



Output 3.2.

**Report on implementability of agro-environmental targets in
Estonia**

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1. Introduction

This report (hereinafter also referred as national report) is part of the fulfilment of Activity 1.2.2. and Output 3.2. of the WP6 Baltic Compass project. In this report the implementability of agro-environmental targets in Estonia is reviewed via the analysis of objectives and measures adopted in programmes and policies. The report describes the legal framework of water protection in agriculture, but also the measures that are designed and implemented in the *Rural Development Plan 2007-2013* (RDP), river basin management plans, and special plans such as the nitrate vulnerable area action plan. The report was initially completed in June 2010, but was further updated in November 2010 with the results from monitoring of the implementation of the RDP. The main findings of the report have been discussed with key stakeholders and finally the main challenges have been drawn from these discussions.

2. Methodology

The analysis of the implementability of agro-environmental targets is based on document review. The main sources of information were the *Rural Development Plan 2007-2013* (RDP), *Nitrate vulnerable Area Action Plan 2009-2011*, 3 river basin management plans and 8 subriver basin management plans, and the monitoring reports on implementation of RDP and the Axis II measures. Thereafter, the issues of meeting agro-environmental targets were first discussed in stakeholder workshop on 10 March 2010 in Tallinn. The initial results of the analysis were discussed in a stakeholder workshop on 10 November 2010 in Tallinn. Both workshops were organised by SEI Tallinn.

3. Agro-environmental targets

Agriculture is the sector of the economy which has undergone the deepest changes during Estonia's transition period. Despite the decreased share of agriculture in the Estonian economy, its significant role in supplying the rural population with food, in rural enterprise, and in shaping the cultural landscape has survived. If in 1997 value added production per person engaged in agriculture was about 27% lower than in the overall economy, in 2005 value added production per person engaged in agriculture was about 54% lower than in overall economy. The competitiveness of Estonian agriculture has been low since the beginning of the 1990's, since when there have been no opportunities for the necessary investments. Thus, 50% of the fixed assets used by agricultural producers have overextended their service life. However, the joining of Estonia to the EU in 2004 has brought about substantial changes to the economy, including agriculture. The subsidies and payments under the RDP have promoted the modernisation of infrastructure and farming techniques and the development of the rural economy.

The effects of agriculture on the environment have changed over the decades. In the 1970's and 1980's the lakes in Estonia were strongly affected by fertilizers and farm sewage waters, which caused rapid eutrophication of water bodies. In the beginning of the 1990's, after the collapse of the system of collective farming and the decline in agricultural production, the state of lakes (especially smaller lakes) started to improve. The eutrophication rate became slower and the nitrogen content in the water of lakes decreased. Due to the improvement of the economic situation and the subsidies of the Rural Development Plan (RDP) it is expected that the use of fertilizers and plant protection products will rise, but will still stay considerably lower than the EU average.

3.1. Meeting EU water policy targets – Nitrate Directive

Estonia joined the EU on 1 May 2004. Many EU environmental directives and regulations address water supply and quality issues. The main EU directives that regulate agro-environmental measures are the Water Framework Directive (2000/60/EEC) and Nitrate Directive (91/676/EEC), supplemented by Marine Strategy Framework Directive (2008/56/EC). The EU Baltic Sea Region Strategy aims at overall policy coherence in the catchment area of the Baltic Sea. However, the history of HELCOM targets to combat the eutrophication of the Baltic Sea goes back to the late 1990's, and the importance of limiting the diffuse pollution from agriculture has risen to its climax in the last five years.

The history of limiting the use of fertilisers and pesticides used in agriculture has long roots in Estonia, starting before Estonia joined the EU. The Estonian Government designated a karst and spring area as a *nitrate vulnerable area* already in 2003 (Order on the Protection rules of the Pandivere and Adavere-Põltsamaa nitrate vulnerable area (RT I 2003, 10, 49)) (Figure 1). The area covers 3250 km² and thus forms about 8% of the Estonian mainland territory. The area is divided into two regions: *Pandivere region and Adavere-Põltsamaa region*, where restrictions apply. Pandivere is an important groundwater area for the whole of Estonia. The plain of Central Estonia is a local groundwater area and a transit and outlet area. But due to the karst phenomenon, the groundwater is poorly protected and thus vulnerable to pollution. According to the review, the concentration of nitrate was higher than 50mg/l in 10% of wells in Pandivere region and 31% of wells in Adavere-Põltsamaa region in the period 2004-2008 (Nitrate vulnerable area action plan 2009-2011). At the same time, the most fertile soils of Estonia are located in this area. Compared to the average of Estonia, land use is 50% more intensive in this area. The same can be said about livestock farming – 35% of cattle, 30% of pigs and 12.5% of poultry in the country are raised in the nitrate-vulnerable area (Nitrate vulnerable area action plan 2009-2011). The cultivated areas of the nitrate-vulnerable area total 1190 km², which accounts for almost 40% of the nitrate vulnerable area. Therefore agricultural practices have been a target of continuous attention by the authorities. The national monitoring scheme covers 10 spots in the nitrate vulnerable area for measuring nitrate concentration in wells, streams and rivers. According to the review, the maximum levels of nitrate concentration had increased in six out of ten rivers in the period 2004-2008 compared to the data from 2000-2003. These levels also exceeded the favourable target level of 50mg/l (Nitrate vulnerable area action plan 2009-2011).

