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Evaluation of the Norwegian Plan of Action for Nuclear Safety

Priorities, Organisation, Implementation

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Evaluation of the Norwegian Plan of Action for Nuclear Safety

Priorities, Organisation, Implementation

A report prepared by

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"For more than a decade, the Russians have stopped dumping; the storages are full; there is no free capacity anywhere; it's like a four-by-four game where none of the fields are free; Norwegian measures are directed towards opening up the sixteenth spot, to get the system in motion, but it's not documented that what we're doing is right; what will happen when we receive the specialised vessel and the railway wagons? What will be the next bottleneck?"

(Norwegian co-ordinator)

"What I like in the co-operation with Norway – and I have co-operated with many countries – is that they have a broad approach instead of embracing the first and best institution they come across in Russia; they collect information before making decisions; if the decision is not always completely right, then it's at least not far from the right one."

(Russian project participant)

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Abbreviations

AMAP	The Arctic Monitoring and Assessment Programme
AMEC	The Arctic Military Environmental Co-operation
CDM	The Committee of Deputy Ministers (Norway)
CEG	The Contact Expert Group
CLP	Concept Level Proposal (AMEC)
CTR	The Nunn-Lugar Co-operative Threat Reduction Programme
Dal'rao	*Dal'nevostochnoye federal'noye predpriyatiye po obrashcheniyu s radioaktivnymi otkhodami* (Far Eastern Enterprise for Treatment of Nuclear Waste)
DPP	Detailed Project Proposal (AMEC)
Gosatomnadzor	The Federal Nuclear and Radiation Safety Authority of the Russian Federation
EBRD	The European Bank for Reconstruction and Development
FFI	*Forsvarets forskningsinstitutt* (the Norwegian Defence Research Establishment)
Goskomekologiya	The State Committee of the Russian Federation for Environmental Protection
GUP	*Gosudarstvennoye unitarnoye predpriyatiye* (state unitary enterprise)
IAEA	The International Atomic Energy Agency
IFE	*Institutt for energiteknikk* (The Institute for Energy Technology) (Norway)
IMGSO:	The Inter-ministerial Group of Senior Officials (Norway)
MOD	The Norwegian Ministry of Defence
ME	The Norwegian Ministry of the Environment
MF	The Norwegian Ministry of Fisheries
MFA	The Norwegian Ministry of Foreign Affairs
MHS	The Norwegian Ministry of Health and Social Affairs
Minatom	The Ministry of Atomic Energy of the Russian Federation
MNEPR	The Multilateral Nuclear Environmental Programme in the Russian Federation
MTI	The Norwegian Ministry of Trade and Industry
NACC	The North Atlantic Co-operation Council
NEFCO	The Nordic Environmental Finance Corporation
NFR	*Norges forskningsråd* (the Norwegian Research Council)
NRPA	The Norwegian Radiation Protection Authority
NSA	The Nuclear Safety Account
Rosrao	*Rossiyskiy kontsern po obrashcheniyu s radioaktivnymi otkhodami* (Russian Concern for Treatment of Nuclear Waste)
Sevrao	*Severnoye federal'noye predpriyatiye po obrashcheniyu s radioaktivnymi otkhodami* (Northern Enterprise for Treatment of Nuclear Waste)
USAID	The U.S. Agency for International Development

Fact sheet

Evaluation of "Plan of Action for the implementation of Report No. 34 (1993–94) to the Storting on nuclear activities and chemical weapons in areas adjacent to our northern borders"

Main goal of the Plan of Action:
To protect Norwegian health, the environment and business against radioactive contamination and pollution from chemical weapons.

The four priority areas in the Plan of Action:
1) Safety measures at nuclear facilities,

2) Management, storage and disposal of radioactive waste and spent nuclear fuel,

3) Radioactive pollution of northern areas,

4) Arms-related environmental hazards.

Number of projects supported by the Plan of Action:
113

Budget size:
343 mill. NOK allocated 1995–99.

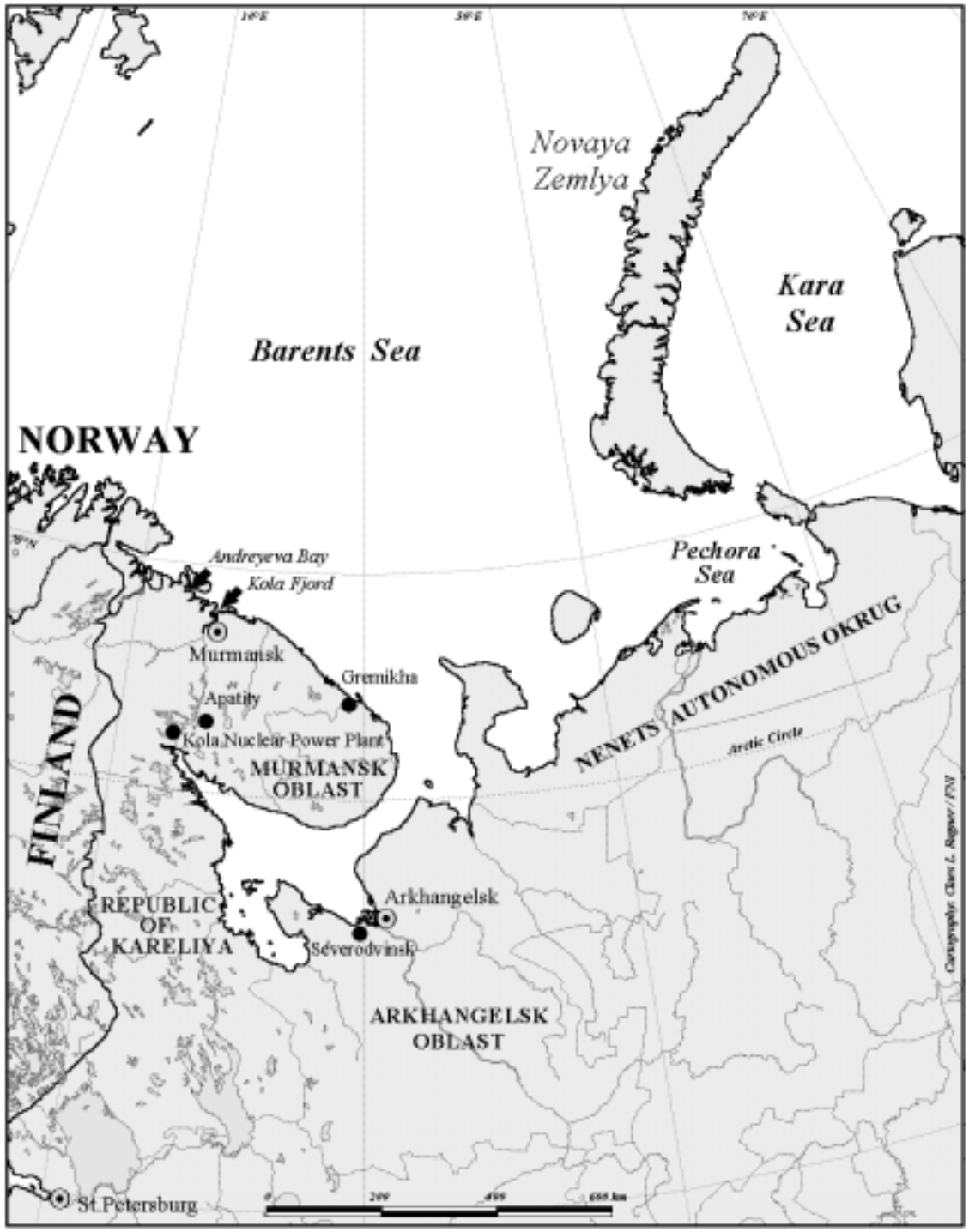
Financing:
The Norwegian state budget via the budget of the Ministry of Foreign Affairs.

Organisation on the Norwegian side:
Coordination is carried out by a special Committee of Deputy Ministers chaired by the Ministry of Foreign Affairs. The committee draws up guidelines for Norwegian policy and makes decisions on the use of funds upon recommendations from an inter-ministerial group of senior officials. The Norwegian Radiation Protection Agency has the official expertise in the field of radioactivity and nuclear safety.

Time frame:
1995–

Geographic location:
Mainly Northwestern Russia.

Map of important project sites in Northwestern Russia



Executive Summary

Background

In April 1994, the Norwegian Government presented Report No. 34 (1993–94) *On nuclear activities and chemical weapons in areas adjacent to our northern borders* to the Storting with protection of health, the environment, and business against radioactive contamination and pollution from chemical weapons as overriding goals. To follow up the concerns expressed by the Government and in the subsequent *Recommendation No. 189 (1993–94) from the Standing Committee on Foreign Affairs*, the Ministry of Foreign Affairs drew up a *Plan of Action* that was implemented from April 1995. The activities under the Plan have been categorised into four prioritised areas: 1) safety measures at nuclear facilities; 2) management, storage and disposal of radioactive waste and spent nuclear fuel; 3) radioactive pollution in northern areas; and 4) arms-related environmental hazards. As of January 2000, some 113 projects are listed under the Plan of Action with total budgets of some 536 mill. NOK. In the period 1995–99, 343 mill. NOK have actually been spent on the Plan, since many of the projects have not yet started or are delayed.

