collection areas below 2000 p.e.

The primary authority responsible for ensuring the achievement of these goals is the Ministry of the Environment, but the implementation is foreseen to be take place in cooperation with local governments.

Article 24 of the Accession Treaty of Estonia to the European Union (2004) provides for a transposition period for the implementation

[33]Environmental Strategy 2030, p 7. Available in English at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1101230/inglisekeelne.pdf. (23.10.2012)

[34]Environmental Strategy 2030, p 28.

[35]Articles 1.2.3.1 and 1.2.3.2 of the Environmental Action Plan 2007-2013. The Environmental Action Plan of Estonia for 2007-2013, approved by Order No 116 of the Government of the Republic on 22 February 2007. Available in English at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1101231/inglise_keeles_tegevuskava.pdf (23.10.2012).

of the requirements of the Council Directive 91/271/EEC concerning urban waste-water treatment (the Urban Wastewater Directive), and stipulates that the requirements for the collection and treatment of wastewater for agglomerations with a pollution load above 10 000 p.e. shall not be applied until 31 December 2009, and for agglomerations with a pollution load between 2000-10 000 p.e. shall not be applied until 31 December 2010.[36]

The Implementation Plan of the BSAP provides for a list of activities accruing from HELCOM Recommendations 28E/5 and 28E/6 that need to be fulfilled in order to reduce eutrophication caused by domestic wastewater. Most of these activities relate to updating of requirements for wastewater including establishing a limit value for phosphorus at the level of 0,5 mg/l by 2013. The primary authority responsible for ensuring the achievement of these goals is the Ministry of the Environment.

In Estonia, the public sewerage system is used by private individuals and companies. There were 42 settlements, the pollution load of which is more than 2000 p.e in 2007. In these urban areas reside 67% of the total population of Estonia of which 92% use the services of a public sewerage system.[37] As of 2010, 80% of the population is covered by public sewerage system,[38] compared with 74% in 2007.

In the course of 1992-2007, the pollution load on water bodies resulting from wastewater of urban areas and from the industry has decreased considerably. While during the first five years of that period pollution decreased due to the drop in production and water consumption of the population, during the last decade good progress has been made mainly by building new treatment plants and renovating old ones. The efficiency of wastewater treatment in Estonia has also improved considerably. Wastewater to be treated passes biological or more stringent treatment systems and the latter has brought about a noticeable decrease in the pollution load for organic matter as well as for phosphorus and nitrogen.[39]

By now, almost all wastewater treatment plants and sewerage systems of the biggest settlements and most of the smaller plants and sewerage systems have been renovated or new plants/sewerage sys-

[36]Report „Asulareovee puhastamise direktiivi nõuete täitmine Eestis“ (*Compliance with the requirements of Urban Wastewater Directive in Estonia*), Ministry of the Environment, Tallinn 2012, p 4. Available at: http://www.keskkonnainfo.ee/failid/Art%2016_aruanne_2012_LOPLIK.pdf. (12.01.2013).
[37]Ibid., p 6.
[38]Ibid., 2010, p 5.
[39]Ibid., 2010, pp 20-21.

tems have been erected. This has resulted in a continuous decrease in pollution load from wastewater. In 2011, 99, 9% of all the wastewater that required treatment was treated.[40] Still some smaller wastewater treatment plants do not function as necessary. This is due to the fact that smaller municipalities do not have sufficient funds to purchase the best technology, and there is also lack of expertise.[41]

3.1.1 Strategic policy documents relevant for sewerage treatment

In the Environmental Strategy 2030, two of the four measures with regard to water protection in Estonia are related to taking water status more into account when implementing water protection legislation. For this purpose, it is stated that in enacting and updating of legal acts, the status of water needs to be considered to a greater extent, and that it is necessary to improve and develop supervision and monitoring to identify sources of pollution and to ascertain the status of water.[42]

According to the development plan of the Ministry of the Environment 2013-2016, in agglomerations with a pollution load of more than 2000 p.e., the proportion of functioning and complying wastewater treatment plants should be as follows: the basic level is at 78%, by 2013, 90% of wastewater treatment plants should be complying and functioning, and by 2016 all wastewater treatment plants.[43]

Most of wastewater (about 60%) in Estonia is discharged to the coastal seas, as majority of the population and industry are concentrated in seaside towns. Almost all the rest of wastewater is discharged into rivers, and only a fraction is directed to soil or groundwater.[44]

The local government holds the responsibility for providing a public sewerage system in order to collect wastewater into the treatment plant and to direct treated wastewater into the environment.[45] The local government is relieved of this responsibility in case the pollution load of wastewater collection area (agglomeration) is less than 2000 p.e. or

[40]Eesti keskkonnanäitajad 2012 (*Estonian Environmental Indicators 2012*), Estonian Environment Information Centre, Tallinn 2012, p 31. Available at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1190570/Eesti+keskkonnan%E4itajad+2012.pdf. (14.10.2012).
[41]Interview with the official of the Ministry of the Environment, 28 November 2012.
[42]Environmental Strategy 2030, pp 28-29.
[43]Development Plan of the Ministry of the Environment 2013-2016, p 23. Available at: http://www.envir.ee/166316. (14.01.2013).
[44]Report on compliance with the requirements of Urban Wastewater Directive in Estonia (2012), p 29.
[45]Water Act, article $26^1(4)$.

if the establishment of the public sewerage system in wastewater collection areas above 2000 p.e. entails unjustifiably high costs. In those latter cases, the municipality can opt for wastewater collection tanks. However, the provision of collection tanks is not an obligation of the local government, but this burden is borne by private individuals.[46] The municipality needs to ensure the availability of wastewater collection points, either within its territory of management, or in the territory of a neighboring municipality.[47] It is stipulated in the Government Regulation No. 171 of 16 May 2001 "*Water protection requirements of sewerage facilities*" that wastewater collection point needs to be established in agglomerations with a pollution load of 1000 p.e. or more, and in agglomerations with a pollution load of less than 1000 p.e., if the nearest wastewater collection point is more than 30 km away, if the nearest wastewater treatment plant shall, when accepting additional wastewater, exceed its designed capacity more than 10%, or if the establishment of a collection point is provided for in the public water supply and sewerage development plan of the local government.

According to the Public Water Supply and Sewerage Act, a public water supply and sewerage system shall be constructed on the basis of a public water supply and sewerage development plan approved by the local government council.[48] This plan needs to comply with the water management plan (WMP) of the river basin sub-district and shall be, before approval, coordinated with the Environmental Board and the Health Board.49 However, local governments still lack the competence and capabilities to plan and organize water management as required, many local governments have not approved a public water supply and sewerage development plan for their territory. This has resulted in a deficient management of public water supply and sewerage systems and the sustainability of these systems is not ensured.[50]

In practice, there is growing focus on reusing sewage sludge. In 2010, 89% of sewage sludge from agglomerations with a pollution load above 2000 p.e. was reused. Sludge is mainly used in compost and for green area creation.[51] For the use of wastewater sediment and

[46]Water Act, articles $26^1(5)$ and $26^1(7)$.
[47]Government Regulation No 171 of 16 May 2001 „Water protection requirements of sewerage facilities", article 17. Available at: https://www.riigiteataja.ee/akt/13305356. Accessed. (14.01.2013).
[48]Public Water Supply and Sewerage Act, article 4(1).
[49]Public Water Supply and Sewerage Act, article $4(2^3)$ and article $4(2^4)$.
[50]Development Plan of the Ministry of the Environment 2011-2014, p 10. Available at: http://www.envir.ee/166316 . . (14.01.2013).
[51]Report on compliance with the requirements of Urban Wastewater Directive in Estonia (2012), p 16.

for the reduction of the impact of containing nutrients and heavy metals, the Minister Minister of the Environment with its regulation based on the Water Act has established requirements for the use of wastewater sediment in agriculture, green area creation and recultivation.[52]

3.1.2 Ecosystems approach reflected in the regulatory system

The regulatory system reflects the ecosystems approach to a certain extent. In the Water Act, there is a possibility to set stricter limit values for pollutants in wastewater than those stipulated in the Government regulation on directing wastewater into a water body or soil. These limit values can be set up to 30% stricter if the water body into which wastewater is to be directed is in a bad or very bad status, and up to 15% stricter, if the quality indicators shall deteriorate as a result of directing wastewater into the water body, and there is a risk that the status of the water body may deteriorate.[53] The stricter limit values shall be set in the water permit. In practice these norms have been made use of in few cases (for example, in the West-Estonian river basin district, in 6 cases 15% more stringent measures have been applied on the basis of article 24(6) of the Water Act, and in 9 cases, 30% more stringent measures have been applied on the basis of article 24(5) of the Water Act).[54] But generally, the permit issuer is not very willing to resort to these provisions because it is necessary to prove with sufficient certainty that the wastewater treatment plant is responsible for the deterioration in the status of the water body.

3.2 Sewage Treatment Plants – Agglomerations

Wastewater collection area (agglomeration) is an area with enough residents or economic activity for wastewater to be collected in a wastewater treatment plant through a sewerage system or to be discharged to a recipient. Wastewater collection area is delimited on the basis of the Water Act.[55]

[52] Regulation of the Minister of the Environment No 78 of 30 December 2002 „Requirements for using wastewater sediment in agriculture, green area creation and recultivation“. Available on the Internet at: https://www.riigiteataja.ee/akt/761407.
[53] Water Act, article 24(6).
[54] West-Estonian WMP, pp. 206-210.
[55] Public Water Supply and Sewerage Act, article $4(2^2)$.

In Estonia, criteria for determining agglomerations are enacted by Government Regulation No. 57 of 19 March 2009 "*Criteria for designating wastewater collection areas (agglomerations)*", taking into account the protection level of groundwater and surface water and socio-economic aspects. According to these criteria, agglomeration is a settlement with at least 50 inhabitants and minimum size of an agglomeration is 5 hectars. A settlement is determined as an agglomeration for sewage collection purposes: 1) if the groundwater in the area is protected or relatively protected and the organic pollution load per one hectar is more than 20 population equivalents (p.e.); 2) if the groundwater in the area is protected in average and the organic pollution load per one hectar is more than 15 p.e.; and 3) if the groundwater is weakly protected or not protected and the organic pollution load per one hectar is more than 10 p.e. Hence, agglomerations are primarily designated for the protection of groundwater, and not so much for the protection of surface water (including coastal water).

In determining a settlement as an agglomeration, the socio-economic criterion needs to be considered meaning that the costs of one household on public water supply and sewerage may not exceed 4% of the average annual netto income of one member of the household in her county of residence. If this criterion cannot be applied according to the public water supply and sewerage development plan or to some other documentation, then the area limits of agglomeration shall be reduced, unless this is not justified from environmental protection perspective. This means that the environmental protection criterion overrides the socio-economic criterion, and funding for providing the sewerage and water supply service needs to be found from additional sources.

Finally, an agglomeration may be determined also in other cases (not considering the provided minimum pollution loads nor the protection level of groundwater) where it is necessary for the protection of groundwater or surface water, if it is justified from the perspective of environmental protection and also socio-economic conditions. The proposal for determining a settlement as an agglomeration shall be made by the Environmental Board. From the wording of this provision, however, it remains ambiguous, which criterion is overriding – either the environmental protection or the socio-economic one. Considering other parts of the regulation, it seems that the environmental protection criterion is superior. The actual designation of agglomerations is done by the MinistryMinister of Environment (the last designation took place in 2008). Currently there are 59 agglomerations with

a pollution load above 2000 p.e., of which 37 agglomerations are with a pollution load between 2000-10 000 p.e. and 22 agglomerations with a pollution load more than 10 000 p.e.[56] Once the agglomerations are designated, local governments are required to take the borders of the agglomeration into account in the general spatial plan.

The purpose of designating settlements as agglomerations is related to the establishment of public sewerage system. All local governments need to ensure the availability of public sewerage system, unless the pollution load in the agglomeration is less than 2000 p.e. or even if the pollution load is 2000 p.e. or more, the establishment of a sewerage system would be unjustifiably expensive. In the latter case, leak-proof collection tanks can be used.

In areas where it is not obligatory to establish public sewerage system according to the Water Act, the person who generates wastewater is obliged to collect wastewater into a leak-proof collection tank and arrange its transportation into a collection point indicated in the public water supply and sewerage development plan. If the pollution load of the agglomeration is below 2000 p.e., it is allowed to direct wastewater into soil, but prior to that wastewater needs to be at least biologically treated.

3.2.1 Regulatory system for sewage treatment plants

The general framework for the establishment of public sewerage systems is provided for in the Public Water Supply and Sewerage Act. All public sewerage service providers (water undertakings) need to have a water permit for operation on the basis of article 9(2)4) of the Water Act where it is stipulated that a water permit is required if wastewater or pollutants is/are directed into the (receiving) environment. The Water Act stipulates that upon issuance of permits for the special use of water, the possibility of waste water being treated and effluent being discharged through the public sewerage system shall be taken into consideration.[57]

A public water supply and sewerage system shall be constructed on the basis of a public water supply and sewerage development plan approved by the local government council. This plan shall be prepared for a period of 12 years, reviewed at least once every four years and

[56]More than 980 000 people live in these 59 agglomerations, of which 93% are connected to public sewerage system.
[57]Water Act, article 9(6).

revised accordingly, if necessary.[58] A public water supply and sewerage development plan has to be in accordance with the WMP of the river basin sub-district, and before approval it shall be coordinated with the Environmental Board and the Health Board.

The Ministry of the Environment develops regulation related to public water supply and sewerage in order to ensure the proper implementation of the Urban Wastewater Directive. However, as local governments hold autonomy to arrange certain matters on their territory according to the best of their knowledge of the local conditions, the central government has limited power to oblige municipalities to choose particular solutions, or for example to exert pressure on them to adopt public water supply and sewerage development plans. This may partly account for the current situation wherein several agglomerations in which the pollution load exceeds 2000 p.e., proper collection and treatment of wastewater is still not taking place. In 2009, only 35 out of 60 agglomerations complied with the relevant requirements. Insufficient attention has been paid to solving wastewater problems in smaller agglomerations (with a pollution load below 2000 p.e.).[59]

In the context of the Urban Wastewater Directive, the whole territory of Estonia is defined as pollution sensitive (including coastal waters). Considering this, removal of phosphorus and nitrogen (tertiary treatment) is one of the main goals of wastewater treatment in Estonia, and for this reason increasing emphasis is put on biological-chemical deep treatment of wastewater.[60] As a general requirement, when directing treated wastewater or rain water into the environment, it is obligatory to ensure that the status of water ecosystems and terrestrial ecosystems connected to water ecosystems shall not deteriorate.[61]

According to Regulation No. 99 (entered into force on 1 January 2013), general requirements for treated wastewater shall be set as limit values for pollution indicators, provided that pollutants found in wastewater can be removed by routine biochemical treatment.

On a regulatory level, only the most common wastewater treatment options are mentioned, leaving the choice for specific treatment methods open in order not to hinder the development and application

[58]Public Water Supply and Sewerage Act, article 4(2).
[59]Development Plan of the Ministry of the Environment 2011-2014, p 9.
[60]Report on compliance with the requirements of Urban Wastewater Directive in Estonia (2012), p 5.
[61]Government Regulation No 99 of 29 November 2012 "Requirements on the treatment of wastewater and directing treated wastewater and rain water into the environment, limit values of pollution indicators for treated wastewater and rain water, and measures for controlling the implementation of these requirements". Available at: https://www.riigiteataja.ee/akt/104122012001. (12.12.2012)

of new solutions as technology advances. Wastewater treatment requirements depend on the type of wastewater, pollution load of the agglomeration and the state of the receiving environment. Specific treatment requirements shall be set by the permit issuer on the basis of the size of the agglomeration, quality of the receiving environment, impact of treated wastewater on the quality of the receiving environment, and economic considerations. Specific wastewater treatment levels are prescribed only in cases where pollution limit values for treated wastewater cannot be achieved by biochemical treatment, and in order to achieve the necessary limit value, additional treatment methods should be used which would, however, entail unreasonable costs.

The treatment level of wastewater is characterized as a rate of removing pollutants in wastewater, and is expressed as a percentage. Depending on efficiency of wastewater treatment, following treatment options are provided for in the regulation: mechanical (primary) treatment, biological (secondary) treatment and deep (tertiary, biochemical) treatment. In Estonia, most agglomerations with a pollution load of more than 2000 p.e. treat wastewater biologically or biochemically, and only in one case mechanical treatment is used. In 2010, these treatment methods were used to treat wastewater in the following amounts: altogether 103,7 million m^3 of wastewater was treated; 10,8 million m^3 was subjected to biological treatment of which 94% was treated in compliance with the relevant rules, and 92,8 million m^3 of wastewater was subjected to biochemical treatment.[62]

The Water Act states that emission limit values for wastewater shall be established by Government regulation depending on the pollution load of the agglomeration and the status of the water body. If the settlement has not been determined as an agglomeration, the limit values shall be set on the basis of the pollution load of the treatment plant and the status of the water body.[63] For this purpose, the Government adopted Regulation No. 269 on 31 July 2001 "*Procedure for directing wastewater into a water body and soil*". In Annex 2, limit values for total phosphorus and total nitrogen (for nitrogen, a range of limit values) are set depending on the pollution load of the agglomeration; however, no mention is made of the status of the water body. It is stipulated that the permit issuer shall set concrete emission limit values and determine the appropriate treatment level of wastewater in the

[62]Report on compliance with the requirements of Urban Wastewater Directive in Estonia (2012), p 9.
[63]Water Act, article 24(2).

water permit, taking into account environmental protection requirements and economic considerations.[64] As of 1 January 2013, new Government Regulation No. 99 has come into force that allows the permit issuer to set more stringent emission limit values than those provided for in Annex 1 of the Regulation, if that is necessary for reasons of water protection. The Regulation refers to articles 24(5) and 24(6) of the Water Act for applying these more stringent standards and, therefore, does not introduce anything innovative (as these provisions of the Water Act have been effective since 2009). The new Regulation does not make any substantive changes for setting more stringent emission limit values, but introduces more clarity into legal regulation on emission limit values.

For pollution sources with a pollution load of less than 2000 p.e. or if the pollution load of the source cannot be characterized in terms of pollution equivalents, then emission limit values set for those pollution sources cannot be stricter than those provided for in Annex 2 of Regulation 269. The exact emission limit values for these treatment plants shall be set by the permit issuer (the Environmental Board) who has discretion to set more lenient limit values than provided in Annex 2 of Regulation 269. However, as of 1 January 2013, the permit issuer shall not have this discretion any longer for wastewater treatment plants with a pollution load of less than 2000 p.e., as these shall be set on a regulatory level. Nonetheless, for plants with a pollution load of less than 300 p.e. and other pollution sources, the permit issuer may still, on the basis of environmental protection requirements, set emission limit values and determine the level of treatment for wastewater in the water permit. Hence, to certain extent the permit authority still retains discretion also for plants with smaller capacity.

3.2.2 Regulation of industrial sewage water in relation to sewage treatment plants

In Estonia, wastewater from households and industrial wastewater is generally treated in the same wastewater treatment plant.[65] Industrial wastewater originates mainly in food industry and is therefore well treated together with wastewater from households. Several companies in Estonia have their own treatment plants and the requirements for

[64]Government Regulation No 269 on 31 July 2001 "Procedure for directing wastewater into a water body and soil", article 5(1). Available at: https://www.riigiteataja.ee/akt/104122012007.
[65]Report on compliance with the requirements of Urban Wastewater Directive in Estonia (2012), p 14.

treated wastewater are set in the water permit (or in the integrated environmental permit). With regard to certain parameters, industries are subjected to some exemptions.

3.2.3 Regulatory problems in setting relevant substantive standards for sewage treatment plants

The regulation on directing wastewater into the environment and on emission limit values has been recently amended and these amendments have come into force as of 1 January 2013 (Government Regulation No. 99 of 29 November 2012 "*Requirements on the treatment of wastewater and directing treated wastewater and rain water into the environment, limit values of pollution indicators for treated wastewater and rain water, and measures for controlling the implementation of these requirements*"). According to the explanatory note to Regulation No. 99, the main amendments concern setting specific emission limit values also for wastewater treatment plants with a pollution load of less than 2000 p.e., incorporating considerations of the status of water body into the requirements and taking into account the specific requirements on wastewater treatment plants of HELCOM Baltic Sea Action Plan.

Until 31 December 2012, emission limit values were set based on the pollution load of the wastewater treatment plant, but since 1 January 2013, these values shall be based on the pollution load of the agglomeration, meaning that bigger agglomerations need to comply with stricter standards. The explanatory note does not clarify the reasons behind such a change in approach, but considering the pollution load of agglomerations rather than that of concrete wastewater treatment plants advances the ecosystems approach because it allows setting emission limit values on the basis of cumulative pollution load of the agglomeration and not on the basis of the capacity of the treatment plant (as a result the treatment plant needs to adapt to the requirements of the agglomeration). The pollution load of the treatment plant shall be taken as a basis for setting limit values only when there is no agglomeration designated according to the Water Act.

The explanatory note to Government Regulation No. 99 also predicts a one-third decrease in phosphorus load on water bodies in 2013 as a result of stricter requirements on phosphorus removal from wastewater.

According to the Report on the Implementation of Urban Wastewater Directive in 2008-2010, there are still a number of

wastewater treatment plants in Estonia that do not comply with the requirements of the Directive. In 2009, of the 22 agglomerations with a pollution load above 10 000 p.e. only 10 were able to fulfill the requirements stipulated in Article 3 (wastewater collection systems) and Article 4 (secondary treatment) of the Urban Wastewater Directive (45.5% of agglomerations), and only 9 fulfilled the requirements stipulated in Article 5 of the Directive (tertiary treatment) (40.9% of agglomerations).[66] The main reason for non-compliance is the still on-going construction and reconstruction of wastewater treatment plants and sewerage plumbing.

With regard to agglomerations with a pollution load of 2000-10 000 p.e., all 59 agglomerations were supposed to meet the requirements of the Urban Wastewater Directive by 31 December 2010. However, by that date only 33 agglomerations were able to fulfill the requirements of Article 3 of the Directive (wastewater collection systems), 29 agglomerations fulfilled the requirements of Article 4 of the Directive (secondary treatment), and 9 agglomerations with a pollution load above 10 000 p.e. fulfilled the requirements of Article 5 of the Directive (tertiary treatment). The main reason for non-compliance is still on-going projects in wastewater treatment (however, the compliance rate is higher than in 2009).[67]

3.3 Treatment of Individual Sewage Water Emissions/Private Sewerage

There is not much information available on the quantity and quality of private sewerages, and especially on their role in the eutrophication problem. The Water Act provides for rules in a situation where there is no public sewerage (either due to the fact that it is unjustifiably expensive or it is not obligatory to establish one according to law), without referring explicitly to private sewerages. It is stated that wastewater is to be collected into a leak-proof tank and transported to a wastewater collection point (the person under this obligation is the person who has generated the wastewater, and not the local government). It is allowed to direct wastewater into soil if it has been at least

[66]Report „Asulareovee puhastamise direktiivi nõuete täitmine Eestis“ (*Compliance with the requirements of Urban Wastewater Directive in Estonia*), Ministry of the Environment, Tallinn 2010. Available at: http://www.keskkonnainfo.ee/failid/vesi/Art_16_aruanne_2010.pdf. (05.01.2013).
[67]Ibid., p 13.

biologically treated. If the pollution load of the agglomeration is more than 2000 p.e., then it is prohibited to use private wastewater treatment plants (on-spot treatment plants, or *kohtpuhasti*).

3.3.1 Rules for connecting individual sewerages to treatment plants

In an agglomeration with a pollution load of 2000 p.e. or more, it is prohibited to use local treatment facilities for wastewater, except facilities for pre-treatment of wastewater or facilities for treatment of industrial wastewater. In the opposite situation, however, where the public sewerage system has already been built, the Public Water Supply and Sewerage Act addresses only the rights of private parties in joining the public sewerage system, and does not establish it as an obligation. For this purpose, the water undertaking and the client will need to conclude a contract. This contract shall be entered into pursuant to the rules on use of public water supply and sewerage systems that shall be approved by the local government council. These rules shall establish, among other things, limit values for pollutants in wastewater and rain water discharged to the public sewerage system. When setting limit values, it is necessary to ensure that the wastewater discharged from public sewerage system conforms to the requirements established on the basis of the Water Act and wastewater discharged to the public sewerage system does not damage the functioning of the public sewerage system.[68]

It may be said that it is rather the obligation of the water undertaking to plan the development of the public sewerage in a way that many clients living in the agglomeration would be connected to the public sewerage. The Public Water Supply and Sewerage Act stipulates that the owner or possessor of a public water supply and sewerage system shall develop the system in the area serviced by the public water supply and sewerage system in a manner which ensures that all the registered immovables in the area are supplied with water from the public water supply and that wastewater is led off from the registered immovables to the public sewerage system.[69]

[68]Public Water Supply and Sewerage Act, article 8(4).
[69]Public Water Supply and Sewerage Act, article 4(4).

3.3.2 Private sewerage treatment facilities

Private treatment facilities for wastewater treatment are required only in agglomerations with a pollution load of less than 2000 p.e. and where there is no public sewerage established in the agglomeration. In those cases, private treatment needs to ensure at least biological treatment of wastewater. There is no obligatory licencing or notification requirements in place for individual treatment facilities. In case of private households, the requirement to apply for a water permit is connected to the amount of wastewater produced and directed into the environment. Therefore, if the household generates wastewater less than 5 m^3 during a period of 24 hours, then no water permit is required.[70] However, directing wastewater into soil needs to comply with rules established for that purpose (Government Regulation No 99 referred to above).

3.3.3 Regulatory challenges and developments

The enforcement authorities have not paid much attention to smaller private wastewater treatment plants making it difficult to assess whether there are any problems with compliance. The main recent development concerning small wastewater treatment plants is that treatment plants with a pollution load of less than 300 p.e. have been brought under the regulatory scope of Government Regulation No. 99 on the basis of HELCOM Recommendation 28E/6 (alternative 2 has been chosen). However, for these plants only three parameters have been set, and these do not address nitrogen or phosphorus concentration in the treated wastewater. In addition, as of 1 January 2013, wastewater treatment plants with a pollution load of 300-1999 p.e. have been brought under the regulation on the basis of HELCOM Recommendation 28E/5, setting limit values for total phosphorus at the level of 2 mg/l or a treatment level of 70% for treated wastewater (this requirement shall be applied only as of 1 January 2019), and for total nitrogen at the level of 60 mg/l or a treatment level of 30% for treated wastewater.

3.3.4 Supervision and enforcement

Supervision over the rules on wastewater treatment and compliance with rules on directing treated wastewater into the environment (in-

[70] Water Act, article 8(3).

cluding compliance with limit values) is conducted by the Environmental Inspectorate and enforcement authorities of local governments. Environmental Inspectorate focuses on ensuring compliance with emission limit values for pollutants in wastewater, while the local government deals mainly with ensuring that the water undertaking is complying with the public water supply and sewerage development plan and other rules established by the local government, especially those concerning the price for water services.

The Environmental Inspectorate can issue precepts for compliance on the basis of the Water Act and the Environmental Supervision Act while the local government has been provided with the relevant power on the basis of the Public Water Supply and Sewerage Act (however, the latter power relates only to the connection charges or prices for water services).

3.3.5 Substantive demands on sewerage treatment plants

The pollution load of wastewater treatment plant is set by a permit issuer as follows: once a year for a treatment plant with a pollution load of 2000 p.e. or more; once in five years for a treatment plant with a pollution load of less than 2000 p.e., or in case there is a considerable change in the functioning of the treatment plant; and only when the permit issuer considers it necessary or in case there is a considerable change in the functioning of the treatment plant, for treatment plants with a pollution load of less than 50 p.e. If the pollution load of the treatment plant (or other pollution source) cannot be determined by pollution equivalents, then the permit issuer shall set limit values for pollutants in wastewater or the treatment level, taking into account that the treated wastewater which shall be directed into the environment shall not deteriorate the status of the recipient.

