

NDEP promotes co-operation between Russia, the EC, donor governments and international financial institutions to raise funds for priority environmental investments.

### What are the challenges for NDEP?

#### Environmental

The Baltic and Barents Seas are especially sensitive to environmental degradation due to low temperatures and the Baltic Sea in particular, has low salinity and shallow waters.

The Baltic Sea ecosystem is threatened by eutrophication, which leads to the spread of marine dead zones. Excessive amounts of phosphorous and nitrogen from poorly treated wastewater and agricultural waste cause excessive growth of algae in the sea waters. Decomposing algae consumes all the oxygen in the water, producing dead zones in which living organisms cannot survive. Since the 1900s the Baltic Sea has changed from a clear water sea into a green marine environment full of noxious algal growth.

NDEP projects will help to reverse this process. Other challenges concerning low energy efficiency, poor management of municipal and agricultural waste, which add to the pollution in the region, are also included in the NDEP programme.



#### Nuclear

Spent nuclear fuel and radioactive waste generated by the Russian Northern Fleet have resulted in a large legacy of dangerous environmental hazards in the area around the White and Barents seas. The NDEP Strategic Master Plan has identified and prioritised the most important projects required to reduce the environmental hazards.

The legacy nuclear submarines have now been largely dealt with, their spent nuclear fuel (SNF) has been removed, the submarines dismantled and the reactor compartment units sent for safe interim storage at Sayda Bay in the Kola Peninsula. However, substantial legacy issues remain at the coastal technical bases (Andreeva Bay and Gremikha) which supported the submarine operations, where large quantities of SNF and radioactive waste are stored in poor conditions. There are also two vessels remaining afloat with significant challenges regarding their safe defuelling and dismantling, the Papa class submarine reactors and the Lepse support ship containing SNF discharged from other vessels.

Andreeva Bay contains by far the largest nuclear inventory; approximately 22,000 fuel assemblies are kept in inappropriate storage conditions. At Gremikha on the Kola Peninsula, some of the SNF has been removed but a legacy of nine Alfa class submarine reactor cores remains.

### Environmental Benefits of NDEP projects

Once implemented, the current portfolio of NDEP projects will deliver the following pollution reductions to the Baltic and Barents Seas area in tonnes per annum (t/a):

- Phosphorous by 2,300 t/a (HELCOM target for Russia is 2,500 t/a and for Belarus 1,740 t/a)
- Nitrogen by 7,600 t/a (HELCOM target for Russia is 6,970 t/a and for Belarus 29,756 t/a)
- Biochemical Oxygen Demand (BOD) by 34,600 t/a
- CO<sub>2</sub> by 318,500 t/a

To achieve similar nutrient reductions in any of the Nordic countries, the investment cost would be three to five times higher.



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Photos courtesy of Holger Kleinschmitt, Ewa Manik, EBRD, Kaliningrad, Sergey Ivanov, Evgeny Kondakov, Ballona, Patrick Raatsberg/NEFCO



The Northern Dimension Environmental Partnership (NDEP) is a result-focused partnership responding to calls for concerted action to tackle the most pressing environmental problems in the Northern Dimension Area, including the risks caused by radioactive waste.

### Who started NDEP?

The concept of NDEP was developed during the Finnish Presidency of the European Union in 1999 and stems from the EU's Northern Dimension Action Plan. Under the Swedish EU Presidency in 2001, a Steering Group comprising the international financial institutions (IFIs) active in the region, the European Commission and Russia was set up to prepare a strategy and project pipeline to address the ecological problems in the Northern Dimension Area. Of particular concern was the nuclear legacy of the Russian Northern Fleet, as well as poor wastewater treatment, lack of energy efficiency and solid waste management in the north-west of Russia, including Kaliningrad.

The work of NDEP was further endorsed in November 2006 when the European Union, Russia, Iceland and Norway signed a declaration for a permanent Northern Dimension policy. The ND partners consider NDEP a very effective model for combining financing for environmental investment.

### What is the purpose of NDEP?

For environmental projects, NDEP grants are intended to complement the loan funding from IFIs and help to leverage extra local and international resources. The grants offer an incentive for environmental projects that may not otherwise be financially viable.

For nuclear projects, NDEP grants are designed to fully cover the investment costs. Nuclear projects are developed in close cooperation with the Russian authorities and Russian and international experts.

### How does the Fund work?

The **Assembly of Contributors** is the main governing body of NDEP responsible for the overall NDEP programme. It convenes annually and makes decisions on grant allocations from the NDEP Support Fund.