Findings and Conclusions

There is a high degree of correspondence between the official aims of the Government and the practical intentions spelled out in the Plan of Action. But a range of underlying dilemmas faces Norway in its nuclear safety co-operation with Russia. This relates to priorities between different goals, to the organisation of activities on the Norwegian side, and to contact patterns with Russian partners. The policy pursued thus far has attempted to face these dilemmas and to achieve a balance between the various Norwegian considerations.

There has been little conflict among Norwegian bodies over priorities in the distribution of resources since funds have been ample. Some 68% of the total funds allotted have been given to construction of facilities to handle, store or transport nuclear material, but a considerable part of this money has not been spent, mainly due to long and uncertain lead times, and various problems related to project implementation. From a "surplus situation" in the initial years, the situation over the last two years has been characterised by budget cuts, which have put some project plans in jeopardy. Uncertainty about the budget situation creates problems for the planning of projects with long lead times.

The projects planned or implemented are mainly concentrated in Northwestern Russia. However, several larger projects fall outside the area which can be reasonably termed "our near abroad", but are still very relevant with regard to protection of health and environment in Norway. The overwhelming share of funds has been used or is planned to be used in Russia. Still, a sizeable sum has been given to activities in Norway, for instance to research and competence-building in the field of nuclear safety.

The concrete project proposals stem from several sources. Some of the projects were already underway when the Plan of Action was adopted. Concrete project proposals come from the various mechanisms that have been established for bilateral and multilateral co-operation with Russia. There is no lack of possible projects. The constraint is finding *implementable* projects.

The development of projects in isolation from each other is a serious challenge, in particular with regard to the physical handling of nuclear material. Development in one component in the chain may be in vain if the next component is missing. Moreover, it is a problem that environmental impact assessments are not systematically included in the development of projects. These challenges can to some extent be met by better procedures and organisation of

the Plan of Action from the Norwegian side. But the problems are compounded by lacking co-ordination between various authorities in Russia. Norwegian authorities have very limited influence on this situation, but must nevertheless find ways to handle it.

As to the organisation on the Norwegian side, a dilemma is whether Norwegian measures in the field of nuclear safety should be viewed as a temporary measure or a permanent activity. There is also a need to balance foreign policy concerns as opposed to the environmental profile of the co-operation. There are two main bodies involved in the co-ordination and organisation of activities under the Plan of Action: the Committee of Deputy Ministers (CDM) and the Inter-ministerial Group of Senior Officials (IMGSO). The former is the decision-making body in matters related to the Plan of Action and usually bases its decisions on recommendations from the latter. Co-ordination of the work of the CDM and the IMGSO is carried out by the MFA. This organisation of activities seems to have functioned rather satisfactorily. However, the limited capacity of the "semi-secretariat" available to the IMGSO is striking considering the high number of projects and amount of money involved. There are indications that this has led to detailed, but still unsatisfactory discussions of incoming proposals and applications at the expense of strategic thinking, and that there is lacking capacity to follow up on-going projects in an adequate way.

The main governmental bodies on the Russian side in issues covered by the Plan of Action are the Ministry of Atomic Energy (Minatom), its so-called Interbranch Co-ordination Centre Nuklid, the Ministry of Defence, the State Committee for Environmental Protection (Goskomekologiya) and the Federal Nuclear and Radiation Safety Authority (Gosatomnadzor). There is limited horizontal integration between these agencies, and the level of conflict is high. A main line of conflict runs between the "hard" agencies of Minatom and Nuklid on the one hand, and, on the other, the "softer" agencies of Goskomekologiya and Gosatomnadzor. There are also signs of internal conflict inside Minatom. The role of Nuklid is highly controversial in both Russia and Norway. Foreign projects sometimes facilitate co-ordination and contact between Russian agencies. Changes in the organisational structure on the Russian side can create problems, but may also open new channels and opportunities for co-operation.

The bilateral co-operation between Norway and Russia in areas covered by the Plan of Action has found its form, although some problems and dilemmas remain. Co-operation between environmental and nuclear safety authorities functions to the satisfaction of both parties. The signing of the Framework Agreement and establishment of the Joint Commission for its implementation in 1998 represent major achievements at the highest political level in the two countries. Current problems, such as inclusion of new projects under the provisions of the Framework Agreement, are mainly to be found on the Russian side. However, where the Norwegians feel that the Russian counterparts are moving too slowly, some Russian participants in the co-operation miss a more profound understanding by the Norwegians of the difficulties on the Russian side. Regional actors in Northwestern Russia also complain that the Norwegian party relies too heavily on contacts with federal agencies in Moscow.

Finally, it is a dilemma how the Norwegian side shall relate to project organisation and implementation within Russia. How much weight should be attributed to the fulfilment of formal requirements for project implementation, as opposed to rapid progress? Norwegian project managers oppose the lack of financial transparency that results when Nuklid takes responsibility for project management on the Russian side. In the two more or less successfully completed hardware projects evaluated, the Norwegian project participant accepted deviations from the principles of transparency and tax exemption to get the projects underway and completed in time.

Norway has laid down a considerable work for nuclear safety in Russia in the multilateral arena. Awareness of the issue has been raised and there is movement towards a Multilateral Nuclear Environmental Programme in the Russian Federation. But it is still too early to gauge the potential for financial contributions from the multilateral level.

Experience from implementation of projects from Areas 2 and 3 is highly variable. As a rule, the implementation of projects from Area 3 is less problematic than that of Area 2 projects. The former mainly involves research, assessment and monitoring activities where there is a common interest between Russian and Norwegian project participants. These projects have also profited from already established institutional and personal contacts between the parties. Moreover, it can be argued that it is easier to manage joint research and monitoring activities than international projects that involve the construction of physical objects in Russia, as many of the Area 2 projects do. The co-operation and working relations between Norwegian and Russian project participants are generally good. There are no major differences in how goals, events and results are perceived – except in some of the projects where Nuklid is involved.

Recommendations

The recommendations from the evaluators fall into four categories: 1) Relations with Russia; 2) Development and implementation of projects; 3) Organisation on the Norwegian side; 4) Further evaluations.

1. Relations with Russia

Norwegian authorities should

- maintain a broad approach to various federal agencies in Russia involved in matters of nuclear safety, not confining contacts to one main partner
- maintain and further develop contacts in the regions and in the organisations directly causing or working with the solution of problems, not confining contacts to Moscow
- maintain its firm stance on the need for stable and predictable framework conditions for co-operative projects in Russia.

2. The development and implementation of projects

Norway should

- demand full financial transparency and, wherever possible, use of competitive tenders in co-operative projects in Russia
- include environmental impact assessments on a more systematic basis in the development of projects
- put more emphasis on designing the larger projects with clear milestones making it possible to check progress early
- be reluctant to engage in new complex construction projects until the ones presently being undertaken show adequate progress.
- separate out the function of project co-ordinator from bodies participating in policy development and governmental oversight.

3. Organisation on the Norwegian side

The evaluators recommend that

- the main features of the present organisation are maintained, but that
- an advisory expert group be established, comprising specialists with competence in technical issues and with experience from project implementation in Russia, to assist the inter-ministerial group of senior officials in the evaluation of incoming proposals
- research activities be separated out from the Plan of Action and transferred to competent scientific organs, institutional co-operation with Gosatomnadzor transferred to the NRPA, and information activities to the MFA.

4. Further evaluations

The need for more detailed project evaluations should

- be discussed when the Auditor General has completed his report on the Plan of Action.

A study should

- be commissioned to bring together experience from other bilateral programmes. This should be combined with an evaluation of Norway's efforts through multilateral channels.

1 Introduction

This report is an evaluation of the Plan of Action for the implementation of Report No. 34 (1993–94) to the Storting *On nuclear activities and chemical weapons in areas adjacent to our northern borders*. It is carried out in accordance with the Terms of Reference of 20 October 1999 from the Norwegian Ministry of Foreign Affairs (Annex 1) and Tender from the Fridtjof Nansen Institute of 17 November 1999. The evaluation addresses priorities and organisation of activities under the Plan of Action, and not the environmental implications of the measures. The main objective of the evaluation is to: 1) point out some major policy consequences of the measures; 2) give some recommendations as to how the results of the measures can be improved; and 3) serve as a framework for evaluations of environmental consequences. This introductory chapter provides a brief background to the problems addressed by the Plan of Action, an interpretation and operationalisation of the Terms of Reference, and a note on methodology employed in the study.

1.1 Background

Radioactive pollution in Russia and Eastern and Central Europe has been a major environmental and security policy challenge for Norway in the post-Cold War period. There is widespread nuclear activity, both civilian and military, in areas adjacent to Norway's borders, and particularly in Northwestern Russia. Hazards emanate from unsatisfactory storage of large quantities of radioactive waste, decommissioned nuclear submarines awaiting dismantling, and the continued operation of unsafe nuclear power plants.