The requirements concerning the nitrate-vulnerable area have been imposed by the Water Act (RT I 1994, 40, 655) and the secondary legislation established on the basis thereof. For example, the requirement of the Nitrates Directive that allows for application of up to 170 kg of N with manure per year per hectare applies to the whole Estonian territory, excluding the nitrate-vulnerable area, where 120 kg /N per ha may be administered. Also it is prohibited to have more than 1 AU¹ per ha and to use sewage sludge. The Estonian Government has adopted (Order from 29.12.2009) the renewed action plan for the nitrate vulnerable area for the period 2009-2011. The first action plan was valid for the period 2004-2008. According to the implementation plan of the Nitrate Directive, member states should monitor the implementation of the directive annually and submit the next progress report to the Commission by 2012.

¹ AU – animal unit

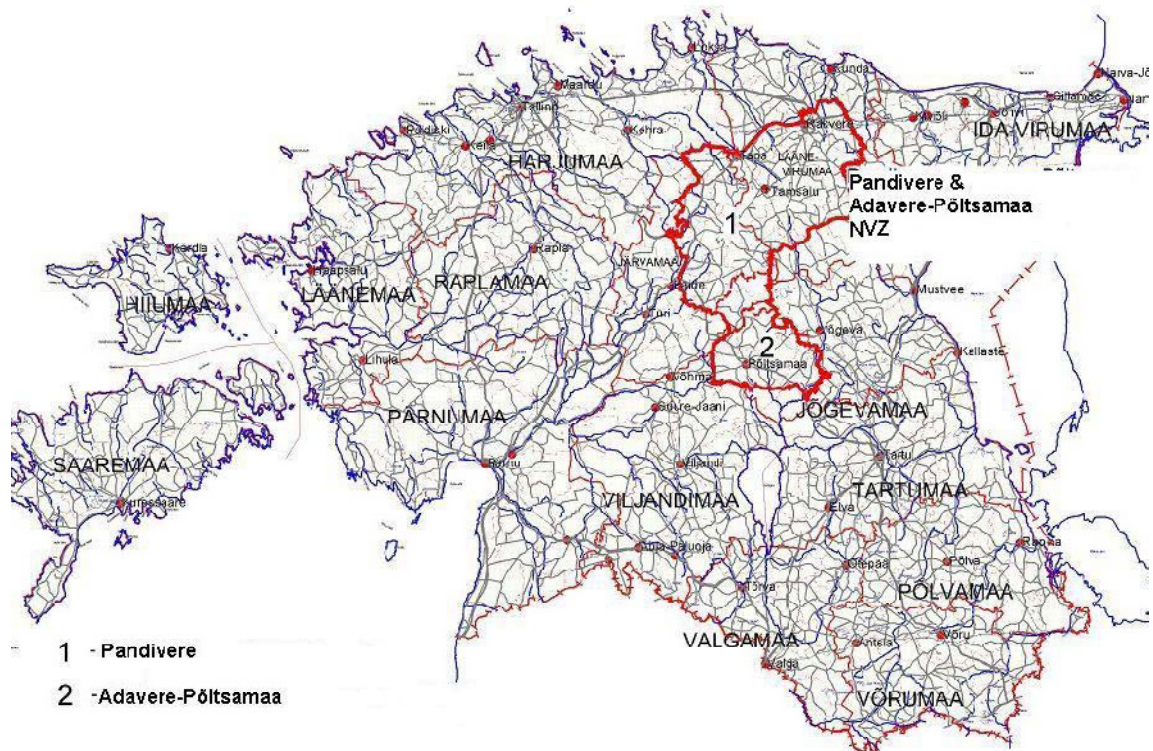


Figure 1. Nitrate vulnerable area covering two regions (Pandivere and Adavere-Põltsamaa) (MoE, 2005)²

3.2. Meeting EU water policy targets – Water Framework Directive

The EU target to have good status of waterbodies (including coastal waters) by 2015 is an ambitious task. Member states had to designate river basins and complete and submit to the European Commission river basin management plans by the end of 2009. Estonia first identified 8 subriver basins (SRB) and 3 river basins (RB). Management plans for 8 SRB were developed accordingly. Based on the SRB management plans, 3 RB management plans were drafted. To date, decision has been taken by the Government (Order from 1 April 2010) that there are 3 river basins (West-Estonia, East-Estonia and Koiva) and respective management plans. The progress of implementation of 3 river basin management plans shall be reported to the European Commission. Estonia has submitted the river basin management plans to the Commission in due time. The study by SEI Tallinn (SEI Tallinn, 2010) on the priorities and allocation of funds in these management plans demonstrated a controversy between subriver and river basin management plans. While the subriver basin management plans targeted point sources of agricultural pollution, the river basin management plans prioritised the activities that address diffuse pollution from agriculture. The discrepancy between the priorities of the two levels of river basin management plans originates from the process of development of these plans. The 3 river basin management plans were completed later and the actions to address diffuse pollution from agriculture were also added later in the process. The action

² <http://www.envir.ee/orb.aw/class=file/action=preview/id=189508/Estonian+Nitrate+report+PDF.pdf>

plans are currently under revision. According to the implementation of the Water Framework Directive, member states have to submit a mid-term review of implementation of the RB management plans to the European Commission by the end of 2012.

