



**JSC Norilsk Mining Company,
in the Arctic city of Norilsk**

**The implementation
of cleaner production, eco-efficiency
and environmental management
systems in the production units
and management**

**Open Joint Stock Company MMC Norilsk
Nickel**

- Is the world's largest producer of nickel and palladium and one of the largest producers of platinum.
- Market share: 10% of cobalt and 3% of copper production worldwide.
- JSC Norilsk Nickel is one of the leaders in the national economy. The share of Norilsk Nickel in the Russian GDP is 1.9 %, and 2.8 % in the industrial output of the Russian Federation, that is 27.9 % of the non-ferrous industry.

Preface

The Polar branch of JSC Norilsk Nickel Mining & Metallurgical Company (NNPB) is an enterprise that has a strong impact on the Arctic environment.

The company management has shown great concern in solving the whole complex of environmental issues

In October 2001 the ACAP Steering Committee decided to support by partial funding the above project, as proposed by the Norwegian-Russian Cleaner Production Programme (RNCPC). The project commenced in January 2002, as a demonstration project on the environmental and economic effectiveness following the Norwegian Cleaner Production Model.

During 2002-2004 the Russian-Norwegian Cleaner Production Centre, with financial support from the ACAP and from the Enterprise, and based on a signed agreement with the company, executed 3 Cleaner Production training Programmes in the NNPB.

Three training programmes have since been carried out in Norilsk, of which one has been funded by grants from ACAP members, while the two others have been funded by the Enterprise itself.

- **The first Programme** provided a basis for extending and adjusting the methodology of Cleaner Production to the specific conditions of the Enterprise and trying out relevant organizational arrangements in support of the CP activities.
- **The second and third Programmes** were arranged for high level experts, which became possible due to careful selection of specialists and support of the company administration.

The Programmes were carried out with in selected units of the Enterprise responsible for mining, beneficiation, sintering, metallurgy, electrolysis, transportation, building, maintenance, design and management.

Results

74 company engineers have been trained and certified as Cleaner Production Advisers

274 economically feasible environmental improvement projects have been developed

87 projects have been implemented with the funding by the NNPB Enterprise.

Total investment of 6,5 mln. USD

Annual economic return of 6,8 mln. USD

The environmental effects of the project are similarly massive

Environmental effects per year:

Reduction in fresh water consumption	> 80 mln m ³
Reduction in technological water consumption	> 1 600 thou m ³
Decrease in waste discharge	> 3 600 thou m ³
Reduction in dumping on the terrain	> 2 800 mln m ³
Economy of natural gas	> 180 mln m ³
Economy of electric power	> 180 kWh
Economy of thermal energy	> 1500 Gcal
Economy of diesel oil	> 3800 tn
Reduction of solid waste generation	> 5 000 thou tn
Reduction emissions into air	> 1 500 thou tn

The projects developed by participants of CP Programmes are divided into three groups:

Group A: projects that need small investments with fast realization;

Group B: projects that need medium investments for realization;

Group C: projects with a long term perspective and that need a large-scale investments for realization. Implementation of the group A projects under the third programme is to be completed by the end of 2004.

To support the implementation of high investment projects resulting from the CP programmes, the Enterprise introduced “step by step” principle and gave priority to the implementation of economically significant low investment projects resulting from the CP programme.

Based on the results of the first two Programmes the administration of the Enterprise has adopted a resolution by which:

bonuses were awarded to specialists who developed the most effective project

heads of the units are obliged to implement the cleaner production programmes proposed by the trainees.

The effectiveness of the third Program, convincing and well-substantiated reports by the trainees, as well as technically and economically competent proposals and presentation slides have received high assessment and approval of the top management.

Based on the outcome of the Cleaner production Programme implementation, an agreement has been made with the management of the Norilsk Nickel Enterprise on the intention to carry out a 4th CP programme in the autumn of 2004.

The main conclusion drawn by the project management is that in order to enhance the environmental benefits achieved by this project, to exploit the momentum gained by the training of high level technical staff at the NNPB and ongoing project development, it is deemed advisable to follow up the success of this initial CP programme by continuing the work to develop a working and certifiable Environmental Management System according to the international standard ISO 14001 at the Enterprise.

This measure will ensure the continuation of environmental improvements on all levels of the Enterprise.