In April 1994, the Norwegian Government presented Report No. 34 (1993–94) to the Storting *On nuclear activities and chemical weapons in areas adjacent to our northern borders* (Stortinget 1994a) (henceforth referred to as the White Paper), which was discussed in the Storting in June the same year. According to the White Paper, the Government's overriding goals are to protect health, the environment and business against radioactive contamination and pollution from chemical weapons. To follow up the concerns expressed by the Government and in the subsequent *Recommendation No. 189 (1993–94) from the Standing Committee on Foreign Affairs* (Stortinget 1994b) (in the following referred to as the Recommendation), the Ministry of Foreign Affairs drew up a *Plan of Action for the implementation of Report No. 34 (1993–94) to the Storting on nuclear activities and chemical weapons in areas adjacent to our northern borders* (The Ministry of Foreign Affairs 1995) (referred to as the Plan of Action). The Plan of Action was implemented as from April 1995. In the period 1995–99, NOK 343 mill. was allocated to activities supported under the Plan of Action. The activities have been categorised into four prioritised areas: 1) safety measures at nuclear facilities; 2) management, storage and disposal of radioactive waste and spent nuclear fuel; 3) radioactive pollution in northern areas; and 4) arms-related environmental hazards.

1.2 Interpretation of the Terms of Reference

The Plan of Action and associated documents constitute an institutional arrangement for handling the problem identified in the White Paper. In the evaluation of an institutional arrangement of this sort, several choices must be made with regard to delimitation of the object to be evaluated. First, one has to determine whether to focus solely on the substantive arrangement itself (goal attainment), or also on the costs involved in producing and maintaining it (costs versus benefits). Second, a distinction should be made between the decisions made *within* the institutional arrangement (often referred to as *output and outcome*) and the consequences of their implementation (*impact*). Related to environmental policy, *output* usually refers to the rules, institutional bodies and decision-

making procedures established, *outcome* to activities emanating from these bodies and procedures, whereas *impact* is reflected in the solution of the actual environmental problems. The present evaluation does not include a cost versus benefits discussion. Moreover, it focuses on *output and outcome* rather than *impact*.

1.3 Operationalisation of the Terms of Reference

In accordance with the Terms of Reference, the first phase of the evaluation is an assessment of the extent to which the Plan of Action reflects the central objectives of the White Paper and the Recommendation. The White Paper contains a rather elaborate description of the environmental hazards represented by radioactive pollution in Russia and Eastern Europe as well as of official Norwegian goals and strategies in this respect. The main objective of the first phase of the evaluation is to point out the extent to which the various priority areas are reflected in the Plan of Action. This includes a discussion of how well different categories of projects, such as capacity-building measures, research, monitoring and the construction of physical objects, are represented.[1] Moreover, the evolvement of the project portfolio is discussed. Why have particular projects been chosen to implement the Government's goals? Is the composition of the project portfolio the result of conscious planning from the Norwegian side, input from the Russian side, or more "coincidentally" developed?

The second phase of the evaluation involves a study of policy measures related to the implementation of the Plan of Action. First, the organisation of activities is discussed. Which organisational forms have been chosen on the Norwegian and Russian side, respectively? How has bilateral co-operation between Norway and Russia been organised? What has Norway achieved through its participation in multilateral fora? Furthermore, an assessment is made of the outcome of some major projects initiated under areas 2 and 3 of the Plan of Action. Particular emphasis is accorded to the question of *how choices made in Norway are transformed into action on the Russian side*. For one thing, an assessment is made of how the policy choices made in Norway are perceived by relevant actors in Russia. Moreover, the actual implementation of various co-operative ventures and projects is assessed. Have they been transferred into action or not? What particular problems have been encountered? To what extent can problems in the implementation be traced to the Norwegian side?

1.4 A note on methodology

The study is based on a combination of document analysis and personal interviews with officials involved in the implementation of the Plan of Action on both the Norwegian and Russian side. Various written documentation, including written agreements, summaries from meetings and documentation at the project level, has been used to provide a general overview of activities under the Plan of Action. However, personal interviews have been the most important research method. The interviews can be classified into three main categories, embracing interviews in both Norway and Russia. First, interviews have been conducted with senior officials at the co-ordinating level in both countries. In Norway, members of the Inter-ministerial Group of Senior Officials (cf. Chapter 3) have been interviewed in order to get an impression of how various actors on the Norwegian side perceive their own goals, participation and achievements in activities under the Plan of Action, as well as the organisation of activities. In Russia, we have interviewed persons with co-

1) Aspects of this part of the investigation that require document analysis (cf. Section 1.4 on methodology) are treated rather summarily in this evaluation. There are two reasons for this. First – as will appear from Section 2.1 – the correspondence between the goals of the White Paper and the measures under the Plan of Action is simply not a major problem. Second, the financial priority of various issue areas is more thoroughly treated in a parallel evaluation conducted by the Norwegian Auditor General's Office. During the project period, the evaluators got acceptance from the commissioners of the study to devote primary attention to the second phase of the study in order to avoid undue duplication of the two evaluations.

ordinating roles in the most important governmental bodies involved in activities under the Plan of Action. The main objective of these interviews has been to get a better hold of co-ordinating activities on the Russian side and of Russian perceptions of measures initiated by the Norwegian side. Both evaluators speak Russian. Hence, the interviews with Russian project participants could be conducted without interpreter, which is assumed to enhance the validity of the interview data.

Second, project participants on both the Russian and Norwegian sides have been consulted.[2] The aim of these interviews has been twofold: 1) to collect factual information about the selection and implementation of the concrete projects; and 2) to investigate how various actors account for the goals of the projects, how they came about, which goals have been achieved, which obstacles were encountered, and how co-operation with the other involved parties functioned. Whereas the first aspect is *fact*-oriented, the second is related to *perception*. Both are believed to provide useful information about strong and weak sides of the implementation. Finally, a few people not directly involved in the implementation of the Plan of Action have also been interviewed. These are specialists or officials of various sorts with substantive knowledge in the field. The aim of these interviews has been to receive input from experts who see the implementation of the Plan of Action from the outside. Reference is generally not made to concrete interviews in the text although citations are occasionally used to illustrate important points.

With the limited resources set aside for the evaluation, we have chosen to give priority to interviews with central actors at the expense of meticulous document analysis. A document analysis might have provided a more detailed description of events. On the other hand, the chosen approach has made it easier for us to trace major perceptions of choices made concerning the priorities, organisation and implementation of the Plan of Action. We believe this should be the most important aspect of this first evaluation.

1.5 The structure of the report

Chapter 2 discusses the extent to which selected activities reflect established goals. An overview of how the implementation of the Plan of Action is organised nationally in Norway and Russia, bilaterally and multilaterally, is provided in Chapter 3. The results of the second phase of the investigation (cf. Section 1.3) are presented in Chapter 4, which focuses on how projects have been selected, and Chapter 5 on how they have been implemented. The conclusions of the study and recommendations for further activities are given in Chapter 6.

2) Admittedly, "project participant" is a rather vague concept in this context, ranging from project supervisors to personnel engaged in the physical implementation of projects. The former category by far predominates here. Cf. Annex 4 for an overview of interviewed persons.

2 Do the selected activities reflect established goals?

The aim of the present chapter is to discuss the extent to which the Government's goals, as expressed in the White Paper and the Recommendation, are reflected in the Plan of Action. First, the correspondence between the goals of the two former documents and the expressed intention of the latter are briefly commented on. Second, the extent to which the interests of various Norwegian official actors (mainly ministries) are reflected in the Plan of Action is discussed. Third, a somewhat more thorough analysis of the composition of the project portfolio under the Plan of Action is conducted. What kind of projects predominate, and to what extent can the particular composition be said to reflect the Government's goals?

2.1 The correspondence between principal goals and practical intentions

The White Paper concludes that problems related to nuclear activities in the former Soviet Union and Eastern Europe are found in four main areas: 1) unsatisfactory safety at nuclear installations (nuclear power plants, civilian and naval nuclear powered vessels and reprocessing facilities); 2) unsatisfactory management and storage of radioactive waste and spent nuclear fuel; 3) dumping of radioactive waste and spent nuclear fuel; and 4) arms-related environmental hazards (nuclear tests, storage and destruction of nuclear weapons, storage and destruction of chemical weapons, and proliferation of fissile material).

The overarching goal of the Government in the field of nuclear safety is defined as protection of health, environment and trade and business activities from radioactive pollution and pollution from chemical weapons in Russia and other Eastern European states. Various sub-goals are determined in relation to the four main groups of problems listed above.[3] As for safety at nuclear facilities, it is Norway's main objective to work for the closure of high-risk reactors at the earliest possible date and support measures to make it possible to operate such facilities more safely until they are closed down. It is a goal to work for safe management and storage of spent nuclear fuel and radioactive waste, increased working safety for nuclear vessels, and reprocessing facilities to reduce the risk of accidents and safe dismantling of submarines taken out of service. Moreover, Norway aims at working for the complete discontinuation of dumping of spent nuclear fuel and radioactive waste in the ocean and elucidating the risk of radioactive pollution from dumped radioactive waste in the northern ocean areas. As far as arms-related hazards are concerned, one aims to work for a nuclear test ban, non-proliferation of nuclear weapons and ratification of the Chemical Weapons Convention; safe storage and dismantling of nuclear weapons and fissile material as well as safe destruction of chemical weapons that might be found in areas adjacent to Norway; and to eliminate possible environmental harm of nuclear tests on Novaya Zemlya and find out whether there are chemical weapons on the Kola Peninsula.