The requirements for private treatment plants are set in Government Regulation No. 171 "*Water protection requirements for sewerage facilities*". It is stated, in the Regulation, that for private treatment plants (with a pollution load of less than 50 p.e.) the protection zone around the plant needs to be at least 10 m unless the treatment plant is covered, in which case the zone needs to be at least 5 m. As stated above, private treatment plants can be established only in agglomerations with a pollution load of less than 2000 p.e., or in areas that have not been designated as agglomerations.

Requirements are set for directing treated wastewater from private treatment plants (pollution load of less than 50 p.e.) into soil. In this

case, the distance of the recipient and a well for drinking water depends on the soil and its characteristics. In addition, it is prohibited to direct wastewater into groundwater and onto frozen soil.[71]

3.3.6 Monitoring

If the amount of wastewater directed into soil exceeds 5 m^3, then it is obligatory to ensure that samples can be taken from wastewater in order to verify that emission limit values set in the water permit are complied with. Government Regulation No. 99 stipulates specific standards for taking representative samples and sets the frequency of sample-taking. In accordance with the Urban Wastewater Directive, for wastewater treatment plants or pollution sources with a pollution load of 2000-14 999 p.e. it is required to take 12 samples per year, and for wastewater treatment plants or pollution sources with a pollution load of 50 000 and more p.e. at least 24 samples per year. In addition, the permit holder needs to assess the treatment level of wastewater once a year by taking samples from untreated wastewater and treated wastewater. Concentrations of total nitrogen and total phosphorus is calculated as an average of samples taken throughout the year, and this mean value has to comply with emission limit value of Annex 1 of Regulation No. 99; otherwise treated wastewater cannot be considered to be in compliance with the established emission limit values.

The water user is obliged to monitor the impact of wastewater on the recipient environment with a frequency and in spots determined in the water permit. The results of monitoring need to be submitted at least once a year to the permit issuer, indicating the volume of treated wastewater and the amount of pollutants directed into the environment.[72]

3.3.7 Regulatory problems in setting relevant substantive standards for sewage treatment plants

Setting more stringent standards for treated wastewater to the operator needs to be preceded by evidence that the excessive pollution load can be attributed to the functioning of the treatment plant. However, in areas where there are wastewater treatment plants, many other activities that impact water quality take place. So it may be difficult to attribute with certainty the cause of pollution on the wastewater treat-

[71]Water Act, article 24(1).
[72]Water Act, article 21 section 6.

ment plant, taking into account also the limited data on the actual state of the water body, on the functioning of the relevant ecosystem, and on how different human activities and natural conditions affect trends in water quality, in the short-term as well as in the long-term.

Setting relevant substantive standards for sewage treatment plants is not so much a regulatory problem, but rather a problem of expertise and financing. As stated above, only the most common wastewater treatment options are mentioned in regulation, leaving the choice for specific treatment methods open, in order not to hinder the development and application of new solutions as technology advances. Sewage treatment plants need to integrate technologies that are best suited for the particular locality, taking into account the pollution load of the area and possible future developments in social and economic terms (whether there is a growing population in the municipality, what kind of economic activities are taking place or are planned for the future, etc.). At the same time, a certain kind of balance needs to be found – there is no point in investing into large sewage treatment plant that will be too costly for the local population, but on the other hand opting for a plant (technology) that later needs to be replaced in full, because it cannot accept the pollution load due to its limited capacity, may turn out to be unreasonably costly as well.

In sum, to a large extent compliance with substantive standards is best ensured by wise planning and expertise of the local conditions as well as that of wastewater treatment technologies. It is important to note here as well that correct understanding of priorities is crucial (balancing between social, economic and environmental considerations), in which case political pressure may become necessary. For example, an increase in the price for water services is inevitable if the local government is to take its obligation to modernize or establish a sewage treatment plant seriously. This, however, may not be a politically popular development. Therefore, stakeholder involvement is extremely important when outlining and contemplating different options – the beneficiaries of water services need to understand their role and responsibility in using the services in a sustainable manner. In this respect, open discussions and transparency should be more actively promoted also at the regulatory level. However, the Public Water Supply and Sewerage Act does not provide for an active engagement of local inhabitants into the drafting of the public water supply and sewerage development plan.

3.4 Ecosystems Approach and Regulation of Sewerage

The Water Act provides for a combined approach in controlling point and diffuse pollution as stipulated in Article 10 of the Water Framework Directive, requiring the adoption of more stringent emission limit values (for wastewater) or establishment of more stringent environmental requirements or environmental quality standards, if this is necessary for achieving environmental objectives stipulated in the Water Act and in river basin district management plans.

Secondly, the whole territory of Estonia has been designated as a sensitive area in terms of the Urban Wastewater Directive. This means that more stringent requirements than provided for in Article 4 of the Directive apply on the treatment of wastewater to be discharged into the environment. This applies to all discharges from agglomerations of more than 10000 p.e.

It is stipulated in the Water Act that the application for issuance of water permit will be denied if the status of the receiving waters deteriorates to the extent which makes the water body non-usable. It is not clear if this provision can be used also for an instance where the status of the receiving waters deteriorates to the extent that makes achievement of the environmental objective for that water body impossible or unlikely.

Government Regulation No. 99 sets limit values for pollution indicators in treated wastewater depending on the pollution load of the agglomeration. These limit values are applied throughout Estonia. Certain adaptations can be made and more stringent emission limit values can be set for the permit holder if the status of water body is bad or very bad, or if it becomes evident that directing wastewater into the water body deteriorates the status of the water body. There is no regulation, however, that would prohibit directing wastewater into a water body completely or to apply even more stringent limit values or other environmental requirements than stipulated in articles 24(5) and 24(6) of the Water Act (and as referred to above). Although the explanatory note to Regulation No. 99 emphasizes that determination of limit values for pollution indicators and the treatment level of wastewater depends on environmental protection needs (and economic considerations), there is no legal mechanism in place that would allow setting more stringent limit values for pollution indicators due to the cumulative impact of different activities taking place in the river basin on the water body, or due to the existing status or peculiarities of a specific water body. The status of a water body need not be directly

under threat of deterioration because of directing wastewater into water body, but this activity may trigger processes including long-term effects that may in time lead to the deterioration of the water body's status. However, these instances are not dealt with in legal regulation.

Water management plans identify water bodies where new activities should be avoided or existing activities should be restricted. However, activities have not been identified specifically, but only the type of pollution is mentioned (point source pollution). There is no indication whether and where more stringent wastewater emission limit values should be applied.[73] For example, the East-Estonian WMP simply states that in accordance with the combined approach, the limit values for wastewater need to be made stricter in the water permit if this becomes necessary.[74]

Regulation No. 99 has differentiated limit values for pollution indicators and wastewater treatment levels according to the pollution load of the agglomeration. Until 1 January 2013, the pollution load of the pollution source (*reostusallikas*) was taken as the basis for determining the requirements for treated wastewater. Bigger agglomerations need to comply with stricter standards and in case of total nitrogen and total phosphorus, the differences are quite significant: for example, in agglomerations with a pollution load of 10 000 p.e. and more, the limit value for total phosphorus is 0,5 mg/l (treatment level is 90%), while for agglomerations with a pollution load of 300-1999 p.e, the limit value for total phosphorus is 2 mg/l (for total nitrogen these limit values are 15 or 10 mg/l and 60 or 45 mg/l respectively). Considering the pollution load of agglomerations rather than that of concrete wastewater treatment plants advances the ecosystems approach because it allows setting emission limit values on the basis of cumulative pollution load and taking into account greater amount of environmental pressure from the agglomeration, and not on the basis of the capacity of the treatment plant (as a result, the treatment plants need to adapt to the requirements of the agglomeration).

As concerns designation of agglomerations, these designations have been amended by the Ministry of the Environment several times,[75] although there is no requirement stipulated in the Water Act to review such designations on a regular basis. The main criterion for

[73]The plans do, however, specify for which water bodies more stringent limit values are already being applied on the basis of articles 24(5) and 24(6) of the Water Act.
[74]East-Estonian river basin district management plan, p 101.
[75]Since 2008, the Minister of the Environment has amended the decree on the designation of agglomerations five times. http://www.envir.ee/reovesi. /(11.01.2013).

designating an area as an agglomeration is the number of inhabitants in the area, how concentrated the inhabitants are in this area (an area has to be designated as an agglomeration if the number of inhabitants exceeds 50, and the minimum size of the agglomeration is 5 hectars), and the protection level of groundwater. There is a legal ground for designating an area as an agglomeration also for the protection of surface water (including coastal water), but this is provided for rather as a secondary option. Considering that most of wastewater (about 60%) in Estonia is discharged to the coastal sea, as majority of the population and industry are concentrated in seaside towns, this rather lenient approach in regulation towards protection of surface water is not conducive to minimize pollution load from sewage in coastal areas.

Ecological standards of certain protection areas translate into prohibitions or limitations of directing wastewater into the environment. For example, in the limited management zones of shores and banks (which in case of the Baltic Sea extends to 200 m), it is prohibited to spread sewage sludge.[76] Similarly, not only spreading of sewage sludge but also directing wastewater is prohibited in sanitary protection zones of groundwater intakes, and in certain surface water intakes.[77]

The main stakeholder involved in wastewater issues is the Estonian Water Works Association. This Association brings together water undertakings which provide water services and other companies involved in the field of water supply and sewerage. It consists of 40 water undertakings and 22 other companies. When the Ministry of the Environment is drafting regulations concerning public water supply and sewerage issues, it always invites the Estonian Water Works Association to submit its comments and opinions on draft legislation. So, it may be said that cooperation between the Ministry of the Environment and the Estonian Water Works Association is very strong and taking place on a regular basis.

As the local government is responsible for organizing public sewerage system in the municipality,[78] the local inhabitants have the possibility to express their views on the public water supply and sewerage development plan. However, the extent to which the local inhabitants are involved in such plans depends very much on the administrative practices and capabilities of the specific municipality. The Public Wa-

[76]Nature Conservation Act, article 37(3)1).
[77]Water Act, article 28^1.
[78]There are altogether 226 municipalities in Estonia, of which 33 are cities and 193 are rural municipalities.

ter Supply and Sewerage Act does not stipulate any special provision for conducting an open procedure for drafting and discussing the plan. The plan needs to be coordinated with the Environmental Board and the Health Board and will be drafted for a period of 12 years, reviewed then after every 4 years. The Public Water Supply and Sewerage Act also provides that the public water supply and sewerage development plan needs to be in compliance with the management plan of river basin sub-district; however, management plan of river basin district is not mentioned.

Private individuals can trigger certain processes with regard to designation of agglomerations (decree of the Ministry of the Environment) and decisions of the local government concerning services of sewage treatment. Decrees and decisions are administrative (decrees can also be legislative acts) acts of individual character (includes also general orders that are directed at persons determined on the basis of general characteristics (e.g. the location) or at changing the public law status of things) that can be challenged in an administrative court in accordance with the procedure provided for in the Administrative Procedure Act. In those cases, however, the individual has to show how the decree or decision affects her rights or freedoms.

According to the Local Government Organisation Act, not less than one per cent of the residents of a rural municipality or city with the right to vote, however not less than five residents with the right to vote, have the right to initiate the passage, amendment or repeal of legislation of the rural municipality or city council or government concerning local issues. Such initiatives shall be debated not later than within three months.[79] With regard to amending or repealing existing legislation, everyone has the right to apply to a rural municipality or city government for the amendment or repeal of legislation passed by the rural municipality or city government if such legislation unlawfully restricts the rights of the applicant.

3.5 Concluding and Summarising Remarks

Pollution from point source installations has had a decreasing trend in the years 1992-2004. A very stark decrease took place in 1992-1994

[79]Local Government Organisation Act, article 32(1). Available at: https://www.riigiteataja.ee/akt/128122012005. Available in English at: http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X2009K8&keel=en&pg=1&ptyyp=RT&tyyp=X&query=kohaliku+omavalitsuse (15.01 2013).

due to reduction in industrial production in the beginning of 1990s. The following decrease in pollution can be attributed to upgrading of production, construction and renovation of sewage treatment plants, better regulations and increased pollution charges.

The Implementation Plan of the BSAP provides for a list of activities accruing from HELCOM Recommendations 28E/5 and 28E/6 that need to be fulfilled in order to reduce eutrophication caused by domestic wastewater. Most of these activities relate to updating of requirements for wastewater, including establishing a limit value for phosphorus at the level of 0,5 mg/l by 2013. The primary authority responsible for ensuring the achievement of these goals in Estonia is the Ministry of the Environment.

According to the Public Water Supply and Sewerage Act, a public water supply and sewerage system shall be constructed on the basis of a public water supply and sewerage development plan approved by the local government council. This plan needs to comply with the water management plan of the river basin sub-district. Local governments still lack the competence and capabilities to plan and organize water management as required and hence many local governments have not approved a public water supply and sewerage development plan for their territory. This has resulted in a deficient management of public water supply and sewerage systems and the sustainability of these systems is not ensured.

The regulatory system dealing with pollution from sewerage reflects the ecosystems approach to a certain extent. In the Water Act, there is a possibility to set stricter limit values for pollutants in wastewater than those stipulated in the Government regulation on directing wastewater into a water body or soil. These limit values can be set up to 30% stricter if the water body into which wastewater is to be directed is in a bad or very bad status, and up to 15% stricter if the quality indicators are to deteriorate as a result of directing wastewater into the water body and there is a risk that the status of the water body may deteriorate (articles 24(5) and 24(6) of the Water Act). The stricter limit values shall be set in the water permit. In practice these norms have been made use of in few cases, but generally the permit issuer is not willing to resort to these provisions because it is not always possible to prove with sufficient certainty that the wastewater treatment plant is responsible for the deterioration in the status of the water body.

According to the Urban Wastewater Directive, a Member State needs to designate agglomerations for the purposes of establishing a

public sewerage system. In Estonia, these designations are based on certain criteria, like the environmental protection criterion and the socio-economic criterion. It seems that the environmental protection criterion is given more weight over the socio-economic one when delimiting the boundaries of an agglomeration; however, the regulation is somewhat ambiguous in this respect and may be interpreted in different ways. The Ministry of the Environment develops regulation related to public water supply and sewerage in order to ensure proper implementation of the Urban Wastewater Directive. However, as local governments hold autonomy to arrange certain matters on their territory according to the best of their knowledge of local conditions, the central government has limited power to oblige municipalities to choose particular solutions, or for example to exert pressure on them to adopt public water supply and sewerage development plans.

In the context of the Urban Wastewater Directive, the whole territory of Estonia is defined as pollution sensitive (including coastal waters). Considering this, removal of phosphorus and nitrogen (tertiary treatment) is one of the main goals of wastewater treatment in Estonia, and for this reason increasing emphasis is put on biological-chemical deep treatment of wastewater. As a general requirement, when directing treated wastewater or rain water into the environment, it is obligatory to ensure that the status of water ecosystems and terrestrial ecosystems connected to water ecosystems shall not deteriorate. The permit issuer shall set concrete emission limit values and determine the appropriate treatment level of wastewater in the water permit, taking into account environmental protection requirements and economic considerations.

There is no regulation that would prohibit directing wastewater into a water body completely or to apply even more stringent limit values or other environmental requirements than stipulated in articles 24(5) and 24(6) of the Water Act. There is no legal mechanism in place that would allow setting more stringent limit values for pollution indicators due to the cumulative impact of different activities taking place in the river basin on the water body, or due to the existing status or peculiarities of a specific water body. The status of a water body need not be directly under threat of deterioration as a result of directing wastewater into water body, but this activity may trigger processes including long-term effects that may in time lead to the deterioration of the water body's status. However, these instances are not dealt with in regulation.

Until 31 December 2012, emission limit values were set based on the pollution load of the wastewater treatment plant, but since 1 January 2013, these values shall be based on the pollution load of the agglomeration meaning that bigger agglomerations need to comply with stricter standards. Considering the pollution load of agglomerations rather than that of concrete wastewater treatment plants advances the ecosystems approach because it allows setting emission limit values on the basis of cumulative pollution load of the agglomeration, and not on the basis of the capacity of the treatment plant (as a result, the treatment plant needs to adapt to the requirements of the agglomeration). The pollution load of the treatment plant shall be taken as a basis for setting limit values only when there is no agglomeration designated according to the Water Act.

Ecological standards of certain protection areas translate into prohibitions or limitations of directing wastewater into the environment. For example, in the limited management zones of shores and banks (which in case of the Baltic Sea extends to 200 m), it is prohibited to spread sewage sludge. Similarly, not only spreading of sewage sludge but also directing waste water is prohibited in sanitary protection zones of groundwater intakes, and in certain surface water intakes.

It may be said that standards on wastewater are not sufficiently dynamic to allow proper application of the ecosystems approach. Namely, there is no assessment in WMPs as to how wastewater directed into rivers may cumulatively affect the coastal sea (together with wastewater that is directly directed into the sea). The Water Act provides only for the possibility to apply more stringent limit values in order to protect the concrete water body into which wastewater is directed. Therefore, it may be concluded that the Baltic Sea ecosystems have not been sufficiently considered when planning measures for controlling pollution from wastewater in river basin districts.

To a large extent, compliance with substantive standards is best ensured by wise planning and expertise of the local conditions as well as that of wastewater treatment technologies. Correct understanding of priorities is crucial (balancing between social, economic and environmental considerations), in which case political pressure may become necessary. For example, an increase in the price for water services is inevitable if the local government is to take its obligation to modernize or establish a sewage treatment plant seriously. This, however, may not be a politically popular development. Therefore, stakeholder involvement is extremely important when outlining and contemplating different options – the beneficiaries of water services need to under-

stand their role and responsibility in using the services in a sustainable manner. In this respect, open discussions and transparency should be more actively promoted also at the regulatory level. However, the Public Water Supply and Sewerage Act does not provide for an active engagement of local inhabitants into the drafting of the public water supply and sewerage development plan.

4 Regulation on Nutrients Pollution from Agriculture

4.1 Introduction

Estonian agricultural sector has undergone the biggest changes since Estonia became a member of the European Union in 2004. Regardless of the decreased share of agriculture in Estonian economy, its significant role in supplying rural population with food, in rural enterprise and in shaping cultural landscape has survived.[80]

According to the Agricultural Registries and Information Agency, agricultural land covered an area of 880 000 hectars in Estonia as of 2011. The most important branch of agricultural production is animal husbandry of which milk production has the highest relative importance. According to data of the Statistics Estonia, the area of land used for growing grain in 2011 was 288 000 hectars.[81]

Although the intensity of production in animal husbandry has decreased significantly compared to 1960s-1980s, agriculture still has a noticeable impact on the environment. Intensive animal husbandry in 1970s and 1980s has left its mark on the Estonian landscape, causing pollution of groundwater in areas where the surface cover is thin, deteriorating the quality of soil and reducing diversity of agricultural landscapes.[82]

According to the last agricultural census in 2010, there were 19613 agricultural households in Estonia, of which 5 % provided ¾ of the whole agricultural produce of the country.

A study on the possibilities to reduce nitrogen and phosphorus load according to different scenarios concluded that it is essential to continue efforts on reducing nutrient load from diffuse sources, especially reducing diffuse pollution from agriculture which, at this mo-

[80] Estonian Rural Development Plan 2007-2013, p 24. Available in English at: http://www.agri.ee/public/juurkataloog/MAK/RDP_2007-2013.pdf. (21.01.2013)
[81] http://www.agri.ee/pollumajandus (21.01.2013)
[82] http://www.agri.ee/pollumajanduskeskkond/ (21.01.2013)

ment, is responsible for about 60% of the total nitrogen load and 33% of the phosphorus load in Estonian inland waters.[83]

4.1.1 Strategic policy documents relevant for agriculture

The central strategic policy document for agriculture is Estonian Rural Development Plan 2007-2013[84] (ERDP) that aims to increase the competitiveness of Estonian agriculture and forestry, improve the environment and localities, and diversify the quality of life in rural areas and the rural economy, taking into account the peculiarities of Estonian rural life.

Other strategic documents, such as the Estonian Environmental Strategy 2030, the Nature Protection Strategy 2020,[85] and the Environmental Action Plan of Estonia for 2007-2013[86] all have an impact on the way agriculture is viewed at and developed in Estonia. Generally, these documents aim to curtail the negative impacts of agricultural activities on valuable habitats and water bodies such as lakes and rivers and the coastal sea.

The Estonian Environmental Strategy 2030 envisions that the agricultural sector is dominated by organic farming and farm tourism, and expects an increase in farming as a hobby.[87] The Strategy outlines, as one of the trends in the Estonian environment, the increase in nutrients of the Baltic Sea including coastal waters where it causes eutrophication.[88] The Strategy also sets a priority to manage human activities in a manner that ensures a reduction of human impact on surface and groundwater and guarantees a good or an improved status of water bodies.[89] As to the protection of landscapes and conservation of biodiversity, the Strategy foresees exclusion of land from agricultural pro-

[83]Iital, A., Loigu, E., Leisk, U., Pihlak, M., Pachel, K. Recent trends in nutrient concentrations in Estonian rivers as a response to large-scale changes in land-use intensity and life-styles. Journal of Environmental Monitoring, 12, 2010, pp 178-188.
[84]Estonian Rural Development Plan 2007-2013.
[85]Looduskaitse Arengukava aastani 2020 (*Nature Protection Strategy 2020*). Ministry of the Environment, Tallinn 2012. Available at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1186984/LAK_lop.pdf. (21.01.2013)
[86]The Environmental Action Plan of Estonia for 2007-2013, approved by Order No 116 of the Government of the Republic on 22 February 2007. Available in English at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1101231/inglise_keeles_tegevuskava.pdf. (13.10.2012).
[87]Estonian Environmental Strategy 2030, p 17. Available in English at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1101230/inglisekeelne.pdf. (21.01.2013)
[88]Ibid., p 7.
[89]Ibid., pp 19-20.

duction in the scale of 5.5% of the whole territory of Estonia.[90] The Strategy provides for the drafting and improvement of legal acts on the protection of water, based on the need to take more into account the status of water, enactment and implementation of action plans to improve and maintain water status, and for a more effective supervision and monitoring in order to prevent pollution and to assess water status. The Strategy also emphasizes the need to develop and implement a system of benefits and aids in order to reduce human impact on water bodies and to improve the status of surface and groundwater.

ERDP was prepared to support the regionally balanced development of rural areas through the European Union Common Agricultural Policy (CAP) measures. One of the axes of the ERDP focuses on the improvement of the environment and contains the following measures that are relevant for the purposes of this work: Natura 2000 support for agricultural land; agri-environmental support (incl. the following submeasures: environmentally friendly management; support for organic production; support for the maintenance of semi-natural habitats), and support for the establishment of protected forest on agricultural land.

Currently, the Ministry of Agriculture is preparing a new rural development plan for the period of 2014-2020. It is stated on the website of the Ministry of Agriculture that the new plan will be based on the strategic approach developed by the European Union by defining main priority areas for the common policy on rural development. There are altogether six priorities, and one of the priorities is "*Ecosystems*" (priority no. 4) that also includes a section on water management.[91] It is stated in the draft that agriculture poses a great pressure on the environment and, therefore, it is especially important to continue support for organic farming.[92] The main debate in the drafting process of the development plan 2014-2020 has focused so far on ensuring equal treatment of farmers throughout the European Union when distributing direct payments. The other concern is, however, that this should not happen at the expense of payments to advance rural development especially supporting small local farmers.[93]

In the media, the Minister has recently highlighted the two most important issues that Estonia needs to deal with in the next years: 1) to

[90]Ibid., p 34.
[91]http://www.agri.ee/mak2014-2020/. (21.10.2012).
[92]Priority No. 4 „Ecosystems", http://www.agri.ee/mak2014-2020/, p 19.
[93]Estonian National Broadcasting, „Budget restrictions of the European Commission hit small farmers the hardest", 16 November 2012, http://uudised.err.ee/index.php?06266045. (21.10.2012)

find a balance between industrially and economically efficient large-scale agricultural production and traditional family farms, and 2) to find ways to combine food production as the main goal of agricultural policy and more purposeful use of natural resources.[94]

4.1.2 Ecosystems approach in the regulatory system

Briefly, it could be said that the regulatory system is not generally reflective of the ecosystems approach. Most of the measures provided for in legal acts are of sectoral character dealing with specific aspects of potential pollutants. In addition, there is a limited range of regulatory tools to address negative trends in the status of the environment. Some of the elements that provide for ecosystems approach in water management pertaining to control of pollution from agriculture are as follows:

a) Water management plans (WMP) are enacted for river basin districts and for river basin sub-districts considering hydrological boundaries of the basins; an additional plan has been enacted for the protection of nitrate sensitive area (to protect drinking water). However, these plans do not refer to ecosystem functioning in the river basin sub-districts as a basis for setting environmental quality standards. In addition, WMPs fail to create meaningful connections between the protection of coastal waters (in terms of chemical status of the territorial sea) and the protection of inland waters;
b) WMPs are updated once in six years and there are no regulatory provisions requiring such updates to be based on monitoring data or providing for a swift amendment of programmes of measures or management plans of river basins sub-districts to respond to changes in water ecosystems. There is more flexibility provided for water protection in nitrate sensitive area (NSA), requiring updating of NSA action plan every four years on the basis of monitoring data;

[94]Presentation of the Minister of Agriculture in front of the Estonian Parliament, 15.11.2012. The speech is available in English at: http://www.agri.ee/seeder-competitive-agriculture-is-the-best-food-security-guarantee/. (21.10.2012)

c) In case the farmer needs to have an integrated environmental permit, then the IPPCA provides for a possibility to require the farmer, by amending the permit, to take additional measures to prevent or minimize pollution from agriculture. These, however, in general cannot be stricter than those provided for in legal acts or under good agricultural practice (GAP), except in case of emission limit values applicable to wastewater generated in agricultural production. Farmers that hold an integrated environmental permit need to follow best available techniques (BAT) for intensive production of pigs and poultry[95] and BAT for intensive breeding of cattle[96]. According to information provided by the Environmental Board, until now, farmers have been required to apply BAT, and imposing additional stricter measures on farmers has not been resorted to by the authorities;

d) Stakeholder involvement is provided for in the drafting of WMPs and NSA action plan, and in those instances every person can submit proposals and objections. The procedure for issuing a water permit (and the amendment of water permit) is an open procedure as well where every person can submit proposals and objections;

e) Adaptiveness is limited to proposing a specific farmer to apply GAP, but these cannot be enforced under ordinary circumstances (when the farmer is not receiving special aid). It is largely a matter of good will and understanding on the part of the farmer. Regional measures (location-based) are not generally planned, although in principle it is possible. However, these regional measures cannot be enforced by legal means if they go beyond what is required by law (or in the permit).

[95]Saastuse kompleksne vältimine ja kontroll. Parim võimalik tehnika sigade ja lindude intensiivkasvatuses. Available at: http://www.ippc.envir.ee/docs/PVT/sead-linnud-pvt%20eesti%20k.pdf. (2101.2013)

[96]Saastuse kompleksne vältimine ja kontroll. Parim võimalik tehnika veiste intensiivkasvatuses. Available at: http://www.ippc.envir.ee/docs/PVT/PVT_Veised-t2iendatud111007.pdf. (21.10.2012)

4.1.3 Best environmental practices for agriculture

The best environmental practices for agriculture are referred to in article 26^1(3) of the Water Act. It is stated there that agricultural producers are recommended to follow GAP, and that for the purposes of the Water Act, GAP means commonly accepted production techniques and methods which, when followed correctly, do not endanger the environment. These methods and techniques are based on the balanced fertilization principle and deal with amounts of manure and mineral fertilizers that can be introduced into soil, the time and methods of fertilization, storage of manure, balance of nutrients, etc.

Good agricultural practice has been published on the website of the Ministry of Agriculture.[97] It is not a legal document. However, some of the guidelines stipulated in section A of Annex II to the Council Directive 91/676/EEC concerning the protection of water against pollution by nitrates from agricultural sources (the Nitrates Directive) have been made legally-binding through their enactment in the Water Act or regulations adopted under the Water Act.

Some of the measures of GAP need to be applied as a precondition for receiving agricultural payments. For example, taking samples from manure and soil, and drawing up a fertilization plan are recommedatory according to GAP, but the applicant of environmentally-friendly management aid needs to fulfil these requirements in order to apply for the aid.[98] Compliance with these requirements is supervised by the Estonian Agricultural Registers and Information Board.