3.3. Estonian Rural Development Plan 2007-2013

Estonian Rural Development Plan 2007-2013 (RDP) is targeted towards the balanced development of rural areas. Within the framework of the programming period 2007–2013, Estonia will be able to use approximately 925.2 million EUR (14.47 billion EEK) of public sector support funds for agriculture and rural development.

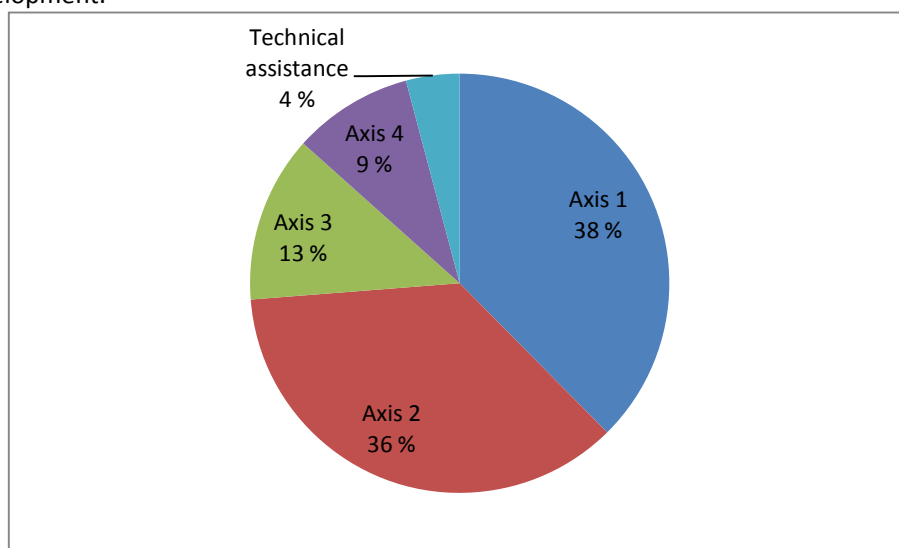


Figure 2. Financial plan of Estonian Rural Development Plan 2007-2013

Axis 1 - Improving the competitiveness of the agricultural and forestry sector

Axis 2 - Improving the environment and the countryside

Axis 3 – Improving the quality of life in rural areas and encouraging diversification of the rural economy

Axis 4 LEADER

The majority of support payments are applied to Axis 1 and Axis 2 activities (Figure 2). The contribution planned for Axis I (Improving the competitiveness of the agricultural and forestry sector) in 2007-2013 is 347.6 million EUR, forming 38% of support payments of Estonian RDP payments in that period (Figure 2). Axis II (Improving the environment and the countryside) support payments are planned to 334.5 million EUR, accounting for 36%, and Axis III (Improving the quality of life in rural areas and encouraging diversification of the rural economy) 118.9 million EUR (13%). In addition, there are 85.8 million EUR planned for Axis IV (Leader) and 38.1 million EUR for technical assistance.

The measures applied under each of the Axes in Estonia are described in Table 1. The measure with highest public support under RDP 2007-2013 is agro-environment payments (more than 210 000 000 EUR), followed by modernisation of agricultural holdings (189 000 000 EUR).

Table 1. Indicative breakdown by measures of Estonian Rural Development Plan 2007-2013 (EUR)

Measure	Total public contribution in Euro
AXIS I	
111 Vocational training and information actions	4 282 373
112 Setting up of young farmers	11 858 908
114 Use of advisory services	2 305 867
121 Modernisation of agricultural holdings	189 741 867
122 Improvement of the economic value of forests	20 753 013
123 Adding value to agricultural and forestry products	38 541 307
124 Cooperation for development of new products	22 774 107
126 Restoring agricultural production potential	35 576 533
131 Meeting standards based on Community legislation	4 793 374
141 Semi-subsistence farming	4 200 480
142 Producer groups	12 782 239
AXIS II	
212 Payments in areas with handicaps, other than...	53 513 654
213 Natura 2000 payments and payments linked to...	8 652 796
214 Agro-environment payments	210 886 973
215 Animal welfare payments	21 724 033
216 Non-productive investments	3 962 523
221 First afforestation of agricultural land	4 281 093
224 Natura 2000 payments	31 439 272
AXIS III	
312 Business creation and development	71 351 540
322 Village renewal and development	47 567 693
AXIS IV	
411 Impl. local development strategies. Competitiveness	15 436 631
413 Impl. local development strategies. Quality of life	61 746 525
421 Impl. cooperation projects	5 145 544
431 Running the local action group, acq. skills and...	3 430 363
Technical assistance	38 115 139
- of which National rural network running costs	up to 1 120 000
- action plan of National rural network	up to 3 360 000
Total	924 863 847

The Estonian RDP pays attention to the maintenance of biological diversity and traditional landscapes, to the assurance of water quality and to the alleviation of climate change. The main instruments to achieve environmental targets of agriculture are the measures under Axis II: "Improving the environment and the countryside". Agro-environmental support forms the largest share in Axis II funds: 63% of intended support payments in 2007-2013 (Figure 3).