In the Recommendation, the Standing Committee on Foreign Affairs of the Storting recapitulates the main point of the White Paper. It observes the factual information of the latter, acclaims the main goals stated there, and provides its recommendations to the Government. First, it requests that immediate support to secure safety at the Kola nuclear power plant is increased, and that other energy sources are analysed. Second, it states that Norway should contribute financially to secure safe management and storage of radioactive waste on the Kola Peninsula, and specifically recommends a pilot project to secure the vessel,

3) Due to space limitation, only the main sub-goals are mentioned in the following. The entire list of sub-goals is found in the White Paper (Storinget 1994a: pp. 49–58).

Lepse. Third, it recommends that surveys of radioactive pollution in the Barents and Kara Seas are continued. In conclusion, the Standing Committee states the need to intensify survey activities in order to gain a valid picture of the environmental threats from nuclear activities and chemical weapons in the northern areas adjacent to the Norwegian border. Moreover, it proposes the elaboration of a plan of action indicating the measures that the Government considers to be most cost-effective in terms of eliminating this threat. It notes that work on such a list of priorities must necessarily take time but stresses the need for immediate measures in selected areas.

As mentioned in Chapter 1, the Plan of Action was put into effect from April 1995. Within the framework of the plan, priority was given to co-operation on safety issues with the Kola nuclear power plant, investigations and evaluation of pollution in northern areas and reviews of the cost-effectiveness of measures to alleviate the situation in certain key areas. In addition, Norway initiated and supported the establishment of various fora for broader international participation. A revised Plan of Action was drawn up for the years 1997–99. Throughout the period, the Plan of Action has reflected the main aims of the Government stated in the White Paper and the Recommendation. In each of the four priority areas, various sub-goals are listed with reference to specific projects. Moreover, frequent references are made to Norwegian participation in bilateral and multilateral co-operation with other states. Hence, there is a high degree of correspondence between the official aims of the Government and the practical intentions spelled out in the Plan of Action.

Whereas the White Paper as well as the Plan of Action spelt out several concrete goals, the weight attributed to the various goals was not entirely clear, and the implementation of policies to meet the goals would have to balance several considerations. These considerations are only hinted at or not mentioned at all in the said documents. First of all, the framing of the whole issue area was ambiguous: was it mainly an environmental issue or a foreign policy or security issue? The response to this dilemma gives guidelines as to which institutions should be used as partners in Russia (and, for that matter, who should be responsible in Norway), and which geographical areas should be given priority. It also leads to the question of whether protection of the environment (and implicitly, health) *in Norway* should be the primary concern in the efforts, or whether a broader view on nuclear risks in the region should be used as an intake to projects. A further question in this respect was whether Norwegian measures in the field of nuclear safety should be viewed as temporary or a permanent activity. The answer to this question has implications for the relative weight of different categories of projects as well as organisation of the co-operation. None of these questions would seem easy to answer. The priorities made, the forms of organisation chosen as well as the way the Plan of Action has been implemented can to a large extent be seen as a response to these underlying questions, often entailing dilemmas. Further dilemmas on the more practical policy level are discussed in Section 4.2.

2.2 The balance between various Norwegian interests

The ministries involved in the implementation of the Plan of Action are all represented in the Inter-ministerial Group of Senior Officials (IMGSO): the Ministry of Foreign Affairs (MFA), the Ministry of Defence (MOD), the Ministry of the Environment (ME), the Ministry of Fisheries (MF), the Ministry of Agriculture (MA), the Ministry of Health and Social Affairs (MHS), and the Ministry of Trade and Industry (MTI). In addition, the Norwegian Radiation Protection Agency (NRPA) is a member. Even if the group is responsible for the implementation of the totality of the Plan of Action, it is natural that the participating bodies have somewhat different interests, related to their own sphere of authority and competence, that influence their criteria for selecting and evaluating projects. In fact, the group was

composed with this diversity of interests in mind.

The MFA clearly sees the Plan of Action in relation to general Russian–Norwegian relations. Ministry officials state that broadening and deepening of contacts, increasing trust and transparency in Russian affairs are central aims. The MFA sees itself as a defender of the totality of Norwegian interests in the plan, whereas the other participating bodies are regarded as having narrower, more particular interests. Even if this is less explicitly pronounced, it seems that the MFA has a predilection for the larger "hardware" projects, with physically visible results, aimed at reducing or solving concrete problems. The MFA finds that its interests are well reflected within the co-operation from the Norwegian side.

The Ministry of the Environment (ME) was already involved in nuclear co-operation with Russia when the Plan of Action was drawn up. The Ministry has seen it as important to continue the co-operation that had already started. The general interest is described as initially being mapping of sources of radioactive contamination and environmental impact assessments, whereas the focus has gradually been directed towards the establishment of permanent monitoring systems. The ME is also very concerned about support to Russian environmental authorities, increasing their capacity to solve the problems, carrying out their supervisory functions, etc.

The NRPA is the official specialised body handling nuclear safety and radiation issues in Norway. It is subordinate administratively to the Ministry of Health and Social Affairs but participates in the IMGSO in its own right. The NRPA regards health issues as its core interest in the plan and sees its task as improving safety at installations and increasing knowledge about this. According to the NRPA, the main threat to Norwegian health emanates from operative installations, and too much emphasis has been put on geographical proximity. Reactors at power stations beyond the "adjacent" area form a larger threat than waste close to the border.[4] Nevertheless, the NRPA is satisfied with the priorities made, one main reason being that there has been enough resources, so that allocations to other purposes have not been at the expense of NRPAs core tasks and interests.

The Ministry of Defence (MOD) is concerned about nuclear co-operation within AMEC, cf. Section 3.4, as a tool for stressing the broader security concept, which includes environmental threats, but also for increasing contacts with Russia in general through project co-operation. The MOD is satisfied with the allocation of resources to its projects, but is sometimes concerned that initiatives from other Norwegian bodies create confusion among the Russian military.

The Ministry of Fisheries (MF) is focusing on threats against Norwegian fisheries, real threats from contamination as well as perceptions in the market. Measures to map and prevent nuclear contamination of the sea, as well as documentation of the real state of affairs, is at the core of the MF's priorities. No significant conflict of interest within the IMGSO has been experienced.

The Ministry of Trade and Industry (MTI) is not directly concerned with nuclear issues. Their seat in the IMGSO (which they did not ask for) must be seen in connection with the Ministry's budgetary responsibility for the Institute for Energy Technology (IFE) which is the Norwegian research centre dealing with nuclear technology, including running a test reactor, but also a desire by the MFA to involve Norwegian commercial interests in the co-operation. The MTI is not satisfied with the interest of the others in the IMGSO in long-term funding for IFE, including development of long-term co-operation projects with the Russian partners. Considerations for Norwegian

4) However, more distant power plants are mentioned in the White Paper.

commercial interests have never been discussed as a separate issue in the IMGSO, but the potential for commercial involvement is regarded as very limited by the MTI, and there has not been a conflict over this issue within the IMGSO.

The Ministry of Agriculture (MA) established contacts with Russian authorities after Chernobyl, which had quite serious repercussions for Norwegian agriculture. The core interest is to prevent new accidents and protect human health. The need to find out more about the consequences of radiation for people directly, and indirectly through the food chain, is stressed.

The Ministry of Health and Social Affairs (MHS) sees health issues as its main responsibility and would liked to have seen more focus on health effects and co-operation with the Russian health sector. The Ministry has launched few initiatives, however, and the initiatives have not gained support from the other members in the IMGSO, who are seen to be preoccupied with radiation itself and not its effects. To a large extent the MHS has the lending of support to the NRPA as its main agenda within the group of ministerial representatives.

The members of the group fall into two fairly clear categories, or circles. "The inner circle" is composed of the MFA, the ME and the NRPA, all these institutions have a relatively broad involvement in the Plan of Action, and their representatives in the IMGSO have the co-operation with Russia as one of their main activities. "The outer circle" is composed of the MF, the MHS, the MA and the MTI. In these ministries, nuclear co-operation is a very peripheral activity and even for their representatives in the IMGSO it occupies only a fraction of their job. The MOD occupies a special position. Considerable resources are devoted to the AMEC co-operation, but these projects are developed through the trilateral co-operation, and have been included in the Plan of Action partly for practical and formal reasons. This does not mean that the AMEC projects do not reflect Norwegian priorities and interests. Moreover, extended contacts with the Russian military in nuclear issues (without entering into projects that could help sustain Russian military capacity) was singled out as a goal in the White Paper (Stortinget 1994a, pp. 52, 54) But since the main priorities within AMEC are not decided within IMGSO, these projects are not directly compared to other proposals.