The **Steering Group** is the driving force behind the development of environmental projects. It is made up of the IFIs: the European Bank for Reconstruction and Development (EBRD), the Nordic Investment Bank (NIB), the European Investment Bank (EIB), the Nordic Environment Finance Corporation (NEFCO) and the World Bank. The European Commission and Russia are also members of the Group. The **Nuclear Operating Committee** serves the same function regarding the nuclear project pipeline.

The NDEP Support Fund, managed by the EBRD, has so far received contributions from the European Commission and 12 donor governments, including Russia and Belarus. At the end of 2010, the resources of the Fund reached about €308 million, with €159 million earmarked for the nuclear window and €149 million for environmental projects.



# The Northern Dimension Environmental Partnership

10 years of successful cooperation for a cleaner and safer environment in northern Europe



## NDEP is helping to achieve HELCOM targets for the Baltic Sea



in an official ceremony attended by the Russian and Finnish presidents, the Swedish prime minister and the governor of St Petersburg. This €194 million investment, co-financed by a €5.8 million NDEP grant, helped to raise the city's capacity for wastewater treatment to 85 per cent.

The €563 million **Neva Programme** supported by a €24 million NDEP grant will further cut the amount of direct discharges into the Gulf of Finland. Once completed, St Petersburg will achieve full compliance with the EU and HELCOM standards and will treat 98 per cent of its wastewater.

**St Petersburg** has been the focus of NDEP since the start. In 2005 the first NDEP co-financed project, **Southwest Wastewater Treatment Plant (SWTP)**, was inaugurated

NDEP investments in St Petersburg will result in phosphorous reduction of 1,270 tonnes per year



NDEP grant of €10 million is helping to construct a much needed **wastewater treatment plant in Kaliningrad**. The investment is co-financed by €56 million Russian funds and a €11.5 million grant from the Swedish International Development Cooperation Agency (Sida). The construction should be completed by 2012. Until then Kaliningrad, a city of 400,000, remains an environmental hotspot discharging wastewater directly into the Baltic Sea without any biological or chemical treatment.

NDEP investment in Kaliningrad will result in phosphorous reduction of 137 tonnes per year

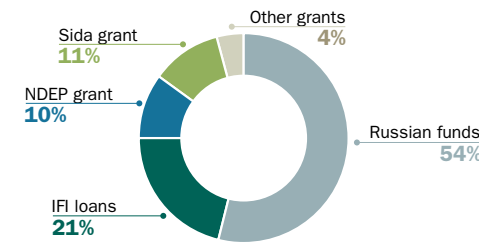


Almost half of the territory of **Belarus** lies in the Baltic Sea basin area. Most of the pollution from Belarus comes from its transboundary rivers: Bug flowing through Poland, Daugava which discharges into Latvia and Nemunas which empties into Lithuania. Since Belarus joined NDEP in 2009, three wastewater treatment projects have been prepared for **Vitebsk, Grodno and Brest** to be supported by a €6 million NDEP grant. The three cities have been identified by HELCOM as major sources of transboundary pollution.

NDEP investments in Belarus will result in phosphorous reduction of 336 tonnes per year

## NDEP environmental projects

In the non-nuclear window, NDEP provides grants that are tied with IFI loans. The selected projects for NDEP co-financing need to have a strong commitment of national funds. The financing structure of the Kaliningrad Water and Wastewater Rehabilitation project, totalling €110 million, exemplifies a typical structure of an NDEP project (see chart below).



At the end of 2010, 23 priority projects, totalling over €3.3 billion in investments, have been included in the NDEP work programme. Once implemented, the projects will lead to substantial environmental improvements benefiting north-west Russia and northern Belarus with significant cross border impacts on neighbouring areas.

NDEP environmental projects include:

- the Southwest Wastewater Treatment Plant in St Petersburg, substantially reducing the effluent load into the Gulf of Finland and the Baltic Sea (completed in 2005)
- the Northern Sludge Incinerator to deal with sludge disposal problems in the city of St Petersburg (completed in 2007)
- completing the Northern Tunnel Collector to eliminate the remaining points of direct discharges of wastewater into the St Petersburg Neva River
- completing the St Petersburg Flood Protection Barrier, to protect the low-lying city and its residents from damaging floods
- upgrading district heating systems in Kaliningrad and Vologda, to reduce energy losses, improve energy efficiency and safeguard the local environment
- improving municipal water and wastewater services in Kaliningrad, Leningrad oblast, Novgorod, Sosnovy Bor, Pskov, Petrozavodsk to reduce nutrient load and eutrophication in the Baltic Sea

- improving water and wastewater services in the city of Murmansk, Archangelsk, Komi Republic and Vologda for the benefit of the Barents Sea region
- improving solid waste management in Petrozavodsk and dealing with agricultural waste in Leningrad oblast
- modernizing wastewater treatment facilities in northern Belarus (Vitebsk, Grodno and Brest) to reduce the trans-boundary impacts on Poland, Latvia and Lithuania – and ultimately the Baltic Sea.