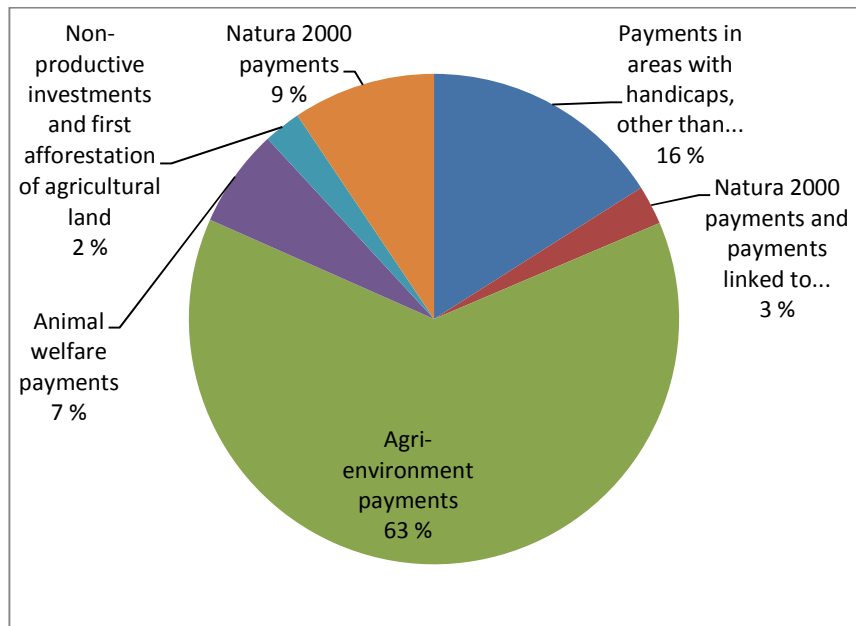


Figure 3. Intended support payments of Axis II in 2007-2013

According to the second subparagraph of Art. 51(1) of Council Regulation (EC) No 1698/2005 the agro-environmental support will be reduced or cancelled if the applicant does not respect the minimum requirements for fertiliser and plant protection product use referred to in Article 39(3). However, during 2008 to 2010 the support reduction decisions were based only on violating the good agricultural and environmental conditions, not on the minimum requirements set for the use of fertiliser and plant protection products.

4. Implementation and implications of agri-environmental measures

4.1. Legislative framework

Water protection is regulated in Estonia by different laws and acts, of which the most important for limiting agricultural pollution are:

- Water Act (from 1994);
- Integrated Pollution Prevention and Control Act (from 2001);
- Regulation of Government of 28 August 2001 "Water protection requirements for fertilizers, manure and silage storage facilities and requirements for usage and storage of manure, silage and other fertilizers";
- Regulation of Government of 21 January 2003 "Protection rules of Pandivere and Adavere-Põltsamaa nitrate vulnerable area";
- Regulation of Minister of Social Affairs of 2 January 2003 "The quality and control requirements of surface and groundwater used for producing drinking water";
- Regulation of Minister of Social Affairs of 31 July 2001 "The quality and control requirements and analysis methods of drinking water";
- Regulation of Minister of the Environment of 10 May 2004 "Water classes of groundwater bodies, according quality indicators values and procedure for defining water classes"; and,

- Regulation of Minister of Agriculture of 21 August 2004 "Requirements for manure ingredients".

According to the *Water Act*, water protection and use measures are planned in river and sub-basin management plans. As described earlier in this report, there are 3 river basins and 9 sub-river basins in Estonia. The planning process started in 2003 and all the sub-river basin management plans have now been completed. The river-basin management plans are based on the sub-basin management plans. In 2010 the implementation of water management plans and the program measures will start.

The *environmental permits* that are issued in Estonia are:

- integrated environmental permits – these are issued for releasing substances simultaneously to air, water, soil or groundwater and for management of waste;
- simple permits (permits for the special use of water, ambient air pollution permits and waste permits) to use the natural resource or to release pollutants from one source or for waste management to one person.

The *Estonian Integrated Pollution Prevention and Control Act* is stricter than the EU directive 96/61/EC, which demands integrated permit only in the cases of poultry and pig farming. In Estonia cattle farming is also subject to integrated permit.

The first *Good Agricultural Practice* was issued in 2001 by cooperation of the Ministry of the Environment and the Ministry of Agriculture. The updated version of *Good Agricultural Practice* was completed in 2007. The new version has a more thorough approach to water protection issues. A separate chapter is devoted to the Pandivere and Adavere-Põltsamaa nitrate-vulnerable zone (NVZ). There are some requirements applicable on NVZ that are stricter than for outside the zone, such as the requirement to have at least 30% of arable land covered by vegetation over winter, and fertilisation and use of pesticides should not be executed closer than 50m of the *karst* funnels.