There is widespread agreement that there has been little conflict over priorities in the Plan of Action. There are two reasons for this. First of all, there seems to be genuine acceptance of the relevance of the general goals and priorities in the plan. But also very important, resources have been so ample for most of the time that conflicts over distribution of funds have not been necessary. It is noteworthy that the few and relatively modest critical remarks to the priorities made, come from the representatives of the ministries in the outer circle. The inner circle decides the thrust of the work, and proposals outside their core interests stand little chance of surviving. Important here also is that the representatives of the outer circle have less time and capacity to prepare proposals.

2.3 The composition of the project portfolio

As of January 2000, some 113 projects are listed under the Plan of Action (The Ministry of Foreign Affairs 2000). The project budgets from 1995 onwards add up to some 536 mill. NOK.[5] This is the total cost of Norwegian participation in all projects that have so far been included in the Plan. But several of the projects have not yet started, or they are delayed. Thus, the sum is much larger than the 343 mill. NOK actually spent until now. The budget sums reflect

5) The "List of measures and projects" published by the MFA (The Ministry of Foreign Affairs 2000), which is the data source used here, also includes some 62 mill. NOK assigned to the years prior to 1995. These sums are not counted here.

intentions as well as actual transfers.[6] The projects with total budgets are listed at the end of this report.

The projects vary considerably in scope and budget, from a few ten thousand to tens of millions of NOK. Thus, the *number* of projects within one priority area says very little about priorities. The total sum devoted to each priority area is more significant. The proportions are shown in Figure 1 on page 46. Areas 1 and 2 are clearly dominant, with 31% and 46% of total project budgets respectively. Neither the White Paper nor the Recommendation attributes any precise weight to the various priority areas. Thus, as long as allocations to one priority area have not been at the expense of other priority areas, the proportions rendered are clearly not conflicting with the said documents. Moreover, it is quite obvious that projects within priority Areas 1 and 2 would be of a more costly nature than Area 3. Area 4 is in a more preliminary stage, and high cost projects will only come at a later stage. On this background the high proportion of budgets to Areas 1 and 2 seems reasonable.

However, the dividing line between the priority areas is not unambiguous, and sometimes it is not obvious why a project is placed under one main category and not another. Below, we make an attempt to regroup the projects according to their features. Our idea is that the type of projects that are launched and are implemented reveals something about the reality in the fields of nuclear safety co-operation, beyond the official statements on priorities. This should also be related to the more specific interests of the involved Norwegian bodies; cf. Section 2.2. We have divided the projects into seven categories:

1) *Assessments:* studies of the situation, mapping of environmental contamination and pollution, impact assessments;

2) *Monitoring:* establishment and operation of monitoring and warning systems;

3) *Option development:* the working out of alternative solutions to the identified problems, feasibility studies;

4) *Construction:* the construction of facilities to physically handle radioactive materials or control nuclear processes, including development of prototypes;

5) *Institution-building:* i.e. administrative support to Russian bodies, including financing of participation in meetings abroad;

6) *Competence-building:* competence-building in Norway, information activities internationally;

7) Miscellaneous.

An overview of the distribution of budgets within as well as between the Plan's priority areas is presented in Figure 2. Not all projects fall clearly into one category. In these few cases, the budget has been divided between categories on the basis of the project description. The most striking feature of the budget distribution is the high proportion of resources dedicated to construction of facilities, some 68 % of the grand total. The projects are concentrated within Area 1, mainly the Kola nuclear power plant, and within Area 2 over a variety of projects dealing with removal, storage and transportation of nuclear waste. The sum bears witness to the dedication to supporting concrete, physical projects. Area 3 is dominated by studies, mapping, and impact assessments. Perhaps more surprisingly, institution-building is to a large extent concentrated in Area 4, revolving around measures to control and prevent the proliferation of radioactive and nuclear material and secure Russian compliance with the Test

6) A problem in using the list is that it does not distinguish systematically between sums that are linked to contractual obligations and sums made available pending development of the project in question. A large project in the latter category would be the project on the vessel Lepse (Project 203; cf. Section 5.2), where 25 mill. NOK have been promised.

Ban Treaty. Almost half the funds in this priority area are devoted to the latter goal (Project 402).

The overwhelming share of funds has been used or is planned to be used in Russia. A small share, but still a sizeable sum in absolute terms, has been devoted to measures within Norway. Even if this does not strongly affect the total distribution of budgets, it raises some principal questions to which we will return in the concluding chapter. The MOD, unlike the other participating bodies, has financed its administration of AMEC projects over the Plan of Action (Project 205), altogether 2.9 mill. NOK.[7] The NRPA received financing for its leadership of the group for radioactivity within AMAP (Arctic Monitoring and Assessment Programme) at some 2.2 mill NOK (Project 307). The environmental group Bellona has received substantial funding over the plan – some 11.3 mill NOK 1995–99 (Project 501), for preparation of reports, in addition to support for participation at a nuclear safety summit in Moscow.

Several projects involve scientific work that hardly can be described as "action oriented", but are relevant for building up competence in Norway as a way of securing a sound scientific basis for the more applied projects. Projects 220, 308, 310, 317, 318, 320, 321 would seem to belong in this category. Altogether, they represent budgets totalling some 14 mill. NOK. Main "beneficiaries" in Norway have been the NRPA and the Norwegian Polar Institute. But also the Agricultural College of Norway has been involved in a fairly large (2.1 mill. NOK) co-operation project with French researchers concerning radioactive pollution in rivers, estuaries and marine eco-systems. The need for competence-building in Norway is mentioned very briefly in the White Paper (Stortinget 1994a, p. 51). The point here is that the Plan of Action has become a funding source for more general research within the sphere of radioactivity and radioactive pollution. In one case, a larger sum (5 mill. NOK) has been set aside for an open research programme – the EU programme "Nuclear Fission Safety" (Project 503).

The international component in the projects is substantial. Altogether some 188 mill. NOK has been channelled through or set aside for multilateral efforts or for joint projects with other countries, including 21 mill. NOK for AMEC projects. In addition come projects that are co-ordinated with other bilateral or multilateral efforts, notably the main project on the Kola power plant (Project 101), some 90 mill. NOK for the period 1995–2001.

The geographical focus in the Plan of Action – "adjacent areas", does not quite correspond to its substantive goals – protecting "Norwegian health and environment". As mentioned elsewhere in this report, the impact on Norwegian territory from nuclear accidents may come from installations far away from the area which may reasonably be termed "our adjacent areas", cf. the Chernobyl experience. From this point of view, it is not surprising that the Plan is used to support activities outside Northwestern Russia. The most sizeable projects in this category financed from 1995 onwards[8] are the Chernobyl Shelter Implementation project (Project 122) – some 40 mill. NOK, and some 22 mill. for a programme to assist in the restructuring of Russian nuclear research from arms-related to civilian activities, thereby preventing (unemployed) Russian nuclear scientists from selling their expertise to rogue states (Project 409). It seems harder to justify the 2 mill. NOK spent to buy oil for North Korea in order to avoid further nuclear power plant constructions (Project 517). However, even this project may be deemed relevant with regard to the objective of increasing international awareness and gaining international financial support for projects in Northwestern Russia. A too (geographically) narrow approach by Norway to international

7) These funds have covered two positions at the MOD as well as various external activities, such as travels.

8) Norway channelled 16.5 mill NOK to the Nuclear Safety Account (cf. Section 3.4) in 1993 for improvement of safety and closure of unsafe power plants in the former USSR and Eastern Europe (Project 106) and another 16.6 mill NOK in 1994 was aimed directly at the Chernobyl plant (Project 107).

nuclear problems may harm Norway's chance of getting international support for projects in "adjacent areas" when they mature.

The annual allocations to the Plan of Action have changed quite dramatically over the last years, from some 130 mill. NOK in 1995, to zero in 1999, (see Figure 3, page 47). As also shown in Figure 3, the disbursement of sums has had an almost opposite profile, from 39 mill. NOK in 1995 to 61 mill. in 1999, via a top level of 104 mill. in 1997. This discrepancy should not cause alarm. Due to long lead times and various forms of project delay, a slow development of disbursements was to be expected. This is particularly characteristic of priority Area 2, where we find most of the costly and complicated construction projects. Only half the project budgets in this priority area have actually been disbursed (see Figure 4). Transfers of unused sums from one year to another have helped cover the disbursements from 1997 onwards. While this in retrospect seems to have provided the Plan of Action with sufficient funding, uncertainty about the possibility of transferring unused sums have caused some difficulties in the planning of projects. This problem has now to some extent been alleviated by the introduction of authorisation to allocate funds for next year in advance. But generally the budget situation has become tighter over the last two years. Given the very long lead times for several projects, predictability in the budget situation must be regarded as highly important. This also concerns Norway's international credibility.