According to the report by Tallinn Technical University in 2010, there is no clear overview of the extent of implementation of recommedatory measures and little is known about their effectiveness in preventing or mitigating pollution from agriculture.[99] The Report of the National Audit Office on the supervision over the use of pesticides and mineral fertilizers[100] also points out that some of the producers do

[97] Good Agricultural Practice (2005), http://www.agri.ee/public/juurkataloog/TRUKISED/Hea_pollumajandustava.pdf. (30.10.2012

[98] Regulation No 46 of the Minister of Agriculture of 21 April 2010 „Keskkonnasõbraliku majandamise toetuse saamise nõuded, toetuse taotlemise ja taotluse menetlemise täpsem kord“ (. Available at: https://www.riigiteataja.ee/akt/116032012005 (23.10.2012)

[99] Report „Põllumajanduse hajukoormuse piiramise meetmete väljatöötamine ja nende tõhususe hindamine. Hinnang pinnaja põhjavee hea seisundi saavutamise ja veesäästu võimaluste kohta“ (*Drafting of measures on restricting diffuse pollution in agriculture. Assessment on possibilities to achieve good status of surface water and groundwater and to save water*). Tallinn Technical University, 2011, p 3. Available at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1180920/2012+-+Hajureostuse+meetmete+aruanne.pdf. (23.10.2012

[100] Audit report of the National Audit Office of Estonia „Supervision over the use of pesticides and mineral fertilizers“, 2010. Available at:

not follow GAP[101] and invites the Ministry of Agriculture to promote wider application of GAP.[102] According to the results of a survey conducted by the Agricultural Research Centre in 2009, 59% of the receivers of aid follow GAP rules in full (obligatory as well as recommendatory ones), and 18% follow these rules partly. Of those who receive environmentally-friendly management aid, 91% follow GAP.[103]

The potential for implementing GAP is closely related to supervision by state authorities – if there is no supervision even over the implementation of legally-binding measures, it is not very likely that farmers will make serious efforts to follow the guidelines provided for in GAP. The main shortcomings are that supervision is not sufficiently encompassing and it is not directed towards discovering the polluters. Indeed, in some cases, this may be complicated due to the diffuse nature of pollution. It is also a matter of awareness by farmers why it is necessary to introduce water protection measures, and in this sense training of farmers and raising their awareness becomes crucial.

A group of researchers have found that although various measures have been implemented in Estonia to reduce diffuse pollution from agriculture, it is not, in many cases, reflected in positive changes in the quality of surface water or in reduced nutrient pollution.[104] This cannot, of course, be solely attributed to a relatively modest application of GAP, as there are other factors in play that affect the quality of surface water. For example, it has been pointed out that it is complicated to specifically attribute changes in the nutrient content of surface water and groundwater to measures implemented in agriculture and to measures implemented in land use; many of the measures implement-

http://www.riigikontroll.ee/tabid/206/Area/15/language/et-EE/Default.aspx (23.10.2012 Summary available in English at: http://www.riigikontroll.ee/tabid/206/Audit/2165/Area/15/language/en-US/Default.aspx

[101]Ibid., p 1.

[102]Ibid., p 3.

[103]Eesti Maaelu Arengukava 2007-2013 hindamise raames teostatud e-küsitluse tulemuste kokkuvõte. Põllumajandusuuringute Keskuse põllumajandusuuringute osakonna põllumajanduskeskkonna seire büroo. Saku 2010. Available at: http://pmk.agri.ee/pkt/files/f32/PMK_pysihindamisaruanne_2010a_kohta_web_2011.pdf. (27.01. 2013)

[104]Iital, A., Loigu, E., Leisk, U., Pihlak, M., Pachel, K., 2010. Recent trends in nutrient concentrations in Estonian rivers as a response to large-scale changes in land-use intensity and life-styles. Journal of Environmental Monitoring, 12, pp 178-188.

ed so far do not take into account the cumulative effect with other factors and measures.[105]

As long as there is no clear picture on the role and effectiveness of the different measures in dealing with agricultural pollution, it is difficult to give any definitive assessment of the potential of implementation of GAP. No doubt a fair amount of effort is needed not only to improve supervision of farmers over the use of fertilizers and pesticides, but also to educate farmers about GAP and the proper use of fertilizers and pesticides.

On the other hand, there should be no reason to question the potential benefits accruing from the careful implementation of GAP, and it has been even proposed to widen the variety of possible measures that could have a positive effect on water protection in Estonia. For example, it has been proposed to introduce measures relating to nutrient balance keeping, extension of buffer zones, creation of artificial wetlands, calcimining of fields, etc.[106]

One of the aspects to consider in assessing the potential of implementation of GAP is the economic pressure on producers to decrease costs and to intensify production which in many instances runs counter to the policy to reduce nutrient loss from agriculture. Therefore, for the successful application of certain measures of GAP, it is necessary to provide incentives for producers to apply them. These incentives can take the form of payments and aid, or sanctions. So far, the focus has been on the implementation of the cross compliance system of the CAP of the European Union. According to this system, agricultural aid payments are made in full only to those farmers who comply with the requirements stipulated in legal acts and keep the agricultural land in good agricultural and environmental condition.

Relying only on the cross compliance system in order to enforce agriculture-related environmental requirements obviously is not enough due to the relatively small portion of farmers checked within the cross compliance system. However, the resulting “sanctions” of not complying with the requirements for aid payments (reduction of aid, or in more severe cases, non-payment of aid) seems to discipline farmers to an extent that is probably not attainable under current enforcement systemwhich is based on fines and penalty payments.

[105]Report „Põllumajanduse hajukoormuse piiramise meetmete väljatöötamine ja nende tõhususe hindamine. Hinnang pinnaja põhjavee hea seisundi saavutamise ja veesäästu võimaluste kohta“, p 3.
[106]Ibid., pp 52-53.

4.2 Regulation on Farms

There are several general obligations stipulated in the Water Act that either apply to all persons using water resources or that apply specifically to farmers. For example, the Water Act provides in article 23(1) that every person is required to avoid polluting and depleting water, littering water bodies and wells, and damaging aquatic biota, and in article 23(2) that when using water, persons are required to implement technological, land improvement, agrotechnical, hydrotechnical and sanitary measures to protect water against pollution and depletion or a water body against littering. The Water Act also provides as a general obligation of any person, who arranges an activity which adversely affects water quality, to observe water status in the area affected by the activity. These obligations, however, are too general in nature to be sanctioned on the basis of the Water Act; more specific requirements are needed so that the person knows exactly what is expected of her and what constitutes legal/illegal behaviour.

As concerns more specific economic activities, the Water Act provides, in article 26(2), that it is obligatory to prevent the condition of pollution sources located in a catchment area deteriorating to such an extent that causes or may cause pollution of a water body or aquifer (point source pollution). In similar vein, article 26^5(1) stipulates that it is prohibited to emit dangerous substances or other pollutants into the catchment area that causes or may cause deterioration of the status of surface water or groundwater (diffuse pollution). Emission of certain dangerous substances and pollutants is still possible on the basis of the water permit in accordance with the requirements specified in the permit. These general prohibitions are complemented by more detailed regulations either in the Water Act itself or in regulations adopted on the basis of the Water Act. There is certain discretion for state authorities (permit issuers) to provide for supplementary or more stringent conditions than the minimum provided for in legal acts (for example, making certain GAP practices obligatory that would otherwise be only voluntary, setting more stringent emission limit values for wastewater in accordance with articles 24(5) and 24(6)).

4.2.1 Licensing and notification of agricultural activities

In Estonia, farms are not obliged to have a special permit for operation except in case of large farms engaged in cattle, pig or poultry farming. It has been stipulated in the Implementation Plan of BSAP that, by 2010, a requirement for a permit for persons who keep farm animals

above 100 livestock unit shall be provided for in legislation. However, this requirement has not been introduced into Estonian law, and there seems to be no developments in that direction either. Rather, it may be said that the opposite may be happening – the Central Union of Estonian Farmers is lobbying for a relaxation of the requirement for an integrated environmental permit, proposing that the threshold for a permit should be 400 milk cows (instead of the current 300 milk cows) and 800 young bovine animals (instead of current 600 bovine animals).[107]

According to IPPCA, cattle, pig and poultry farms need to apply for an integrated environmental permit only if the operation of the farm exceeds a threshold capacity established by the Government.[108] For cattle, pig or poultry farms, this threshold capacity is set as follows:

1) Intensive farming of pigs where the number of pigs exceeds 2000 (body weight more than 30 kg) or 750 sows;
2) Intensive farming of cattle with 300 milk cows or more than 400 suckler cows or more than 600 young bovine animals;[109]
3) Intensive farming of poultry with more than 40 000 birds.

Currently, many cattle farms with an integrated environmental permit are concentrated in the main agricultural areas. There are numerous such farms in the NSA and in its vicinity in the north and in the southwest.[110]

The integrated environmental permit contains measures for the protection of surface and groundwater, and soil, technology planned for prevention or reduction of emissions, emission limit values or equivalent parameters or technical measures, and measures for decreasing the generation of wastewater.[111] It is also stipulated that if the

[107]Notification of the Central Union of Estonian Farmers of 5 December 2012 „The Minister of the Environment agreed to Farmers' proposals to amend unreasonable environmental restrictions". Available at: http://www.eptk.ee/ (30.12.2012)
[108]IPPCA, article 7(4).
[109]The Central Union of Estonian Farmers is lobbying for an alleviation of the requirement for an integrated environmental permit, proposing that the threshold for a permit should be 400 dairy cows (instead of the current 300 dairy cows) and 800 young bovine animals (instead of the current 600 bovine animals).
[110]Nitraaditundliku ala laiendamisvajaduse analüüs. Lõpparuanne (*Analysis for the extension of the boundaries of nitrate sensitive area. Final Report*), Tallinn 2011, p 41. Available at: http://www.envir.ee/1171986. (02.10.2012)
[111]IPPCA, article 17(1).

environmental quality standards prescribe more stringent requirements than the requirements which can be complied with by using BAT, the permit shall impose an obligation on the operator to apply additional measures which guarantee compliance with the standards.[112] This possibility of additional measures has not been resorted to so far by the authorities. In addition, if the planned operation is likely to endanger human health or the environment, the Ministry of the Environment or the environmental authority of the location of the planned operation, as the authority exercising supervision over the assessment of environmental impact, has the right to establish environmental requirements for the protection of human health or the environment.[113] Moreover, the IPPCA also gives a ground to set more stringent limit values on wastewater, by stating that emission limit values enacted in legislation shall be deemed to be minimum requirements, but in order to reach higher levels of environmental protection, more stringent emission limit values achievable through application of BAT, may be established.[114] It is not known if more stringent emission limit values have been applied on wastewater; however, this result may have been achieved as a consequence of applying BAT.

Integrated environmental permits shall be reviewed at least once a year, accompanied by an on-site inspection of the installation as a result of which the permit shall be amended as necessary.[115] In any case, the IPPCA provides for an updating of the permit if the pollution caused by the installation is of such significance that negative effects are caused to the environment at the site of the installation and the existing emission limit values in the permit need to be reduced, or new values need to be determined.[116] Operators are also required to inform the permit issuer of significant adverse environmental impact resulting from their activity regardless of whether the requirements provided for in the permit were adhered to or not.[117] As a last resort, the integrated environmental permit can be revoked if the pollution caused by the installation is of such significance that the threat arising therefrom to the environment, human health or property cannot be prevented without fundamental technological restructuring which requires application for a new permit.[118]

[112]IPPCA, article 17(3).
[113]IPPCA, article 17(4).
[114]IPPCA, article 19(2).
[115]IPPCA, article 22(1).
[116]IPPCA, article 24, section 2.
[117] IPPCA, article 23(1^1).
[118]IPPCA, article 26(1)5).

Farms with a lesser capacity that do not need to have an integrated environmental permit are obliged to apply for a water permit if the plant directs wastewater into the environment. In Estonia, most of wastewater is directed into rivers[119] and in some areas like the NSA, into soil.[120] The water permit specifies the maximum allowable volume of pollutants in effluent directed into a water body, the allowable amounts and time for discharge of pollutants into a recipient by outlets and pollutants, taking into consideration BAT as well as the measures of reducing the effect of special use of water on aquifers, water bodies and recipients and the terms for application of the measures.[121]

The Water Act provides for a general ban on polluting catchment areas of water bodies with dangerous substances and other polluting substances to an extent that may cause deterioration in the status of surface water or groundwater. The list of polluting substances includes pesticides and substances that are conducive to eutrophication, such as nitrogen and phosphorus.

The Water Act further stipulates that emission of certain dangerous substances (and priority substances, including priority hazardous substances) into surface water is prohibited or should be limited. The lists of dangerous substances and priority (hazardous) substances have been enacted by the Minister of the Environment on 21 July 2010 with a Regulation No 32,[122] and it also contains organophosphorus compounds and pesticides.[123]

In case a water permit is issued for emission of wastewater into the environment that contains dangerous substances or priority substanc-

[119]Report „Asulareovee puhastamise direktiivi nõuete täitmine Eestis“ (*Compliance with the requirements of Urban Wastewater Directive in Estonia*), Ministry of the Environment, Tallinn 2012, p 14. Available at: http://www.keskkonnainfo.ee/failid/Art%2016_aruanne_2012_LOPLIK.pdf. (27.01.2013)

[120]However, in case of milk-producing farms, wastewater is generally directed into the manure storage or public sewerage system. Some farmers use collection tanks and take their wastewater into the nearest treatment plant. Report „Nõukogu direktiivi 91/676/EMÜ, veekogude kaitsmise kohta põllumajandusest lähtuva nitraadireostuse eest, täitmine Eestis 2008-2011“ (*Report on the implementation of directive 91/676/EEC on the protection of water bodies from nitrate pollution from agriculture in Estonia - NSA Report 2012*), Ministry of the Environment, Tallinn 2012, p 77. Not yet available on Internet.

[121]Water Act, article 9(2).

[122]Regulation No 32 of the Minister of the Environment of 21 July 2010 „Veekeskkonnale ohtlike ainete ja ainerühmade nimistud 1 ja 2 ning prioriteetsete ainete, prioriteetsete ohtlike ainete ja nende ainete rühmade nimekirjad“. Available at: https://www.riigiteataja.ee/akt/13345270. 25-09.2012)

[123]These lists are based on Directive 2008/105/EC of the European Parliament and of the Council, of 16 December 2008, on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council.

es, the Environmental Board, as the issuer of the permit, needs to consider the results of water surveys including a prognosis of the impact of the emission of wastewater containing those substances on the environment.[124] The water permit shall set a limit value for the substance in wastewater as well as in the receiving water body and shall provide for measures that decrease the impact of these substances on the environment. The permit holder is required to monitor the emission (the concentration of substances) and the effect of the emission on the receiving water body and inform the permit issuer of these monitoring results.

Because of lack of supervision of farmers and still quite significant gaps in monitoring data, it is difficult to adequately apportion the impact of activities of a particular farmer on the environment and to assess the effect of measures in preventing or mitigating agricultural pollution. For example, there is no research done to ascertain whether the main source of nitrogen pollution is coming from mineral or organic fertilizers.[125] However, the Nitrate Report 2012 estimates that during 2008-2011, on average 40% of the agricultural land in use was fertilized with mineral fertilizers.[126]

As engaging in agricultural activities does not require a separate permit in Estonia (if the activity is below the thresholds as provided for in IPPCA), there seems to be a gap in the regulation in a situation where the environmental objective set for a specific water body is not likely to be met. In that case, no emission limit values can be imposed on the economic actor, because of the diffuse nature of pollution (e.g. spreading manure on fields), neither can supplementary environmental requirements be introduced, because of lack of a legal ground for imposing stricter or additional requirements on the farmer.

The permit issuer may refuse to issue a water permit if the state of a recipient or aquifer deteriorates to an extent which makes the water body non-usable.[127] This seems to be a higher threshold than the one set by environmental quality standards and compared to the regulation in IPPCA where it is stated that the permit issuer may refuse to issue the permit if it becomes evident that the activity for which the permit is applied is not in compliance with environmental norms.[128] The water

[124]Water Act, article $26^{11}(2)$.
[125]Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 11.
[126]NSA Report 2012, p 6.
[127]Water Act, article 9(10)2). Non-usability depends on the type of use, but environmental quality standards take the status of water as unaffected by human activities as the basis.
[128]IPPCA, article 16(1)2).

permit shall be amended if the legislation which constituted the basis for the requirements set by the permit for the special use of water[129] has been amended, and the public interest that the permit for the special use of water be amended outweighs the person's certainty that the permit remains valid in its current form, and also if a significant environmental impact arising from an activity determined by the permit for the special use of water creates damaging changes in the environment due to which the requirements established by the permit must be changed.[130] The above-mentioned provisions together with more specific provisions concerning wastewater in articles 24(5) and 24(6) of the Water Act, in essence, provide for a possibility to change limit values of wastewater if it becomes evident that ecological standards may be exceeded. However, these provisions are relatively easy to apply to control point source pollution while diffuse pollution falls beyond the scope of the water permit and therefore has to be addressed with other measures.

4.2.2 Planning and substantive rules (or principles) on location of farm activities

According to the Planning Act, detailed spatial plan is prepared for a part of the territory of a rural municipality or city and it serves as the basis for building activities and land use in the short term. The detailed plan also establishes environmental provisions for the implementation of the plan and, where necessary, designates buildings for which the preparation of the building design documentation requires environmental impact assessment to be carried out.[131] The strategic environmental impact assessment needs to be carried out for the detailed spatial plan in case of construction of installations for intensive rearing of poultry, pigs or bovine animals with more than 85 000 places for broilers, 60 000 places for hens, 3 000 places for production of pigs (over 30 kg), 900 places for sows, 450 places for dairy cows, 600 places for beef animals or 900 places for young bovine animals of up to 24 months of age.[132]

[129]According to the Water Act, special use of water is use of water that is not public (article 6(1)) and that requires a permit according to the thresholds stipulated in the Water Act (article 8(2)).
[130]Water Act, article 9(10^1).
[131]Building Act, article 19(1)8).
[132]Planning Act, article 9(12), Environmental Impact Assessment and Environmental Management System Act, article 33(1)3) and article 6(1)27).

In sum, the detailed spatial plans do not provide for the choice of location of the farm. However, there may be a basis for refusal of issuing the building permit, i.e. if an environmental impact assessment has been undertaken and the environmental impact assessment report demonstrates that the proposed project will entail a significant environmental impact which cannot be avoided or mitigated[133]. In most cases, however, environmental conditions shall be specified according to the Building Act and the Planning Act that needs to be taken into account when designing and constructing the farm.

There are no special rules in place for the choice of location of a plant in IPPCA. However, it does provide for the requirement to consider the geographical location of the plant,[134] but there is no obligation to weigh several alternative locations.

The Water Act identifies a range of water and terrestrial areas that need special protection and application of stricter environmental standards and restrictions.[135] This list is based on Article 6 and Annex IV of the WFD. These areas include water bodies that are used for extraction of drinking water or which are planned to be used for this purpose; areas meant for recreation including bathing waters, NSAs, areas for the protection of habitats and species that are protected according to the Nature Conservation Act including Natura 2000 areas, areas designated for the protection of economically significant aquatic species (these areas have not been identified yet in Estonia) and pollution-sensitive recipients of wastewater (the whole territory of Estonia is designated as pollution-sensitive with regard to wastewater). These special protection areas are complementary to water protection zones around water bodies.

In order to protect water against diffuse pollution and to avoid erosion of the banks of a water body, water protection zones are established on the banks of the water body. In case of the Baltic Sea; Lake Peipus, Lake Lämmijärv, Lake Pskov and Lake Võrtsjärv this water protection zone is 20 m as measured from the normal boundary of water; in case of other lakes, reservoirs, rivers, brooks, springs, main ditches and channels and artificial recipients of land improvement systems the water protection zone is 10 m, and in artificial recipients of land improvement systems with a catchment area of less than 10

[133]Building Act, article 24(1)9), but this ground for refusal applies only if the environmental impact is considered significant, on the basis of articles 6(1)27) or 6(2) of the Environmental Impact Assessment and Environmental Management System Act.
[134]IPPCA, article 15(1).
[135]Water Act, article 3^6.

km^2 only 1 m.[136] In the water protection zone, it is prohibited to use fertilizers, chemical plant protection products and wastewater sediment, and to place manure storage facilities and manure stacks. In case of water bodies that are used for extraction of drinking water, then actual restrictions apply only in the sanitary zone of the water intake. If the water is extracted from groundwater or from certain surface water bodies (like the Tallinn main water intake of Lake Ülemiste), then all economic activities are prohibited in the zone except certain essential activities listed exhaustively in the Water Act.[137] In all other cases, restrictions are less stringent as provided for in the Nature Conservation Act for limited management zones of shores and banks where, among other activities, land treatment by sewage sludge is prohibited.[138]

In different nature protection areas, additional limitations on agricultural activities have been enacted. If the area has been determined as a conservation zone, then economic activities (including fertilization and use of pesticides) are prohibited there unless explicitly stipulated otherwise in the protection rules of the conservation zone.[139] In a limited management zone, economic activities are generally allowed but for use of biocides, plant protection products and fertilizers, unless explicitly stipulated otherwise in the protection rules of the limited management zone.[140] And lastly, if the arable land is situated in a limited-conservation area, the farmer is required to submit a notification to the administrative authority of the limited-conservation area, if he plans to use biocides or plant protection products.[141] The administrative authority may refuse to grant permission for the activity to take place if these activities endanger the favourable status of species or habitats for the protection of which the limited-conservation area was established. There are no restrictions on the use of fertilizers in the limited-conservation area.

[136]Water Act, article 29(2).
[137]Water Act, article 28^1(1).
[138]Nature Conservation Act, article 37(3). These other prohibited activities are: establishment of burial sites; construction and expansion of facilities prescribed for waste processing or storage, except in the territory of ports; extraction of mineral resources; driving motor vehicles outside of roads and paths designated for such purposes, and driving all terrain vehicles, except for the performance of maintenance work in green areas of densely populated areas, transportation of watercraft needed for fishing activities by persons holding the right to fish for recreation or as a professional activity, for gathering reed and seaweed, and for forestry work and agricultural work on profit-yielding land.
[139]Nature Conservation Act, article 30(2).
[140]Nature Conservation Act, article 31(2).
[141]Nature Conservation Act, article 33(1)4).

In Estonia, the most fertile soils can be found in the NSA and in its immediate vicinity, in the uplands of Pandivere and the region of Adavere-Põltsamaa.[142] NSA constitutes 7.5% of the terrestrial surface area of Estonia. In that region, the relative importance of arable land and the number of farm animals significantly exceeds the average applicable in Estonia.[143] There are no specific rules in place concerning planning or construction of farms in NSA. Pandivere uplands is the highest area of Estonia and the biggest groundwater gathering area. It is important to note as well that in the Pandivere upland part of NSA, there are no permanent rivers flowing through the area that could carry nitrogen or phosphorus to the sea. However, it is the biggest infiltration area in Estonia and several rivers are nourished by springs and dolines at the slopes and the foot of the uplands. So, the nitrogen and phosphorus that find its way into the springs and dolines will finally end up at least to some extent in the rivers that head from here towards the sea. It is estimated that the difference between nitrogen load that enters inland water bodies and the sea is about 10 000 tons, which means that this amount of nitrogen is succumbed into the inland water system.[144] The rivers starting from here get 59% of their water from the springs; the catchment area of these rivers constitutes 32% of the Estonian territory.[145]

In recent years, the quality of water has especially deteriorated in the NSA. In Pandivere as well as in Adavere-Põltsamaa region the nitrate content has decreased, but again in 2011 a certain increase of nitrate content has been detected.[146] There have also been proposals to widen the coverage of NSA.[147] NSA is an area of special protection not in the sense that higher environmental quality standards apply there, but in the sense that specific restrictions on agricultural activi-

[142]Nitraadidirektiivi rakendamise aruanne Eesti 2000-2003 (*Report on the Implementation of the Nitrates Directive in Estonia 2000-2003*), Tallinn 2005. Available at: http://www.envir.ee/orb.aw/class=file/action=preview/id=189503/NTA_rakend_aruanne_Est.pdf. (27.01.2013)

[143]Eesti keskkonnanäitajad 2012 (*Estonian Environmental Indicators 2012*), Estonian Environment Information Centre, Tallinn 2012, p 32. Available at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1190570/Eesti+keskkonnan%E4itajad+2012.pdf. (14.10.2012)

[144]Analysis for the extension of the boundaries of nitrate sensitive area, p 93.

[145]Report on the Implementation of the Action Plan of NSA 2009-2011, p 10-11. Not yet published. The biggest rivers in Estonia start from Pandivere uplands, such as Pärnu river, Põltsamaa river, Pedja river, Loobu river, Jägala river, Valgejõgi.

[146]Eesti keskkonnanäitajad 2012, p 32.

[147]Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 13.

ties are in place to limit potential water pollution. These restrictions are dealt with in more detail below.

4.2.3 Land use plans and other planning instruments

Land use plans need to be taken into account when new farms are being planned. Spatial planning is organized in a hierarchical manner – the national spatial plan sets the general direction for land use, on the basis of which, county spatial plans and general spatial plans of municipalities are drawn up. On the basis of the general spatial plan, detailed spatial plans are made for smaller areas (or design criteria, if a detailed spatial plan is not required), which in turn forms the basis for issuing building permits. In principle, detailed spatial plans need to be in accord with higher level plans, but in exceptional cases detailed spatial plans may introduce changes into more general plans.[148] This exception is provided for reasons of flexibility, to allow totake into account changing circumstances and needs of society.

Another problem with the establishment of farms is that; although formally it may be in compliance with the general spatial plan of the municipality as it concerns the purpose or function and the conditions of land use (defined as production land), these general spatial plans often do not contain more specific conditions and the public cannot, therefore, foresee what kind of production can be planned in areas covered by the general plan.[149]

The research conducted by the Estonian Environmental Law Centre in 2010 shows that during the last five years, most of large cattle, pig and poultry farms have been established without any special planning process, but instead with the processing of a building permit or design criteria.[150] Even if these large farms fulfil the criteria to qualify as an object with a significant spatial impact according to the definition provided for in the Planning Act,[151] the special regulation does not

[148]Planning Act, article 9(7).

[149]Report on the procedure for establishing objects with significant spatial impact in Estonia. Environmental Law Centre, June 2010, p 35. Available at http://www.k6k.ee/files/K6K_ORMOde_rajamise_korralduse_anal%C3%BC%C3%BCs.pdf. (15.11.2012.

[150]Ibid.

[151]Planning Act, article 29^2(1): Object with a significant spatial impact in this Act means an object where the transportation flow, the amount of pollutants, the amount of visitors, visual effect, smell, noise, the need for raw material or work force originating in the object change considerably in the planned location of the object compared to the current state and whose impact extends to a large area. (Olulise ruumilise mõjuga objekt käesoleva seaduse tähenduses on objekt, millest tingitult transpordivood, saasteainete hulk, külastajate hulk, visuaalne

apply to them. This has resulted in problems with their establishment concerning proper level of decision-making, environmental impact assessment as well as involving the public into decision-making.

4.2.4 Supervision and enforcement

On a strategy level, the Environmental Strategy 2030 envisions that supervision and monitoring should be improved and made more effective in the field of water protection in order to prevent water pollution and assess water status.

Supervision over environmental norms is regulated by the Environmental Supervision Act which accords the general competence of environmental supervision to the Environmental Inspectorate, the Land Agency and local government organ or body. Specific competences of supervision of other state organs are stipulated in specific legal acts and in statutes of the respective state organ. Supervision and enforcement of agricultural regulations is divided between the Environmental Inspectorate, the Agricultural Board and the Veterinary and Food Board. Supervision over measures that are applied under the aid schemes of the ERDP is partly conducted by the Agricultural Registries and Information Agency (administrative control). The division of competences between the Environmental Inspectorate and the Agricultural Board is not always clear, and currently supervision over agricultural practices is not a priority for the government.[152]

Regular inspections are not planned except inspections of those farms who receive support payments under the ERDP (cross compliance). According to data provided by the Ministry of Agriculture, these inspections encompass approximately 1% of farmers who have applied for direct payments and 1% of farmers who have applied for aid payments under the ERDP.[153] In absolute numbers, this amounts to approximately 1200 farmers who are selected for supervision on the basis of risk assessment analysis conducted by each supervisory authority.

