HELCOM BALTIC SEA ACTION PLAN

BACKGROUND DOCUMENT ON FINANCING AND COST EFFICIENCY

CASE: EUTROPHICATION

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1. BACKGROUND

For the purpose of developing The HELCOM Baltic Sea Action Plan the Ad Hoc Task Force, which was established early 2006 with representatives of all countries bordering the Baltic Sea, invited Nordic Environment Finance Corporation (NEFCO), an international finance institution specialized in the financing of projects with a positive environmental impact, to assist the Ad Hoc Task Force in matters concerning economy and financing.

The Terms of Reference for the Ad Hoc Task Force underline the need for a holistic ecosystem approach to the development of the action plan based on four pillars, eutrophication, biodiversity and nature conservation, hazardous substances and maritime activities.

The Minutes of the First Meeting of the Ad Hoc Task Force, 25-26 April, 2006, states that a cost-benefit analysis of the implementation of the HELCOM Baltic Sea Action Plan is crucial and that the analysis should include the assessment of

- the value of the Baltic Sea Environment
- the cost of non-action
- the cost-benefit of measures.

As Sweden and Finland currently are in the process of carrying out in depth studies on the value of the Baltic Sea and the cost of non-action these subjects are not discussed in this background paper on financing and cost efficiency.

1.1 ECONOMIC ANALYSIS OF THE BALTIC SEA ACTION PLAN WITH FOCUS ON EUTROPHICATION

By joint effort and financing, HELCOM and NEFCO procured through competition among well reputed consulting companies within the HELCOM countries an economic analysis of the Baltic Sea Action Plan with focus on eutrophication. After tender evaluation the task was given to Cowi Consult, Denmark, who in April 2007, presented their final report. This section shall be seen as a summary of the work carried out by the Consultant.

The target was to analyse the cost effectiveness of alternative actions to improve the state of the Baltic Sea, with the aim of achieving the improvement at the least possible cost for the Baltic Sea region, as well as to make a qualitative assessment of the potential benefits to society of improving the ecological status of the Baltic Sea.

The analysis concludes that the total costs of the reduction of **135 000 ton N** and **15 250 ton P** of the average nutrient emission level 1997-2003, which according to the HELCOM's analysis (Wulff 2007/MARE/BNI) will be needed to reach the set Secchi depth target, for eutrophication alone roughly can be estimated at around **€3 billion** based on the assumption of efforts towards WWT, agriculture and NOx emissions from shipping.

The focus for the analysis is on comparison of unit abatement costs, i.e. the cost per unit nutrient reduced input to the Baltic Sea, by calculating the cost effectiveness of alternative actions and scenarios presented by HELCOM.

The unit cost effectiveness in the Baltic Sea for the following actions have been assessed:

1) Improved waste water treatment systems
2) P-free detergents
3) Measures towards agriculture

Change of land use

i) Conversion of agricultural land into grassland
ii) Construction of wetlands
iii) Introduction of catch crops

Changes in agricultural practices

i) Reduced livestock
ii) Reduced fertilizer use
iii) Improved manure handling

4) Measures towards atmospheric emissions

i) NOx reductions from energy production
ii) Selective catalytic reduction (SCR) on heavy vehicles
iii) Selective catalytic reduction (SCR) on ships

Based on the above analysis the following conclusions were reached:

- Reduction of discharges from wastewater by increased and improved wastewater treatment is very relevant, but the cost-effectiveness is highly dependent on the population densities in the areas presently without treatment. In the cities relatively close to the Baltic Sea this seems like an obvious measure that may reduce both N and P loads emitted to the Baltic Sea. A ban on phosphates in detergents seems a very cost-effective alternative to reduce discharge of P, especially in countries with low initial level of WWT. However, this only has an impact on P, for which reason improved WWT may be preferred over such a ban.

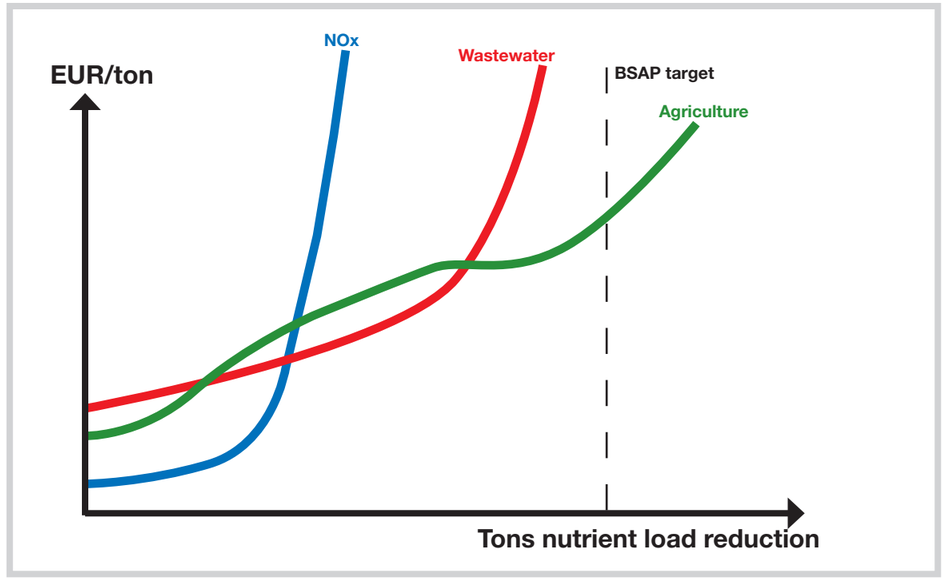
- Within the agricultural sector there are cost-effective alternatives - or supplements to measures targeting wastewater. The cost-effectiveness differs among the countries, primarily due to the differences in the initial level of fertilizer use. In general, catch crops and reduced fertilizer use are deemed to be relatively cost-effective measures, especially in countries with a high initial level of fertilizer use. However, the total nutrient reduction potential from these measures may be rather limited. In countries without manure storage facilities, it is likely to be a cost-effective measure, especially in areas where livestock production is expected to increase in the future.

- Reduction of N from land-based emissions of NOx may be an alternative, but the impacts on the Baltic Sea from such actions would be rather insignificant resulting in poor cost-effectiveness. Reduction of land-based emissions, however, will have substantial impact on the local environment and the health of the population. To this end, such measures may be very relevant for other purposes, and the positive impact on the Baltic Sea in terms of reduced N loads can be viewed as a positive side effect.

- Reduction of N from shipping by SCR appears to be a very cost-effective measure towards N loads in the Baltic Sea. It is cheap and with the forecasted sharp increase in shipping, this is highly relevant. However, it should be mentioned that a substantial part of shipping in the Baltic Sea originates from other countries rendering regulatory actions a more complex matter. *Unquote*

The above conclusions are reflected in Figure 1 below where the UAC and the estimated potential for reduction of nutrients of the various scenarios are shown towards the calculated Baltic Sea Action Plan target for maximum nutrient load to the Baltic Proper.

Figure 1: Illustrative cost-effectiveness curves



It should be noted that the analysis and calculation of the UAC for wastewater did not include the possibility of adding chemical flocculation as a step in the future for increasing the removal of P in the waste water from 80% to 90%, which is a low cost alternative for reduction of P from waste water as compared with tertiary treatment (which includes N-removal) and which is the basis for the calculations.

According to HELCOM (Wulff 2007/MARE/BNI) full implementation of the EU UWWT Directive/ HELCOM Recommendations would still require that an additional amount of 8 100 tons of P and 77 600 tons of N need to be reduced to reach the Baltic Sea Action Plan target for the Baltic Proper. The fulfilment of existing requirements for sewage treatment would for the Baltic proper reduce the load by approx. 3 200 tons P in HELCOM countries, i.e. almost one third of the required load reduction for P, and 12 500 tons of N.