The full list of NDEP projects is available at [www.ndep.org](http://www.ndep.org).

## NDEP nuclear projects

The NDEP Strategic Master Plan (SMP) is a comprehensive nuclear legacy decommissioning programme that is supported by a Strategic Environmental Assessment. Russia has adopted the SMP as the basis for the management of the whole nuclear legacy programme in north-west Russia.

In accordance with the SMP, the Assembly has approved funding for ten priority projects in the nuclear window. Three of these projects have now been completed:

- Feasibility studies for the removal and safe storage of spent nuclear fuel and radioactive waste from the open storage area in Gremikhka.
- Improvement of the physical protection of the Gremikhka site.



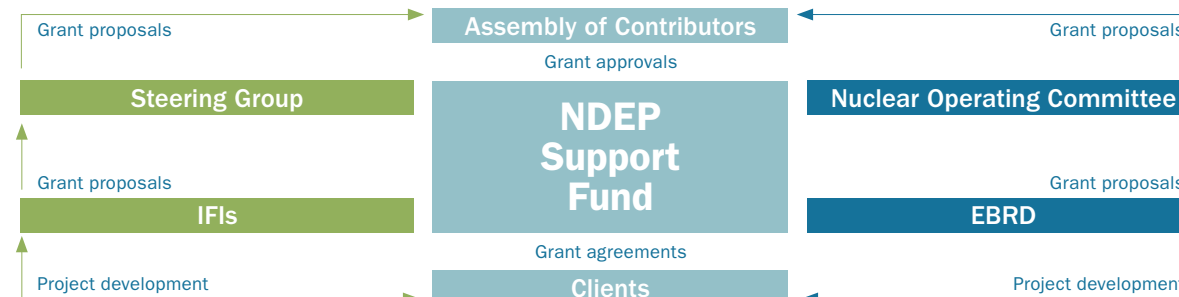
- Enhancement of the radiation monitoring and emergency response system in the Murmansk region.

The following projects are in progress:

- Decommissioning of the Floating Maintenance Base "Lepse" currently moored in Murmansk. The strategy is for the Lepse to be transferred to Nerpa shipyard and the SNF removed in an on-shore Shelter complex.
- Lepse Regulatory Support project. This will ensure that the Russian regulators can effectively supervise the innovative solutions to the decommissioning project.
- Decommissioning of the pond storage facility for spent fuel at Andreeva Bay. The building has been surveyed and repairs have been made to ensure its safety for the next 15 years when radioactive waste management facilities will be available in the area.
- Spent nuclear fuel management at Andreeva Bay. The strategy is to recover the SNF, repackage and transport it to Mayak. The project will provide the required SNF management infrastructure to enable the safe and secure removal of SNF from the site.
- Defuelling of Papa-class nuclear-powered submarine reactors. The SNF will be removed from the reactors using specialised defuelling equipment and safely stored on land.
- Creation of safe conditions for the storage of spent reactor cores from Alfa-class nuclear submarines. The strategy is for these reactor cores to be removed from Gremikhka in special casks to NIAR, Dmitrovgrad, for interim storage.
- Enhancement of the radiation monitoring and emergency response system in the Archangelsk region.

## NDEP Support Fund in 2011

Environmental		Nuclear
€44m	European Union	€40m
€40m	Russia	€40m
€25.9m	France	€40m
	Sweden	
	UK	€25.5m
€10m	Canada	€20m
€16m	Germany	€10m
€2.1m	Finland	€2m
€10m	Norway	€10m
€1m	Denmark	€1m
	Netherlands	€10m
	Belarus	
	Belgium	€0.5m
€149m		€159m
€308m		



## Other NDEP projects in progress



Syktyvkar Municipal Water/Wastewater Services	
Objective	Upgrading water and wastewater facilities to reduce direct discharges to the Baltic and Barents Seas
IFI	EBRD
NDEP grant	€6.04 million
Total cost	€31.8 million



Sosnovy Bor Water/Wastewater Rehabilitation	
Objective	Improving water and wastewater facilities to reduce nutrient load to the Baltic Sea
Lead IFI	NEFCO
NDEP grant	€0.5 million
Total cost	€3.3 million



Novgorod Water/Wastewater Rehabilitation	
Objective	Upgrading water and wastewater facilities to reduce direct discharges to the Baltic Sea
Lead IFI	NIB
NDEP grant	€3 million
Total cost	€23 million



Kaliningrad District Heating Rehabilitation	
Objective	Modernisation of district heating infrastructure to reduce energy consumption and CO <sub>2</sub> emissions
Lead IFI	EBRD
NDEP grant	€7.3 million
Total cost	€21.8 million