Environmental supervision over the use of fertilizers and agricultural practices in accordance with the requirements of the Water Act is conducted mainly by the Environmental Inspectorate who plans its activities and resources according to work plans. In the field of agri-

mõju, lõhn, müra, tooraine või tööjõu vajadus muutuvad objekti kavandatavas asukohas senisega võrreldes oluliselt ning mille mõju ulatub suurele territooriumile.)

[152]Interview with the officials of the Ministry of the Environment, 14 November 2012.

[153]Nõuetele vastavus 2011, p 6. Ökoloogiliste Tehnoloogiate Keskus koostöös Põllumajandusministeeriumiga. Available at: www.pikk.ee/nouetelevastavus. 05.11.2012)

culture, Environmental Inspectorate deals with three main areas: 1) supervision of cross compliance which forms the greatest part of supervisory work of the Environmental Inspectorate; 2) annual supervision of holders of integrated environmental permits (currently, there are more than 170 such farmers)[154]; 3) processing of complaints submitted by the public. There are around 30-40 complaints submitted every year in the NSA and they mostly concern breaches of rules on the handling of manure.[155] According to the Water Act and the Plant Protection Act respectively, Environmental Inspectorate is responsible for supervision over the use of fertilizers whilst the Agricultural Board supervises the use of pesticides.

One of the problems concerning supervision and enforcement is that even if the monitoring data indicates that water pollution by fertilizers and pesticides has taken place, it is not followed up by investigations in order to identify the relevant offenders.[156] The National Audit Office has pointed out that more efforts should be focused on the effects of using fertilizers and pesticides.[157] The regulatory framework has focused to large part on the regulation of marketing and sale of fertilizers and pesticides, but this should not be an obstacle for effective supervision of their use and their impact on the environment. In this regard, the National Audit Office has suggested that especially the Agricultural Board should undertake more inspections over compliance of water protection requirements near springs and dolines during periods when fertilizers and pesticides are used most intensively, and take samples from water and soil to ascertain whether chemicals have been used properly. In sum, a large part of breaches identified via monitoring are not processed further because supervisory authorities do not have swift access to monitoring data; they do not take samples from water or soil to identify remains of pesticides or nitrogen concentration. Hence breaches and offenders are not identified which makes it impossible to prove culpability.

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[154] http://www.ippc.envir.ee/estonian/tegevusvaldkonnad.htm. 26.12.2012)

[155] The average number of complaints in the NSA is more or less the same for other parts of Estonia as well. Analysis „Ülevaade nitraaditundliku ala tegevuskava 2009-2011 rakendamisest, tegevuse efektiivsuse hindamine ja seirekavade sobivuse hindamine“ (*Overview of the implementation of the nitrate sensitive area action plan in 2009-2011, assessment of the effectiveness of actions and the suitablility of monitoring programmes*), Tallinn 2011, ELLE OÜ, p 28. Available at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1178468/NTA+tegevuskava+rakendamise+aruanne+ELLE.pdf. 05.01.2013)

[156] Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 2.

[157] Ibid., p 3.

On the other hand, it may be said that sanctions for misdemeanours concerning agricultural activities are not strict enough amounting to 2000 EUR in maximum. The application of penalty payments shall be introduced only within the coming months with the draft amendment to the Water Act. Penalty payment is applied if a precept of an administrative authority is not complied with during the term indicated in the warning. The maximum limit for penalty payment is intended to be set at 32 000 EUR.[158]

4.2.5 Regulatory challenges and developments

The umbrella documents and policy documents dealing with areas affecting the status of Estonian inland waters and the Baltic Sea in some aspects acknowledge the need to integrate policy aims and measures between sectors. However, the policies do not yet reflect an ecosystems approach, but are rather limited only to integrating certain policy activities. There is still lacking a conscious effort to assess cumulative impacts of human activities on water ecosystems and to apportion the extent of such impacts to specific sectors or activities. Without these assessments it is difficult to set priorities as to what activities should be regulated or monitored as a priority and/or more stringently. In addition, clear connection is not made between the protection of inland waters and coastal waters (or marine waters in general).[159] The draft of the rural development plan 2014-2020 also states that the ecosystems approach and the need to ensure ecosystem services have so far received little attention when planning the use of natural resources; guidelines, action plans and planning documents are not interlinked and there is little awareness about the need to protect the environment on a habitat and ecosystem level.[160] In addition, WMPs for river basin districts and river basin sub-districts are not integrated with planning documents, which makes the implementation of these plans complicated.

There is little data on how the actual state may affect possible future tendencies in water quality, and also on the proportion of pressure on the quality of water from agriculture, for the majority of water bodies it is not possible, without additional research, to propose concrete

[158]This proposed amount for penalty payment has been, however, questioned by the Ministry of Justice in the coordination process of the draft amendment to the Water Act in November 2012.
[159]The WFD covers also territorial sea with regard to chemical status.
[160]Draft of the Estonian Rural Development Plan 2014-2020, p 3. http://www.agri.ee/mak2014-2020. (27.01.2013)

measures to minimize the impact from agricultural production.[161] The Report of the National Audit Office also states that it is not always clear how much agriculture contributes to pollution and to what extent other causes play a role, and blames the government for not being persistent in finding out the causes of pollution.[162] There is also a problem with farmers being unaware of the location of springs and karst areas on their land, although this seems to be more of a problem of notification, rather than legal regulation. In addition, the government has focused most of its efforts so far on controlling point source pollution which has resulted in an increase of pollution from diffuse sources.[163] This focus may be attributed, at least partly, to the relative ease of identifying and dealing with point source pollution (such as manure storages) as compared to diffuse pollution (leaching of nutrients from fields), taking into account that this problem is exacerbated by the lack of a requirement to hold a permit for agricultural activities. This, in turn, makes it difficult to prescribe location-specific measures to farmers to prevent or minimize pollution from agricultural activities.

The issuer of water permits and integrated environmental permits (in both cases the Environmental Board) is not considering the cumulative impact of agricultural activities on water bodies, not to mention on the marine environment, when making a decision on issuing the relevant permit. There is no legal obligation to that effect stipulated neither in the Water Act nor in the IPPCA. In addition, separate environmental quality standards cannot be set for a specific water body, if setting more stringent standards becomes necessary in order to achieve the environmental objective for that water body. The combined approach in the Water Act foresees the adoption of additional measures as provided for in the Water Act itself; however, the Water Act fails to identify, in more detail, what these additional measures should be, how, when, where, under which circumstances and by whom they should and could be introduced.

[161] Report "Drafting of measures on restricting diffuse pollution in agriculture. Assessment on possibilities to achieve good status of surface water and groundwater and to save water", p 83.
[162] Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 9.
[163] Audit report of the National Audit Office of Estonia „Effectiveness of measures for improving the status of Lake Peipus – has the pollution load of Lake Peipus decreased?“, Tallinn 2012, p 2. Available in English at: http://www.environmental-auditing.org/Portals/0/AuditFiles/Estonia_f_eng_Improving-the-Status-of-Lake-Peipus.pdf. (27.01.2013). It is stated in the audit report that „... the state has spent proportionally the largest share of funds on the reduction of point source pollution. Measures for reducing agricultural diffuse pollution are lenient and supervision of diffuse pollution is

As to the planning regulation, there is little room left in regulation for considering alternative locations for establishing a new farm. General spatial plans for municipalities define the purpose of use for the land (land for production), but they do not provide for more specific conditions which prevent the public from engaging meaningfully in the decision-making on land use in the municipality. Large farms are not listed as objects with significant spatial impact in Estonian legislation resulting in problems with their establishment concerning proper level of decision-making, environmental impact assessment as well as involving the public into decision-making.

As to compliance with the legal rules, larger part of breaches identified via monitoring are not processed further because supervisory authorities do not have swift access to monitoring data; they do not take samples from water or soil to identify remains of pesticides or nitrogen concentration. Hence breaches and offenders are not identified making it impossible to prove culpability. It may be said that sanctions and pollution charges have not been effective enough to control pollution from agriculture, but this may be partly due to the relatively weak enforcement efforts on the part of public authorities.

4.3 Substantive Rules of Nutrient Pollution fromAgriculture

In general, measures to control diffuse pollution from agriculture can be divided into three main categories:

1) Guidelines for environmentally improved management;
2) Legally-binding measures that are stipulated in legal acts (laws and regulations);
3) Economic incentives, such as payments or aid, for implementing different measures.

The first group of measures are based on the balanced fertilization principle and deal with the amounts of manure and mineral fertilizers that can be introduced into soil, the time and methods of fertilization, storage of manure, balance of nutrients, etc. Some of these measures can be obligatory. Economic incentives consist of payments and aid to support the implementation of these measures and are supplementary to the obligatory measures.

In Estonia, measures applied so far to reduce pollution from agriculture, either recommendatory or obligatory in nature, are based, to a large extent, on the measures listed in Part II of Annex III of the HELCOM Convention and on the catalogue of measures compiled by the European Commission for the purpose of achieving the aims of the WFD. In addition, certain measures of the ERDP have been implemented with the support of the agricultural environmental aid programme.[164]

4.3.1 Substantive demands on agricultural practices

It has been recognized that the choice of the most suitable measures is generally very complicated, unless there is more comprehensive understanding of the chemical and ecological status of the water body and the land use affecting this status, better knowledge of the number of farm animals, the amount of nutrients used, and the specific physical-geographical conditions of the location.[165]

For a better overview of the measures and best practices to control and reduce nitrogen load from agriculture, they shall be addressed in three following categories:

1) Measures to reduce the amount of nitrogen as a potential run-off into the environment;
2) Measures to prevent or inhibit the leakage of nitrogen into surface water bodies;
3) Measures to reduce chemical and biological transformation of nitrogen.

Most of these measures have been stipulated not only in the Water Act, but also the Nature Conservation Act, Chemicals Act, Fertilizers Act, Plant Protection Act, Land Improvement Act and Environmental Charges Act contain some regulation that affect preventing or mitigating pollution from agricultural activities. On the basis of the Water Act, the following implementing or specifying regulations have been adopted:

Government regulation No. 288 of 28 August 2001 “Water protection measures for storage houses of fertilizers and manure and storage lo-

[164]Report „Drafting of measures on restricting diffuse pollution in agriculture. Assessment on possibilities to achieve good status of surface water and groundwater and to save water", p 4.
[165]Ibid., p 14.

cations of silage, and requirements for the use and storage of manure, silage juice and other fertilizers";[166]

1) Government regulation No. 17 of 21 January 2003 "*Protection rules for the nitrate sensitive area in Pandivere and Adavere-Põltsamaa*";[167]
2) Regulation of the MinistryMinister of Environment No. 78 of 30 December 2002 "Requirements for the use of wastewater sediment in agriculture, terracing and recultivation";[168]
3) Regulation of the Ministry of Agriculture No. 85 of 21 August 2003 "*Requirements for the composition of manure*".[169] This regulation, however, is planned to be replaced in the beginning of 2013 by a new regulation that will set calculated values of nutrient content in different types of manure (for manure of bovines, pigs, horses, sheep and birds) and establish a method for calculating the capacity of manure storage houses. According to the explanatory note to the draft amendment to Water Act, establishing calculated values of the nutrient content for different types of manure will provide producers with more specific guidelines to make calculations and plan the use of fertilizers in more precise quantities. On the other hand, it will also allow environmental inspectors to better monitor compliance with the limits set on nitrogen and phosphorus that can be introduced on the land with manure.[170]

[166]Government regulation No 288 of 28 August 2001 "Water protection measures for storage houses of fertilizers and manure and storage locations of silage, and requirements for the use and storage of manure, silage juice and other fertilizers". Available at: https://www.riigiteataja.ee/akt/13259522. (27.01.2013)
sensitive area in Pandivere and Adavere-Põltsamaa". Available at: https://www.riigiteataja.ee/akt/13136785. Accessed [167] Government regulation No 17 of 21 January 2003 (27.01.2013)
[168]Regulation of the Minister of Environment No 78 of 30 December 2002 "Requirements for the use of wastewater sediment in agriculture, terracing and recultivation". Available at: https://www.riigiteataja.ee/akt/761407. (27.01.2013)
[169]Regulation of the Minister of Agriculture No 85 of 21 August 2003 "Requirements for the composition of manure". Available at: https://www.riigiteataja.ee/akt/949455. (27.01.2013)
[170]These shortcomings were also pointed out by the mission of the Nitrates Committee of the European Commission that took place in summer 2012.

The first category of measures are based on the principle of balanced and efficient use of nutrients in order to reduce run-off of nitrogen, and these measures have been widely used either as obligatory or recommendatory forms. In the Water Act, these measures include:

1) restriction to spread an average of 170 kg of nitrogen and 25 kg of phosphorus with manure per year per one hectare of land under cultivation, including nitrogen and phosphorus that is contained in manure left on the land by farm animals.[171] According to the draft amendment to the Water Act, the word "*average*" shall be deleted, as this has given rise to a situation where for one hectar of land the amount of nitrogen exceeding 170 kg/ha can be spread, as long as this does not raise the average amount per hectar of cultivated land above the limit (the total amount of nitrogen divided by the total amount of hectars of land belonging to the farmer). It has been acknowledged in the explanatory note to the draft amendment that this situation increases the risk of nutrient pollution due to overfertilization on certain parts of the cultivated land;
2) restriction to spread nitrogen and phosphorus with mineral fertilizers annually per hectar of cultivated land above the amount that is needed for agricultural crops to grow, and the requirement to spread amounts of mineral nitrogen exceeding 100 kg per hectare in parts.[172] The problem here is that without specifying the exact limits on nutrients that can be introduced with mineral fertilizers, producers are free to overfertilize their land. Overfertilization also occurs due to the economic situation where farmers cannot afford to buy compound fertlizers, in which case they use cheaper nitrogen fertilizers which creates leaking into surface water of the nitrogen that is not used up by plants.[173,174] When the draft amendment to the Water Act comes

[171]Water Act, article $26^1(4)$.
[172]Water Act, article $26^1(4)$.
[173]Explanatory note to the draft amendment of the Water Act, p 4. Available at: http://eelnoud.valitsus.ee (draft no. EIS 12-1303). (27.01.2013).
[174]The National Audit Office of Estonia has stated in its audit report that especially during the last years the use of nitrogen fertilizers has increased significantly. In 2008 this increase was

> into effect, then the Minister of Agriculture shall enact the maximum allowable amounts of nitrogen and phosphorus that can be introduced per one hectar of land annually, taking into account the specific agricultural crop and its needs for growth and existing nutrient content of soil. This would be an important improvement of regulation to control excessive nutrient load in soil, because at the moment, farmers are not limited by any particular numerical amounts; they only need to consider what would be necessary for plant growth.[175]

The second category of measures focuses on identifying sensitive areas, restrictions on using fertilizers in the vicinity of dolines (sinkholes) or drinking water intakes of surface water bodies, restrictions on the time of using fertilizers, establishing buffer zones, determining the appropriate time for introducing manure into the soil, etc. In the Water Act, these measures include:

1) prohibition to spread fertilizers on arable land if the inclination of the ground is more than 10 per cent. If the ground has an inclination of 5–10 per cent, spreading of fertilizers on the surface is prohibited from 1 November to 15 April[176];
2) prohibition to spread organic and mineral fertilizers from 1 November to 31 March, and during any time when the ground is covered with snow, is frozen or flooded, or saturated with water.[177] An additional restriction shall be enacted with the draft amendment to the Water Act, stipulating that on an arable land with growing crops, manure is allowed to be spread in November only in case the manure is incorporated into soil within 48 hours. The reason behind this restriction is that due to weather conditions there is a high risk of run-off of nitrogen and phosphorus with rainfall into ground and surface water. Ac-

42%, compared to the average of the previous four years. Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 18.
[175]However, the limit values of nitrogen per one hectar of arable land that can be introduced into soil by mineral fertilizers, depending on the specific agricultural crop and the planned harvest, have been enacted by the Government on 28 August 2001 with Regulation No 288, although it seems that there was no valid legal ground to set these limit values.
[176]Water Act, article $26^1(4^1)$.
[177]Water Act, article $26^1(4^2)$.

cording to a research conducted in 2011, the general prohibition of fertilization as of 1 December until 31 March on land with growing crops does not guarantee sufficient protection of water, because organic fertilizers are not incorporated into soil after spreading.[178] At the same time, plants do not assimilate nutrients in November, as the average temperature falls below 5º C and vegetation ends.[179] The comments made by the mission of the Nitrate Committee of the European Commission highlight that from an environmental point of view, the closed period should be extended even more: starting either on 1 October or 1 September, especially for arable crops, based on the agronomic (average temperature) and environmental (precipitation surplus) criteria.[180]

Currently, the Water Act contains specifications as to what is to be considered "*ground covered with snow*" or when the the ground is to be considered "*frozen*". However, these specifications shall be repealed with the draft amendment to the Water Act because the European Commission has pointed out that they put unacceptable limitations on the application of the prohibition as stipulated in the Nitrates Directive;

3) requirement that manure spread on a field where currently no crops grow should be incorporated into soil within 48 hours[181];
4) requirement that all livestock buildings with more than ten livestock units of livestock shall have storage facilities for manure or for manure and liquid manure, depending on the type of manure.[182] There have been problems with calculating livestock units, as there are different coefficients provided for in guiding documents. This in turn

[178]Report „Drafting of measures on restricting diffuse pollution in agriculture. Assessment on possibilities to achieve good status of surface water and groundwater and to save water".
[179]The mission of the Nitrates Committee of the European Commission also held that additional temporal restrictions are necessary for the spreading of manure on land with growing crops.
[180]Comments by the mission of the Nitrates Committee of the European Commission, p 14.
[181]Water Act, article $26^{1}(4^{3})$.
[182]Water Act, article $26^{2}(1)$.

impedes effective supervision, because there is no unified basis to check compliance;[183]

5) requirement to draw up a plan for spreading liquid manure if the farmer keeps animals of more than 300 livestock units and uses liquid manure technology in the farm house, or if the farmer spreads liquid manure in the amount corresponding to 300 livestock units on the basis of a contract. This plan needs to specify the amount of liquid manure to be spread, the area to be covered, protection level of groundwater, and surface water bodies and water intakes located in the area. The farmer is required to submit the plan for spreading liquid manure to the Environmental Board for approval, and the plan shall be approved for the period of three years;

6) requirement that storage of manure in stacks on land under cultivation is permitted only in a volume which does not exceed the amount used during one vegetation period and only dry manure shall be stored.[184] A manure stack is a volume of manure stored in a field according to the requirements for the storage of manure established by the Government. This provision has been pointed out as particularly problematic by the European Commission which stated that manure storage on land during winter period poses high risks of point source pollution, and therefore should be avoided as much as possible, and in any case, should be reduced to a short period of ideally few weeks before land spreading. The draft amendment to Water Act does not address this issue, but according to the Ministry of the Environment, additional requirements to the storage of manure in stacks in the field shall be established by Government regulation, requiring the use of leak-proof materials under and on top of the stack. Currently, banning storage of manure in stacks on the field is not realistic especially for small farmers who do not have sufficient funds to establish storage facilities for manure[185];

7) requirement on the capacity of manure storage; upon keeping farm animals, the facilities prescribed for the storage of solid manure only,

[183] Overview of the implementation of the nitrate sensitive area action plan in 2009-2011, assessment of the effectiveness of actions and the suitablility of monitoring programmes, p 29.

[184] Water Act, article 26^2(5).

[185] Interview with the officials of the Ministry of the Environment, 14 November 2012.

or for both liquid and solid manure must enable the storage of liquid and solid manure excreted by animals during a period of at least eight months.[186] If the farmer stores manure on a contractual basis in storage or processing facilities not belonging to him, the farmer needs to have a storage facility that enables the storage of manure excreted by animals during a period of one month.[187] In practice, there are problems with fulfilling these requirements because on the one hand, small farmers, as stated above, do not have sufficient funds to establish storage facilities for manure, and on the other hand, farmers empty storage facilities in autumn for the upcoming winter, but then the weather conditions may already be such that the nutrients introduced by manure onto land are not used up by plants resulting in nutrient leaching into surface and groundwater;

8) prohibition to use fertilizers and plant protection products and to engage in any other activities endangering water quality in areas surrounding springs and sinkholes and in a range of 10 m from the boundary of the water or from the edge of a sinkhole;[188]

9) prohibition to use fertilizers, chemical plant protection products and wastewater sediment, and placing of manure storage facilities and manure stacks in water protection zones;[189]

10) prohibition of any economic activity (including using fertilizers) in sanitary protection zones of water intakes. This zone may be 30 m or 50 m.[190] If water is abstracted from a watercourse, then this zone extends to 200 m upstream from the water abstraction point, 50 m downstream, and 50 m to either side of the water abstraction point along a line drawn across the banks of the water body and passing through the water abstraction point.[191] If water is abstracted from a body of standing water, then the protection zone extends to the water area of a water body with a 90 m wide riparian zone;[192]

[186]Water Act, article $26^{2}(2)$.
[187]Water Act, article $26^{2}(3^{1})$.
[188]Water Act, article $26^{1}(5)$.
[189]Water Act, article 29(4) subarticle 4. The use of plant protection products is permitted only for the purpose of clearing the outbreak site in the event of a plant disease or pest outbreak, and the permission of the environmental service shall be obtained for each separate occasion.
[190]Water Act, articles $28^{1}(1)$ and $28^{1}(3)$.
[191]Water Act, article 28(2)3).
[192]Water Act, article 28(2)4).

11) storage houses for mineral fertilizers and for manure (either liquid or solid) need to be leakage-proof and comply with several other requirements stipulated in the Government Regulation No. 288. For example, the storage house for liquid mineral fertilizers is to be surrounded by an enclosure that prevents any leakage of the fertilizers into the environment;
12) GAP contains additional recommendations on the composition and maintenance of water protection zones;
13) prohibition to use fertilizers and plant protection products in a limited management zone;[193]

In NSA, additional and in some cases more stringent requirements apply and some of the requirements that are provided for in the GAP as recommedatory, are made legally-binding through their enactment in the Water Act or in the Government regulation No. 17 of 21 January 2003 "*Protection rules for the nitrate sensitive area in Pandivere and Adavere-Põltsamaa*". These requirements are as follows:

1) restriction to spread an average of 170 kg of nitrogen with manure and mineral fertilizers per one hectare of arable land in one year;[194] With the draft amendment to the Water Act, the word "*average*" shall be removed from the subarticle in order to ensure that the restriction is not applied as an average to the whole surface area of farm land belonging to the farmer, but as a maximum limit per hectar of farm land. In essence, this restriction is more stringent compared to areas outside of NSA, as the limit of 170 kg of nitrogen applies not only to the spreading of manure, but includes also nitrogen from mineral fertilizers. However, if mineral fertilizers are used, the amount of nitrogen per hectar of land may not exceed 140 kg[195];
2) requirement to cover at least 30 % of the land under cultivation situated in NSA and used by an agricultural producer with

[193]Nature Conservation Act, article 31(2)7). However, otherwise can be provided for by the protection rules of the specific protected area. Available in English at: http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X90008K3&keel=en&pg=1&ptyyp=RT&tyyp=X&query=looduskaitseseadus. (27.01.2013)
[194]Water Act, article 26^3(3).
[195]Water Act, article 26^3(4).

plants from 1 November until 31 March[196]. In areas outside NSA, the requirement on covering at least 30% of land with plants for winter shall be applied as a condition for applying for aid payments for environment-friendly management under the ERDP;

3) prohibition to use fertilizers or pesticides or store manure in a stock in the field in a radius of 50 m from the boundary of springs and dolines, unless the Government regulation on the protection rules of NSA provides otherwise (compare: this radius for areas outside NSA is 10 m). The Government may reduce the scope of the area where these restrictions apply[197];
4) The Water Act provides that the Government shall enact the precise extent of certain restrictions with a regulation on the protection rules of NSA. For example, in those parts of NSA where the surface coating is less than 2 m and in karst areas, the Government may restrict the limit amount of nitrogen that can be introduced with mineral fertilizers to 100 kg per hectar of arable land.

The list of measures belonging to the third category is relatively short, and includes establishing wetlands or using existing wetlands. In Estonia, these measures are provided for in the GAP and are of recommendatory nature.

Other measures aimed at preventing and reducing water pollution with nitrogen and phosphorus from agricultural activities include quality standards for the storage of pesticides (Plant Protection Act), requirements to reduce environmental risks when using pesticides (Plant Protection Act, Water Act, Chemicals Act, GAP), requirements on mitigating negative effects from drainage systems (Land Improvement Act), and better planning of land use to reduce potential run-off of nutrients and pesticides (Planning Act).

As land improvement plays an important role in causing diffuse pollution, it is essential to address problems concerning land improvement systems in an integrated manner with WMPs. On a regulatory level, this integration is provided for in the Land Improvement Act where it is stipulated that in order to ensure the purposeful man-

[196]Water Act, article 26^3(7).
[197]Water Act, article 26^3(6).

agement of land improvement systems, management plans for the land improvement systems of river basin sub-districts shall be prepared in accordance with the principles of WMPs prepared pursuant to the Water Act.[198] In case of artificial recipients with a catchment area of more than 10 km^2, articles that are prone to diffuse pollution need to be indicated in a management plan for a land improvement system. One of the general requirements for the land improvement system is that a regulation network shall minimize the threat of spread of pollution.[199] However, the Land Improvement Act does not specify how these threats of diffuse pollution should be minimized, apart from giving a definition of' a building necessary for environmental protection that will be part of the land improvement system. This building shall be established for the fulfillment of environmental protection requirements, first of all to minimize the threat of diffuse pollution and to ensure as high self-purifying capacity of the construction as possible.[200]

These requirements have been pulled together in WMPs and in the Implementation Plan of the BSAP for 2008-2011. The Implementation Plan focuses on controlling eutrophication by providing a set of measures originating from the HELCOM Baltic Sea Action Plan and HELCOM Recommendation 28E/4 which amends Annex III "*Criteria and measures concerning the prevention of pollution from land-based sources*" of the 1992 Helsinki Convention, and among others, limits the amount of phosphorus per one hectar of arable land to 25 kg per year.[201]

The Implementation Plan of BSAP provides further measures in order to control pollution from agriculture such as improving the monitoring system to detect sources of diffuse pollution (including model calculations), forestation of water protection zones of water bodies and of sensitive areas to exclude them from agricultural production activities, application of measures to reduce runoff of nitrogen in land improvement, introduction of the use of P-index on the field level, and other measures that are to be financed under the ERDP.

The requirement for an integrated agricultural management is currently only recommendatory and is provided for in GAP. This integrated agricultural management entails drawing up of an environmen-

[198]Land Improvement Act, article 52(1).
[199]Land Improvement Act, article 4(1).
[200]Land Improvement Act, article 3(4).
[201]The Implementation Plan also addresses HELCOM Recommendations 28E/5 and 28E/6 that deal with wastewater.

tal action plan to assess potential environmental risks and in general assist in organizing agricultural production more efficiently.