The proposed draft Recommendations on stricter requirements for waste water treatment would decrease phosphorus load from HELCOM countries by 6700 tons which means an additional 2 000 tons compared with the existing HELCOM Recommendations/EU UWWT directive for the whole Baltic Sea.

Summary conclusion:
The most cost efficient investments are within agriculture, followed by nutrient removal in WWTP increased form 80% to 90%.

1.1.1 CEA - A TOOL FOR FINDING THE ENVIRONMENTALLY MOST COST EFFICIENT INVESTMENT

As the cost of bringing the Baltic Sea Proper to good water quality is expected to be much larger than the financial resources available in the foreseeable future, and the competition for scarce money resources is high between several needing sectors, the importance and need is obvious of

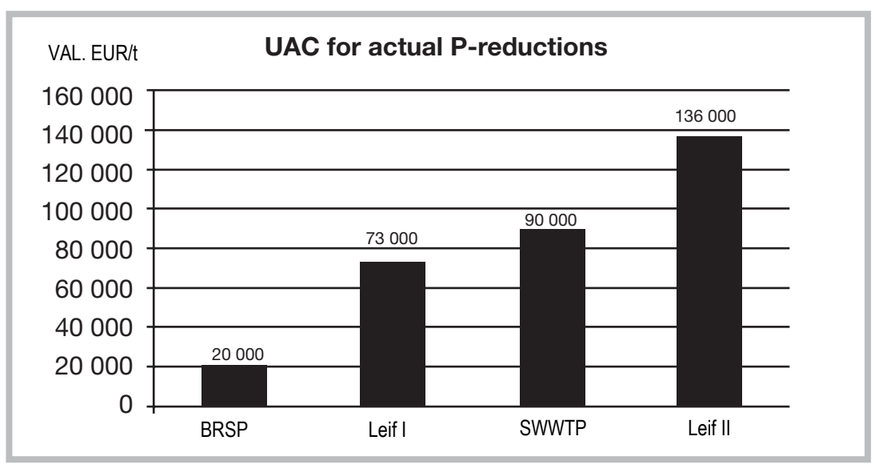
first identifying and implementing the investments which have the largest positive environmental impact on the Baltic Sea and to delay those with a lower environmental impact. A tool for selection of the environmentally most cost efficient investment is required in order to establish a transparent and logical basis for environmental investment decisions and to facilitate for the decision makers within ministries of environment the possibility of meeting political pressure to base environmental investment decisions on other less sustainable criteria.

A cost-effectiveness analysis (CEA) seeks to find the best alternative activity, process, or intervention that minimises use of resources to achieve the desired result. An ex-ante CEA is performed when the objectives of the public policy have been identified and an analyst or an agency has to find the least cost-option of achieving these objectives. An ex-post CEA addresses the question in how far objectives have been achieved, and at what cost. In either case, the cost-effectiveness of a policy option – or an investment – is calculated by dividing the annualised costs of the option by a quantified measure of the physical effect, such as animal or plant species recovered, tons of emissions of a given pollutant reduced, kilometres of river length restored, etc.

- Only by use of the CEA methodology for careful calculation of the unit abatement cost (UAC) thereby taking operational costs and technical life time into consideration, allowing comparison, will it be possible to be certain that the most polluting spots are remedied first – as the smaller the environmental impact the higher the cost per unit reduced;
- By only comparing the total investment cost – there is a risk that investments having only marginal impact are chosen first – thereby risking to postpone for many years the environmentally more cost efficient ones;
- By applying CEA and using UAC as one of the key factors for selecting the priority investments transparency is created in the selection process, the objective for the investment - concern for the environment – is highlighted, and may be made visible to the public.

In Figure 2 below UAC values for phosphorus reduction from projects performed hitherto with NEFCO participation are presented. In the figure projects within municipal waste water treatment, and agriculture (Baltic Sea Regional Project) in the Baltic countries and in St. Petersburg area are compared with the corresponding UAC:s in the Nordic countries (ref). As can be seen the UAC for projects on the Eastern and Southern side of the Baltic Sea are over10 times more cost-effective than the equivalent Nordic projects. All values are mean values except for the St. Petersburg South Western WWTP.

Figure 2: UAC for actual P-reductions



Conclusion:
As a standard requirement the UAC should be calculated for all projects which are expected to lead to quantifiable emission reductions.

1.1.2 NUTRIENT BALANCE - A TOOL FOR SUSTAINABLE FARMING

Nutrients arrive on the livestock farm (inputs) in the form of feed, fertilizer, animals, or nitrogen fixed by legumes. The objective is that these nutrients also leave the farm as marketed products (outputs) such as animals or crops. Any imbalance between input and managed outputs will either be 1) added to soil reserves (adding to future environmental risks) or 2) lost directly to the environment.

Excess nitrogen will be lost to the air as ammonia or to surface and ground water as nitrate or ammonium. Excess phosphorus is commonly stored in the soil contributing to soil phosphorus level in excess of agricultural requirements. A high soil phosphorus level increases the potential for phosphorus movement to surface waters contributing to eutrophication.

Understanding the nutrient balance at the individual farm level as well as the sources of nutrient inputs is critical to identifying a nutrient management strategy for reducing an imbalance and achieving an environmentally balanced operation.

This balance calculates the nutrients that cross the border of the farm. Nutrients circulated within the farm are not of concern. For example, home grown crops fed to animals raised on your farm are not considered as they do not cross the border of the farm. By recording the nutrients that enter or exit the farm, the calculated resulting balance defines the degree of concentration of nutrients within the borders of the farm.

By careful analysis of the remaining soil content (incl. roots and harvest remnants) and comparison with differences between inputs and outputs, a picture on nutrient leakage is obtained.
By a large scale implementation of nutrient balance calculations at farm level, combined with external measures such as protective zones, sediment ponds etc, the possibility of reaching a balanced agricultural production in the future is substantially improved. UAC for actual P-reductions

Since the early 90'ties support and training has been provided by bilateral Nordic donors to the Baltic countries, Poland, Leningrad and Kaliningrad Oblasts for establishment of agricultural advisory services being capable of giving training courses to farmers in calculation of nutrient balances and implementation of Good Agricultural Practice. This has also been one of the key elements within the Baltic Sea Regional Program, where participation in such training was put as one of the main conditions for obtaining financing for on-farm investments. Please, see also Figure 2 regarding the UAC for on farm investments within the BSRP.

Conclusion:
Calculation of nutrient balance at the farm level is the only cost efficient tool for monitoring of the farm's emission of nutrients to the outside environment.

1.2 DRIVING FACTORS FOR DEVELOPMENT OF THE BALTIC SEA REGION

Undoubtedly the key driving factors for the development of the Baltic Sea region during the last decades have been the fall of the Soviet Union, the development of new independent states and the subsequent expansion of the European Union.

The political changes fuelled the economic growth in the region and at the same time increased the pressure on the Baltic Sea and its ecological status, a process which is still ongoing. In order to stop the deterioration of the ecological status of the Baltic Sea there is a need for substantial changes to attitudes, policies, legislation and national priorities in the countries surrounding the Baltic Sea.

1.2.1 FUTURE DEVELOPMENT SCENARIOS

According to Cowi, Economic Analysis of the Baltic Sea Action Plan, 2007, the following expected changes in the future will impact the ecological situation of the Baltic Sea:

"25 million people currently live along the coast line of the Baltic Sea. Immediately behind the coast line another 250 million are living. This leads to a growing pressure towards the big coastal cities with an associated pressure on the services provided by the Baltic Sea.

"Forecasts by the World Tourism Organization indicate that the Baltic Sea region will experience higher growth rates in tourism compared with other regions. Coastal and marine areas are popular destinations for tourists. Therefore, it is important to keep these areas attractive, by protecting the nature and the ecosystems upon which many tourist-based activities depend.