3 How are the activities organised?

This chapter describes the organisation of activities under the Plan of Action and evaluates the appropriateness of the chosen forms of organisation. More specifically, it addresses the organisation in Norway, in Russia, bilaterally between the two countries, and in multilateral fora. Each level follows a three-step presentation: 1) a brief description of organisational and co-ordinating activities; 2) a presentation of opinions expressed in the interviews; and 3) an evaluation of the chosen form of organisation. As to the two latter parts of the presentation, there is a certain divergence in empirical abundance between the four levels of organisation. In particular, few of the interviewees had opinions about the effectiveness of the multilateral level, which also reduces our basis for making judgements of the achievements here. A thorough analysis of Norwegian efforts at the international level would of necessity have to involve interviews outside Norway and Russia, which has not been possible within the scope of the present evaluation.

3.1 The organisation on the Norwegian side

On the Norwegian side, there are two main bodies involved in the co-ordination and organisation of activities under the Plan of Action: the Committee of Deputy Ministers (CDM) and the Inter-ministerial Group of Senior Officials (IMGSO). The former consists of deputy ministers from the following ministries: the MFA, the MOD, the ME, the MF, the MA, the MHS and the MTI. It is headed by the Deputy Minister of Foreign Affairs. The CDM normally meets twice a year and is the decision-making body in matters related to the Plan of Action. It usually bases its decisions upon recommendations from the IMGSO.

The main task of the IMGSO is to evaluate and give its recommendations to the CDM of incoming project proposals. This body is made up of senior officials from the same ministries and from the NRPA. It is also headed by the MFA. Since 1995, the IMGSO has usually been convened once a month, and occasionally more frequently. The number of representatives from each institution at the meetings has varied. Most agencies are normally represented by only one senior official whereas the MFA has been represented by officials from various departments within the ministry, in addition to the chairman. The NRPA has also often had several representatives at the meetings. Co-ordination of the work of the CDM and the IMGSO at the time of writing is carried out by two executive officers and one ambassador in the MFA.

Our interviews with members of the IMGSO revealed rather diverging opinions as to the effectiveness of the chosen form of organisation. The disagreement relates primarily to the degree of bureaucratisation of the co-ordinating activities – more specifically: to the need for a formalised secretariat – and to the role of certain key institutions (the MFA and the NRPA). While there seems to be general agreement on the conclusion that the co-ordination of activities under the Plan of Action has been rather "unbureaucratic", this is by some perceived as a virtue; by others as mainly a questionable matter. Around half of the interviewees expressed satisfaction with the existing organisation; the other half had various types of objections. Some find that the chosen form of decision-making is "wonderfully unbureaucratic" and sufficient for the needs of the Plan of Action; while others feel the need for a professional secretariat that could relieve the IMGSO of some of its first-hand processing of incoming proposals and enable it to spend more time on strategic reflection. One counter-argument to such a solution, presented by the representative of one of the smaller ministries in the IMGSO, is that it would make it more difficult for such ministries to make their own opinion concerning project proposals. To a larger extent they would feel obliged to rely on the conclusions of the experts. Some are also

concerned by what they perceive as an inadequate treatment of proposals:

> This is more a distribution of money between various institutions than a real treatment of applications; I was really surprised when I first came in … at the lack of evaluation of the proposals […]; I don't think there's anywhere else in Norway where money has been given away that easily. (Norwegian co-ordinator)

> There was an extreme pressure from the top of the MFA to get the money spent; we had to get something done while we were waiting for the Framework Agreement. (Norwegian co-ordinator)

As mentioned above, the MFA leads both the CDM and the IMGSO and also co-ordinates activities through its existing "semi-secretariat". Most of our interviewees seem to perceive this as a natural thing: "This is a very politicised area for good and bad; it's understandable that the MFA put itself in a leading position", is a typical statement in this respect. However, several of the members of the IMGSO are of the opinion that the overarching foreign policy aspects of the Plan of Action should be separated from concrete implementation of projects, which again mainly boils down to a question of a professional secretariat. Some also emphasise the limited capacity of the MFA's small "semi-secretariat" and its lack of competence in professional project management. As for the NRPA, some feel that its double role as governmental body and project manager under the Plan of Action is problematic: "When the NRPA sends three men to argue for its own projects, you get uneasy…". "I've always felt that the initiators of a proposal should leave the room while it's being discussed [in the IMGSO]." The IMGSO has discussed placing a secretariat for the Plan of Action at the NRPA, but such plans have met resistance in the MFA, and the NRPA does not want to house a secretariat not answering to its director.

The IMGSO has to a large extent emerged as an action-oriented body. However, there are certainly also problems related to its functioning. Taking into account the considerable number of projects and amount of money involved, the limited secretarial assistance available to the IMGSO is indeed striking. There are indications that this has led to unsatisfactory treatment of applications and lack of capacity to follow up on-going projects in the way that this is expected in other parts of the Norwegian bureaucracy. It might also have compelled the IMSGO to spend more time than desirable on detailed discussions of incoming proposals at the expense of strategic thinking. The objections concerning the double roles of the MFA and NRPA are understandable, but the present organisation should be seen as a compromise between various interests, as well as a reflection of the limited amount of expertise in the nuclear safety field when the Plan of Action was incepted. The question of whether this compromise solution can be improved, will be further discussed in Chapter 6.

3.2 The organisation on the Russian side

The main governmental body on the Russian side in issues covered by the Plan of Action is the Ministry of Atomic Energy (*Minatom*). Minatom was established in 1986 as a Soviet ministry and merged in 1989 with the powerful Ministry of Medium Machine-Building, responsible for development and production of nuclear weapons and reactors in the Soviet Union. Minatom was assigned responsibility for all aspects – civilian and military – of the nuclear energy industry and had about a million employees within its structure. This set-up continued when Minatom was reorganised as a Russian ministry in 1992. In 1998, responsibility for nuclear waste from military establishments was also transferred to Minatom. Hence, Minatom emerges as the agency that represents the Russian Federation in bilateral and multilateral fora dealing with atomic installations and nuclear waste and also oversees the implementation of co-operative projects with other states. The concrete implementation of such projects is, however, largely delegated to subsidiary or associated bodies, the most important of which in the co-operation with Norway is the Interbranch Co-ordination Centre Nuklid.

Nuklid was established in 1990 to co-ordinate attempts at commercialisation within the nuclear sector of the Soviet Union. It is not formally part of the structure of Minatom, but is part of the Minatom "system" and is organised as a unitary state enterprise (GUP). In practice, this means that it works on contracts with the Ministry and that ties between the two are tight. Nuklid's main office is in St. Petersburg; branch offices are located in Moscow, Murmansk and Vladivostok. It has a staff of 55, but approximately 1,500 people work on contract for Nuklid. The main tasks of Nuklid are, according to its director, technology development (mainly of containers), certification in relation to IAEA (the International Atomic Energy Agency) and the U.S. Agency for International Development (USAID), and innovation. In 1995, the director of Nuklid was assigned the task of elaborating a programme for nuclear waste treatment, and in 1998 the organisation was appointed main contractor for the AMEC projects (cf. Section 3.4) and for a majority of the ten co-operative projects with Norway identified in the Framework Agreement between the two countries (cf. Section 3.3). The main Russian participant in the AMEC projects is the Russian Ministry of Defence.

On the environmental protection and control side, the most important bodies are the State Committee for Environmental Protection (*Goskomekologiya*) and the Federal Nuclear and Radiation Safety Authority (*Gosatomnadzor*). The former is the successor of the Ministry of Environmental Protection, which saw its status reduced to that of a State Committee in 1996. Its main task in the sphere of nuclear safety is to organise environmental evaluations (*ekspertizy*) of various projects.[9] Gosatomnadzor was established in 1991 as an executive body placed under the president, responsible for safety regulations in use of atomic energy. Among its most important tasks are licensing of activities that involve the use of nuclear energy and radioactive materials, the development of standards for and monitoring of such use, non-proliferation of nuclear technology and materials, physical protection of nuclear installations, and control of Russian implementation of relevant international agreements. However, the military sector has been excluded from its control since 1995.

In Northwestern Russia, where most of the projects under the Plan of Action are implemented, all the above-mentioned federal bodies have their regional representation. The relationship between federal agencies and regional authorities is regulated through various agreements. An agreement between Minatom and the regional administration of Murmansk on co-operation in the treatment of radioactive waste and spent nuclear fuel was signed on 5 May 1998 (Murmansk *oblast'* 1998). A more general agreement on co-ordination of activities within the sphere of nuclear safety between Murmansk regional administration and a range of federal agencies present in the region, including Minatom, Goskomekologiya, Gosatomnadzor, and the Navy through the Russian Northern Fleet was concluded on 7 March 2000 (Murmansk *oblast'* 2000). Both agreements are rather general and non-committal in nature. In 1999, a Committee for Conversion and Nuclear Radiation Safety was established at the Murmansk regional administration to co-ordinate activities in the field. This development may seem to complicate the decision-making structure further, but it is also a reminder of the significant regional implications of various nuclear safety projects.