4.3.2 Monitoring and control of substantive demands

Requirements for programmes on water monitoring in river basin districts are established by the Ministry of Environment on 6 April 2011 in Regulation No. 25 where, in accordance with the WFD, the following types of monitoring are distinguished: surveillance monitoring, operational monitoring and investigative monitoring. Surveillance monitoring is mainly undertaken to assess long-term changes in natural conditions and long-term changes resulting from widespread anthropogenic activity. Operational monitoring aims to establish the status of those bodies identified as being at risk of failing to meet their environmental objectives, and to assess any changes in the status of such bodies resulting from the programmes of measures. Investigative monitoring is designed to ascertain the causes of a water body or water bodies failing to achieve environmental objectives, or to ascertain the magnitude and impacts of accidental pollution.[202]

Monitoring is organized and monitoring programmes are drawn up by the Ministry of the Environment for each river basin district. Long-term monitoring programmes are adopted for the period of the river basin district management plan (the first programme was adopted for 2010-2015), while short-term monitoring programmes are adopted for one year. According to the Environmental Monitoring Act, if the data obtained at an environmental monitoring station or site indicates that the situation is posing a threat to the environment, the institution responsible for the environmental monitoring sub-programme is required to notify the Environmental Inspectorate, the Environmental Board, and the local government of the location of the endangered area thereof immediately, and in case of surface water or groundwater pollution or soil pollution also to notify the Health Board.[203]

Environmental monitoring is conducted by the state, by the local government and by the operator (permit holder). The water permit holder is obliged to monitor the pollutants and the environment where these pollutants are released according to conditions set out in the water permit, and to regularly submit this monitoring data to the authori-

[202]WFD, Annex V.
[203]Environmental Monitoring Act, article 9.

ty who issued the permit.[204] The holder of an integrated environmental permit is also obliged to conduct monitoring and submit monitoring data to the permit issuer, but if the operator engages in cattle, pig or poultry farming, reasonable costs of monitoring shall be taken into account when setting monitoring requirements in the permit.[205]

It is interesting to note that the Water Act does not specify how the monitoring data acquired from permit holders or from the implementation of the monitoring programme of the river basin district management plans should be used in planning further measures for water protection and management, nor does it specify how often and on what grounds monitoring programmes should be updated. With regard to the action plan of NSA, the Water Act states clearly that the restrictions and obligations enacted in NSA shall be reviewed and amended every four years on the basis of monitoring results, and that the action plan shall be amended every four years, if necessary, according to the monitoring results of surface and groundwater.[206] The Water Act only provides that the water monitoring programme of the river basin district management plan shall be reviewed and, if necessary, supplemented, in case it becomes evident that the environmental objective stipulated in the Water Act shall not be met. This regulation obviously runs short of ensuring flexibility and adaptiveness in providing a swift and suitable response to changes taking place in water environment. In addition, it is not clear whether certain monitoring results shall be analyzed in order to identify how deterioration in quality standards of some parts of the ecosystem might affect the status and ultimately the resilience of the ecosystem in other parts or the ecosystem as a whole.

The European Commission in its Report on the WFD implementation has concluded that in Estonia, the monitoring network is relatively weak with a low density of monitoring stations resulting in insufficient data for status assessment of water bodies.[207] In addition, the Commission has also pointed out that especially the assessment of chemical status is weak and that priority substances and other relevant pollutants are monitored only at a handful of stations with lack of regularity.[208] In conclusion, the Commission has proposed that monitoring

[204]However, the obligation to submit monitoring data to the permit issuer is explicitly stated in the Water Act only with regard to emission of dangerous substances into the environment. Water Act, article 26^{11}(5).
[205]IPPCA, article 19(5).
[206]Water Act, article 26^{3}(10) and article 26^{3}(12).
[207]WFD Report 2012, p 3.
[208]WFD Report 2012, p 15.

networks need to be improved and a monitoring programme for coastal waters needs to be established.[209]

The National Audit Office has stated in its audit report on the supervision over the use of mineral fertilizers and pesticides that in order to have an adequate overview of trends of pollutant concentration and water quality, more investigative monitoring needs to be conducted where in addition to analyzing the monitoring data, the factors impacting the monitoring data like activities of farmers in the investigated area would be also analyzed.. The National Audit Office has concluded in its audit report that monitoring of water is not yet organized in a manner that gives sufficient information about the causes of changes in water quality in a specified period of time.[210]

In another report, it has been proposed that by means of state monitoring it is not possible to directly identify whether or not restrictions on the use of fertilizers have been complied with because in order to make adequate assessments more, background information is necessary especially about the use of arable land in the river basin district and river basin sub-district.[211] Therefore, using results of monitoring programmes to assess the effectiveness of implemented measures (in NSA) is complicated due to an array other factors have a great impact on monitoring results, and the lack of information on the direct link between quantity of fertilizers and the concentration of nitrogen in surface water and groundwater.

4.3.3 Substantive demands connected to emission standards and relevant water quality norms

In case of NSA, it is stated in the Water Act that on the basis of monitoring data, the restrictions and obligations established for NSA shall be reviewed and amended every four years. This requirement of review and amendment every four years applies also to the action plan for NSA that has been approved by the Government.[212] A monitoring programme has been established in order to assess the effectiveness of water protection measures applied in NSA. Hence, it may be said that a certain kind of flexibility is provided for in regulation to allow

[209]WFD Report 2012, p 47.
[210]Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 14.
[211]Overview of the implementation of the nitrate sensitive area action plan in 2009-2011, assessment of the effectiveness of actions and the suitablility of monitoring programmes, p. 19.
[212]Water Act, articles 26^3(9), 26^3(10) and 26^3(12).

adapting measures to detect changes in environmental indicators. The problem is, however, that often changes in monitoring data are not followed up by supervision on the part of state authorities to establish what has exactly caused these changes. The National Audit Office has pointed out that the fact that monitoring data provides significantly more information than on-spot inspections indicates that supervision has not been effective.[213]

It may be said that there is an attempt, in regulation, to connect environmental objectives and the corresponding environmental quality standards with emission standards and other environmental requirements to some extent, for example by stipulating as a general rule in the Water Act that if it becomes evident that the environmental objective is likely not to be met, then emission limit values and environmental quality standards shall be reviewed and if necessary, amended.[214] In similar vein, adoption of additional measures is promoted.[215] However, the Water Act fails to provide a supportive mechanism to make this general rule operational. Instead, very specific regulation is provided for that applies to all farmers while some more stringent rules apply to farmers who engage in agricultural activities in NSA. As engaging in agricultural activities does not require a separate permit in Estonia (if the activity is below the thresholds as provided for in IPPCA), there seems to be a gap in regulation in a situation where the environmental objective set for a specific water body is not likely to be met, but neither emission limit values nor supplementary environmental requirements can be imposed on the economic actor either because of the diffuse nature of pollution (e.g. spreading manure on fields) or due to lack of a legal ground for imposing stricter or additional requirements on the farmer. So far, reliance on GAP has been the norm in preventing or minimizing pollution from agriculture, either through aid payments system or as a recommendation to follow the practice on a voluntary basis (some practices have been made obligatory as a condition of the permit to holders of integrated environmental permit, such as BAT on pig, poultry and cattle farming).

[213]Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 27.
[214]Water Act, article 3^1.
[215]Water Act, article 3^8.

4.3.4 Regulatory problems in setting relevant substantive standards for farms

Basically, there is no regulatory framework that would allow restriction of the use of fertilizers of single farm to a greater extent than provided for in the Water Act or the protection rules for NSA. Any such claims can be only recommendatory as the water permit only deals with setting limit values for wastewater and therefore relating to control of point source pollution. This regulatory framework has not been put in place partly due to the fact that the problem of diffuse pollution from agricultural activities has been recognized only recently, and even then, there is hardly any reliable data available about the use of fertilizers by specific farms and their proportion in contributing to water pollution. This situation has been partly caused by serious shortcomings in supervision over the activities of farms in using fertilizers.

In case of pesticides, the focus of supervision has been on their marketing and keeping, and not so much on their use. For example, in the period of 2008-2009, the Environmental Inspectorate registered only one misdemeanour and issued one precept concerning the storage of mineral fertilizers.[216]

Supervision over compliance with environmental requirements in controlling pollution from agriculture is not regular. However, there is some data available from 2010, according to which 21% of animal farms (above 10 animal units) located in NSA did not have manure storage.[217]

4.4 Ecosystems Approach and Regulation on Agriculture

4.4.1 Ecological standards in regulation of agriculture

It may be said that the ecological standards are not adequately reflected in the regulation of agriculture. There are no specific mechanisms

[216]Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 26.

[217]Report „NTA üle 10 LÜ farmide sõnnikukäitluse ja sõnnikuhoidlate inventuur“ (*Inventory of manure handling and manure storing in farms of more than 10 animal units in nitrate sensitive area*), Tallinn 2010. Available at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1140591/NTA+s6nnikuk%E4itluse+aruanne+ELLE+230710.pdf.(15.12.2012).

in place in legal acts to address situations where the limit values of nitrogen or phosphorus are exceeded in water bodies or in soil; most of the measures can only be recommended to be applied by farmers without any possibility of enforcement (except in cases where the farmer is obliged to follow certain complementary requirements in order to receive aid payments under the ERDP). However, it is different where the farmer is holding an integrated environmental permit where some additional measures for water protection can be made legally-binding and enforced by stipulating them in the water permit.

If the status of water body is deteriorating or the monitoring data indicates that the status may be deteriorating, then agricultural activities that do not require an integrated environmental permit cannot be prohibited. However, there is some leeway for planning of land use, but there are some problems with strategical planning of land use and decisions tend to be made on a local level, without consideration of alternative locations on a wider scale.

The Water Act identifies a range of water and terrestrial areas that need special protection and where stricter environmental standards and restrictions apply. In these areas, certain agricultural practices are prohibited as for example in nature protection areas, use of fertilizers, biocides or plant protection products may be prohibited depending on the type of protection area.

4.4.2 Adaptiveness

Water management plans provide for basin-based measures, but most of them still reflect the generally-applicable state-wide regulations (so-called basic measures). For example, the Koiva WMP lists the following measures as additional: support for sewerage solutions in low density areas, establishment of rain water systems, and additional phosphorus and nitrogen removal under the HELCOM Baltic Sea Action Plan.[218]

It is stated in all WMPs that implementation and the necessary scope of additional measures will be clarified after implementation of principal measures and a review of livestock farms, after which the need for additional measures will have to be assessed again. With regard to application of additional measures, the East-Estonian and the West-Estonian WMPs also refer to the need to assess the status of

[218]Koiva WMP, point 14.1. Available at: http://www.envir.ee/vmk, in English at: http://www.envir.ee/orb.aw/class=file/action=preview/id=1152634/2010.12.21+Koiva+RBMP.pdf. 15.12.2012)

surface and groundwater that may be impacted by animal farms before such measures are devised. East-Estonian and West-Estonian WMPs state that in order to achieve good ecological status of the marine environment by 2021 and for that purpose to apply measures by 2016 to minimize the pollution load from agriculture, recommendations provided for in Annex III of the HELCOM Convention that deal with restrictions on the use of pesticides and plant nutrients and oblige farmers to act according to the best environmental practice and use the BAT should be followed.[219] According to East-Estonian WMP, it is necessary to apply additional measures at a cost of 64 million EUR in order to reduce the load of nitrogen and phosphorus on the Baltic Sea as provided for in the HELCOM rules. The WMPs, however, do not provide specific numbers on the respective reduction targets as stipulated in the HELCOM Baltic Sea Action Plan. According to the plan, Estonia is required to reduce annual average phosphorus load on the Baltic Sea at least in the amount of 220 tons and nitrogen load in the amount of 900 tons.[220] While these targets are not reflected in the WMPs, the plans neither provide numbers on the proportion of phosphorus and nitrogen load from each respective river basin district nor respective corresponding targets for such reductions in the river basin district.

It is interesting to note that application of more stringent restrictions than those provided for in legal acts, are emphasized in the WMPs for the protection of groundwater (drinking water), especially concerning the establishment of stricter restrictions on fertilizing in the water intake recharge area. In this case, the scale of the area where restrictions are to be applied shall be determined in agreement with the land owner, the user (possessor) of the water intake and local government on the basis of design documentation of the sanitary protection zone of the relevant water intake.

It may be said that there is not sufficient correlation between the assessment of the current status of water bodies and the actions undertaken to minimize agricultural pollution under action plans. In this respect, the National Audit Office has proposed that the Ministry of Environment should focus more on ensuring this correlation and should take the results of such observations into account when planning actions for the future. For this purpose, the National Audit Office

[219] East-Estonian WMP and West-Estonian WMP, point 20.1. Available at: http://www.envir.ee/vmk. (27.01.2013)

[220] http://www.helcom.fi/BSAP/ActionPlan/en_GB/SegmentSummary/. (27.01.2013)

has recommended to apply investigative monitoring in NSA in order to identify causes of pollution and to assess changes in water quality over a longer period of time. This data would also help to plan more suitable measures for the future.[221]

In 2012, the National Audit Office conducted another audit on the effectiveness of water protection measures of the Lake Peipus.[222] The audit report pointed out that currently planned and implemented water protection measures do not take the proportion of point source pollution and diffuse pollution into account and at least with regard to the Lake Peipus, the state has spent proportionally the largest share of funds on the reduction of point source pollution. The National Audit Office also concluded that measures for reducing agricultural diffuse pollution are lenient and supervision of diffuse pollution is insufficient. It is interesting to note that these conclusions in great part overlap with the conclusions made by the National Audit Office in 2010 when assessing supervision activities over the use of pesticides and fertilizers.

In addition, the National Audit Office stated that there has not been sufficient cooperation between the Ministry of the Environment and the Ministry of the Agriculture in the field of pollution reduction.[223] Likewise, the state does not know the impact of already implemented measures (incl. those funded by the state) and whether planned activities facilitate achievement of objectives as it has not assessed the performance of those activities.[224] These statements exemplify the lack of coordination between planned measures and considering the actual impact of these measures in protecting and improving water status. These shortcomings can be extended to other WMPs as well, because the case of Lake Peipus is not in any way special.

It is possible to find more elements of the ecosystems approach in nature protection regulation that sets specific restrictions on agricultural activities. In Estonia, Natura 2000 areas are protected by the state under the Nature Conservation Act as protected areas, special conservation areas or species protection sites. Protected areas and special conservation areas are placed under protection with a regulation of the

[221]Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 2.
[222]Audit report of the National Audit Office of Estonia on the effectiveness of measures for improving the status of Lake Peipus (2012), p 2.
[223]Audit report on pesticides and mineral fertilizers of the National Audit Office of Estonia (2010), p 3.
[224]Audit report of the National Audit Office of Estonia on the effectiveness of measures for improving the status of Lake Peipus (2012), p 2.

Government while species protection sites are protected with the regulation of the Minister of the Environment. For protected areas and species protection sites, protection rules including the restrictions valid in those areas by zones are established with a regulation. The restrictions valid in special conservation areas have been provided in the Nature Conservation Act. On agricultural land, restrictions may concern the construction and reconstruction of land improvement systems, fertilization and the use of pesticides and biocides.[225] The ban on construction in coastal areas has contributed significantly in protecting habitats of certain species. However, it is admitted that although around 10% of all ecosystems is under protection, only 2% of marine areas are under strict protection (nature reserves and special management zones), and the sufficiency of this coverage needs further analysis.[226]

In addition, the ERDP provides for aid payments for Natura 2000 areas in order to reduce pressures for the intensification of agricultural production in regions where it may pose a greater danger to nature, and in that way potentially also reduces the runoff of nutrients into water courses.

In sum, nature protection areas can contribute significantly to reducing nitrogen and phosphorus load, and the additional benefit is that these areas including protected habitats are viewed from a more holistic perspective with an aim to ensure coherence between habitats. This can also act as an example for a more holistic protection of water bodies under water management.[227]

4.4.3 Involving different stakeholders

The regulatory procedure is subjected to the generally-applicable coordination rules on drafting legal acts. It is good administrative practice to involve all the main stakeholders into this coordination process. According to a survey conducted in 2006, the Ministry of Agriculture was perceived as a cooperative, open-minded, engaging and professional partner among farming organizations and interest groups.[228]

[225]Estonian Rural Development Plan 2007-2013, p 32. Nature Conservation Act, article 30(2)4), article 31(2) and article 33(1).
[226]Eesti keskkonnanäitajad 2012, p 48.
[227]For example, in case of high nature value agriculture, the fertilization restrictions established for NSA are extended to all Estonia and at least 30% of eligible land of the business entity should be covered by a crop by 1 November of each year of the obligation period to prevent nutrient leaching. Koiva WMP, point 14.3.
[228]Report „Põllumajandusministeeriumi koostöö sotsiaalpartneritega 2006 – fookusgrupid“ (*Cooperation of the Ministry of Agriculture with social partners in 2006 – focus groups*).

The drafting of WMPs was, however, coordinated by the Ministry of the Environment. Meetings to discuss the draft WMPs were held in all river basin districts in March 2009. After public display, the draft WMPs were discussed in all county centres. There were several meetings of various working groups for specific fields/stakeholders. A Water Forum to discuss water protection in agriculture was organised in November 2009 jointly by the Ministry of the Environment, Ministry of Agriculture and the Rural Development Foundation.

The open procedure for the drafting of WMPs is provided for in the Water Act that transposes the relevant provisions of the WFD. The Ministry of the Environment is responsible for conducting the open procedure while the Environmental Board is tasked with involving relevant stakeholders such as county governments, local governments, local population and other interested parties of the relevant river basin district. The Ministry of the Environment shall make publicly available all documentation related to the drafting of WMP of the river basin district and ensure access to this documentation for a period of six months during which time also public discussions shall be organized. Before making the documentation available to the public, however, coordination with Ministries which share the subject area of the plan, and county governments and local governments situated in the territory of the river basin district shall be conducted. It is also stipulated in the Water Act that everyone can submit proposals and objections on the documentation, and these shall be addressed by the Ministry of the Environment within two months in a written statement. Similar open procedure is applied to the drafting of action plan of NSA, and as of 13 December 2012, this procedure is also stipulated in more detail in the Water Act. It is now explicitly provided for in the Water Act that agricultural organizations and other interests groups shall be involved in the drafting of the NSA action plan. The main difference with the processing of WMPs is that documentation on NSA action plan needs to be publicly available only for at least 30 days (as compared to 6 months in case of WMP).

Hence, it may be said that at regulation level, stakeholder participation is ensured, but in actuality, it may be questioned whether all interested stakeholders are effectively involved (properly notified in advance) and whether they have the power to actually affect the content of WMPs. It is important to note, however, that in case of NSA action plan the Ministry of the Environment has, in accordance with

Turu-uuringute AS, November 2006. Available at: http://www.agri.ee/public/juurkataloog/UURINGUD/mainefookus.pdf. (13.12.2012)

good administrative practice, informed interested parties of the drafting of the action plan in a separate letter addressed specifically to those cooperation partners, in addition to the general announcement published in a state-wide newspaper.[229] The Commission has pointed out that Estonia needs to further develop co-operation with farmers at different stages of preparation of the programme of measures.[230]

Also the processing of water permits (including amendments and repeals of water permits) is an open procedure and everyone can submit written proposals and objections on the application of water permit to the permit issuer. The permit application shall be published in the Official Notifications magazine. If it is necessary for proper resolution or for balancing of conflicting interests, the permit issuer shall conduct a public hearing at the request of a party to the procedure or on its own initiative. However, any proposal or objections made to the application of water permit, if they are not taken into account, need not be justified by the permit issuer.

As to the role of farmers as one part of the ecosystem, the survey conducted in 2011 generally sees their role in ensuring environmental protection rather than mere producers, although they are not willing to protect the environment at the expense of their potential income and consider this kind of situation unfair.[231] Farmers also acknowledge the impact of their activities on the water environment and see the necessity of different environmental protection measures. At the same time, farmers do not believe that fertilization is a considerable source of pollution and they rather blame point source pollution (manure storages) for the deterioration of water status. The survey report concluded that it is important to continue informing farmers about the problem of eutrophication and its seriousness because especially farmers active in NSA did not consider water pollution as a significant problem and assessed water status in NSA to be good or very good (while it is ac-

[229]Explanatory note to the draft amendment of the Water Act (draft no. 319 SE), adopted on 13 December 2012. Available at: http://www.riigikogu.ee/?op=ems&page=eelnou&eid=56160f47-47bd-40dd-843c-7f874697678b&. (27.01.2013).

[230]Commission Staff Working Document, Estonia, accompanying the document „Report from the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC). River Basin Management Plans" (WFD implementation report 2012), p 49. Brussels, 14.11.2012, SWD(2012) 379 final. Available at: http://ec.europa.eu/environment/water/water-framework/pdf/CWD-2012-379_EN-Vol3_EE.pdf. (27.01.2013)

[231]Sall, Marit; Peterson, Kaja; Kuldna, Piret, „Veekaitsest Pandivere ja Adavere-Põltsamaa nitraaditundlikul alal" (*On water protection in the nitrate sensitive area of Adavere-Põltsamaa*), p 57. Säästva Eesti Instituudi Tallinna väljaanne nr 20, Tallinn 2012. Available at: www.seit.ee/file_dl.php?file_id=160. (27.01.2013)

tually poor or bad). This indicates that farmers should be involved to a greater extent in the protection of water ecosystems from agriculture. The report recommends a result-oriented approach where farmers would better understand the contribution of water protection measures applied by them to improving water status.[232]

4.4.4 Different stakeholder possibilities to participate in management

Environmental decisions can be challenged in extrajudicial proceedings and in court.

Environmental decisions can be challenged either on the basis that the decision is in breach of personal rights or freedoms or on the basis that the decision is not in accord with public interests. This more expansive view to include also challenges on the basis of public interests has been recognized by the Supreme Court, although the Administrative Procedure Act does not explicitly provide for this, nor stipulate any specific criteria for organizations which can challenge administrative decisions on the basis of public interest. The main criterion used so far is that the organization's statutes must foresee environmental protection as the main activity of the organization.

The Planning Act provides for a possibility for every person to challenge the decision on the adoption of the spatial plan during 30 days (from the moment when the person found out about the decision, or should have found out) if the person considers the decision to be in breach of legal acts or her personal rights or freedoms.[233] In this case, however, it is necessary to show clearly how the planning document is in breach of public interests.

When the adoption of a legal act is in question, interested persons and persons whose rights may be affected by a legal act issued by way of open proceedings have the right, within a designated term, to submit to the administrative authority conducting the proceedings, proposals and objections concerning the draft of the legal act or application for permit.[234]

There is still disagreement and ambiguity on the legal character of WMPs and whether they can be considered as administrative acts that create obligations and restrict rights of persons directly, or if they are rather visionary documents that only need to be taken into account

[232]Ibid., p 63.
[233]Planning Act, article 26(1).
[234]Administrative Procedure Act, article 49(1).

when making administrative decisions (therefore, directed at administrative bodies, and not at private persons).

If the activity for which the permit is being applied for, may involve a significant environmental impact, then every person can have a say in the procedure for the assessment of the environmental impact.

4.4.5 Regulatory instruments to promote and support stakeholder cooperation and cooperative management initiatives

The Water Act has been recently amended to include more specific open procedure rules also for the processing of the action plan of NSA. These rules were already in place for the drafting and processing of WMPs. There are two committees set up where relevant discussions can take place – the nitrate committee and the water management committee. In the Nitrate Committee, representatives of the Ministry of the Environment, the Environmental Board, the Environmental Inspectorate, Ministry of Agriculture, local governments and the unions of farmers and producers are included. The Water Committee consists mainly of government representatives and scientists, but a representative of the Estonian Water Works Association is also part of the Committee. The Water Committee was established by the Minister of the Environment to integrate water use and protection issues with other relevant subject areas and it is tasked with various commitments on giving opinions and making proposals on documents related to water management like additional programmes and plans on specific areas of water management, and draft WMPs. The Water Committee assists in implementing the programmes of measures, makes a proposal to the Minister of the Environment on approving the implementing plan of the programmes of measures and approves the report on the implementation of the programme of measures of the previous year. Hence, the Water Committee, in addition to its advisory role, holds also some implementing authority. The Environmental Board is responsible for involving, in the drafting of the implementation plan of the programme of measures, county governments, local governments, and other interested parties of the specific area where the plan is to be implemented.[235] The same applies to the drafting of the WMPs, but in that case also local inhabitants must be engaged.

[235] Water Act, article 3^{16}(3).

The Water Committee is not, however, the most suitable forum for stakeholder cooperation as it consists mainly of government representatives with no representation of the NGO sector. Therefore, the main mechanism for involving these different interest groups is still the open procedure for WMPs, action plans for NSAs, different kinds of spatial planning documents and for permits (either the water permit or the integrated environmental permit).

There is lacking an established and regular cooperation between different stakeholders impacting on or otherwise involved in water management issues. It must be noted as well, that discussions on setting priorities and choosing between different management options is not often conducted at the appropriate level, not involving the relevant political actors, and the results of these discussions are in many cases not likely to find their way into the policy documents under discussion. In a wider perspective, there is also the question whether it is possible to implement the WFD on an ideological level. Integration between sectors is still not happening in an organized manner, but rather accidentally, haphazardly. At the time of setting goals, the society needs to make choices. This has not happened so far and will probably not happen also for the next period of WMPs as there seems to be lack of political commitment to water management and marine protection issues, unwillingness to take responsibility for decisions on a higher political level. During the drafting of WMPs for the previous period, nobody realized that establishing water bodies is already a political decision. As a result, conflicts arise and there is nobody ready to solve them. There is lack of public discussion; decisions are, hence, postponed.[236]

To a great extent, the involvement of the public in water protection and management issues depends on how actively these topics are discussed in the media. However, because it takes time for the pollution load to manifest as a grave danger for the environment or human health, problems of water pollution from agricultural sources go unnoticed and do not generally make the headlines in newspapers.

4.4.6 Legal measures in response to poor ecological status

For example, if it is ascertained that the level of nutrients exceeds the level necessary for the water body to remain in its current status or to achieve better status, there is no legal ground to oblige the farmer to

[236]Discussion with an expert on water management issues, Madis Metsur, AS Maves, 24 October 2012.

change its practices, if the farmer acts in accordance with binding rules. In Estonia, farmers do not need to apply for a permit to engage in agricultural activities unless their planned activities exceed certain threshold levels established in IPPCA, in which case an integrated environmental permit is required. This means that there is no legal ground to prescribe obligatory farm-specific environmental requirements for a specific farmer, but instead to call upon the farmer to take up supplementary measures on a voluntary basis. However, the holder of integrated environmental permit is obliged to apply BAT.

The European Commission in its report on the implementation of the WFD stated that in Estonia, the Programme of Measures includes few measures beyond basic measures including permits and controls, and based on the WMP, it is almost impossible to distinguish between supplementary and additional measures.[237] The programme of measures includes no economic instruments either. This indicates that Estonian authorities have not made full use of the possible range of instruments and measures that could be applied to prevent or minimize the impact of agricultural activities on the water status. The main focus is on GAP and on the minimum requirements as provided for in the Water Act.

In order to introduce more stringent measures of a general character (not directed towards a specific farmer), the whole process of amending legal regulations or updating the programme of measures under the WMP will need to be followed through, and this takes time. As the programme of measures is not considered to have a legally-binding effect, but rather to constitute a guideline document for state authorities to follow when deciding on the application of water protection measures or setting requirements in environmental permits, then the main option is to amend relevant legal rules concerning the environmental impact of farmers' activities.

The Water Act provides for a combined approach in controlling point and diffuse pollution as stipulated in Article 10 of the WFD. According to this approach, pollution should be controlled at source through the setting of emission limit values and of environmental quality standards. Similar to Article 10(3) of the WFD, the Water Act foresees that if environmental requirements or emission limits established in the legal acts or in permits do not suffice to achieve the quality objective (environmental objectives) of the Water Act or any other legal act, then additional measures should be applied including

[237] WFD implementation report 2012, p 3.

stricter environmental requirements and emission limit values. It may be said that the Water Act goes even further calling for the establishment of even stricter environmental quality standards if these are deemed to be necessary for the achievement of environmental objectives set out in the Water Act.[238] Hence, in principle there is room for adapting human activities to be in line with the desired ecological standards whilst in practice this combined approach has not been applied mainly due to the novelty of this provision, and several accruing difficulties involved in making the combined approach operational. These difficulties predominantly concern proving the scale of impact of activities of a particular farmer, especially if this impact is caused by diffuse pollution. As imposing additional requirements on the economic actor may involve considerable expenses for the actor, proof needs to be certain and measurable.[239] And secondly, even if this impact was ascertained and adequately apportioned, the current legal mechanism is not flexible enough to impose legally-binding farm-specific or location-specific measures.

If it is ascertained that the level of nutrients exceeds the level necessary for the water body to remain in its current status or to achieve better status, there is no legal ground to oblige the farmer to change its practices, if the farmer acts in accordance with binding rules. This means that there is no legal ground to prescribe obligatory farm-specific environmental requirements for a specific farmer, but instead to call upon the farmer to take up supplementary measures on a voluntary basis. In case of IPPCA, there is more flexibility to introduce additional measures because the relevant authority may oblige the permit holder to apply certain measures (BAT) by amending the permit. However, it is not clear whether these measures can be more stringent than provided for in other legal acts (mainly the Water Act and regulations adopted on the basis of the Water Act).