"From 2004 to 2006, the number of passengers on sea cruises to cities in the Baltic Sea region grew about 28%. The growth rates in the region are higher than the growth rates of other cruise markets.

"Coastal and marine ecosystems provide society with different environmental services (e.g. carbon uptake from the atmosphere and denitrification processes). The chemical composition of the atmosphere is maintained through a series of biogeochemical processes, which are regulated by marine living organisms. Changes in the marine ecosystem can have an effect on these processes, thereby changing the carbon and nutrient recycling functions of the sea. (Comment: It would be difficult even to imagine the high costs for replacing the natural denitrification process.)

"Economic development continues to increase production and consumption placing further pressure on the exploitation of the land and the volumes of contaminated wastewater. The tendency of migration towards the coastal areas implies that human nutrient discharges and emissions, in general, will be placed closer to the coast with better opportunities of reaching the Baltic Sea.
"Especially important is the development of the agricultural sector. The use of fertilizer is expected to increase by 25–30% in EU8 (Estonia, Latvia, Lithuania, Poland, the Czech Republic, the Slovak Republic, Hungary and Slovenia) in the coming 10 years. And by 2020 the nutrient surpluses in these countries are expected to have increased by 63% for N and by 84% for P compared to today's situation.

"Production of livestock, especially pigs, in the Eastern part of the area is also expected to increase substantially. The pig meat production in EU8 is expected to increase by 70% by 2015.
Lately, farmers and companies from Western Europe have invested heavily in pig meat production in Eastern Europe. If these activities continue their upward trend, the increase in pig meat production may be even larger for some countries.

The impact of the EU directives once fully implemented will be a strong force against the growing pressure on the Baltic Sea. According to the calculations made by HELCOM (Wulff 2007/MARE/BNI), the implementation of the specific EU Directives will however not be enough to for reaching good environmental status of the Baltic Proper as defined within the Baltic Sea Action Plan.

However, the Water Framework Directive, which requires the achievement of good ecological status for inland and coastal waters by 2016 is also expected to have a substantially positive impact on the status of the Baltic Sea.

Conclusion:
The economic development of the Baltic Sea region have created and will continue to create increasing pressure on the environmental standard of the Baltic Sea to such an extent that not even full implementation of current EU legislation will be sufficient to turn the Baltic Sea around to good environmental standard, even if implementation of the Water Framework Directive will have a substantially positive impact.

1.2.2 HELCOM JCP

One of the most visible early driving factors for the improvement of the ecological situation of the Baltic Sea was the HELCOM Joint Comprehensive Environmental Action Programme for the Baltic Sea (JCP), which was launched in 1992. The approach was to identify the major point sources of pollution and to mobilise foreign financing by bringing together donor agencies and international financing institutions. 132 Hot Spots were identified and the total cost for remediation was estimated at €18 billion.

In 2002 €410 million had been spent on 46 Hot Spots, and today half of the hot spots have been deleted - resulting from investment as well as from closing down of old and outdated industrial plants. The estimated cost for deletion of the remaining Hot Spots in 1999 was € 7.5 billion.
The total cost estimate of the JCP is now substantially lower than originally estimated due to several of the Hot Spots simply having been closed down. Completion of the JCP is aimed at 2012 when all the remaining Hot Spots shall have been deleted.

The JCP was however focused on the situation existing at the time of identification of the Hot Spots and did not aim at taking future economic and industrial development into consideration. Even if successfully implemented and completed the programme therefore proved to be insufficient for curbing and turning the ecological deterioration of the Baltic Sea.

Conclusion:
The completion of the JCP as intended should be given high priority.

1.2.3 EU and FINANCIAL INSTRUMENTS

The expansion of the EU in 2004 already in the mid nineties started fuelling the development of legislation in the candidate countries and consequently also investment priorities, which were dominated by the eligibility criteria, application forms and investment policies related to the financial contributions of the EU before as well as after accession.

For Poland and the Baltic states the pre accession financial instruments of EU were the PHARE (institutional support through twinning, economic and social cohesion), the ISPA (Instrument for Structural Policies for Pre-Accession) and the SAPARD (Special Pre Accession Programme for Agriculture and Rural Development). After accession the STRUCTURAL Funds including the COHESION Fund, which first objective is to promote structural adjustment, were made available also to the Baltic states and to Poland. Upon accession to EU the PHARE support program is being phased out.

The Structural Funds (ERDF - Regional Development Fund), ESF - Social fund, FIFG - Fishery Fund, EAGG - Agricultural Guidance and Guarantee Fun), including the Cohesion Fund, which are intended to help the new members catch up with their wealthier neighbours, represent approx. 4% of the GDP, which is almost double the size of the pre-accession assistance. To qualify for support from the Cohesion Fund, which is targeted towards large scale infrastructure investments within the environmental and transport sectors only, the size of the investment should for environment be minimum € 25 million and for transport minimum € 50 million. For these funds EU's share of support may cover up to 80-85% of the eligible investment costs. EU expects that at least half of the funds shall be allocated for environmental investments for implementation of the EU Directives[1] to meet agreed time schedules.

In order to reach the minimum investment size bundling of smaller investments is recommended, and has at times created administrative complications for the applicants.

The technique of four-five year programming of the EU funds applies, requiring elaboration of overall investment policies and sector priorities as a basis for programming and funding application for individual projects. At present the first programming period for the Structural Funds including the Cohesion Fund has come to its end, and the programming for the second programming period, 2007 - 2012, has recently been prepared and approved.

As from the second programming period also the cross border cooperation programs and the territorial cooperation programs are put under the umbrella of the Structural Funds. One such major programme covering the entire Baltic Sea region, **the Baltic Sea Programme**, is proposed to include environmental actions on a transnational level. The program will be managed by 11 countries in the Baltic Sea region including Russia and Belarus, which are co-financed by the **European Neighborhood and Partnership Instrument (ENPI).**[2]

TACIS - EU's programme for Technical Aid to the Commonwealth of Independent States - was launched in 1991. In 2006 the TACIS programme was formally closed for the Russian Federation as it was replaced by ENPI.

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1) inter alia EU Directives on Nitrate, Urban Waste Water Treatment, Drinking Water, Water Framework, Solid Waste Landfill, Hazardous Waste

2) Land and Sea: More cooperation less eutrophication, 19-20 April 2007, Saltsjo baden, Stockholm, Ministry of Agriculture, Food and Fisheries, Ministry of the Environment, Sweden

ENPI has been designed to target sustainable development and approximation to EU policies and standards - supporting the agreed priorities in the ENP Action Plans (as well as the Strategic Partnership with Russia, which was previously also covered by the TACIS programme).

The main focus will be on **country programmes,** supporting partners' implementation of their own political, governance, economic and social reform programmes. Countries which have concluded an Action Plan and made progress in its implementation will receive substantial funding.

The ENPI budget estimate for the country programmes for the 4-year period 2007-2010 is for Russia € 120 million and for Belarus € 20 million. Overall planning for the financial cooperation between EU and Russia under ENPI for the budget period 2007-2013 will be based on an agreed country strategy paper for the whole period and a national indicative program for 2007-2010.

The second main focus is **regional co-operation** activities. In addition, **cross-border cooperation** will be supported, involving cooperation between local and regional authorities on both sides of the EU's external border. Funding by ENPI will be matched by an equivalent amount from the European Regional Development Fund. As announced in the Commission's recent Communication on "Strengthening the European Neighborhood Policy", a substantial part of the fund will be used during the 2007-2010 period to support governance and to promote investment, through two new facilities (Governance Facility and a Neighborhood Investment Fund).

The Northern Dimension in the external and cross-border policies of the European Union reflects the EU's relations with Russia (and particularly North-west Russia) in the Baltic Sea region and Arctic Sea region. The Northern Dimension addresses the specific challenges and opportunities arising in those regions and aims to strengthen dialogue and cooperation between the EU and its member states, the northern countries associated with the EU under the EEA (Norway and Iceland) and the Russian Federation. The Northern Dimension is implemented within the framework of the Partnership and Cooperation Agreement with Russia.