The intensity of Estonian agriculture is in general quite low and the content of nitrates in surface water bodies is below 10 mg/l. The Water Act imposes a requirement on the whole Estonian territory that up to 170 kg of N per year on average may be applied with manure on one hectare of cultivated area. The requirement imposed in the nitrate-vulnerable area is stricter: an average of up to 170 kg of N with manure and mineral fertilizers a year per one hectare of land under cultivation. Quantities of mineral nitrogen exceeding 100 kg per hectare shall be spread in parts. See the BOX overleaf for details.

Training of farmers and advisers on the regulations and the appropriate implementation is a very important measure to ensure good water quality. In the case of the measure "environmentally friendly management", statutory training is a precondition for receiving support. This training covers 4 subjects:

- Soil and nutrients (soil and its qualities, soil sampling and the interpretation and analysis of results, nutrient assimilation, soil protection and preparation, reduction in the loss of nutrients, selection of suitable machinery, etc.; successive cropping and crop rotation, environmentally-friendly fertilization; manure management (how to reduce the loss of nutrients);
- Environmentally friendly plant protection (weeds, their prevention and control; pests and diseases, their prevention and control);
- Environmentally friendly grassland management (establishing and re-seeding of grasslands, seed blends; fertilization; mowing; grazing);
- Biological and landscape diversity.

Statutory training on the issues of soil and nutrients as a precondition applies also to the measure “organic farming”.

BOX: Requirements for the use of fertilisers and plant protection products established by the national legislation, applied to agri-environment support receivers:

- Up to 170 kg of N per year on an average may be applied with manure on one hectare of cultivated area. Up to 30 kg of P per year on an average may be applied with mineral fertilizers on one hectare of cultivated area plus such an amount of N as is needed for agricultural crops and as is in compliance with the requirements provided by a regulation of the Government of the Republic. Quantities of mineral nitrogen exceeding 100 kg per hectare shall be spread in parts.
- In a nitrate-vulnerable area an average of up to 170 kg of N with manure and mineral fertilizers is allowed to be used per year per one hectare of land under cultivation. Quantities of mineral nitrogen exceeding 100 kg per hectare shall be spread in parts.
- In a nitrate-vulnerable area an average of not more than 140 kg of the total volume of N with mineral fertilisers may be used per year per hectare of land under cultivation. Amounts of mineral nitrogen exceeding 100 kg per hectare shall be spread in parts.
- In nitrate-vulnerable areas at least 30% of the land under cultivation and used by an agricultural producer shall be under plant cover from 1 November until 31 March.
- In areas under cultivation fertilizers shall not be spread on the ground if the inclination of the ground is more than 10%. If the ground has an inclination of 5–10% then spreading of fertilizers on the surface is prohibited from 1 November to 15 April.
- Organic and mineral fertilizers shall not be spread from 1 December to 31 March, and during any time when the ground is covered with snow, is frozen or flooded, or saturated with water. According to the *Water Act* the ground is deemed to be covered with snow if, for the duration of at least 24 hours, the thickness of the snow covering the ground is at least 10cm. “Frozen ground” means ground which has been frozen to a depth of at least 5cm for a period longer than 24 hours.
- Manure which is spread on a field where no crops currently grow should be incorporated into the soil within 48 hours.
- In areas surrounding springs and sinkholes and in a range of 10m from the boundary of the water or from the edge of a sinkhole, it is prohibited to use fertilisers and plant protection products and to engage in any other activities endangering water quality.
- As an annual average it is permitted to keep livestock in numbers corresponding to up to two livestock units per hectare of agricultural land. It is permitted to keep livestock in numbers corresponding to more than two livestock units per hectare if there are storage facilities for manure, or for manure and liquid manure, with the necessary capacity, or if a manure spreading or manure sales contract has been entered into. One livestock unit is deemed to be equal to one farm animal which excretes, in the form of liquid and solid manure, 70 kg of basic nitrogen per year. The coefficients needed for the calculation which enables the number of farm animals to be expressed in the form of livestock units shall be established by a regulation of the Minister of Agriculture.
- The following is prohibited within a water protection zone: 1) economic activity, except for mowing of grass and cutting of reed; 2) use of fertilizers, chemical plant protection products and waste water sediment, and placing of manure storage facilities and manure stacks. 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.
- The distance of water protection zones from the usual water boundary shall be:
 - 1) 20 m on the Baltic Sea, Lake Peipus, Lake Lämmijärv, Lake Pihkva and Lake Vörtsjärv;
 - 2) 10 m on other lakes, reservoirs, rivers, brooks, springs, main ditches and channels, and artificial recipients of land improvement systems;
 - 3) 1 m in artificial recipients of land improvement systems with a catchment area of less than 10 km².