The Water Act lists cases when the amendment procedure of water permit can be or needs to be initiated, of which the following two are relevant for present purposes: if the legislation which constituted the basis for the requirements set by the permit for the special use of wa-

[238]However, Article 11(5) of the WFD also talks about setting stricter environmental quality standards.

[239]Interview with an official in the Estonian Environmental Board, 20 December 2012. Although the application of the precautionary approach may put the burden of proof rather on the economic actor than the state, then in the context of still very cautious state action these issues are not likely to be solved in the near future.

ter[240] has been amended, and the public interest that the permit for the special use of water be amended outweighs the person's certainty that the permit remains valid in its current form, and also if a significant environmental impact arising from an activity determined by the permit for the special use of water creates damaging changes in the environment due to which the requirements established by the permit must be changed.[241]

In case of integrated environmental permit, the conditions of the permit shall be amended if the pollution caused by the installation is of such significance that negative effects are caused to the environment of the site of the installation, and the existing emission limit values of the permit need to be reduced, or new values need to be determined; and if changes in BAT make it possible to significantly reduce emissions or the hazard created thereby without imposing excessive costs. In these two instances, the initiator of the amendment procedure shall be the permit issuer, although the operator itself can also initiate it. Third parties can submit a letter to the relevant authority drawing attention to the need to initiate an amendment of the permit, but the authority is not bound to follow the proposal, and may disagree.

Stakeholders can be involved in the amendment of the water permit only when the amendment has already been initiated by the issuer of the permit (the amendment of the permit is an open procedure).

4.5 Concluding and Summarising Remarks

The central policy document for agriculture is Estonian Rural Development Plan 2007-2013 and for water protection, the river basin management plans. However, these policy documents have not been integrated with each other and even discrepancies occur in outlining relevant measures and their costs to reduce environmental impact from agricultural activities. The water management plans do not provide specific numbers on the respective reduction targets as stipulated in the HELCOM Baltic Sea Action Plan. According to the plan, Estonia is required to reduce annual average phosphorus load on the Baltic Sea at least in the amount of 220 tons and nitrogen load in the amount of 900 tons. While these targets are not reflected in the WMPs, the

[240] According to the Water Act, special use of water is use of water that is not public (article 6(1)) and that requires a permit according to the thresholds stipulated in the Water Act (article 8(2)).

[241] Water Act, article $9(10^1)$.

plans neither provide numbers on the proportion of phosphorus and nitrogen load from each respective river basin district nor respective corresponding targets for such reductions in the river basin district.

A lot of emphasis is placed on developing a system of aids and benefits to promote application of additional measures (mainly to implement good agricultural practice on a wider scale) on the one hand and on specific and detailed regulation ("one size fits all") on the other, and less on adaptive regulation depending on particular conditions of the location of the farm or specifics of the relevant ecosystem. The situation is exacerbated by the fact that farmers do not need to hold a permit in order to engage in agricultural activities (except when these activities exceed a certain threshold), and therefore it is not possible to prescribe and enforce obligatory measures on a case-by-case basis.

There is certain amount of adaptiveness introduced through the application of good agricultural practice. Similarly, regulation on environmental requirements in NSA can be amended and made stricter if monitoring data indicates that this is essential to protect water status in the area. However, in other parts of Estonia, connections made between environmental objectives for water bodies and regulation of agricultural activities for environmental protection purposes (especially concerning diffuse pollution) are very weak. There is no information provided on how much nitrogen or phosphorus pollution is introduced into the sea by different rivers and what the cumulative effect of pollution from different rivers might be. If the farmer holds an integrated environmental permit, then the farmer needs to follow best available techniques. So far, no measures additional to or stricter than BAT have been imposed on farmers.

The issuer of water permits and integrated environmental permits (in both cases the Environmental Board) is not considering the cumulative impact of agricultural activities on water bodies, not to mention on the marine environment when making a decision on issuing the relevant permit. There is no legal obligation to that effect stipulated neither in the Water Act nor in the IPPCA. In addition, separate environmental quality standards cannot be set for a specific water body if setting more stringent standards becomes necessary in order to achieve the environmental objective for that water body. The combined approach in the Water Act foresees the adoption of additional measures as provided for in the Water Act itself. However, the Water Act fails to identify in more detail what these additional measures should be, how, when, where, under which circumstances and by whom they should and could be introduced.

There needs to be a balance between a system of incentives and a system of sanctions to promote environmentally-friendly agricultural practices and to ensure compliance with existing rules. Supervision and monitoring play an essential role here, and not just for the purposes of compliance, but in order to establish what measures have been effective in curbing pollution and what further action needs to be undertaken. The Environmental Inspectorate is the main supervising authority, but regular inspections of farms are not planned; most efforts are directed at inspecting those farms that receive aid payments under the Rural Development Plan (this encompasses only around 1% of all farmers). Large part of breaches identified via monitoring are not processed further because supervisory authorities do not have swift access to monitoring data; they do not take samples from water or the soil to identify remains of pesticides or nitrogen concentration. Hence breaches and offenders are not identified which makes it impossible to prove culpability. In addition, little attention has been paid on implementing effective sanctions to discipline non-compliant farmers – the maximum rate of a possible sanction is 2000 euros and penalty payments have not been used so far. They shall be introduced only in the near future.

Spatial planning documentation provides some leeway in considering the location of agricultural activities, but this is restricted to the purpose of use of land (production land) and does not determine whether a specific activity (e.g. running an animal farm) can take place or not. In essence, there is no obligation to weigh alternative locations of farms. However, certain areas have been excluded from agricultural use or agricultural use has been restricted in those areas. These areas include water protection zones on the banks of water bodies, sanitary protection zones of water intakes, limited management zones of shores and banks, limited-conservation areas and nature conservation zones. The nitrate sensitive area covers 7.5% of the territory in Estonia and it is an important infiltration area that nourishes several rivers that head from here to the sea.

The Implementation Plan of BSAP provides some innovative measures in order to control pollution from agriculture such as improving the monitoring system to detect sources of diffuse pollution (including model calculations), forestation of water protection zones of water bodies and of sensitive areas to exclude them from agricultural production activities, application of measures to reduce runoff of nitrogen in land improvement, introduction of the use of P-index on the field level, and other measures that are to be financed under the

ERDP. However, these measures have not been applied in full and with the necessary persistence as, on a political level, there is little support and understanding of the need to put pressure on agricultural production for the sake of environmental protection.

The main mechanism for involving stakeholders into decision-making on agriculture and water protection are the open procedure for water management plans, action plans for NSAs, different kinds of spatial planning documents and for permits (either the water permit or the integrated environmental permit). However, there is lacking an established and regular cooperation between different stakeholders impacting on or otherwise involved in water management issues. It must be noted as well, that discussions on setting priorities and choosing between different management options is not often conducted at the appropriate level, not involving the relevant political actors, and the results of these discussions are in many cases not likely to find their way into the policy documents under discussion. Administrative and legal acts of individual character (issuing of a permit, adoption of spatial plans) can be challenged by individuals and organizations whose statutes provide for environmental protection as the main activity of the organization on the basis that the act is not in accord with public interests. If the activity for which the permit is being applied for, may involve a significant environmental impact, then every person can have a say in the procedure for the assessment of the environmental impact.

When poor ecological status of water is detected, then swift action is not possibleIn order to introduce more stringent measures of a general character (not directed towards a specific farmer), the whole process of amending legal regulations or updating the programme of measures under the WMP will need to be followed through, and this takes time. As the programme of measures is not considered to have a legally-binding effect, but rather to constitute a guideline document for state authorities to follow when deciding on the application of water protection measures or setting requirements in environmental permits, then the main option is to amend relevant legal rules concerning the environmental impact of farmers' activities.

5 Water Quality – Planning and Management

5.1 Introduction

Estonia is a low, flat country with many small inland water bodies. The coastline is shallow and long (1,393 kilometres) along the Baltic Sea in the West and North. There are over 1500 islands, most of them small.

Lakes and artificial water bodies cover approximately 5% of territory. There are close to 1200 small lakes and reservoirs with the surface area of over 1 ha. However, two of the lakes are large even by the European standards:Lake Võrtsjärv (270 km2) and Lake Peipus (3 555 km2). The latter lake is situated on the border with Russian Federation. All Estonian lakes are shallow: the deepest lake is 38m.

Estonia's network of rivers is fairly dense but rivers are relatively short and poor in water. Fifteen rivers have a catchment area of over 1000 km². Only ten rivers are over 100 km in length. The most abundant in water is Narva River which connects Lake Peipus with the Gulf of Finland and forms the border between Estonia and Russian Federation. (The average discharge of the river is 400 m^3/s.) Due to the karstic forms which can be mainly found in the Northern Estonia a few smaller rivers flow partly underground.

Slightly more than 70% of Estonian water is in a good natural status on the basis of data from 2010.[242] The most serious problems relate to the pollution resulting from sewage treatment plants and agriculture as well as impoundment or damming up of water. Nearly all water bodies are impacted by human activities although the impact is relatively low. The pollution load from point source discharges has decreased dramatically in last 20 years. At the beginning of the 1990s the decrease in the pollution load was mainly caused by a decline of overall production activity. The further decrease related to the mod-

[242] However, note that the assessment may not be entirely reliable. See for instance: Commission report on the implementation of the WFD river basin management plans, Member State: Estonia, working document Com 2012 (670 final), available at the web page of the Commission: http://ec.europa.eu/environment/water/water-framework/pdf/CWD-2012-379_EN-Vol3_EE.pdf

ernisation of production, construction and renovation of wastewater treatment plants, as well as structured legislation and increased pollution charges. The load is expected to increase somewhat due to more intensification of agriculture.

Of rivers about 66% are in good ecological status, 20% are in moderate status. The ecological status of rivers is mostly impacted by land improvement (e.g. change in the water course and level) and damming (e.g. prevention of fish migration). The trends are unlikely to change in the coming years. Of smaller lakes also about 66% are in good ecological status, about 33% are in moderate status. The status of Lake Peipus is moderate but poor in the Southern part. The status of Lake Võrtsjärv is difficult to evaluate due to shallowness and extensive changes in water level. Both lakes are suffering from eutrophication. In recent years, there have not been significant upward or downwards trends in the status of most lakes.

The ecological status of coastal waters is generally moderate. The waters are suffering from intense eutrophication due to pollution from land which originates both from Estonia and neighbouring countries. Historic pollution also plays important role. Improvement in the status of coastal water is unlikely – in fact, the pollution is increasing. The increase can be attributed to the slow water circulation in the Baltic Sea and generally bad condition of the sea. The sea outside of coastal waters is also significantly affected by eutrophication. For instance, the average general total nitrogen has increased in the open part of the Baltic Sea. However, it should be noted that monitoring may not be sufficient for definite conclusions.[243] In general, the status of the sea water is assessed as poor on the basis of indicators developed for the implementation of the marine framework directive.

The central strategic level policy is basically that of the Water Framework Directive (WFD) which is reflected in the Environmental Strategy 2030[244] and in the Water Act.[245] The overall aim of the policy is to achieve good condition of surface water (including coastal water) and groundwater by 2015 and to maintain the bodies of water whose

[243] Eesti mereala keskkonnaseisundi esialgne hindamine (Initial assessment of the environmental status of Estonian sea area), p 168, http://www.envir.ee/orb.aw/class=file/action=preview/id=1188071/IA_aruanne.pdf

[244] Estonian Environmental Strategy 2030, http://www.envir.ee/orb.aw/class=file/action=preview/id=1101230/inglisekeelne.pdf

[245] Water Act (veeseadus), adopted 11 May 1994, https://www.riigiteataja.ee/akt/122122012024

condition is good or very good. The river basin management plans and related documents are currently being updated.

The ecosystem approach is reflected, in principle, to the same extent as it is reflected in EU law. However, it is dubious whether the national law is sufficient for actually ensuring the implementation of ecosystem approach. It could be said that the WFD has been added and not integrated into Estonian system which, in general, is based on sectorial approach; that is, laws tend to focus on specific aspect of pollution neglecting to establish the necessary links between the regulations.

5.2 The Water Management System

5.2.1 General legal and institutional framework

Typically, specific matters in Estonia are regulated through framework acts and numerous specific ministerial and governmental regulations based on the acts. However, even the Estonian framework acts can be relatively detailed compared to the framework laws of other countries due to the constitutional requirement that all important constraints of rights have to be set out in an act. For instance, a regulation may stipulate the list of documents to be submitted when applying for water permit but the grounds for refusal of permit must be set out in an act.

The Water Act (veeseadus) is the central legal act for water management. The Act was adopted in 1994 but has been amended more than 30 times over the last 20 years. The process is driven largely by developments of EU law: most of the Directives in the field of water are transposed by the Water Act and regulations based on the act. Unfortunately, the national law seldom goes beyond formal transposition; that is, the requirements of the Directive, often very abstract in character, are reflected but the national law does not always add necessary details to ensure effective implementation. The number of amendments to the Water Act is also the consequence of relatively detailed regulation and the tendency to amend the act every time a new problem surfaces. Due to the extensive and frequent amendments, the Water Act has become rather incoherent which probably undermines the effectiveness of water management.

It is worth recalling here that codification of the Estonian environmental law has taken place since 2007. The General Part of Envi-

ronmental Code Act was adopted in February 2011 but is not yet in force. The Special Part of Environmental Code will be adopted in piecemeal. The water legislation will be adopted in 2014 according to the current plans. The Code will comprehensively amend water law. However, the details of this reform are not known yet; that is, a draft exists but it could be modified extensively before it is adopted as the law.

Estonia lacks comprehensive and compact regulation on the management, protection and use of sea. The relevant norms are scattered throughout Estonian laws and they are clearly not adequate for the effective protection and management of marine environment based on ecosystem approach. For instance, there are no links in the Water Act between the status of marine waters and inland surface waters. For several years, the MoE has pushed for the Marine Environment Protection Act but so far with no tangible results.

Several strategic plans set out something on marine protection relevant for ecosystem approach. However, the plans are not sufficiently detailed to have any real impact on practice. For instance, the Development Plan of the Ministry of the Environment 2013-2016 includes a separate section on marine environment protection. The Plan states, inter alia, that in granting permits for maritime activities, the ecosystem approach shall be considered.[246] Nonetheless, planning for marine environment protection in this document remains abstract and focused on specific areas like pollution abatement from maritime accidents, without mentioning any overlaps or interlinkages with other areas impacting the marine environment like pollution from agriculture or sewage from households. There are no indicators established to assess progress in neither marine environment protection nor a separate heading provided for financial costs of protection activities.

The most detailed document for Baltic Sea protection is the Implementation Plan for 2008-2011 of the Baltic Sea Action Plan.[247] The aim of the Implementation Plan is to specify and divide concrete actions between different Ministries and other government agencies for the fulfillment of obligations relating to the protection of the sea under the HELCOM Convention and the achievement of a good status for

[246]Keskkonnaministeeriumi arengukava aastateks 2013-2016 (Development Plan of the Ministry of the Environment for years 2013-2016), p 10-11. http://www.envir.ee/orb.aw/class=file/action=preview/id=1186666/KKMorgAK+2013-2016+v18.pdf.

[247] Läänemere tegevuskava rakendusplaan aastateks 2008-2011 (Implementation Plan for the Baltic Sea Action Plan), approved by the Government of the Republic 11 December 2008, http://www.envir.ee/orb.aw/class=file/action=preview/id=1090330/Rakendusplaan.pdf

the marine environment by 2021. The MoE has been identified as the principal responsible authority for combating eutrophication and the Ministry of Agriculture as supporting responsible authority. The plan provides a detailed allocation of tasks and the accruing costs including the sources for funding. Unfortunately a new plan has not yet been approved and the draft is not publicly available.

Most environmental issues including water management fall within the area of governance of Ministry of Environment (MoE) headed by Minister of Environment. In order to integrate water management and protection with other activities, the Minister of Environment is obliged to establish the Water Management Committee. The membership composition of the Committee is not stipulated by law. In practice, the Committee consists of representatives of various institutions including the Ministry of Environment, the Ministry of Agriculture, the Ministry of Social Affairs, the Tallinn University of Technology and the Estonian Water Works Association. One of the most important functions of the Committee is to monitor the implementation of river basin management plans, especially the achievement of environmental objectives. In 2005-2011 the so called Marine Commission existed, which was established by the Government[248] as intra-ministerial commission. The Commission was headed by the Minister of Environment and had representatives of four other ministries as its members. Its function was to coordinate maritime issues, marine protection and pollution abatement. The Commission was abolished in 2011 when a new government was established after the general elections. No new Commission has been established although it probably is necessary to ensure coordination.

The most important agencies within the area of governance of the MoE for the purposes of water quality and management are the Estonian Environmental Board, the Environmental Inspectorate and the Environmental Information Centre. The Environmental Board has various functions under water law, inter alia, it is the main permitting authority. The Environmental Inspectorate is the primary enforcement agency. Environmental supervision is detailed in the Environmental Supervision Act. The Environmental Information Centre collects,

[248] Order of the Government of the Republic nr 784 'Establishment of intra-ministerial committee for coordination of issues of marine protection, combating marine pollution and maritime issues (ministeeriumidevahelise komisjoni moodustamine merenduse, merekaitse ja reostustõrje küsimuste lahendamise koordineerimiseks) adoped 12 December 2005. https://www.riigiteataja.ee/akt/309072011042.

processes and generalises data on Estonian nature, state of environment and the factors influencing it.

Environmental monitoring is carried out at three levels: state, local municipality and undertaking (permit holder). The most relevant is the state level monitoring. The MoE is the general coordinator of the state environmental monitoring. The national law also imposes some obligations on the Monitoring Council, which is an advisory body set up by the Minister of Environment. The Monitoring Council comprises of representatives of government agencies and other experts. The functions of the Monitoring Council include, inter alia, approval of environmental monitoring programmes and reports on environmental monitoring. The monitoring is undertaken by various institutions including, for example, the Marine Institute of the University of Tartu (TÜ mereinstituut) which is responsible for sea water monitoring and Department of Environmental Engineering of Tallinn Technical University (TTÜ Keskkonnatehnika Instituut) which is responsible for river monitoring. The monitoring results are kept and published by the Environmental Information Centre. Note that yhe implementation report characterizes the monitoring network as relatively weak, with a low density of monitoring stations.[249]

The sea water and marine life monitoring has been carried out since 1994. In order to monitor changes relevant for eutrophication of coastal water, several physical, chemical and biological studies are undertaken including measurements of the concentration of phosphorus and nitrogen (on the basis of PO4-P, NO2-N, NO3-N ja NH4-). For taking samples summer and winter monitoring 'trip' is organized in monitoring stations, although winter monitoring is not always possible due to ice conditions. The Gulf of Tallinn, Gulf of Pärnu and Gulf of Narva are monitored more frequently. In addition, measurements are made from March to November by automatic devices installed on board of passenger ships travelling between Tallinn and Helsinki.[250] However, no operational monitoring programmes have been established for coastal waters despite the moderate ecological status of coastal waters.[251]

International cooperation is, in principle, the task of the Ministry of Foreign Affairs. However, in case of international river basin-management the MoE has been designated as the competent authority. Moreover, Estonia has concluded bi-lateral agreements on environ-

[249] Com 2012 (670 final), pp 14-29
[250] Initial assessment, see above p 168
[251] Com 2012 (670 final), p 15.

mental protection, inter alia, with Russia and Latvia: the only States that have land border with Estonia. According to these agreements, the Ministry of Environment is responsible for international coordination of environmental protection. Coordination is achieved through a joint committee in the case of Russia, and through a joint work-group in the case of Latvia. Also, the Vice Chancellor of the MoE is the head of Estonian delegation in HELCOM. The Marine Environment Department organizes and coordinates the work of Estonian delegation in HELCOM.

5.2.2 Environmental quality requirements[252]

The overall aim of the Water Act derives from the WFD: to achieve the environmental objectives of the Water Act including to ensure sustainable development and the status of water that is as close to the natural one as possible, and to maintain the quality, volume and regime of surface water and groundwater unspoiled by human activities as much as possible. Article 3^5 of the Water Act prohibits deterioration of status of surface waters including coastal waters and requires achievement of good status of surface waters by 22 December 2015. To ensure the achievement of the objectives, water management is organized on the basis of river basins and river basin districts. For each river basin district the Water Act requires preparation of river basin management plan, programme of measures and action plan for implementation of the programme of measures. The plans are discussed in next sections.

The status of the surface water is good provided that its ecological and chemical statuses are at least good. The relevant detailed criteria are set out in ministerial regulations. As regards the chemical status the Minister has set out environmental quality limit values of surface water and in water biota and the methods of their application which correspond to Directive 2008/105/EC.[253] The limit values include environmental quality standards of dangerous and priority substances for marine waters which are often more stringent than the standards for

[252] This section discusses the environmental objectives and related quality limit values. The emission standards and permitting are discussed in more depth in the previous two chapters.

[253] Regulation of the Minister of Environment no 49 'Environmental quality limit values of surface water and in water biota and the methods of their application, (pinnavee keskkonna kvaliteedi piirväärtused ja nende kohaldamise meetodid ning keskkonna kvaliteedi piirväärtused vee-elustikus) adopted 9 September 2010, https://www.riigiteataja.ee/akt/104082011004

inland surface water. However, the regulation does not set specific standards for nitrogen or phosphorus. Article 26^5 of the Water Act stipulates a general ban on polluting catchment areas of water bodies with dangerous substances and other polluting substances to an extent that may cause deterioration in the status of surface water or groundwater. The list includes substances that are conducive to eutrophication such as nitrogen and phosphorus. The Ministery of Environment has adopted lists of priority substances for dangerous substances. [254] The first list contains substances the emission of which to water should be avoided and the second list contains substances the emission of which should be limited. Finally, the Minister has set out environmental quality standards for soil.[255]

The ecological status is assessed on the basis of biological quality elements and supporting elements of physico-chemical elements and hydro morphological elements. The criteria are set out in the ministerial regulation.[256] In case of inland surface water bodies, the biological elements include, inter alia, phytoplankton, large flora, large invertabrate fauna and fish fauna. Physico-chemical elements include, inter alia, transparency, pH, NH_4^+, oxygen levels, BHT_5, and also the ratio of total nitrogen and total phosphorus. In case of rivers, the good status requires meeting the following nitrogen and phosphorus values: the ratio of total nitrogen (as an arithmetical mean) has to remain in the range between 1.5 - 3.0 mgN/l, and the ratio of total phosphorus (as an arithmetical mean) between 0.05 - 0.08 mgP/l.[257] In case of lakes, the criteria vary greatly according to the type of lake. Typically the criteria for phosphorus are 30-60 mgP/l. The criteria for nitrogen range from 200-500 to 1500-2500 mgN/l.

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[254] Regulation of the Minister of Environment no 32 ,Lists 1 and 2 of hazardous substances and groups of substances and lists of priority substances, priority hazardous substances and the groups of these substances' (veekeskkonnale ohtlike ainete ja ainerühmade nimistud 1 ja 2 ning prioriteetsete ainete, prioriteetsete ohtlike ainete ja nende ainete rühmade nimekirjad) adopted 21 July 2010, https://www.riigiteataja.ee/akt/13345270

[255] Regulation of the Minister of Environment nr 38 'Limit values for dangerouss substances in soil' (ohtlike ainete piirväärtused pinnases), adopted 11 August 2008, https://www.riigiteataja.ee/akt/13348997

[256] Regulation of the Minister of Environment nr 44 'Procedure for the classification of surface water bodies and the list of surface water bodies whose status needs to be established, status levels of surface water bodies, corresponding reference values of quality indicators for status levels, and procedure for determining the status level of a water body' (pinnaveekogumite moodustamise kord ja nende pinnaveekogumite nimestik, mille seisundiklass tuleb määrata, pinnaveekogumite seisundiklassid ja seisundiklassidele vastavad kvaliteedinäitajate väärtused ning seisundiklasside määramise kord), , adopted 28 July 2009, https://www.riigiteataja.ee/akt/125112010015

[257] In case of Narva river, which is the only Estonia river that has the catchment area over 10 000 km^2, these ranges need to be between 0,5-0,7 mgN/l and 0,04-0,06 mgP/l.

Note that the Nitrate Directive distinguishes between three levels of eutrophication of watercourses while the WFD distinguishes five levels of status of water bodies. The correlation between a watercourse that is eutrophied and the status of the water body according to WFD has been explained in Guidance Document No. 23.[258] In Estonian legislation dealing with eutrophication, these linkages have not been yet recognized, although the need to consider other aspects that affect eutrophication in water bodies have been pointed out in relevant research. Note that most rivers in Estonia are not eutrophied. However, 7 rivers may become eutrophied (one due to the high level of phosphorus, others due to the high level of nitrogen) and 3 rivers are eutrophied primarily due to the high level of phosphorus.[259]

According to the ministerial regulation No. 44, the coastal water bodies[260] are divided into six types on the basis of criteria such as salinity, depth, openness etc. According to the Water Act, the measurements of at least three monitoring sites have to be used in determining the ecological status of coastal waters. The biological quality elements are phytoplankton, sea-floor flora and large invertebrate fauna. The general physico-chemical quality indicators are: water transparency and the ratio of total nitrogen and total phosphorus. All reference conditions for the coastal water bodies are derived from expert judgments or using historical data, if available. However, there are no reference sites available for certain types of coastal water bodies of the Baltic Sea.[261] The values for nitrogen and phosphorus depend on the type of the coastal water body and are set out in Annex 6 to the Regulation.[262] The values for good status are the lowest for coastal water Type V: 14.7 - 18.3 mgN/l and 0.24 -0.30 mgP/l. The type is characterized as mesohaline (3-6.5 psu), shallow, protected and mixed coastal water. The coastal water body is situated in North-West between the mainland and the two largest islands. The values for good status are the highest for Type I: 21.6 - 26.8 mgN/l and 0.67 - 0.840 mgP/l. Type I is characterized as oliogahiline (2.5-6 psu) open coastal

[258] Guidance No 23 „Eutrophication Assessment in the Context of European Water Policies“, European Communities 2009, https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp?FormPrincipal:_idcl=FormPrincipal:libraryContentList:pager&page=1&FormPrincipal_SUBMIT=1&org.apache.myfaces.trinidad.faces.STATE=DUMMY

[259] Report on the implementation of Nitrate Directive in Estonia 2008-2011, p 59. Not publicly available.

[260] Note that the national law does not delineate transitional water bodies.

[261] Com 2012 (670 final), p 8. Recall that there is no operational monitoring of coastal water.

[262] https://www.riigiteataja.ee/aktilisa/1251/1201/0015/KKM59_lisa6.pdf# (16.01.2013)

water. The coastal water body is situated in South-East part of the Finnish Gulf. The Regulation also stipulates ecological quality relation corresponding to the total phosphorus and nitrogen. In general the dividing line between good and poor status is 0.67.

When it is likely that the environmental objective will not be met then the Water Act requires, inter alia, planning of additional measures for achieving the objective including adoption of more stringent environmental quality standards. Unfortunately, the Water Act fails to specify the mechanism for adoption of stricter standards which makes adopting such standards impossible in practice. A similar problem exists in regard to the national provision transposing Article 10 of the WFD – the combined approach. The provision also refers to the possibility of taking additional measures including stricter environmental quality standards, but fails to specify how and by whom they could be introduced.

The water quality standards are not well integrated with emission control in practice. The Water Act calls for modification of permits when it is likely that environmental objectives will not be met. This is partly supported by regulation on permits which stipulates that water permits have to be amended if a significant environmental impact damaging environment results from the permitted activity. However, the lack of coherence in monitoring data makes it difficult to apportion a particular permit holder with deterioration of water quality which means that the option to amend permit has not been used in practice. Moreover, note that § 9(10) of the Water Act exhaustively lists the grounds for refusal of water permit. The most relevant basis for refusal is '*the state of a recipient or aquifer becomes deteriorated to an extent which makes the water body unusable*.' This appears to be much higher threshold than the one set by environmental quality standards.

In accordance with the WFD where more than one of the objectives relates to a given body of water, the most stringent applies. Also a less stringent environmental objective can be established or the deadline for achieving the objective can be extended under certain conditions. The general requirements that correspond to the WFD are set out in the Water Act. The application of the criteria for specific water bodies has to be specified in the river basin management plans discussed in next sections.