Where financial support at the EU level is required, the Northern Dimension draws on existing EU financial instruments.

The Northern Dimension aims at addressing the special regional development challenges of northern Europe. These include environmental challenges including problems with nuclear waste and waste water management.

The Northern Dimension Environmental Partnership, NDEP, is an innovative cooperative effort responding to calls from the Russian Federation and the international community for a concerted effort to tackle some of the most pressing environmental problems in north-west Russia.

Through its pipeline of projects in water, wastewater, solid waste, energy efficiency and nuclear waste management, the NDEP is helping to deliver real benefits to the environment – and the people – in the Northern Dimension Area extending from the Baltic Sea to the Arctic Barents Sea region.

The NDEP provides a strong international framework, backed by adequate financial resources, for governments, international financial institutions, private investors, Russian authorities and all concerned to work together in bringing solutions to the region's long-standing environmental problems. To this end, the NDEP gathers, for the first time, the expertise and resources of the European Commission, the Russian Federation, EBRD, EIB, NIB and the World Bank in designing and implementing its pipeline of projects, as well as NEFCO which recently was invited to join the NDEP.

At the end of 2006 the **NDEP Support Fund** had received totally € 242.1 million in contributions from 12 donors, including the Nordic countries, Germany, Russia and EU, of which € 92.4 million non-earmarked for the Nuclear window. 15 environmental investment projects had been identified with an estimated aggregated investment cost of more than € 2 billion, including waste water treatment in St. Petersburg (North and Southwest) and in Kaliningrad.

Lead implementation assignments have so far been allocated to EBRD and NIB.

1.2.4 BILATERAL SUPPORT

Bilateral support granted to the Baltic countries, Poland and North-Western Russia were instrumental for the investments and institutional development within the environmental sector after the fall of the Soviet Union. With the expansion of the EU in 2004 the bilateral support for the new EU members was substantially reduced as the EU funds available for the new member countries were several times larger than before the accession.

The bilateral support for North-Western Russia continued and Ukraine became a new target country in 2005 for environmental investments. With the improving economy of Russia, the bilateral support from the Nordic countries is also expected to slowly being phased out.

The bilateral funds made available to Russia have this far to a limited extent been utilized for investments. The most successful investment project in the environmental sector this far in Russia, has been the South Western Waste Water Treatment Plant, which was implemented during 2005 - 2006 at the total cost of € 193.6 million.

1.2.5 LONG-TERM LOANS

The main sources of long-term loan financing for environmental projects in the Baltic countries and also to a certain extent in Poland were during the 90ties the international finance institutions, the World Bank, EBRD, NIB, NEFCO and later also EIB (European Investment Bank). After the accession to EU the Baltic countries and Poland have informed the World bank that they are no longer in need of their financing, and EBRD has changed focus away from the public sector in these countries.

The main source of long-term loan financing for environmental investments in Poland is the National Environmental Protection Fund, which also provides grant contributions for the Polish investment projects. After the EU accession NEFCO closed for new investments in Poland, but operations in the Baltic states continue for the time being. NIB and EIB are both actively investing in Poland, but focus is more on the transport and energy sectors than on the municipal infrastructure sector.

The commercial banking sector is now functioning very well in all the new EU member states. Municipalities will normally arrange a tender for financing of the larger investments, and local commercial banks are often able to submit the most attractive financing proposals. This is also partly due to EIB providing funding for environmental investments through local banks.

Long-term loans for large investment projects in Russia are not yet available from local banks. The IFIs are all actively involved in assessing possible investment projects i.a. in the field of environment in Russia, but the disbursement rate is fairly slow for reasons, which are discussed in chapter 1.3.

Conclusion:
i) Grant financing for environmental investments is available from several of the EU programs for EU members as well as for EU neighbors, however of smaller scale than for the members.
ii) Bilateral aid is only to a very limited extent available for the new EU-members and to a limited extent for N-W Russia, for which the largest aid component for environmental projects is channelled through the NDEP Support Fund.
iii) Long-term loan financing is readily available for viable investment projects in all EU-member states. For investment projects in Russia long-term loans may be obtained from the IFIs (international finance institutions - such as WB, EBRD, EIB, NIB, NEFCO).

1.3 CRITICAL FACTORS

Despite the fact that the favourable economic expectations of the EU-8 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia) are considered having been fulfilled, and the new Member States have undertaken extensive reforms to modernise and now are dynamic market economies[3] effective absorption of the structural funds have posed and still pose serious challenges to the new member states. These challenges reflect both the magnitude of the funds and the strict and often complex requirements for their utilization.

With the large inflow of funds from EU to the new member states, the positive economic development in all HELCOM member countries, and the now well functioning banking sector in the Baltic countries and Poland, new problems have emerged, which create complications for the efficient implementation of already planned investments as well as for the development of new projects.

Despite tremendous input of work and successful implementation of a large number of investment projects in particular within the municipal infrastructure in the Baltic Sea drainage basin, there is still a large backlog in the implementation of investment projects for which financing has already been arranged.

There are several critical factors which contribute to the delay in implementation of investments:

- The launching of a number of large investment programs in a fairly small geographical area during a fairly short time period in parallel with strong economic growth has lead to high demand for the same resources creating pressure on the limited capacity in the construction sector;
- Limited availability of qualified human resources required for efficient, high quality preparation, coordination, supervision and implementation of projects;
- The overheating within the construction sector has lead to steeply increasing costs for goods and services needed for the investments;
- The projects' time schedules have been too optimistic - having as a consequence that the budgets need to be revised and new approvals must be obtained. A vicious circle may easily be the result - causing severe delays and backlogs in investments.

In addition to the capacity and price problems local funding required for the investments has become an increasing burden on the municipal and state budgets, even if EUs grants cover as much as 85% of the eligible investment costs.

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3) European Economy, Occasional Paper no. 24, May 2006, Enlargement, two years after: an economic evaluation by the Bureau of European Policy Advisers and the DG for Economic and Financial affairs, EC

It is imperative that projects are based on local needs and ownership, why the role of the central authorities' should be limited to safeguarding that national priorities are kept and that professionalism prevails in procurement and project implementation.

One of the most important tools for securing local ownership of projects is the requirement of local financial contribution. EU and other donors therefore normally require that the recipient state contribute a minimum percentage of the financing, and the central authorities require that the municipality or public utility contribute a part of the local financing by means of budget contribution or by taking a long-term loan. For EU financed projects the mix is normally 50-85% EU grant, 10-40% state budget and 5-15% local contribution.

At the moment when most of the large scale investments required for fulfilment of the EU Directives either are ready or are in the pipeline for implementation and completion, budgetary planning has started for the implementation of projects in smaller settlements. The issue of local financing needs and the several small municipalities' limited human resource base and economic capacity caused by a weak income basis and restrictions on public borrowing, are among the factors which now threaten to cause serious delays in the agreed timetables for implementation of the EU Directives.

According to the working paper "Environmental Projects Financed by the EU Funds, Selected Experiences and Challenges", by Joanna Fiedler and Eniko Artim (June 2006) the following issues will be the key challenges for new member states in the future:

"Allocating resources for environment
Ensuring a proper share for environmental projects will be a challenge for the future programming period as there are no set ratios for environmental priorities in the case of the Cohesion Fund. Several environmental activities are eligible for Cohesion Fund support, including those in the newly added categories of energy and sustainable transport. It falls to the member states to select national priorities. Due to the extended scale of activities, stronger competition between sector priorities is expected for the available resources.