4.2. Implementing agencies

The implementation of the Nitrate and Water framework Directive is divided between two ministries: the Ministry of Environment (MoE) and the Ministry of Agriculture (MoA) (Figure 4). MoE has 6 regional units, –regional environmental boards. Whereas the MoE develops policies and regulations, the regional boards are the implementing authorities. Regional boards are the main permitting authorities, issuing among other things the water permit. MoA sets the agricultural policies and regulates the use of funds under the RDP. The Agricultural Registers and Information Board (PRIA) is the only payment and auditing authority for the RDP subsidies and payments under the supervision of MoA. As far as the agro-environmental targets are concerned, MoE sets the regulations.

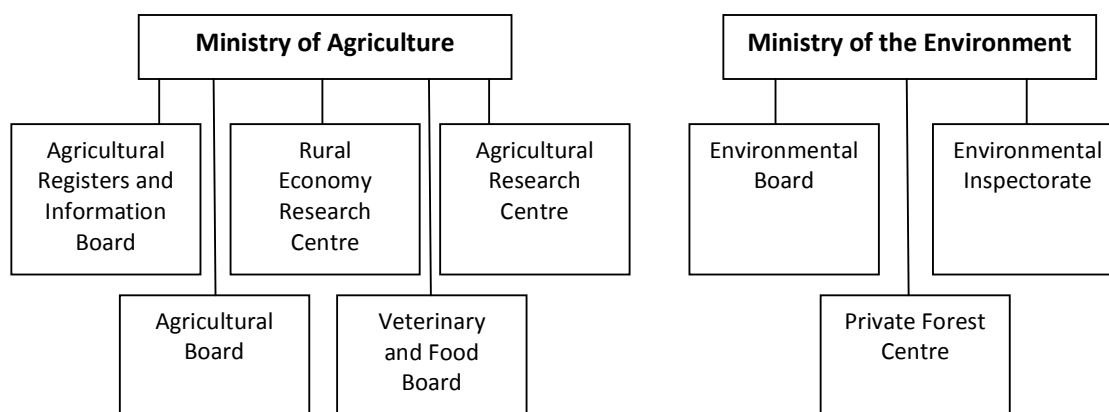


Figure 4. Implementing agencies in the agro-environmental framework

The environmental regulations of agricultural production and facilities are set by the Ministry of Environment, while the agro-environmental measures are designed, implemented and monitored by the Ministry of Agriculture. MoA has established a permanent Commission on the Monitoring of the RDP Implementation. The Commission comprises representatives of stakeholder organisations. The Commission gathers at least twice a year to meet, and meanwhile the information of regulations on the measures and funding are shared electronically among the members of the Commission.

MoA has called upon three bodies which are based on stakeholder involvement: the Monitoring Commission of the RDP, the Network of Rural Development Cooperation and the Council of Rural Development. These bodies are permanent bodies whom MoA consults on different aspects of agricultural production and rural development issues. MoE does not have permanent bodies of stakeholder organisations on agro-environmental issues.

The communication between the two ministries MoA and MoE largely works on an ad hoc working group level rather than on permanent commission or expert panel level. However, some changes are planned in the framework of implementing the river basin management plans, whereby MoA is going to be engaged in the river basin working groups. Apart from that, the cooperation between the two ministries and implementing institutions should be improved.

4.3. Progress of implementation of the agro-environmental measures

As said before, the transition period in the 1990's caused economic decline, changes in industry management and in domestic water consumption, which also resulted in a decrease of pressure on water resources. In the 1970's and 1980's the lakes in Estonia were strongly affected by fertilizers and farm sewage waters, which caused rapid eutrophication. In the beginning of the 1990's, after the collapse of the system of collective farming and the decline in agricultural production, the state of lakes (especially smaller lakes) started to improve. Eutrophication was slower and the nitrogen content in the water of lakes decreased. In the more recent years of economic growth (2000-2007) the use of fertilizers and plant protection products rose, but is still considerably lower than the EU average.

The effectiveness of RDP measures is monitored permanently for Axis II measures and the progress report on RDP implementation is made twice (midterm report and final report). The Axis II report is prepared by the two research centres under the MoA. The midterm and final report on the RDP implementation are independent reviews by consultants.

The review of the implementation of the nitrate vulnerable area action plan in the period 2004-2008, demonstrated a continuous problem to meet the nitrate concentration level in drinking water. This result is mainly due to the high share of unprotected groundwater in this region: 19% of the Pandivere region and 18% of the Adavere-Põltsamaa region. The concentration of nitrate exceeded the target levels in 15% of wells in the area on average, ranging from 10% exceedence in the Pandivere region to 31% exceedence in the Adavere-Põltsamaa region. Although the average intensity of Estonian agriculture is quite low, in the last ten years it has concentrated into the areas favourable for production, i.e. on the Pandivere and Adavere-Põltsamaa nitrate vulnerable area.

4.4. Environmental monitoring of Estonian RDP

In order to monitor the progress of implementing the RDP a special monitoring system has been set up. Monitoring of Axis II measures of the RDP is done by the Agricultural Research Centre. As for water quality, three indicators are monitored: balance of plant nutrition elements, pesticide use, and plant nutrient concentration in the drainage water. In addition, there are three special studies on soil, biological diversity (farmland birds, bumble bees, earthworms and vascular plants), and socio-economic conditions.