A more concrete measure is the planned establishment of a state enterprise, *Sevrao* (Northern Enterprise for Treatment of Nuclear Waste), under Minatom to co-ordinate scrapping of submarines, treatment of nuclear waste and rehabilitation of submarine bases in the northern areas (The Government of the Russian Federation 2000). Altogether nine such regional enterprises are planned. The first to be

9) In the middle of May 2000, after the main work on the present evaluation report was concluded, the Russian Government dissolved Goskomekologiya. Some of its functions will be transferred to the Ministry of Natural Resources, but at the time of writing it is unclear how its tasks in the the field of radioactive pollution will be maintained.

established are Sevrao and Dal'rao (Far Eastern Enterprise for Treatment of Nuclear Waste) in the far east. An overarching federal structure, Rosrao (Russian Enterprise for Treatment of Nuclear Waste), might also be set up under Minatom. Sevrao will have its main office in Murmansk and branch offices in the submarine bases of Andreyeva Bay and Gremikha. It was supposed to be established by 15 March 2000; this was halted as a result of changes in property regulations. A former vice-admiral is already appointed director of Sevrao. The enterprise is expected to be established in the near future, and physical activities are assumed to commence in the autumn of 2000. It might become a major Russian project co-ordinator in co-operative projects with Norway in the region.

The most conspicuous traits in the Russian organisation of nuclear safety issues are the well-known Russian lack of horizontal integration between various agencies, and the high level of conflict between them. A major line of conflict seems to run between Minatom and – in particular – Nuklid on the one hand, and the "softer" agencies of Goskomekologiya and Gosatomnadzor on the other. For one thing, the two latter have seen their status reduced in recent years, both formally and informally. As already mentioned, the federal environmental agency lost its ministerial status in 1996. Gosatomnadzor, for its part, has seen its major task to issue licenses threatened by new regulations that provide Minatom (in practice, Nuklid) with the right to licence activities related to the use of nuclear energy for military purposes (The Government of the Russian Federation 1999). Hence, the loss of status of Goskomekologiya and Gosatomnadzor has taken place at the same time as Minatom and Nuklid have expanded their spheres of influence.

Working relations between the "hard" and "soft" agencies seem to be characterised partly by a *modus vivendi* between people who have been forced – for example, by means of international projects – to maintain a certain contact with each other. This seems, for instance, to characterise relations between the representatives of Minatom and Goskomekologiya that are involved in co-operation with Norway. Between others, such as Nuklid and Gosatomnadzor, there seems to be a more fierce schism. There are also obvious signs of *internal* conflict inside Minatom. As an indication of this, it turned out at the second session of the Joint Norwegian–Russian Commission for Implementation of the Plan of Action (cf. Section 3.3) that the Russian delegation leader did not know that a joint Norwegian–Russian secretariat for the Joint Commission had been set up at Minatom (Project 514) (The Ministry of Foreign Affairs 1999). An employee of Nuklid was paid through the Norwegian project to run the secretariat. The director of Nuklid claims this to be a "simple fraud" that she was not informed about. She fired the employee, and the Russian part stopped the project. The secretariat cannot have been established without Minatom's knowledge and acceptance. By others, the events are referred to as "another attempt at centralisation by [the director of Nuklid]".

A most striking feature is indeed the negative attitude among both our Norwegian and Russian interviewees towards Nuklid. On the Norwegian side, there is considerable scepticism towards Nuklid's lack of transparency in financial affairs (cf. Chapter 5), even if the organisation is also acknowledged for being able to get projects underway. But also those who try to moderate the picture use arguments such as: "It's probably as good a 'milking cow' as any other over there". Accusations from the Russian side are far more explicit. The enterprise is, among other things, accused of neglect of security norms and intentions to monopolise all co-operation with foreigners. "Milder" accusations refer to ineffective co-operative patterns:

> I have nothing good to say about Nuklid; I have worked on these issues for a long time and can compare the time before and after Nuklid; co-ordination is a good thing, but it can be done in different ways; they interfere too much with details; before we could co-operate bilaterally [with Norway], but now a third and superfluous structure has been introduced; they even try to

> take credit for projects they have done nothing but harm to. (Russian project participant)

There is uncertainty about the preferred status of Nuklid with regard to international projects. It certainly plays a central role but does not enjoy a monopoly position within the Minatom structure. An International Centre for Environmental Safety was, for example, established at Minatom in 1999 with some of the same tasks, but is not involved in work under the Plan of Action. Specialised enterprises such as Sevrao may also take upon themselves functions hitherto covered by Nuklid.

3.3 The bilateral co-operation between Norway and Russia

Bilateral co-operation between Norway and Russia in areas covered by the Plan of Action is mainly found in the following three clusters: 1) at state level between the Norwegian MFA and Minatom; 2) through the environmental co-operation, the Norwegian ME and Goskomekologiya being the main participating bodies; and 3) in the more technical nuclear safety co-operation between the NRPA and Gosatomnadzor.[10] As to the first level, a major achievement was the bilateral Framework Agreement of 26 May 1998 (The Ministry of Foreign Affairs 1998a). It might be argued that the agreement is not a true "framework agreement" – as it has become known among the main participating bodies in Norway and Russia – since its provisions apply only to a small number of the bilateral projects. Interestingly, a representative of a "competing" governmental body in Russia (i.e. other than Minatom) referred to it as "the memorandum of 1998".

The agreement states that Norway shall render free technical assistance in the stated areas, and that Russia shall exempt the delivery of such assistance from taxes, customs duties and other fees (Articles 1 and 5). Moreover, it provides important nuclear liability protections (Article 9). Ten concrete projects are identified as covered by these provisions. Among them are five of the six projects discussed in Chapter 5, Project 301 being the only exception. The Framework Agreement foresees the establishment of a joint Norwegian–Russian commission to co-ordinate and control its implementation. The Commission has so far convened twice and devoted most of its work to the implementation of the ten projects identified in the Framework Agreement (The Ministry of Foreign Affairs 1998b; 1999a). A major problem at the moment is the inclusion of new projects to be covered by the provisions of the Framework Agreement. This is a complex task since it has to be clarified with a range of Russian state agencies.

At the last session of the Joint Commission, the Russian party was represented (in the order it appears in the Protocol) by Minatom, Nuklid, the Ministry of Foreign Affairs, the rocket-cosmic corporation Energia and the Murmansk regional administration. The Norwegian party was represented by the Ministry of Foreign Affairs, Kværner Maritime, Institute for Energy Technology (IFE) and the county governor of Finnmark (The Ministry of Foreign Affairs 1999a). As mentioned in Section 3.2, a secretariat for the Joint Commission was set up at Minatom in early 1999, only to be closed down six months later. That event reflects conflicting interests on the Russian side but also a lack of co-ordination from the Norwegian side. The secretariat was established as a result of an agreement between the Norwegian Embassy in Moscow and Minatom. However, the idea of such a secretariat was not supported by those responsible for handling the Plan of Action at the MFA in Oslo. Hence, the Russian proposal in the Joint Commission to shut it down was accepted by the Norwegian party.

A bilateral Norwegian–Russian Commission on Environmental Affairs has been in existence since 1988. Under the auspices of this commission, an expert group on investigations

10) Co-operation between the ministries of defence of the two countries is presented in Section 3.4 on multilateral co-operation since the main forum in this sector is AMEC, which also includes the USA.

of radioactive pollution in the northern areas was established in 1992 to co-ordinate bilateral activities in this area. It meets 2–3 times a year. A range of institutions are included from both the Norwegian and Russian sides, Goskomekologiya, the Norwegian ME and the NRPA being most heavily represented (The Norwegian Radiation Protection Agency 2000). In addition, the NRPA and Gosatomnadzor maintain a continuous contact. An agreement between the two agencies on technical co-operation and exchange of information related to safe use of nuclear energy was signed on 20 October 1997 (The Norwegian Radiation Protection Agency 1997). The bilateral co-operation between Norway and Russia in the sphere of environmental protection and licensing is generally characterised as very good:

> Our co-operation with Norway contributes to strengthening our position in Russia; it's very good that Norway has taken upon itself the role of an international organiser […]; this really helps us [can't you say anything critical about the co-operation with Norway?] I'm sorry, but I really don't have anything critical to say; our co-operation is indeed very fruitful; we often come to the meetings with diverging views but always end up agreeing. (Russian co-ordinator)

In sum, the bilateral co-operation between Norway and Russia in areas covered by the Plan of Action seems to have found its form although some problems and dilemmas remain. Co-operation between environmental and nuclear safety authorities seem to function to the satisfaction of both parties. The signing of the Framework Agreement and establishment of the Joint Commission for its implementation represent major achievements at the highest political level in the two countries. Current problems, such as those of including new projects under the provisions of the Framework Agreement, are mainly to be found on the Russian side and can hardly be influenced by the Norwegian party. However, the Russians miss a more profound understanding by the Norwegians of the difficulties on the Russian side. To exemplify, the Framework Agreement was allegedly delayed by some six months when the Norwegian party insisted on including three additional projects when the seven first had already been clarified. Also, the establishment of the secretariat for the Joint Commission at Minatom was rather awkwardly handled by the Norwegian side. Moreover, regional actors in Northwestern Russia complain that the Norwegian party relies too heavily on contacts with federal agencies in Moscow, especially in recent years. The same federal agencies confirm that they have nothing against direct initiatives from the Norwegian side towards agencies in Northwestern Russia as long as the federal level is informed. Finally, there is a dilemma as to how the Norwegian side shall relate to Nuklid.