"Additional capacities for project preparation and management
The bigger financial envelope requires larger and more skilled staff at both the national and regional levels. Decentralized management demands better communication between all levels as well as flexible and fast decision making. With the new funding period, 2007-2012, new regulations are expected and changes in procedures and institutional setups are foreseen. This assumes the need to train public authorities and beneficiaries. Additionally, Cohesion Fund projects costing less than EUR 25 million in environment or EUR 50 million in transport sector will be fully managed in-country, which creates a need for additional administration capacities.

Conclusions:
For the efficient implementation of already planned investments as well as for the development of new projects i a the following new problems have emerged:
i) lack of local financing due i.a. to restrictions on municipalities' borrowing capacity;
ii) overheating of the construction sector;
iii) large backlog of already approved projects
iv) human resource base for project preparation and management too small

1.3.1 PREPARATION CAPACITY

The changing and increasing number of financing instruments being made available for environmental investments have lead to increasing needs for project preparation competence and capacity both at a central government and local level. Necessity to comply with the large number of rules and regulations governing the various financial instruments has made project development and formulation complicated and application for financing an art which consultants are offering to assist with at high costs.

Lack of ability to move projects from one stage to another is often caused by lack of understanding of the rules, fear of doing a mistake and nowhere to turn to get advise.

Due to the complexity of environmental projects for development of improved municipal infrastructure such investments are both time consuming and challenging to prepare, often requiring specialised skills by consulting engineers, which may often be difficult to find locally. It would therefore be important that additional training and support is offered to the recipient countries to develop good environmental investment projects - applying the methodology of CEA, calculating the UAC.

Within the agricultural sector lack of capacity also seems to be the most limiting factor together with the issue of creditworthiness of individual farmers. It is important for the farmers that they receive good guidance and advise in preparation of applications for financing, and that such guidance is readily available. The human resources of the agricultural advisory services should be strengthened both by number and by training. Calculation of nutrient balances before as well as annually after project implementation should be obligatory to receive financial support. Assistance for such calculations should be provided at low cost by the advisory services to individual farmers.

The issues hampering investments in the new EU member states are also valid for Russia, where additional problems and delays are caused by the large number of permits required, by uncertainty with regard to who are authorized to pass decisions and also by uncertainty with regard to institutional and governance structures, including uncertainty with regard to the possibility for public utility companies to recover costs for investments, operation and maintenance from service tariffs.

Conclusions:
i) Decentralisation of project planning has increased the need for training of project planners and managers;
ii) The restructuring of the agricultural sector and the large number of farms put a tremendous pressure on the agricultural advisory services, which need both more and better trained "trainers"
iii) Bureaucracy should be looked into with the aim of simplifying procedures and avoiding unnecessary burdens and complications for project planning and implementation.

1.3.2 PLANNING

While national programs have been developed for programming of funds, it has frequently been difficult to find the connection between the project selection and the sector priorities. This may be caused by the general character of the programs and little or no guidance for selection among projects. Without a transparent, systematic approach in setting priorities among projects there is a risk that the cost of reaching the goals for the investments will be much higher than necessary.

In the field of municipal waste water treatment calculation of the unit abatement cost is one such transparent tool for safeguarding that the cheapest project is selected first. In the agricultural sector the nutrient balance should be calculated and when environmental investments are concerned the UAC for possible leaches be calculated, in order to safeguard that the investment cost is at a comparatively reasonable level.

Conclusion:
Whenever possible the UAC should be calculated and compared with other similar projects to safeguard transparent project selection within the program, and least cost solutions.

1.3.3 LACK OF FUNDING

For EU members lack of funding is not the biggest problem, even if counterpart financing seems to become an increasing problem with the implementation of the EU's directives concerning water supply and waste water treatment in smaller agglomerations. In parallel with the strong economic growth in the Baltic Sea region imbalances have been created in the economies causing galloping inflation and risk of excessive borrowing within the municipal sector. The need for municipal reform which for several years has been discussed is still pendant. A large number of the small municipalities are consequently weak financially as well as administratively.

For Russia the key to foreign funding for public sector investments still remains with the development of the institutional side, as stability and predictability for utilities and companies are preconditions for good and sustainable investments. Uncertainty increases the perceived risk thereby reducing the availability of long-term financing. The viability of investments in municipal infrastructure is normally based on the investor's ability to recover over time its own costs through adjustment of tariffs as and when required. Assessment of the reliability of the investor's future income generation is the basis for the financiers' risk assessment and final decision regarding financial contributions - grants as well as loans. Such an approach aims at safeguarding that money will be available not only for debt service, but also for operation, maintenance and replacement of the installations over time. In addition the polluter pays principle is maintained - and water consumption is normally substantially reduced.

Discussions have been ongoing regarding the pros and cons of private involvement in the water and waste water sector, either through full privatisation, public-private ownership or through long-term management contracts with private operators. By now no simple straight forward conclusions may be drawn with regard to efficiency gains related to the various solutions, except that exposure to fair and reasonable competition is healthy for any organisation and is likely to create substantial efficiency gains. It is also clear that the private sector is able and willing to bring additional financial resources to the sector.

As the need for investment in expansion and quality improvement of water supply and waste water treatment is substantially larger than what is and within foreseeable future will be available from the public sector, it might be worth while to investigate further if alternative ownership and management models could attract additional capital and competent human resources to the sector, and thereby have a substantial impact on the pace and number of investments being implemented.

Lack of environmental investments in the industrial sector is normally caused by the attention being paid to the product quality and the marketing rather than to the production process - in particular if input prices are low and enforcement of regulations are weak. It is important that natural resources are priced according to the true cost to society and that national requirements are set so that investments are channelled towards improvement of the production process itself with a view to the whole product chain.

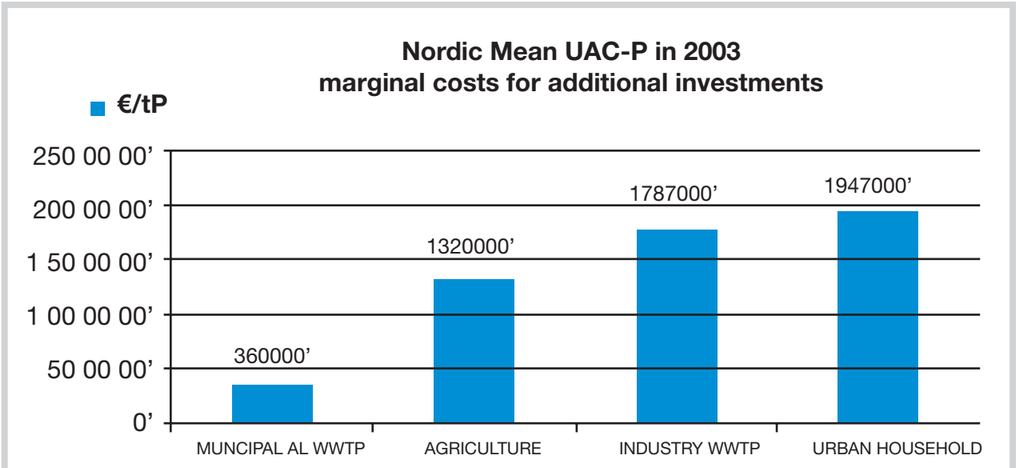
The food industry - in particular large animal farms - are substantial contributors to the eutrophication of the Baltic Sea due to lack of adequate production facilities, manure handling, offal disposal and treatment, as well as no or inadequate waste water treatment. This is in particular the case in Russia, but may also be found in other countries in the Baltic Sea region, despite the IPPC Directive.

Conclusion:
i) Very small municipalities increase the problem of local financing and often lead to projects which are unable to recover their own costs;
ii) In Russia the institutional side still need to be developed as stability and predictability for utilities and companies are preconditions for good and sustainable investments. This is important for public utility companies, which should have sufficient income to cover their costs of operation, maintenance and debt service in order to attract financing;
iii) The private sector is able and willing to bring additional financial resources to the environmental sector;
iv) National requirements and prices for natural resources should be such that industry pays attention to improvement of the production process, which would be particularly important for the large animal farms and other similar food industry.