In the *Monitoring report of Axis II for 2009* by the Agricultural Research Centre (published in June 2010), the Centre gives an overview of the monitoring scheme of Axis II measures and the effectiveness of agro-environmental measures.

As far as water protection is concerned, the report demonstrates the effect of agro-environmental measures on improving water quality. While comparing plant nutrition elements in different fields in 2004-2008, the balance of nitrogen and phosphorus has been positive only for fields which are supported under area-related aid (direct payments). In the fields supported under agro-environment measures the balance of nitrogen is positive, but for phosphorus it has been negative in two years out of the five. The balance of nitrogen in the fields of organic farming has been positive, but for phosphorus it has been negative for all the monitored years. However, the balance of nitrogen and

phosphorus in Estonia is considerably lower than in EU-15. While the EU-15 average balance was 83 kg/ha for nitrogen and 10 kg/ha for phosphorus, in Estonia the highest value has been 41 kg/ha in the case of nitrogen, but mostly lower than 30 kg/ha, and for phosphorus the highest value has been 4 kg/ha, but in half of the cases it has also been negative. The reason for low phosphorus loads in organically farmed land is related to the restriction on the use of mineral fertilisers, and since manure, which is the only form of fertiliser entitled to be applied on organic fields, lacks phosphorus.

The efficiency of using nitrogen has been increasing in 2004-2008 for fields getting area-related aid (from 38% to 75%) and agro-environment payments (from 35% to 79%). However, the efficiency of using nitrogen in organic farming increased between 2004-2006 (from 32% to 89%), but decreased after that period (to about 70%). The efficiency of phosphorus use has been increasing in the fields of area-related aid, but in agro-environment payment fields and organic farming more phosphorus was used than applied as input. The decrease of phosphorus input was caused by the increasing price of fuel, labour and fertilizers.

The monitoring report of 2009 also brings out that the concentration of nitrate ions in most of the monitored fields remained below the allowed limit of 50 mg/l. Although the phosphorus balance was negative or slightly balanced in most of the fields, the concentration of phosphorus exceeded the limit of poor status of water bodies. Leaching of nitrogen in the monitoring period was 3.7-20.3 kg/ha in fields supported under agro-environment measures and 22.5 kg/ha for fields supported by area-related aid. The relevant leaching of phosphorus was 0.22-0.75 kg/ha and 0.75 kg/ha.

In general it can be said that in the period 2004-2008, the requirements set for agricultural support payments are showing results: the chemical load on the environment is decreasing. Use of phosphorus-mineral fertilizers has decreased on farms supported by environmentally friendly measures. As the objective was to decrease the hazard on the environment resulting from excessive nitrogen amount, it can be concluded that agricultural production has become more environmentally friendly during the years. As for phosphorus, the chemical load has been decreasing, but the state of soil fertility is worsening.

There is also a survey conducted among the support receivers. The results indicate that the farmers supported under agro-environment payments and organic farming are more dependent on the support than those getting area-related support. The requirement of keeping 2-5 m of permanent vegetation strip was considered the most difficult requirement of the agro-environment measures to be implemented and controlled. Also the control of using glyphosates is considered rather difficult. In the case of organic farming, the requirement of using organic seed was considered the most difficult to comply with.

The midterm review of the implementation of the RDP by Ernst&Young AS (draft published in November 2010) provides insight into the progress of implementation and also to the perceptions of the stakeholders on it. Regarding water protection, the following issues were highlighted in the report:

- The evaluator stressed a further need for targeted advice, rather than continuing with providing general advice to farmers.
- It is forecast that the RDP funds will be exceeded by the end of the programming period in 2013 due to long-term commitments (e.g. 5 year agreements).
- It is the evaluators' assessment that the agri-environmental measures have contributed to the accomplishment of water and soil protection and biodiversity conservation.

- According to the report the major changes have taken place by the enlargement of the area under organic farming. Fields under organic management have increased from 8% of the managed land in 2007 to 18% in 2009.

5. Discussion on the expected changes into the CAP and RDP

The Estonian Ministry of Agriculture has initiated a rather wide-scale consultation process with stakeholders of the agricultural sector on the future of the Common Agricultural Policy (CAP) and Rural Development Plan 2014-2020. Three bodies supervised by the Ministry – the Monitoring Commission of the RDP, the Network of Rural Development Cooperation and the Council of Rural Development - all conduct stakeholder consultations in parallel. However, the representatives of these bodies largely overlap. The Ministry of Agriculture has not yet (due 5 April 2010) developed an official statement on the Estonian opinion on the CAP+ and RDP 2014-2020, but the draft statements still exist.

According to the draft statements³, Estonia strives to introduce a new definition for “rural area”, favours to expand the list of receivers of payments and subsidies (e.g. to include agricultural producers, foresters, socio-economic infrastructure companies, and young people), to introduce ‘development payments’ to promote competitiveness, innovation and product development, renewable energy producers); to promote environmentally friendly practices and alternative activities in rural areas. Also a proposal for introducing a new pillar – the ‘climate pillar’ has been discussed. At this stage MoA does not foresee any specific changes to be made in the water protection.