In order to implement the Marine Strategy Framework Directive, an initial assessment has been carried on the current environmental status and the environmental impact of human activities on the Estoni-

an marine area. Also, a study has been published on the determination of good environmental status and establishment of a series of environmental targets and associated indicators for the area.[263] However, no further official action has followed; that is, so far the targets and indicators have not been enacted in a legal act.

The identified indicators relating to eutrophication include, for instance, total phosphorous and nitrogen content in the sea water in summer, the proportion of one-year opportunistic species of flora, transparency of sea water in summer, biomass of phytoplankton in summer etc. Not all identified indicators could be assessed due to lack of relevant data such as levels of inorganic nitrogen (NO3+NO2-N) concentration. In two cases, e.g. oxygen levels, there was no relevant Estonian indicator. Interestingly the indicators that relate to coastal waters indicated good status while open sea indicators showed poor status.[264]

The relevant suggested environmental targets were the following: 1) increase in nutrients in water column does not cause direct or indirect negative impact on ecosystems and biodiversity; 2) increased biomass does not decrease water quality, water transparency and indirect negative impact on ecosystem and biodiversity; and 3) nutrient levels in water do not cause significant divergence from normal pattern of species distribution or negative changes in oxygen regime near bottom level. [265]

5.2.3 River basin management plans

In accordance with the WFD the Water Act requires organization of water management on the basis of river basins and river basin districts in order to achieve the environmental objectives set out in the Water Act.

Estonia is divided into three river basin districts:

1. Ida-Eesti river basin district (Eastern part of Estonia) is part of a transboundary district composed of basin areas of the Lake Peipsi

[263] Eesti mereala hea keskkonnaseisundi indikaatorid ja keskkonnasihtide kogum (Group of targets and indicators for good environmental status of Estonian sea area) , pp 26-27 http://www.envir.ee/orb.aw/class=file/action=preview/id=1188075/HKS_KS+aruanne.pdf

[264] Ibid pp 26-27

[265] Ibid, p 48.

and River Narva. More than half of the basin area is located in the territory of Russian Federation.

2. Lääne-Eesti river basin district (Western part of Estonia) is composed of basin areas of main rivers in the western part of Estonia. The territory also includes the coastal water islands in the western part of Estonia.
3. Koiva river basin district (Southern part of Estonia) is part of transboundary Koiva river basin shared with the Latvia. The district is landlocked.

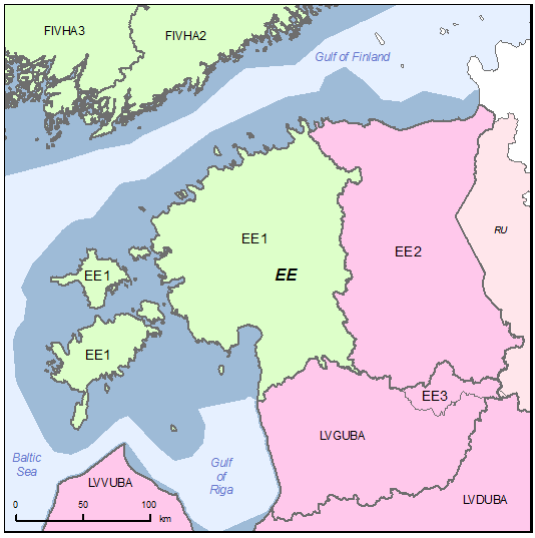

Illustration: River basin districts[266]

EE1 – Lääne Eesti
EE2 – Ida Eesti
EE3 – Koiva
RU, LVGUBA – part of international districts situated in other states[267]
Dark blue – coastal waters

[266] Source: Com 2012 (670 final)
[267] Note that in practice there are no international RBMPs for the international districts on Estonian territory. Also, international coordination is limited in practice. Com 2012 (670 final), p. 3

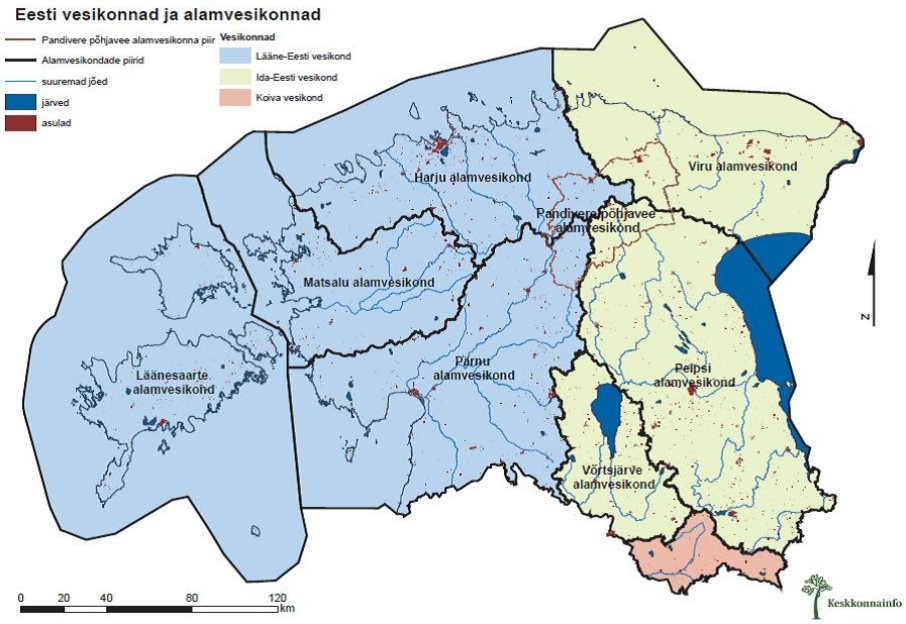

Illustration: Estonian river basin districts and river basin sub-districts.[268]

The RBMPs are proposed by the Minister of Environment and approved by the Government of the Republic. The RBMPs were approved in 2010 but are currently undergoing a revision for the period 2015-2021. In addition, management plans exist on river basin sub-districts which predate the RBMPs. There are no intentions to update sub-district plans although the possibility for that exists.

The legal framework for preparing the RBMP is set out in the Water Act. The procedure for preparation is the open procedure, detailed in the Administrative Procedure Act.[269] Inter alia, this means that all interested persons can participate in the preparation. However, the legal framework is somewhat ambiguous. According to the Water Act, the Government of the Republic has to issue a regulation on the details of the procedure for the preparation of the RBMP. The regulation does not exist as of 24 January 2013.

The Water Act requires the Environmental Board to arrange the involvement of county governments and local municipalities that are situated in the river basin district and inhabitants and other interested

[268] Source: webpage of the Estonian Environmental Board: http://www.keskkonnaamet.ee/vesikonnad/?op=body&id=1

[269] The Administrative Procedure Act (haldusmenetluse seadus) adopted 6 June 2001, https://www.riigiteataja.ee/akt/123022011008

persons. Note that Estonia is a unitary state divided into 15 counties and further divided into more than 200 municipalities. The county governors carry out state administration (i.e. they are essentially the extension of the central government) and mainly perform coordinating functions. Local governments consist of rural municipalities and cities/towns. Local governments have autonomy as regards local issues. Most of the local municipalities are very small: more than half of the municipalities have less than 2 500 inhabitants. In the general practice of involvement, local municipalities often participate through nationwide associations of municipalities. The term 'interested person' is not defined in law. However, on the basis of the Administrative Procedure Act, it is clear that the term has wider meaning than 'persons whose legally protected interests are affected'. In practice, every person who claims an interest can participate in a typical open procedure, i.e. there is no practice of excluding certain members of the public from open procedures on the basis that they are not interested. However, although 'open procedure' allows any interested person to participate it does not require the authorities to ensure the involvement of all interested persons. Only persons whose rights or obligations may be affected have to be involved.

The open procedure also means that public display and public consultation have to be arranged as specified in Articles 48-40 of the Administrative Procedure Act. Note that the Water Act also explicitly requires these arrangements and states that everyone can participate. In addition, the Water Act also explicitly requires approval of the draft RBMP by the following authorities: ministries whose area of government is related to the plan, county governments and local municipalities situated within the river basin district and the Water Management Committee.

In practice, several interested parties have been involved through workgroups. That is, the Minister of the Environment has established workgroups and their membership by directives for each river basin district. The task of the workgroup is to coordinate the implementation and review of the RBMP. The workgroups consist of about 30 members and include, for instance, the representatives of the following authorities and third persons: the Ministry of Environment, the Agricultural Board, the Health Board, county governments, local governments, producers, and environmental NGOs. Other interested persons were included on the basis of their reasoned request. It should be noted that involvement of some of the stakeholders is ensured through the Water Management Committee (described in section 1.2.1) However,

note that RBMPs provide almost no information on public involvement that has taken place.

One of the main functions of RBMPs is to define the status of water bodies. Unfortunately, the plans only partially comply with WFD in this respect. It is not clear from the plans how the biological quality elements have been selected for monitoring to detect pressures. Also, it seems that less than half of the water bodies subject to pressures are subject to operational monitoring. Generally the same biological quality elements are monitored as for the surveillance monitoring programme, so it is not clear how biological quality elements have been chosen directly to detect these pressures.[270] Not all biological quality elements have been used for assessment. It is admitted that for several water bodies the reasons for lacking good status are not fully known. Prolonged deadlines for achieving good status have been applied in order to carry out further studies. Note that according to Annex 3 of the RBMPs (significant pressures on non-compliant water bodies and the projected status in 2015), nutrient load from diffuse and point sources including internal load and the resulting eutrophication is by far the most dominant reason for exceedance of ecological status in 44% of cases in Estonian rivers, 86% of cases in lakes and 93% of cases in coastal water bodies.

The assessment of chemical status is also problematic. Next no information is provided on the assessment methods in RBMPs. On the other hand, there is information provided for groundwater and surface water sample analyses showing that limit values for pollutants have been exceeded. It is not properly explained why these water bodies are considered to be good status. [271] Priority substances and other relevant pollutants are monitored but only at a handful of stations, but there is a lack of regularity and therefore objectives for that have not been appropriately addressed in the monitoring programmes or RBMPs. The Estonian Ministry of the Environment has clarified that one of the main reasons for the lack of objectives on priority substances and other relevant pollutants is the lack of evidence of this type of pollution, as revealed by pilot studies, and thus a very weak justification to compile and carry out expensive and comprehensive chemical monitoring programmes. [272] Based on this, it is not clear how, despite this, 99% of waterbodies are classified to be in good status with few unknowns.

[270] Com 2012 (670 final), p 15
[271] Ibid p 3
[272] Ibid pp 15-16

The RBMPs also should set out exemptions from environmental objectives. It seems that Estonia has only relied on Article 4(4) of the WFD. The article allows extension of deadlines provided that no further deterioration occurs in the status of the affected water body and that certain other conditions are satisfied such as the disproportionate cost of measures that would ensure meeting the deadline. The RBMPs refer to the conditions set ou in Article 4(4) of te WFD but in an unclear manner. For instance, as regards disproportionate cost, it seems that the costs include not only the cost of additional measures but also the cost of basic measures. it is not clear how the costs were calculated and why the costs are considered disproportionate.[273] One of the arguments for not reaching the good status of the Baltic Sea in time is that it requires international action to improve the situation.

5.2.4 Programme of measures

According to § 3^{14}(3) of the Water Act, the MoE has to arrange preparation of a programme of measures (PoM) for each river basin district, which then has to be approved by the Government of the Republic. The PoM has to be prepared in accordance with the provisions on open procedure (see above). There is no relevant practice of involvement because the PoMs do not exist (as of 24 January 2013). In the following paragraphs the RBMP section of '*Summary of PoM*' is discussed because, apparently, this is regarded as the substitute of the PoM by the authorities.

The sections in RBMPs on PoM are very abstract going little beyond stating the obvious or declarations that existing requirements stipulated in law have to be fulfilled. As an example consider the following statement in Koiva RBMP: '*In the case of diffuse source pollution, the main attention should be focused on the use of toxic chemicals, manure and fertilizers, as well as on compliance with environmental requirements during peat extraction.*'[274] Note that the

[273] See for instance, Veemajanduse korraldamise majanduslike meetmete vastavuse hinnang veepoliitika raamdirektiivi nõuetele ning majanduslike meetmete ajakohastamine 2012 (Assessment of compliance of water management measures to the requirements of WFD and updating the economic measures 2012), pp 50-62, http://www.envir.ee/orb.aw/class=file/action=preview/id=1185240/2012.05.04+Lopparuanne.pdf

[274] Koiva RBMP p. 79, http://www.envir.ee/orb.aw/class=file/action=preview/id=1152634/2010.12.21+Koiva+RBMP.pdf.

measures in RBMPs are, in principle, overviews of measures set out in sub-district management plans. The measures set out in the latter plans are more specific but not by much. The following general conclusion is provided in an assessment of effectiveness of the measures in sub-district management plans: 'In general, it is not possible to assess the effectiveness of the measures at the level of the water body because the majority of measures are not presented at this level. Even if the measure is identified by relatively specific location, such as additional capacity of treatment plants in removing phosphorous at Kuresaare and Orisaare, the management plan does not identify the affected water body. In some cases the water body could be identifiable, for instance it could be established that the treated water at Kuresaare is released to coastal waters. However, this approach could be misleading because it would be based on assumptions: the RBMPs do not provide specific information such as coordinates.'[275]

It is not clear how the measures were developed. It is not clear from the RBMPs, who should comply with the plans and by what time. The plans seem to be based on the logic that measures which relate to a specific use of water, e.g. production of hydroelectricity, have to be taken and related costs to be borne by the specific water user. Other measures have to be taken and financed by the authority that is the most competent in the matter. However, this is not explicit in the plans. The plans only provide an ambiguous statement that 'all water users and other persons are responsible for implementation of the measures if they are responsible for taking the measure on the basis of law.' In any case, there is no obvious mechanism that would ensure that measures will be taken in practice.

It is not clear on what basis the cost of the measures is estimated. The financial commitment for implementing the measures is also not clear. It is stated that the RBMP is applicable for governmental financing and no data on private sector financing of the RBMP is provided. A general reference is made to sub-district management plans and vaguely to '*other previous studies'* as the source of some information in the section such as the necessary expenditures.[276] The cost of

[275]. Veemajanduskavade meetmete tõhususe hindamine (2007) (Assessmet of the efectiveness of measures of river basin management plan 2007), p 30, http://www.envir.ee/orb.aw/class=file/action=preview/id=1084440/2008.01.16+L%D5PPARUANNE+Meetmete+t%F5hususe+hindamine.pdf

[276] Note that the RBMPs and sub-district plans do not always correlate. For example, management plans for river basin districts provide for minimizing pollution from diffuse sources

measures set out in the latter plans are more specific, nonetheless, the level of detail is unsatisfactory. For instance, Harju sub-district management plan sets out the following under heading *7.2.2. Animal Farms* as the main measures: 'complying with requirements on sewage treatment, on storage of manure and silage that correspond to the Nitrate Directive (91/676/EMÜ). The farmers have to provide the necessary financial means but aid can be applied for EU funds. The total cost is estimated as 200 million EEK (about €12 million) and based on the assumption that on average 50% of the requirements have been met so far.'[277] The cost of all measures is detailed in Section 7.8 of the sub-district plan. The section differentiates on the basis of the nature of pollution, e.g. point source, and the type of expenditure, e.g. silage storage. For instance, the total cost for meeting the requirements of silage storage is estimated as 14 million kroons (about €1 million).[278] However, it is not clear on what basis the cost estimate has been made.

As to the protection of coastal water, RBMPs state that separate measures are not planned because the water quality depends mainly on measures already planned in the river basin, the general status of the Baltic Sea, and measures designed for marine protection according to international agreements and the HELCOM Baltic Sea Action Plan.

5.2.5 Plans of action

According to §3[16] (2) of the Water Act, a Plan of Action for Implementation of the Programme of Measures (PoA) also has to be prepared for each river basin district. The PoAs have to be prepared by the Environmental Board. The Board has to involve county governments and local municipalities situated in the water basin district and other interested persons. No further details are provided in law as regards the preparation of the Action Plan. In practice, the stakeholders are involved through the workgroup established by the Minister of Environment (see above). According to the Water Act the PoAs are approved by the Minister of Environment on the basis of the proposal submitted by the Water Management Committee. The Environmental

in agriculture in terms of allocation of costs in the amount of 79%, while in the management plans for river basins, this proportion is only 8%.

[277] Harju alamvesikonna veemajanduskava (Harju sub-district river basin management plan) p 130,

http://www.keskkonnaamet.ee/vesikonnad/static/files/128.Harju%20VMK%205.12.2007.pdf

[278] Ibid, p 140

Board is also required to prepare a yearly overview of implementation of the PoA and submit it to the Water Management Committee for approval by 1 March each year.

The implementation of the PoM had to start 22 December 2012 at the latest according to § 40^1 (15) of the Water Act. However, the plans have not been approved although draft plans exist. [279] It seems that there are doubts whether such formal plans should be adopted by the Minister. It is possible that the PoAs will never be approved as plans but are adopted as some sort of internal guidance documents for the Environmental Board.

The draft PoAs are 20-30 pages in length including annexes but mostly provide background information on river basin districts. Originally the PoAs were intended to be practical detailed plans to ensure implementation of the PoMs which were conceived as relatively abstract documents. In practice, the PoMs do not exist and the draftPoAs are not detailed. Note that the MoE has expressed its intention to make the plans more detailed in the future.

An annex to the draft PoAs lists water bodies the further use of which has to be avoided or limited. According to the PoAs, the list has to be the basis for selecting appropriate measures. The draft PoAs identify the so called priority actions for implementation of the PoMs in year 2013. These are very general and consist in the following:

1) preparation of guidance documents for updating permits related to use and protection of water, taking into account the aims of the RBMPs to reduce the significant load on water environment;
2) advising authorities and water users to ensure achieving the environmental objectives set out in RBMPs;
3) updating the legal acts necessary for implementation of RBMPs in cooperation with the MoE;
4) building technical measures for ensuring the functioning of infrastructure related to use and protection of water.

In addition, list of measures is provided in table format in another annex to the draft PoAs. The measures are divided into four broad categories: 1) measures for point sources; 2) measures for diffuse sources;

[279] The draft plans are not yet publicly available.

3) measures for reducing the load from use of water body, hydro morphological divergence and change in the amount of flow; 4) measures for reducing the load from water abstraction; and 5) other measures. Within each category the measures are typically further divided in the following sub-categories: a) administrative measures; b) construction or administrative measures; c) research. Despite the impressive categorization, the measures themselves tend to be abstract in nature. For instance, under the category 'point sources' and sub-category 'construction or administrative measures' the following measure is listed: 'modernizing existing sewage treatment plants'. Some measures are more specific. For instance, the list includes 'preparing and adoption of the guidelines on applying exception in issuing environmental permit for achieving the aims of RBMP.' None of the measures specifically relate to the protection of the Baltic Sea. The measures do not relate to particular water bodies either. Also, the lists typically do not identify the responsible parties for taking the measures, costs involved or funds for covering the costs. In short, the measures are very abstract. It is telling that the measures – both priority measures and those listed in the table - are nearly identical for all three river basin districts.

5.2.6 Legal effect of measures set out in the plans

The RBMPs, PoMs and PoAs should have the central role ensuring achievement of the objectives set out in the Water Act. However, it is doubtful whether the plans can play this role not only because of their abstract nature but also due to the ambiguity about their legal nature and effect. This problem is not unique to the RBMPs but common to most environmental plans. It is not clear whether such plans have legal effect and, even if they do, whether they are relevant only in taking administrative decisions or whether they can affect third parties directly. The law does not set out general regulation as regards the legal effects of environmental plans beyond the principle that, in exercising discretion, all relevant facts must be taken into account and all legitimate interests have to be considered. There is very little relevant theoretical discussion and court practice.[280]

[280] One of the very few relevant articles is the following: Pilving, I., *Environmental Exploitation Plan as Administrative Form of Action*, Juridica International, Vol. XVII (2010).

The law does not explicitly set out the legal nature of the RBMPs, PoMs and PoAs. In practice, the RBMPs are approved in the form of an order of the government. There is not any practice as regards the legal from of PoMs and PoAs as none has been approved so far. An order of the government is a legal act of specific application. Orders of the central government can be issued only on the basis of and for the implementation of law, i.e. orders cannot contradict laws. The hierarchy of legal acts of the government and that of ministries is somewhat contentious. However, the general view is that no hierarchy exists. Also, legal acts of local municipalities that concern matters of local autonomy (e.g. local drinking water supply) are on equal standing with the legal acts of the central government. Legal acts of the government are superior to legal acts of the County Governors and legal acts of local governments in matters that do not pertain to the autonomy of local governments.

It could be argued that the plans are general orders that aim at coordinating water related activities in a river basin district. General orders are a type of legal acts of specific application that are directed at persons determined on the basis of general characteristics including territory. For instance, it is firmly established that detailed territorial plans of the local government are general orders. In order to ensure the coordinative effect, the plans should limit the discretion of administrative authorities in decision making. Furthermore, considering the extensive public involvement to the preparation of the RBMPs, it could be argued that if a measure is very specific, the discretion of administration is reduced to zero and therefore the RBMPs have direct legal effect also on third parties. In practice, unfortunately, the measures set out in the plans are too abstract to provide much guidance for discretion. Therefore, according to the general view, environmental plans are strategies setting out an overall common vision.

Note that some provisions explicitly require taking into account RBMPs or PoMs. The most relevant of these provisions is §3^{14}(1) of the Water Act which requires taking into account the PoM in preparing or reviewing comprehensive plans, detailed plans and the public water supply and sewerage development plan. Interestingly, there are no provisions explicitly regulating the relationship between the RBMPs, PoAs and land-use plans. However, spatial planning has to co-ordinate and integrate the development plans of various fields and which, in a balanced manner, has to take into account the long-term directions and needs for the development of the economic, social, cultural and natural environment (Article 1 (3) of the Planning Act). Spa-

tial plans require approval of certain other authorities. The comprehensive plans need the approval of the Environmental Board. The approval of other authorities may be sought depending on the plan. However, it is possible to refuse approval only on the basis that the plan is not in accordance with the law, legal act or other spatial plan but RBMPs are not considered to be such acts.

Note that the RBMPs have legal effect that derive from the incomplete nature of the Water Act regulation. The Water Act sets out general objectives and principles but refers to the RBMP as regards the application of the regulation to specific water bodies such as providing an extension from the deadline of achieving the good status or setting out less stringent objectives for certain water bodies. Therefore, if a provision of the Water Act (or other act or regulation) cannot be applied without reference to the detailed regulation set out in the RBMP, the RBMP has "binding effect" in the sense that the regulation of the RBMP has to be followed.

5.3 Ecosystems Approach and Water Management

At the strategic level planning some references can be found to the ecosystem approach. For instance, the Nature Protection Strategy 2020 asserts that water habitats can be protected only through cooperative action between different sectors, and emphasizes the need to consider, when planning protection activities, that all water habitats constitute one whole. Therefore, it is essential not to focus on the protection of a particular river or lake, but a unified water ecosystem. The strategy also calls for the consideration of ecosystem services like clean water, food, recreation, etc.[281] As another example, the Development Plan of the Ministry of the Environment 2013-2016 sets out that, in granting permits for maritime activities, the ecosystem approach shall be considered.[282] Nonetheless, such statements should not be taken as clear evidence of firm Estonian commitment to ecosystem approach. There is great number of strategic plans in Estonia but they carry little weight for everyday practice including policy decisions. Strategic level plans do not have legal effect. Typically, it is not possible to identify follow-up actions to strategic level planning with any certainty.

[281] Looduskaitse arengukava aastani 2020 (Environmental Protection Strategy 2020), p. 20, http://www.envir.ee/orb.aw/class=file/action=preview/id=1186984/LAK_lop.pdf

[282] Development Plan 2013-2016, p 10-11.

In principle, the ecosystem approach should be present in the national law to the extent it exists in the WFD and related Directives. However, the national law is probably not sufficient for actual implementation of the EU law. Typically, the requirements of the Directives - often very abstract in character - are simply incorporated into the national law without detailing the mechanisms for actual implementation. This can be illustrated with Article 3^1 of the Water Act which is apparently designed to transpose Article 10 of the WFD. The latter article sets out the combined approach and requires taking more stringent emission control measures to ensure reaching quality objective or standard. The national provision refers to the possibility of taking additional measures including introduction of stricter environmental standards, but is ambiguous as regards what measures can be taken and fails to specify the responsible person and the exact conditions for taking the measures. Effectively, this makes the national provision useless, except perhaps, for avoiding an infringement procedure for non-transposition of the WFD article. This is the key for understanding the Estonian water law: much of it exists only because of EU pressure which often does not go beyond the requirement of formal transposition.

It is difficult to evaluate the adequacy of Estonian institutional system for ecosystem approach. Most environmental matters fall within the area of governance of the MoE and Estonian administrative system is strongly centralized. However, ecosystem approach presumes a higher and wider level coordination. The government of the republic is probably the appropriate level for solving more important matters. It is difficult to assess how much importance is attached to ecological approach at the government level. It seems likely; however, that sector based approach is dominant in the government. As a related note: there seems to be tendency to lower the level and formality of dealing with environmental matters. For instance, some strategic action plans that were previously approved by the Parliament or the Government are now approved by the Minister of Environment. The same tendency seems to be in place at lower level. Recall here the position of MoE on the draft PoAs: they should be approved by the minister according to the law but now there seems to be a plan to change them into some type of guidelines. It is not clear whether the process derives from the decreasing importance of environmental matters in minds of politicians or whether it is based on other consideration, e.g. attempt to cut bureaucracy that accompanies higher level and formal regulation.

As regards eutrophication then much of the coordination could be theoretically achieved through the Water Management Committee. The existence of such Committee is required by the Water Act explicitly to ensure integration of water management and protection from other activities. The required membership composition of the Committee is not stipulated by law. In practice, the Committee consists of representatives of various ministries and other stakeholders. It is difficult to evaluate the effectiveness of this Committee in coordinating water management issues. The legal position of the Committee is very weak: it is a mere advisory body established by the Minister of Environment with a few functions stipulated by law. In practice, the influence of the Commission probably depends on the influence of its individual members, e.g. whether the person representing the Ministry of Agriculture has the ear of the Minister of Agriculture. Maritime issues are probably not sufficiently coordinated.

Perhaps the central element of national law based on the ecosystem approach is the water management planning. The Water Act requires sophisticated three level planning: RBMPs, PoMs and PoAs. The plans take the ecosystem approach as a starting point, in that they undertake to protect water bodies as part of a river basin. On the basis of the law, the plans appear to satisfy the requirement of adaptiveness as they are supposed to identify problematic water bodies and adopt specific measures to deal with the problems. Also, the process should be sensitive to changes as the plans are updated regularly. The planning process should also provide ample opportunities for stakeholder involvement because the procedure is based on open proceedings that allow all interested persons to participate and the law explicitly requires involvement of certain stakeholders. Theoretically, this could lead to effective ecosystem based action.

In practice, this is certainly not the case with the possible exception of stakeholder involvement.[283] The failure of the plans can be partly attributed to the deficient framework for the planning. In some aspects the law is not sufficiently detailed. For instance, RBMPs are updated once in six years and there are no regulatory provisions requiring such updates to be based on monitoring data. There seems to be no possibility for quick amendment of plans to respond to changes in water ecosystems.[284] Also, some of the framework elements are

[283] However, it is difficult to judge the meaningfulness of the involvement. There appear to be no respective studies.

[284] Note that the draft PoAs seem to be designed to be updated every year. However, the respective legal framework is ambiguous on the matter.

simply missing like the detailed procedure for adoption of the RBMP the existence of which is required by law. Some deficiencies are more subtle. For instance, the legal nature and effect of environmental action plans are ambiguous under national law which may result in confusion as to how the issues should be dealt with in the plan. Finally, the planners may not have enough data for meaningful planning, e.g. monitoring data due insufficient monitoring, cost of actions due to lack of economic analysis etc.