2. COST EFFECTIVENESS OF SELECTED ACTIONS - EUTROPHICATION

The actions proposed within the Baltic Sea Action Plan for reduction of the eutrophication of the Baltic Sea concern enhanced reduction of nutrients in the waste water - before and after treatment in a waste water treatment plant, as well as reduction of run off from agriculture within the Baltic Sea drainage area. In order to visualize the cost efficiency of investments in which NEFCO has participated as well as of selected projects currently under preparation as compared with similar projects in the Nordic region please find below Figures 3 and 4.

Figure 3

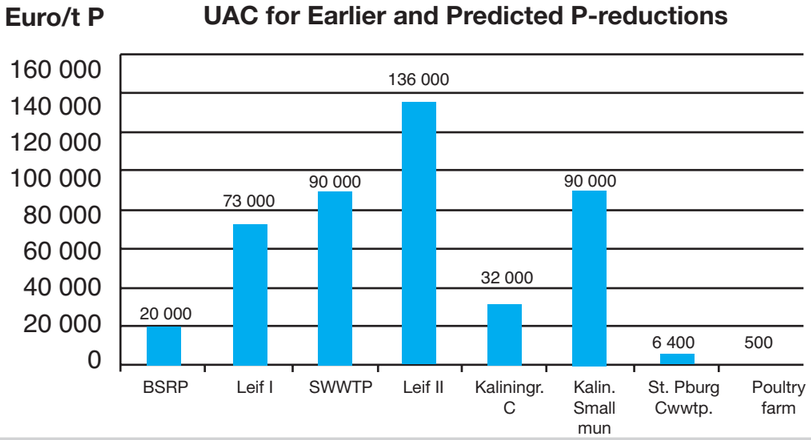


Source: Swedish EPA report 5289, 2003.

Figure 3 above shows that in 2003 the actual average UAC for P in the Nordic countries for additional investments in agriculture and municipal, industrial and urban household waste water treatment was between € 360 000 and € 1.95 million.

Figure 4 below shows that the UAC for P in the period 2000 - 2007 in projects in which NEFCO has participated is in the range of € 20 000 for agriculture and € 73 000 - € 136 000 for small to large scale municipal waste water treatment. In addition Figure 4 shows that the estimated UAC for P for selected projects currently under preparation are extremely cost efficient, and therefore ought to be implemented without delay.

Figure 4



All data in the four leftmost bars in Figure 4 are mean values except for the St. Petersburg SWWWTP. The values in the four rightmost bars are based on information obtained from various consultant reports on planned projects and projects under implementation.

Conclusion:
Based on the calculations of UAC in implemented investment projects where NEFCO has been involved in the financing as compared with the cost level for similar actions in the Nordic region all projects with a UAC below € 150 000 /t P reduced ought to be implemented as soon as possible.

2.1 BANNING OF P IN WASHING AND DISH WASHING DETERGENTS

The costs connected with banning of P in washing and dishwashing detergents are discussed in the report, Economic analysis of the Baltic Sea Action Plan with Focus on Eutrophication, prepared by Cowi May 2007. The financing of such a change of products is expected to be put on the product and in the end will be paid for by the consumers. To the extent new and more expensive technology for production of P free detergents will be needed, it is important that reasonable financing terms and conditions will be available to the industry.

As an example it can be mentioned that NEFCO has successfully participated in the financing by means of equity and loans at market conditions for industrial companies which have taken the risk of early introduction in new markets of cleaner products - thereby aiming at outscoring the cheaper but environmentally polluting products readily available in the relevant markets. Through such methods it will however take 10 -15 years to push out completely the old products unless legislation contributes to the change to the newer generation of cleaner products.

Conclusion:
From a financial point of view the cost of banning P in washing and dish washing detergents is negligible. The ban would possibly even create incentives to new technical innovations thereby UAC for Earlier and Predicted P-reductions potentially having a positive economic impact.

2.2 REDUCTION OF P IN WWTP OF >10 000 PE INCREASED TO 90%

From the HELCOM (Wulff 2007/MARE/BNI) calculations for the Baltic Sea Action Plan it may be seen that increased WWTP efficiency from 80% to 90% P removal would mean about 2 000 t additional removal of P/a.

Assuming that this reduction was done using chemical precipitation using iron sulfate, which would lead to a content of P of max 0.8 mg/l treated waste water, the cost of investments would be very limited. Provided that a normally functioning WWTP with a separate step for biological treatment (as required by the UWW Directive of EU) the only installations required would be equipment for dosing in order to achieve so called simultaneous precipitation. The cost for such equipment would be approx. € 10 000 per WWTP (the size of the plant has little impact on the cost). The costs for the iron sulfate, which is not expensive, would increase the total cost of operation of the water company by 1%-3% only.

In order to be able to channel financing also to a large number of the smaller communities clustering or programming will be necessary in order to attract EU funding and to safeguard cost efficient project preparation, procurement and implementation. Only by streamlining and simplifying the project approach will it be possible to meet the time schedule agreed with the EC for full implementation of the EU directives.

The projects LEIF I and II referred to in Figure 4 are good examples of cost efficient WWTP investment in a large number of small towns and settlements where the methodology of clustering and streamlining has been applied in project preparation, procurement, financing and implementation. Through LEIF I long-term loan financing was provided by LEIF (Latvian Environmental Investment Fund) and NEFCO in co-financing with state contributions and bilateral and EU PHARE grant financing for 10 small municipalities (10 000 pe) in Latvia. Through LEIF II long-term loan financing by LEIF and bridge financing of grant contributions from the Regional Development Fund by NEFCO has been made available for renewal of the WWT system in small agglomerations (200-2000 pe) in 26 municipalities in Latvia.

Conclusion:
i) Increase of P removal in WWTP of 10 000 pe and more from 80% to 90% is highly cost efficient.
ii) For cost efficiency of WW treatment in smaller settlements project preparation and implementation need to be streamlined and clustered for financing.

2.3 REDUCTION OF RUN OFF FROM AGRICULTURE - POINT SOURCES AND NON POINT SOURCES

There is a significant difference between the larger point sources such as large animal farms and other farms. Larger animal farms should have the human and financial resources to implement necessary actions and should be subject to legislation for industry, such as the IPPC Directive for EU member states.

As the agricultural sector is considered the largest non point source of eutrophication of the Baltic Sea, change of production methods and practices by farmers are keys to reduce the run off in addition to other remedies proposed in the chapter on eutrophication.

In addition to information and training, it is important to assist the farmers in developing so called “bankable” investment projects for implementation of GAP (Good Agricultural Practices). By integrating the environmental aspects and applying nutrient balance calculations in the farm’s development and business plans, the foundation for preparing bankable projects is created.

The revenue stream from the overall operation of the farm is normally the basis for the financial viability of any investment in need of loan financing, in particular if the investment itself is considered too expensive to pay itself back through the improved earnings generated by the investment. This is usually the case with environmental investments, which often require a very long-time to pay itself back. Therefore integration of environmental investments into the overall business development plans at the farm level is essential.

The use of nutrient balance calculations will also allow monitoring of the farm's impact on the surrounding environment.

Through the BSRP (Baltic Sea Regional Project) which is included in Figure 4 above, long-term loan financing and short term bridge financing for grants approved by the Structural Fund, were provided by NEFCO for 23 farms in the Baltic states during 2005–06, based on a standardized project preparation and financing application forms.

The first comprehensive bundled investment project within the sector of agriculture was carried out in Poland in the beginning of the century, when totally € 15.9 million were used for construction of standard design manure tanks and manure pads as well as training in GAP for 950 farms which were specialized in live stock production and were located in areas particularly sensitive to pollution. The financing was contributed as grants from the National Fund for Environmental Protection and Water Management, GEF (the Global Environmental Facility/World Bank), NMF (Nordic Environmental Development Fund/NEFCO), EU PHARE, the Polish state and own contributions by farmers.