However, at the stakeholder meeting in the framework of the Baltic Compass project on 10 November 2010, the participants emphasised the need for integration of RDP subsidies with the activities that support water protection in river basin management plans, including the nitrate vulnerable zone action plan, and perhaps even with the management plans of nature conservation areas since these also address the management of habitats important for water management. The participants agreed that different management plans need to be interlinked and that RDP measures and funding form a fundamental basis for the effective implementation of these measures.

6. Conclusions

Due to the improvement of the economic situation it is expected that the use of fertilizers and plant protection products will rise but will still stay considerably lower than the EU average. The *Estonian Integrated Pollution Prevention and Control Act* is stricter than the EU directive 96/61/EC, which demands integrated permit only in the cases of poultry and pig farming. In Estonia cattle farming is also subject to integrated permit.

³ Presentation by the Chancellor of the Ministry of Agriculture, Mr A. Oopkaup on 9.02.2010

Although the average intensity of Estonian agriculture is quite low, in the last ten years it has concentrated into the areas favourable for production, i.e. on Pandivere and Adavere-Põltsamaa nitrate-vulnerable area. The requirements for farmers in the nitrate-vulnerable area are a little different from the requirements for other farmers.

The monitoring report of RDP Axis II concludes that the requirements set for agricultural support payments are showing results: the chemical load on the environment is decreasing. As the objective is to decrease the hazard on the environment resulting from excessive nitrogen amounts, it can be concluded that agricultural production has become more environmentally friendly over the years. The efficiency of nitrogen use has been increasing for all support types. As for phosphorus, the chemical load has been decreasing, but the state of soil fertility is worsening. The efficiency of phosphorus use has increased for area-related aid, but decreased for environmentally friendly and organic farming due to the lack of phosphorus in manure, which is the only fertiliser allowed to be administered in organic fields.

Further to the review of documents and the meetings with stakeholders, the following issues of implementability of agro-environmental targets have been surfaced:

- The cooperation between different implementing institutions should be improved;
- The advisory service of small and medium agricultural producers should be improved;
- More attention should be paid to more efficient and targeted fertilizer use;
- Special measures should be developed and implemented to develop capacities for the processing and marketing of organic farming production; and
- The requirements of environmentally friendly management support should be reviewed and scrutinised in the next programming period of RDP.

The main agro-environmental targets are covered in the relevant policy documents. However, the implementation of these policies and the coordination between different institutions should be improved. The main areas that need additional attention are the increasing of efficiency of fertilizer use, and the competence of agricultural producers on implementation of agro-environmental measures. The objective to safeguard the Baltic Sea from eutrophication has been identified as an important issue in several policy documents, but due to the lack of an integrated approach it has remained an isolated task of many authorities.

Bibliography

Government, E. (n.d.). Order on the Protection rules of the Pandivere and Adavere-Põltsamaa nitrate vulnerable area (RT I 2003, 10, 49). <https://www.riigiteataja.ee/akt/242635?leiaKehtiv>.
Water Act (RT I 1994, 4. 6. (n.d.).

Environmental Impact Assessment Report of Estonian Rural Development Plan 2007-2013. Compiled by InterAct Projektid & Koolitus OÜ. Tallinn, 2006. 70 pp. [<http://www.agri.ee/mak>]

Estonian Rural Development Plan 2007-2013. Ministry of Agriculture, 2008. 391 pp. [<http://www.agri.ee/mak>]

Overview of RDP 2007-2013 II Axis monitoring research. Agricultural Research Centre, 2010, 277 pp.

Monitoring Report of 2007. Estonian Rural Development Plan 2007-2013. Ministry of Agriculture, 2008, 68 pp. [<http://www.agri.ee/mak>]

Monitoring Report of 2008. Estonian Rural Development Plan 2007-2013. Ministry of Agriculture, 2009, 128 pp. [<http://www.agri.ee/mak>]

Mid-term review of the implementation of Rural Development Plan of Estonia. Draft Nov 2010. Ernst&Young, Tallinn, 281 p.

Nitrate vulnerable area action plan for 2009-2011.
<http://www.envir.ee/orb.aw/class=file/action=preview/id=189508/Estonian+Nitrate+report+PDF.pdf>

Presentation by the Chancellor of the Ministry of Agriculture, Mr A. Oopkaup on 9.02.2010

Presentation by Ms Livi Rooma on the results of environmental monitoring of Axis II of RDP 2007-2013, Agricultural Research Center, 1.06.2010

River basin management plans. Ministry of Environment, <http://www.envir.ee/204372>

SEI Tallinn. 2010. *Priorities of river basin management plans*. Stockholm Environment Institute Tallinn centre. Nov 2010.

Water Act (RT I 1994, 40, 655)
<http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X50046K4&keel=en&pg=1&ptyyp=AT&tyyp=X&query=03>