However, many deficiencies of the plans clearly derive directly from the planning process. It should be obvious that a plan will not succeed if it fails to set out specific measures for specific problems, identify the persons responsible and funds for covering the cost. However, this is nearly always the case with RBMPs. Even the PoAs appear to be in practice little more than abstract categories of obvious measures which are not related to any specific water body or problem. Certainly many actions that have been taken in practice such as constructing or modernizing agricultural installations could be labelled as representing the abstract measures set out in the plans. However, it seems unlikely that the measures were the direct result of the plans. Also, even the MoE acknowledges that RBMPS are not sufficiently integrated with other plans causing difficulties in the implementation.[285] For the purposes of this study it should be further noted that the plans fail to create meaningful connections between the protection of inland waters and coastal waters (in terms of chemical status also the territorial sea). To sum up, the planning process does not ensure effective ecosystem approach.

The Implementation Plan for 2008-2011 of the Baltic Sea Action Plan could be identified as being partly based on the ecosystem approach. The Explanatory Note to the Implementation Plan recognizes the central role of the ecosystem approach in the HECOM Baltic Sea Action Plan. The preparation of the plan was led by the intra-ministerial Marine Commission. Several ministries were involved in drawing up the plan. The aim of the plan is to specify and divide concrete actions between different ministries and other government agencies for the fulfillment of obligations relating to the protection of the sea under the HELCOM Convention and the achievement of a good status for the marine environment by 2021. The plan lists together measures from different areas having an impact on the marine envi-

[285] The Development Plan of the Ministry of the Environment 2011-2014, p 10. http://www.envir.ee/orb.aw/class=file/action=preview/id=1131034/Keskkonnaministeeriumi+arengukava+2011-2014.pdf

ronment. It provides a detailed allocation of tasks and the accruing costs, including the sources for funding. However, the plan does not attempt to integrate activities nor does it assess their cumulative impact in reducing the negative impact on the marine environment. Unfortunately, there is no information available as regards the actual implementation of the plan. Also, no information is available on the new implementation plan.

The environmental objectives are, at least in theory, tied to permitting. Article 17 para 4^1 of the IPPC Act[286] stipulates that the requirements established in other legal acts for the prevention and minimising of pollution have to be taken into account upon determination of the requirements of the permit. Also, according to Article 16 of the IPPC Act, the permit has to be refused if it does not comply with the requirements provided by legal acts or if it may be concluded on the basis of the information presented in the application for a permit that the activities for which the permit is applied for, do not allow compliance with the environmental norms. Unfortunately, the Water Act seems to set a higher threshold for refusal of permits. Article 9(10) of the Act lists the grounds for refusal of water permit exhaustively. The most relevant basis for refusal is 'the state of a recipient or aquifer becomes deteriorated to an extent which makes the water body unusable.' This appears to be much higher threshold than the one set by environmental quality standards.

There is no explicit provision requiring the review of all existing permit in line with environmental objectives. However, Article 3^8 of the Water Act stipulates that if it becomes clear that achievement of environmental objectives is unlikely, then the emission limit values and environmental quality limit values set out in the water permit are reviewed and changed if necessary. Article $9(10^1)$ of the Water Act stipulates that water permits have to be amended if a significant environmental impact that damages environment results from the permitted activity. Likewise, Article 24 of the IPPC Act requires amendment of a permit upon change of the requirements set out in legal acts on which the requirements of the permit are based; and when the pollution caused by the installation is of such significance that negative effects are caused to the environment of the site of the installation and the existing emission limit values of the permit need to be reduced or new values need to be determined. However, the lack of coherence in monitoring data makes it difficult to apportion a particular permit

[286] Integrated Pollution Prevention and Control Act (saastuse kompleksse vältimise ja kontrolli seadus), adopted 10 October 2011, https://www.riigiteataja.ee/akt/130122011028

holder with deterioration of water quality which means that the option to amend permit has not been used in practice.

Note that, in principle, any permit can be repealed or amended proactively in favour of the holder of the permit. Also, a permit which is lawful at the moment of issue may be proactively amended or repealed to the detriment of a person if the administrative authority had the right not to issue the permit due to factual circumstances which changed later or on the basis of a rule of law which is amended afterwards, and public interest that the permit be amended or repealed outweighs the person's certainty that the permit remains unchanged or in force. In amending or repealing the permit to the detriment of a person, the administrative authority has to take into account the person's certainty that the permit remains unchanged or in force and the public interest that the permit be amended or repealed. However, a permit cannot be amended/repealed to the detriment of a person if the person, trusting that the permit remains unchanged/in force, has used the property acquired on the basis of the permit, performed a transaction to dispose of his or her property or changed his or her way of life in any other manner, and his or her interest that the permit remains unchanged/in force outweighs the public interest that the permit be amended/repealed (Articles 65-67 of the Administrative Procedure Act).

The timing of review is not specified. Note that while integrated permits are granted for an unspecified term, the water permits are issued for maximum of five years. That is, all water permits are effectively reviewed every five years. However, there are plans to make the period of validity of the water permit indefinite, in which case only those permits that cause concern because of the monitoring data, deteriorating state of the environment, or other factors shall be reviewed. This change could significantly reduce the bureaucratic burden of processing water permit applications, but it has to be accompanied by an improvement in monitoring of water status and the impact of human activities on the environment to identify dangerous changes in due time.

Environmental supervision tends to focus on specific sectorial issues such as sewerage systems. According to 2012 report[287], the Envi-

[287] Member State Governance Fact Sheets, Comparative Study of Pressures and Measures in the Major River Basin Management Plans, Task 1 – Governance, Final Report 2012, p 117, http://ec.europa.eu/environment/water/water-framework/implrep2007/pdf/Governance-MS%20fact%20sheets.pdf

ronmental Inspectorate considers it necessary to pay more attention to river basin based inspection and enforcement in the future. On this basis it seems likely that such supervision is not happening currently. The offences defined tend to be very general and are not based on ecosystem approach. For instance, Article 38^5 of the Water Act imposes a sanction for violation of the requirements for water protection and use, i.e. essentially the offence is relevant when any requirement of the Water Act is violated.

Environmental liability is based on ecosystem approach to the extent the national system reflects the Environmental Liability Directive. However, the threshold for damage is high. According to the Environmental Liability Act[288], water damage means such adverse change in the water body that it has to be assigned a new status class. Note that the Environmental Liability Act is very seldom applied. There is only one case that pertains to the threat of surface water damage under the Act. The case concerned accident with diesel fuel and was confined to preventive action such as removal of the polluted soil and a simple monitoring requirement.

Stakeholder involvement in preparing laws and regulations is limited. Good practices on law making require involvement of stakeholders but the practices are not legally binding and not always followed. Stakeholder involvement in preparing plans and issuing permits is generally guaranteed on the basis of law. Firstly, the general rules on exercising discretion require consideration of all relevant facts and all legitimate interests. As regards the actual involvement, then the stakeholders are involved through working groups or through standing bodies such as the Water Management Committee. Preparation of most plans is based on the open procedure which means in practice that every person can participate. The open procedure requires, in principle, arrangement of public display and public hearing. Everyone can submit proposals and objections which have to be considered. The procedures for issuing and modifying the relevant permits such as water permit and integrated pollution permit are also based on the open procedure. Access to courts is based on violation of subjective rights which includes violation of procedural rights, e.g. failure to consider an objection. In addition, according to the administrative court practice, complaint can be also based on significant and real contiguity of the complainant by the challengeable administrative act or measure in environmental matters. It is not entirely clear what this

[288] The Environmental Liability Act (keskkonnavastutuse seadus), adopted 14 November 2007, https://www.riigiteataja.ee/akt/121122011016

means but it is certainly wider criterion than violation of rights. Environmental organizations have especially wide access to administrative courts where most environmental controversies are solved. Pursuant to Article 292 of the Code of Administrative Court Procedure[289], it is presumed that where a non-governmental organisation disputes an administrative act established or an action performed in the area of environmental protection, such organisation has standing if the disputed administrative act or action is linked to the environmental goals of the organisation or to its area of activity in environmental protection to date. This gives wide access because organisations are free to define their goals. The environmental organization is defined broadly as 'a non-profit association and a foundation whose statutory goal is environmental protection and who promotes environmental protection in its activity; also an association which is not a legal person who, subject to a written agreement of its members, promotes environmental protection and represents the views of a significant part of the local population.'[290]

5.4 Concluding and Summarising Remarks

In general, some references can be found to ecosystem approach at the strategic level planning concerning the Baltic Sea. However, it is not sufficient for ensuring ecosystem approach. In any case, strategic level plans carry little weight in Estonian practice. Of action plans, the most relevant is the implementation plan for 2008-2011 of the Baltic Sea Action Plan. The plan is partly based on the ecosystem approach. The plan lists together measures from different areas having an impact on the marine environment. It provides a detailed allocation of tasks and the accruing costs including the sources for funding. However, the plan does not attempt to integrate activities nor does it assess their cumulative impact in reducing the negative impact on the marine environment. Unfortunately, there is no information available as regards

[289] The Code on Administrative Court Procedure (halduskohtumenetluse seadustik), adopted 27 January 2011, https://www.riigiteataja.ee/akt/125102012010

[290] For the definition of environmental NGO and their access to administrative courts see Relve, K., *Definition of an Environmental Organization in the Arhus Convention, Environmental Directives and Estonian Law*, Juridica International, Vol. XVIII (2011)

the actual implementation of the plan. Also, no information is available on the new implementation plan.

In principle, the ecosystem approach should be present in the national law to the extent it exists in the WFD and related Directives. However, the national law is probably not sufficient for actual implementation of the EU law. This is illustrated by the general failure of Estonian river basin based planning. The legal effect of these plans is ambiguous but even if it was clear, the beneficial effect of the plans would be minimal. Perhaps most importantly, the measures set out in the plans are far too abstract to have any significant positive impact. Also, the plans fail to create meaningful connections between the protection of inland waters and marine waters. The lack of comprehensive regulation on the management of protection and use of sea is a more general issue. The legal framework is not sufficient and little has been done to implement the Marine Strategy Framework Directive.

The environmental objectives are, in theory, tied to permitting. The actual realization of review of permits when the objectives cannot be met is hampered by lack of adequate monitoring. Also, the respective legal framework often fails to set out the necessary details.

It is difficult to evaluate the adequacy of Estonian institutional system for ecosystem approach. Some effort has been made to ensure coordination including the establishment of the Water Management Committee. However, legal the position of the Committee is weak. Its effectiveness probably depends on its membership. Coordination of marine issues seems to be insufficient, especially after the dissolution of the so called Marine Commission. However, participatory rights are strong in Estonia as regards administrative acts. Nonetheless, it is difficult to assess the meaningfulness of the actual involvement of stakeholders as no relevant studies seem to exist.

6 Other Measures

6.1 Introduction

Among other measures, three instruments can be identified. First, cross-compliance standards which comprise of good agricultural and environmental conditions and obligatory management requirements; these conditions and requirements apply to those farmers who have applied for direct payments or payments under the Estonian Rural Development Plan

Second, land use planning and building regulations and related environmental impact assessment procedures which could significantly affect activities having impact on nutrient pollution issues;

Third, system of environmental charges; The primary purpose of application of environmental charges is to prevent or reduce possible damage related to the emission of pollutants into the environment.

6.2 Cross-compliance

As said above Cross-compliance consists of good agricultural and environmental conditions (including water protection and management requirements) and obligatory management requirements (including the environment), and these conditions and requirements apply to those farmers who have applied for direct payments or payments under the Estonian Rural Development Plan 2007-2013. The latter includes payments for environmentally-friendly agricultural practices. Good agricultural and environmental conditions are based on requirements provided for in the legal acts of the European Union, but every Member State can select a set of requirements for its own farmers, taking into account the peculiarities of the Member State, its particular needs and conditions. In Estonia, these requirements have been established by the Minister of Agriculture on 17 February 2010 with Regulation No. 11 "*Good agricultural and environmental conditions, detailed procedure for the fulfillment of the duty to maintain an area of permanent grassland, grounds and procedure for transfer of the duty*

to maintain an area of permanent grassland, and a detailed procedure for the implementation of the necessary means for maintaining permanent grassland".[291] This Regulation applies to all farmers who receive direct payments and it contains the following water protection requirements:

- an applicant who uses, for irrigation of agricultural land, groundwater in the amount of more than 5 m^3 in 24 h or surface water in the amount of more than 30 m^3 in 24 h, is required to have a water permit as stipulated in the Water Act;
- watercourse should have a buffer zone where the use of fertilizers is prohibited. The width of the buffer zone measured from the usual boundary of the water should be at least one meter in case of artificial recipients of land improvement systems that have a catchment area less than 10 m^2, or at least 10 meters in case of rivers, brooks, main ditches and channels.

A more extensive set of requirements need to be fulfilled by those farmers who receive aid payments under the Estonian Rural Development Plan 2007-2013. These requirements are set out in Regulation No. 46 adopted by the MinistryMinister of Agriculture on 21 April 2010 "*Requirements for receiving environmentally-friendly management aid and detailed procedure for the application of aid and for the processing of the aid application*".[292] This Regulation lists most of the requirements already stipulated in the Water Act and applicable to all farmers under the jurisdiction of this law. However, farmers who receive aid payments under the Rural Development Plan also need to fulfill some additional requirements that they would otherwise need to be fulfilled only on a voluntary basis. For example, these additional requirements consist of drawing up of a fertilization plan, obligation to regularly take samples from manure and soil and send them to a laboratory for analysis, obligation to cover at least 30% of the agricultural land with plants from 1 November until 31 March for agricultural lands is located in the municipalities of Haanja, Otepää, Valgjärve, Vastseliina or Misso, obligation to grow leguminous plants (or their mixture with grasses) on at least 15% of the agricultural land, restrictions on the use of glyphosates, and stricter limits on the introduc-

[291]Last amended on 30 July 2012. https://www.riigiteataja.ee/akt/127072012011
[292]https://www.riigiteataja.ee/akt/123112010029

tion of nitrogen into soil with mineral fertilizers alone, and together with manure, setting even stricter limits for the introduction of nitrogen in NSA.

With regard to this analysis, the main benefit of the cross-compliance system stands in the more effective supervision and enforcement of the environmental requirements for agricultural activities. Although only at least 1% of applicants of direct payments and at least 1% of the applicants of aid payments under the Rural Development Plan are checked on spot as part of the cross-compliance system,[293] these checks are made on a regular basis, and they also give indication of the success of the measures applied. The importance of the role of cross-compliance in advancing environmentally-friendly agricultural practices was also mentioned by public officials in the Ministry of the Environment and the Ministry of Agriculture.[294] Indeed, the cross-compliance system puts efforts into assessing the impact of the financed environmentally-friendly measures, and may provide some valuable insight into effectiveness of these measures that would not otherwise be monitored nor assessed. The results of supervision in 2004-2010 indicate that from the water protection perspective the situation has improved (especially as it concerns the runoff of phosphorus), but the non-optimal use of fertilizers by farmers has led to a a situation where there is a lack of phosphorus and potassium in the soil which in turn may cause poor acquisition of nitrogen by plants from the soil.[295]

6.3 Land use planning and environmental impact assessment

When the application of building permit is under processing, then according to the Building Act, the planned construction (either erecting a new building or adding an extension to an existing building) needs to comply with the detailed spatial plan and any supplementary speci-

[293]Nõuete vastavus 2011, p 6. Ökoloogiliste Tehnoloogiate Keskus koostöös Põllumajandusministeeriumiga. www.pikk.ee/nouetelevastavus

[294]Interview with the representative of the Ministry of the Environment on 14 November 2012, and the representative of the Ministry of Agriculture on 17 December 2012.

[295]Eesti Maaelu Arengukava 2007-2013 2. telje püsihindamise ülevaade ja seotud uuringud 2011. aastal, Põllumajandusuuringute Keskus, p 8. http://pmk.agri.ee/pkt/files/f32/PMK_pysihindamine_ja_uuringud_2011.%20kohta_01.06.2012_VEEBI.pdf

fications established by the local authority.[296] In case a detailed spatial plan is not required, the local government shall issue design specifications for the construction work.[297] When issuing design specifications, the local authority shall rely on the structural specifications stipulated in spatial plans or other documents governing the use of the land.

According to the case law of the Supreme Court of Estonia, the decision on issuing a building permit needs to take into account the results of environmental impact assessment and give clear justifications why establishment of the plant in that particular location is necessary, if the plant can be established in another alternative location without the accruing negative environmental impacts, but still ensuring for the country as a whole the benefits from establishing the plant.[298] The problem with current planning regulation is that if the environmental impact of the plant's activities crosses the borders of one municipality or county, then there is no obligation to consider alternative solutions (locations) on a higher level planning document. Practically, this means that neither balancing of interests and benefits nor consideration of alternative locations and scenarios is not taking place at all, or is not taking place at an appropriate level of decision-making.

However, if the plant has a significant spatial impact, then it is obligatory to decide on its operations and location with a general planning document of the municipality or with a county planning document. In 2009, additional requirements came into effect for the planning of objects with significant spatial impact.[299] Although this regulation may remove some of the shortcomings referred to in the previous section, it does not apply to large farms as these are not listed as objects with significant spatial impact by the Government regulation.[300]

Building design documentation, which is based either on the detailed spatial plan or design criteria, shall be submitted to the relevant municipality. Building design documentation needs to be coordinated with the Environmental Board only, if the construction is planned in a public water body and the planned building is permanently connected to the shore. This obviously does not apply to farms. The Environ-

[296]Building Act, article 19(1)1). The supplementary specifications established by the local government determine the architectural and structural specifications of the construction work that are not included in the detailed spatial plan.
[297]Building Act, article 19(3). Design specifications are architectural and structural specifications determined by the local authority in respect of a particular construction work.
[298]Judgment of the Supreme Court, RKHK 3-3-1-54-03 (Jämejala pargi kaasus).
[299]Planning Act, article 29^2.
[300]Government Regulation No 198 of 15 July 2003 „The list of objects with a significant spatial impact". https://www.riigiteataja.ee/akt/13195695

mental Board may, however, be involved in environmental impact assessment of the detailed spatial plan if this plan is used as a basis for construction of a farm with significant environmental impact,[301] as stipulated in the Environmental Impact Assessment and Environmental Management System Act.[302] In all other cases (concerning environmental impact assessment for individual cases, such as integrated environmental permit application), Environmental Board is involved in the process as a supervisory authority of the environmental impact assessment process. In this authority, the Environmental Board shall approve the environmental impact assessment report and may provide for environmental requirements that need to be taken into account in the construction of the farm.[303]

6.4 Environmental charges

Apart from sanctions, an effective means to curb pollution from point sources is the pollution charge. In Estonia, the Environmental Charges Act provides that environmental charge means the price of the right of environmental exploitation which, among others, includes also the emission of pollutants into water bodies, groundwater or soil.[304] The purpose of application of environmental charges is to prevent or reduce possible damage related to the emission of pollutants into the environment. The pollution charge rates are established by the Environmental Charges Act, and as of 1 January 2013, the charges for discharge of one tonne of total nitrogen and total phosphorus are respectively 2137 EUR and 7109 EUR. These charges have been increasing steadily over the years; however, an increase in the pollution charge has not prevented an increase in the load of nitrogen in the environment.[305]

[301]It should be noted that „an object with a significant spatial impact" is different from the „significant environmental impact" as stipulated in the Environmental Impact Assessment and Environmental Management System Act.
[302]Environmental Impact Assessment and Environmental Management System Act, article 33(1)3), article 33(6), article 6(1) and articles 6(2)-6(4).
[303]Environmental Impact Assessment and Environmental Management System Act, article 10(3).
[304]Environmental Charges Act, article 3(2)6).
[305]Eesti keskkonnanäitajad 2012, p 37.

6.5 Concluding and Summarising Remarks

In cross- compliance segment more precise requirements that need to be fulfilled by those farmers who receive aid payments are set out in Regulation No. 46 adopted by the Minister of Agriculture on 21 April 2010 "*Requirements for receiving environmentally-friendly management aid and detailed procedure for the application of aid and for the processing of the aid application*".[306] The main advantage of the cross-compliance lies in the fact of more effective supervision and enforcement of the environmental requirements for agricultural activities. Checks are made on a regular basis, and they also give indication of the success of the measures applied.

According to the Building Act, the planned construction (e.g. farm) needs to comply with the detailed spatial plan and any supplementary specifications established by the local authority.

According to the case law of the Supreme Court of Estonia, the decision on issuing a building permit needs to take into account the results of environmental impact assessment and give clear justifications why establishment of the plant in that particular location is necessary. If the plant has a significant spatial impact, then it is obligatory to decide on its operations and location with a general planning document of the municipality or with a county planning document. Environmental Board is involved in the process as a supervisory authority of the environmental impact assessment process. The Environmental Board shall approve the environmental impact assessment report and may provide for environmental requirements that need to be taken into account in the construction of the farm. These requirements may be very likely related to factors affecting nutrients pollution from farms and other facilities.

The purpose of application of environmental charges is to prevent or reduce possible damage related to the emission of pollutants into the environment. The pollution charge rates are established by the Environmental Charges Act. These charges have been increasing steadily over the years; however, an increase in the pollution charge has not prevented an increase in the load of nitrogen in the environment.

[306] https://www.riigiteataja.ee/akt/123112010029

7 Closing Part

On a political level, marine environment protection is not acknowledged as an independent topic of concern, but rather as an ancillary consideration in maritime policy that focuses mainly on advancing economic interests of maritime sectors. Lack of political commitment in protecting the marine environment is also reflected in strategic and policy documents where marine environment protection is usually not addressed as a separate policy area, but an aspect of water management. It may be said that the problem of eutrophication is almost missing on political agenda and public debate.

Estonian Environmental Policy 2030 deals with marine issues superficially and only in general terms. Initiatives to protect water resources and water ecosystems are not connected to the protection of marine ecosystems; some of the few links are accidental as the term surface water also covers coastal water. Although some policy documents emphasize the need for integration between different sectors to improve marine environment protection, paradoxically it is still the Ministry of the Environment that deals with these issues almost exclusively. As the marine environment is affected by an array of activities falling under the competence of the Ministry of Agriculture and the Ministry of Economic Affairs and Communications, it would seem necessary that relevant policy documents are approved at least at the Government level (the Implementation Plan of the Baltic Sea Action Plan was approved by the Government in 2011). However, there is a worrying trend of lowering the political level for marine policy-making to the Minister of the Environment. In sum, while general policy documents on environment and sustainable development are too abstract and vague in their statements on marine environment protection, the strategies prepared by the Ministry of the Environment tend to go to the other extreme – they are overly specific without introducing a required level of integration between different sectors impacting on the marine environment.

The ecosystems approach has not received much attention in policy documents on environmental protection with the exception of Na-

ture Protection Strategy 2020 that emphasizes the need to consider, when planning protection activities, that all water habitats constitute one whole, and to focus on the protection of a unified ecosystem. However, these general statements have not been translated into regulations – there is hardly any consideration for the ecosystem level, not to mention ecosystem functioning and resilience at least not in the field of water management. Although with the transposition of the Water Framework Directive the object of protection and management has shifted from a specific river or lake to a river basin or a river basin sub-district, there still is much room for development in making this new approach operational. A conscious effort to assess cumulative impacts of human activities on water ecosystems and to apportion the extent of such impacts to specific sectors or activities is still lacking. Without these assessments, it is difficult to decide as to what activities should be regulated or monitored as a priority and/or more stringently.

The Water Act is the main regulatory instrument for planning and implementing water protection measures. It was adopted already in 1994 and has been amended around 30 times since then. The Water Act does not contain a comprehensive, but at the same time legally effective mechanism for achieving environmental objectives for water and the marine environment. Due to many amendments, regulation provided in the Water Act is piecemeal and out of balance – general declaratory provisions are intertwined with very specific, even casuistic provisions. This imbalance is carried on into water management plans which tend to state the obvious (measures need to be taken) and shy away from setting down more concrete measures for concrete water bodies (or a group of water bodies). Water management plans lack teeth in that they fail to set measurable targets for specific water bodies; there is still a lot of ambiguity about the proportion of different activities (for example, diffuse pollution from agriculture) in contributing to the deterioration of water quality, and the effectiveness of planned measures is largely not followed up.

The regulatory system in Estonia is not generally reflective of the ecosystems approach. Most of the measures provided for in legal acts are of sectoral character dealing with specific aspects of potential pollutants. In addition, there is a limited range of regulatory tools to address negative trends in the status of the environment. For example, engaging in agricultural activities does not require a separate permit in Estonia (if the activity is below thresholds that require an integrated environmental permit), there seems to be a gap in regulation in a situation where the environmental objective set for a specific water body is

not likely to be met, but no emission limit values can be imposed on the economic actor either because of the diffuse nature of pollution (e.g. spreading manure on fields), neither can supplementary environmental requirements be introduced, because of lack of a legal ground for imposing on the farmer stricter or additional requirements compared to the ones already stipulated in legal acts. As a rule, resort is made to good agricultural practice (either mandatory or recommendatory measures) and to best available techniques.

Land use plans may also have an important regulatory effect – they have a bearing on the location of farms and sewage treatment plants, and may prescribe mandatory requirements for land use and building activities for private entities. However, there is little room left in regulation for considering alternative locations for establishing a new farm. General spatial plans for municipalities define the purpose of use for the land (land for production), but they do not provide for more specific conditions which prevent the public from engaging meaningfully in the decision-making on land use in the municipality. Large farms are not listed as objects with significant spatial impact in Estonian legislation which has resulted in problems with their establishment concerning proper level of decision-making, environmental impact assessment as well as involving the public into decision-making. In addition, water management plans for river basin districts and river basin sub-districts are not integrated with planning documents which makes the implementation of these plans complicated.

In Estonia, much emphasis in minimizing the environmental impact from agriculture is placed on the cross compliance system of the Common Agricultural Policy of the European Union where farmers who receive aid payments for environmentally-friendly agricultural practices need to follow more stringent rules in their agricultural activities than those provided for in legislation. Indeed, there are certain benefits in making the implementation of additional measures dependent on receiving aid payments, at least while enforcement based on sanctions becomes more effective. In either case, supervision and monitoring is an essential precondition for ascertaining compliance, and this is where considerable improvements still need to be made. This is not so much a question of regulation, but enhancing administrative capacity and expertise.

Stakeholders are increasingly involved in the drafting and planning of activities, but without political commitment, sincere and continuous efforts to develop a meaningful dialogue with the public, these public discussions tend to turn into talking-shops, dealing with cosmetic im-

provements rather than principled choices by society for ensuring sustainable use of water resources. Agriculture is politically very sensitive topic and any attempt to strengthen environmental requirements is usually received with disapproval by farmers. However, farmers do not see their role just as mere producers, but they are generally not willing to protect the environment at the expense of their potential income and consider this kind of situation unfair. Therefore, raising awareness of farmers of the need to protect water resources is essential for ensuring effective stakeholder cooperation.

Despite these shortcomings, the national law reflects ecosystem approach to the extent it exists in the WFD and related directives. For instance, the Water Act requires organization of water management on the basis of river basins and river basin districts in order to achieve environmental objectives set out in the Water Act. The objectives are established on the basis of national environmental quality standards. In addition, the Water Act provides for a combined approach in controlling point and diffuse pollution, requiring the adoption of more stringent emission limit values (for wastewater) or establishment of more stringent environmental requirements or environmental quality standards if this is necessary for achieving the environmental objectives (articles 3^1, 24(5) and 24(6)). These elements of the ecosystems approach have been introduced into Estonian legal system through the legal acts of the European Union. Often, however, EU directives are transposed only formally, not supported by an operational mechanism for their actual implementation. The same is true for the Water Framework Directive and the Marine Strategy Framework Directive.

Proper understanding of the concept of ecosystems approach and strong political commitment to water and marine environment protection is essential to bring about the necessary changes in management. In addition, granting more discretion to authorities in order to prescribe specific requirements in the water permit or the integrated environmental permit must be accompanied by an increase in local expertise in terms of natural conditions and the socio-economic context. Otherwise, providing discretion for the permit issuer to determine more flexible farm or plant specific or location-specific water protection measures becomes meaningless. Environmental law in Estonia is undergoing significant changes – the General Part of Environmental Code Act was adopted in 2011, and a Special Part of the Environmental Code Act is currently being drafted. Water law is one of those areas of environmental law that shall be significantly upgraded in the course of this codification process and there is a window of opportuni-

ty to introduce more elements of the ecosystems approach into regulation.

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8.1.1 Useful links

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