Conclusions:
i) Large animal farms are point sources which should be subject to legislation for industry.
ii) change of production methods and practices by farmers are keys to reduce the run off from agriculture, the largest non point source of eutrophication of the Baltic Sea
iii)Farmers need training in nutrient balance calculations and assistance for development of environmental projects, which must be part of the overall business plan for the farm to be bankable
iv) Bundling and streamlining are useful tools for cost efficient investments also for the agricultural sector.

2.4 IDENTIFIED COST EFFECTIVE MEASURES AND PROJECTS IN RUSSIA

Three highly cost efficient project areas in Russia have been identified, and are briefly described. These are Kaliningrad city WWTP, Kaliningrad small municipalities' ww project (10 000 - 20 000 pe), finalization of the St Petersburg WWT plants, and large poultry farms in Leningrad oblast.

Kaliningrad
Within the small municipalities' waste water project preliminary estimates for municipalities producing 5000 m3 waste water/d suggest an investment cost of 700 €/m3/d. An additional 30% for improved N and P removal is considered. This gives an estimated investment need of € 4.55 million or € 589 000 annual investment cost (5%, 10 years capital recovery). The estimated P reduction would be 5.84 t/a, giving a UAC of €100 000/t P.

The corresponding needs for a 10 000 m3/d municipality is € 550/m3/d. Including the 30% additional cost for N and P reduction to 80%, suggest an investment need of € 7.15 million or € 925 000 annual investment cost. The P reduction would be 11.7 t/a per treatment unit giving a UAC of € 79 000/t P.

With an estimated cost of € 500/m3/d for the WWTP for Kaliningrad city, which has about 375 000 pe, the investment need would be € 42 million. With an 80% P-removal the annual investment cost would be € 7 million and the P-removal 219 t/a giving a UAC value of € 32 000/t P removed. Thus investing in the WWTP for Kaliningrad city would be one of the most cost efficient objects around the Baltic Sea for nutrient reduction.

St. Petersburg
For the Central Waste Water Treatment Plant the investment cost for additional removal of 357 t P/a (decrease of outgoing concentration of 1.7 mg/L to 1 mg/L) using chemical flocculation, was about € 2 million plus annual operation and maintenance costs of approx. € 2 million. This gives an annual total cost of € 2.23 million (investment cost € 230 000 + O&M) and a UAC of about € 6400/t P removed.

Increased P-removal using chemical flocculation is also planned at other treatment plants in St. Petersburg. The Northern Collector Project, which currently is under preparation, will allow for almost all of the municipal wastewater in the city to be treated.

Large Poultry Farms - an example
In this example the farm in Leningrad Oblast produces 200 t manure/d with a P-content of about 1 t, which means an annual uncontrolled P production of 365 tons. An investment of € 1.3 million for incineration of the manure gives a UAC of only € 462/t for removal and management of 365 t P/a. In addition the incineration produces renewable energy for heating purposes. In the Leningrad oblast about 4000 t P are produced annually from poultry farms. The major part of this phosphorus has the potential to pollute the surrounding environment including the Gulf of Finland and waterways connected with the Gulf of Finland. It is clear that efficient treatment by incineration of the chicken manure where possible stands out as the most cost-effective way to remove phosphorus emissions in the Russian part of the Gulf of Finland.

Conclusion
i) To chemically treat all waste water from the town of St Petersburg is extremely cost efficient and worthwhile, as can also be seen from the UAC calculation for the Central WWTP;
ii) Investment in WWTP in Kaliningrad is also highly cost efficient;
iii) Investment in manure handling and management at large poultry farms is highly cost efficient;
iv) From these projects the total potential reduction of P going to the Baltic Sea, ultimately impacting also the Baltic Proper, is approx. 2600 t/a.

2.5 NEW FINANCING INITIATIVES

2.5.1 Joint activities

There is a large potential to reduce nutrient inputs in a cost effective way by addressing totally untreated and inadequately treated waste waters from municipalities as well as agriculture in both Contracting Parties and non-Contracting Parties, in particular in Belarus.

These sources could be addressed by initiating joint activities e.g. by bi- and/or multilateral projects and through other existing funding mechanisms. There is also a growing interest of private companies and non-profit foundations to provide funds for the protection of the Baltic Sea on a voluntary basis and several projects have already been implemented; such as the chemical phosphorus removal project in the central waste water treatment plant in St. Petersburg.

It would be worthwhile to jointly identify and list cost effective projects for reduction of P with a UAC (unit abatement cost) below € 150 000 per ton which could be addressed by initiating joint initiatives in the Baltic Sea catchment area in cooperation with governments, IFIs, non-profit foundations and private companies.

However, in order to target environmental projects in a cost effective way there is still a need for better information at plant level on discharges and emissions, i.e. on how much individual projects have reduced discharges and at what cost. Results of the reporting to HELCOM PLC-5 on plant level information on reduction rates and used technology as well as other information should be utilised.

2.5.2 Possible trading systems

In order to look into the possibility of attracting also private capital for nutrient reduction a new financing mechanism based on a quota trading system is being evaluated. This is currently under assessment and the result of the work will be presented by late Autumn 2007 in a report prepared by the consultant assigned to the task.

A trading system shall be seen as an optional additional tool for financing for the future in case the situation of the Baltic Sea continues to deteriorate despite the measures taken. However, if it is to be an optional tool within the foreseeable future development work needs to be started now, as the necessary planning and testing will take several years in order for a trading system to be sufficiently developed for larger scale use.

2.6 CONCLUSIONS AND RECOMMENDATIONS

The proposed actions within the Baltic Sea Action Plan for reduction of eutrophication seem to be highly cost efficient.

In NEFCO's experience all projects with a UAC (unit abatement cost) for reduction of P which is below € 150 000 per ton reduced ought to be implemented as soon as possible.

Based on current information the level indicated by HELCOM (Wulff 2007/MARE/BNI) to meet the objective for eutrophication would be met if all these investments were implemented together with relevant EU Directives.

Particularly cost efficient projects for P reduction are

- large animal farms;
- addition of chemical treatment using iron sulphate in existing WWTP;
- construction of the planned WWTP in Kaliningrad city as well as
- construction of WWTP in other municipalities in Kaliningrad Oblast.

Comprehensive financial resources are being directed to environmental investments in particular within the new EU countries through sector programmes. The main sources of funding are state budgets and EU's structural funds including the Cohesion Fund, which are made available to the new EU members for implementation of relevant EU directives. Also non EU members benefit from grant financing from EU through the neighbourhood program. In addition bilateral sources and the NDEP fund are offering grant financing for high priority environmental projects in Russia.

For projects with a reasonably predictable revenue stream long-term co-financing is available from commercial banks as well as from the international finance institutions (IFIs) at fairly attractive terms and conditions provided that security, such as guarantees and/or collateral may be provided.

The main bottlenecks for efficient implementation of already approved projects and development of new ones seem to be

- lack of local funding due to limited economic capacity in particular of small municipalities;
- constrained human resources for project preparation and management;
- price hikes due to overheating of the construction sector;
- unnecessary bureaucracy caused by lack of coordination and communication among; authorities; and
- in Russia the institutional side, which still need to be developed, as stability and predictability for utilities and companies are preconditions for good and sustainable investments. This is particularly important for public utility companies, which should have sufficient income to cover their own operational and capital costs in order to attract financing.

The above mentioned bottlenecks often lead to other sectors with larger and less complicated project structure being given priority in the final project selection stage.

In order to speed up and increase investments within municipal infrastructure for waste water treatment and within the agricultural sector, including environmental investments in large animal farms we recommend the following actions:

- Additional resources for training for project preparation and implementation
- Additional support for training and advise for farmers
- Training of central and regional environmental authorities for PROACTIVITY in project development and SUPPORT to applicants
- Information seminars for commercial banks regarding UAC calculation in environmental projects
- Increased focus on the dialogue with Russia concerning institutional development in particular with a view to creating more bankable projects within
    - o municipal infrastructure such as water supply and waste water treatment,
    - o food industry such as large animal farms and
    - o other industry for cleaner production processes

To urgently start the actions required to enhance investments leading to reduce eutrophication of the Baltic Sea a so called pledging conference could prove to be useful - this time pledging not only money resources, but also pledging to give priority to solving the above mentioned bottlenecks through concrete actions and within an agreed time frame.

LITHUANIA

A) Financial programmes available for investment projects within the BSAP:

Programme	Amount	Period
1) Lithuanian National Budget - Financing Environmental Policy (State + municipal budget allocations)	**€ 248.85 million** (3.6% of national budget)	**2007 >**
State budget	€ 199.09 million	2007
Municipal budgets	€ 49.76 million	2007
Lithuanian National Budget - Financing Environmental Policy *) (State + municipal budget allocations)	**€ 432.26 million** (4.9% of national budget)	**2008 >**
State budget	€ 366.24 million	2008
Municipal budgets	€ 66.02 million	2008

*)Planned

Sources of external funding:

		2007-2013
Cohesion Fund - environment (EU + national cofunding)	€ 974.9 million	
Fund for Regional Development (EU + national cofunding)	€ 180.2 million	

Allocations:

Waste water collection and treatment	**€ 457.4 million**	**2007-2013**
2) EEA and the Norwegian Financial Mechanism (For institutional strengthening, approval pending)	**€ 2.2 million**	**2004-2009**
3) Programme for Rural Development (PRD)		**2007-2013**
Implementation of the Nitrate Directive	€ 90million	

B) Funds allocated to investments related to water and sewage up to 2006:

Programme	Amount	Period
1) Cohesion Fund (incl. national co-financing)	**€ 447.8 million**	**2004 -2006**
2) European Regional Development Fund (incl. national co-financing) (for settlements with less than 500 PE)	**€ 7.6 million**	**2004-2006**
3)Development and improvement of other infrastructure related to environment (waste management)	**€ 158 million**	**2004-2006**
4) Private resources, commercial bank and IFI loans	**€ 38.0 million**	

C) Time Schedule for Implementation of the Urban Waste Water Directive:

End 2005	84 % of the load	87 agglomerations
End 2007	95 % of the load	93 agglomerations
End 2009	100 % of the load	95 agglomerations

Total cost approx. € 750 million of which approx. € 400million for sewage system

(Source: Ministry of the Environment of the Republic of Lithuania, November 2007)

D) Other facts about Lithuania

Key words:
Macroeconomic conditions are largely sound, although rapid growth of credit, fuelled to large extent by foreign borrowing by banks, is a concern, especially in view of banks' high exposure to an overheated property market.

Real GDP growth is expected to rise from 7.5% in 2006 to 7.8% in 2007, before slowing to 6.9% in 2008.

Social contributions are high - employers pay social security contributions at 31% of salary and employees pay a further 3%. Increasing pressure on the state pension system following the introduction of private pension funds means that the rate is unlikely to be lowered during the forecast period.

Although unemployment is still high in some parts of the country, the current rapid economic growth is leading to labour shortages in some sectors. Wage growth has accelerated recently as the labour market has tightened.

Infrastructure risk in Lithuania is moderate. The road system is well developed and maintained, although still poor by West European standards. The telecoms system is fairly well developed. Along with Latvia and Poland, Lithuania has tended to lag behind the other new EU members in terms of internet provision and accessibility. The supply of electricity is reliable and the cost relatively low. Lithuania has not experienced any difficulties with gas supply from Russia, although gas prices are rising.

(Source: Economist Intelligence Unit, Country Risk Briefing, November 06, 2007)

POLAND

A) Financial programmes available for investment projects within the BSAP:

Programme	Amount	Period
1) Operational Programme Infrastructure and Environment (OPIE)	**€ 37.57 billion**	**2007–2013**
Sources of funding for OPIE:		
EU Cohesion Fund (of which 50% should be used for environmental purposes and the rest for transport)	€ 22.18 billion	
EU Fund for Regional Development	€ 5.73 billion	
National public resources (budget, National Env. Fund)	€ 7.37 billion	
Private resources (commercial bank and IFI loans)	€ 2.28 billion	
Allocations:		
Water and sewage management for agglomerations above 15,000 and for15,000–2,000	€ 3.3 billion	
2) Improvement of Competitiveness of Enterprises		**2004–2006**
of which **Sewage and water management**	€ 197.29 million	
(This programme, including the priority of sewage and water management, adjusting enterprises to the requirements of environmental protection, will continue under the Structural Funds 2007–2013)		
Sources of funding:		
EU Fund for Regional Development	€ 147.97 million	
National Fund for Env. Protection and Water Management	€ 49.32 million	
3) EEA and the Norwegian Financial Mechanism	**€ 533.51 million**	**2004–2009**
Environment is one of the priority areas—shall support the EU processes		
4) ECOFUND—Polish Debt for Environment Swap	**$ 570 million**	**1992–2009**
Priorities i.a. Baltic Sea—water supply and waste water treatment 15,000–100,000 pe The largest contributor is the USA. Sweden's participation ended 2003. Norway also participates.		
5) Programme for Rural Development (PRD)	**€ 17.218 billion**	**2007–2013**
of which Agri-environmental programmes (Natura 2000 payments and Water Framework Directive payments)	€ 2.303 billion	

B) Funds allocated to investments related to water and sewage up to 2006:

Programme	Amount	Period
1) Restructuring and modernisation of food sector and rural development		**2004–2006**
Development of and improvement of infrastructure related to agriculture	€ 28.5 million	
of which sewage disposal and treatment facilities	€ 1.26 million (4.4%)	
2) Water Protection and Water Management and Supply	**€ 1.14 billion**	**1995–2006**
Sources of funding: National Fund for Env.—grants and loan financing		
3) Investments in the wastewater sector on the Polish coast	**€ 669 million**	**1996–2010**
(coastal provinces: Zachodniopomorskie, Pomorskie, Warmisko-mazurskie) of which loans € 149.45 million , national grants € 11.46 million, EU funds € 510 million		
4) Funds for Agriculture:		
Rural Development Plan (RDP)	**€ 3 592.4 million**	**2004–2006**
of which		
Agri-environmental initiatives and animal welfare	€ 208.7million	
Creation of buffer zones	€ 45.2 thousand	
Protection of soil and water	€ 99.7 million	

C) Time Schedule for Implementation of the Urban Waste Water Directive:

End 2005	69% of the load	674 agglomerations
End 2010	86% of the load	1,069 agglomerations
End 2013	91% of the load	1,165 agglomerations
End 2015	100% of the load	1,577 agglomerations

Total cost € 11.16 billion of which € 8.4 billion is for 37,000 km sewage system

(Sources: Ministry of Agriculture and Rural Development, the Ministry of Environment, the National Fund for Environmental Protection and Water Management of the Republic of Poland, November 2007)

D) Other facts about Poland

Key words:
Strong economic growth in 2006 (GDP +6.1%)—public debt rising because of pension reform
Budget deficit should be brought down to safeguard macroeconomic stability
The constitution limits foreign debt to max 60% of GDP
Worries about inflation
Difficulty to meet Maastricht budget deficit criterion likely to delay entry into EMU (ERM likely 2009 at the earliest)
High unemployment and high level of emigration
Banking sector functioning well
Telephone network requires considerable investment, mobile telephony growing but low by EU standards
Road network congested and inadequate, rail network in need of reform and modernisation

(Source: Economist Intelligence Unit, Country Risk Briefing, August 15, 2007)