3.4 The multilateral co-operation

It has been an explicit Norwegian goal to play a catalytic role in raising international awareness of and financial support for nuclear safety in Russia, and to create proper multinational mechanisms for this purpose. One major venture in this respect, initiated by Norway, is the trilateral Arctic Military Environmental Co-operation (AMEC) between Norway, Russia and the USA (The Ministry of Defence 1996). This co-operation, which has been in place since 1996, is directed towards military-related environmental issues in the Arctic. Ten concrete projects have been identified under the AMEC co-operation so far, eight of which are related to nuclear safety and partly financed by the Plan of Action from the Norwegian side. Although the AMEC co-operation does not stand out with respect to broad international participation or substantial financial commitments, it appears to have broken new ground by opening up defence-related nuclear waste issues in Russia to international co-operation. It has served different, but complementary, national objectives for the three participating states, contributing to environmental security for Norway, strategic security for the USA, and financial and technological assistance for Russia (Sawhill 2000).

In 1994 the Nordic states established the Nordic Environmental Finance Corporation (NEFCO), which has developed an environmental

programme for Northwestern Russia. Several investment projects in the sphere of radioactive contamination from this programme are included in the Plan of Action. At the initiative of Norway, a Contact Expert Group (CEG) on nuclear safety of radioactive waste management was established under the auspices of IAEA in 1996. The purpose of this initiative was to promote co-operation on projects to improve safety standards for the management, storage and disposal of spent nuclear fuel and radioactive waste in Russia. The G-7 states have established a Nuclear Safety Account (NSA) within the European Bank for Reconstruction and Development (EBRD). The NSA finances measures that contribute to technical and operational safety improvements for nuclear reactors in Central and Eastern Europe. Norway participates in and contributes financially to the Chernobyl Shelter Fund, which aims at rebuilding the sarcophagus around the Chernobyl nuclear power plant. Nuclear waste problems are also discussed in NATO, the North Atlantic Co-operation Council (NACC) and a Norwegian–French working group. Finally, Norway has taken a leading position in endeavours to create a Multilateral Nuclear Environmental Programme in the Russian Federation (MNEPR). The aim of this initiative is to secure satisfactory framework conditions for all participating parties in nuclear safety projects in Russia, e.g. related to indemnity against nuclear liability, access and oversight, and exemption from taxes, customs duties and other fees. The current draft agreement is stricter than the Norwegian–Russian Framework Agreement as it includes provisions on personnel immunity, access and oversight. A Declaration of Principles was signed on 5 March 1999 (The Ministry of Foreign Affairs 1999b), but a more binding legal framework is not in sight. The 8 country co-operation within AMAP was established in 1991. Norway and Russia shares responsibility for the radioactive pollution programme.

According to our interviewees, Norwegian efforts in the international arena are generally appreciated. But apart from AMEC, only the CEG and the MNEPR are mentioned explicitly. The CEG is perceived by Norwegian actors as not having fulfilled expectations. The MNEPR has caused a certain irritation on the Russian side: “Why has Norway chosen to go for one overarching multilateral agreement? Is it because they know it’s unrealistic? Is it to slow down the process?” (Russian co-ordinator). In sum, Norway seems to have laid down a considerable amount of work in the international arena and so far accomplished what seems realistic given the context. As indicated in the introduction to this chapter, the empirical basis is too weak to provide support for a more thorough discussion of the multilateral co-operation, and it is still too early to assess the potential for international financial contributions.

4 How are the projects selected?

The projects conducted and planned under the Plan of Action, with a few exceptions, can all be reasonably attributed to the four priority areas in the plan. But this does not mean that the individual projects are necessarily *derived* from the overall priorities in the plan. This is, of course, not surprising and does not have to conflict with overall goal attainment, but an understanding of the various sources of project generation and channels into the decision-making bodies is important for the efficiency of the Plan of Action.

4.1 Roots of co-operation

The bilateral co-operation between Norway and Russia in the nuclear field did not start with the Plan of Action: it started with an issue – allegations about nuclear dumping in the Kara Sea that were put forward in 1990. At least two institutional arrangements within which the issue could be discussed were already established, namely the bilateral environmental agreement between Norway and the USSR from 1988 (cf. Section 3.3) and the co-operation in fisheries management, which had been going on since the mid-1970s. As it was, the issue was raised under the environmental agreement. It was in the joint environmental commission that it was decided to investigate the allegations concerning nuclear dumping, and a joint expert group under the commission was established in the spring of 1992 (Stortinget 1994a, p. 37). The first joint expedition to dumping sites in the Barents and Kara Seas took place in August–September 1992. In April 1993, the Yablokov commission published its report about radioactive dumping (Yablokov et al. 1993), which further increased the awareness about the dumping problem in Russia. A second joint expedition to the Kara Sea was undertaken in September–October 1993 (Stortinget 1994a, p. 30).

Also another main element in the Plan of Action precedes the White Paper as well as the Plan of Action itself – the nuclear power station on the Kola peninsula, where contacts between the NRPA and Russian authorities had already been established. Before the issue of the White Paper, some 20 mill. NOK had already been granted for short-term measures to upgrade safety at the power station (Stortinget 1994a, p. 16). Another particular project – the Lepse project – had already been introduced when the White Paper was in preparation. This project, which is hardly mentioned in the White Paper, is singled out in the Recommendation, advising the Government that "…it will be an obvious task to secure the ship 'Lepse'" (Stortinget 1994b). It seems natural to link this to the considerable activity Bellona carried out at the time to increase awareness about the Lepse problem. Thus, already before the Plan of Action itself was worked out, important premises about which sectors and individual projects should be prioritised had been given. To some extent, this fact contradicts the mandate given to the Government by Parliament: To work out "a plan of action where it is made clear what measures the Government believes are most cost effective with regard to removal of the threat of radioactive contamination of our adjacent areas" (ibid.).

The fact that several conclusions about priorities had already been made before the Plan of Action was worked out would tend to circumscribe the Government's possibility of forming a "rational" plan. This state of affairs is not surprising, given that the Plan of Action was worked out and should enter into force in a situation where problems had already been identified and co-operation has already started. This happens also in other policy areas. But the Action plan stands out because it primarily involves relations with another country, which means that commitments and signals are harder to change than in the domestic policy arena. That the country in question is Russia amplifies this observation.

4.2 Policy dilemmas

Already the Parliamentary Committee pointed out a main distinction between the problems identified in the White Paper: "acute environmental problems and threats that are emerging over time" (Stortinget 1994a). The emphasis on either type of problem has different implications for the choice of projects. Emphasis on acute problems would point towards "concrete" projects – i.e. financing or transfer of hardware – that could be introduced to remedy the problems. If emphasis was put on threats emerging over time, it would seem natural to undertake more studies and environmental impact analyses in order to obtain a more comprehensive picture of problems and alternative solutions. With limited resources available emphasis on one type of problems would necessarily have to be at the expense of the other. There were also other dilemmas in the co-operation from the start. Should Norway work directly with the Russian bodies that had been and were creating the problems, or should one work to strengthen the competence of Russian control bodies and let them make priorities? Working mainly with the "problem creators" would risk reinforcing a system with weak independent control and licensing bodies; going only through the existing control bodies could mean that the influence on actual problem-solving would be very limited. Another question was whether Norway should work unilaterally, or primarily focus on a multilateral strategy.

Such dilemmas were embedded in the Plan of Action from the very start. But there were more, less-pronounced considerations. The Plan of Action signified a comprehensive co-operation programme with a Russia undergoing a dramatic transformation. The establishment and implementation of such a co-operation programme was bound to affect relations between the two countries and also perhaps internal developments in Russia. Good relations with Russia and support to the transition to democracy and a market economy were already established as central Norwegian foreign policy goals. How should the Plan of Action be co-ordinated with these goals?

As it was, the Plan of Action did not come out clearly in the discussion of these questions and dilemmas. And also in the following implementation of the Plan, it is hard to find an explicit discussion of them. However, interviews with members of the IMGSO clearly show that different attitudes are to be found among the participating Norwegian state bodies (cf. Section 2.2). In our understanding, the reason that so little conflict has emerged from these often contradictory opinions is the relative resource richness in the first years of the Plan of Action. Among the alternatives sketched above, all were chosen. The deliberations in the IMGSO were not a traditional conflict over resources for various purposes, as one might have expected. The bottleneck was not funding, but finding projects that could be implemented. The hardware projects within Area 2, some of which were already identified in the White Paper, enjoyed considerable political attention from the start of the Plan of Action. However, it soon became clear that developing and implementing them would take more time than what was first thought. The "softer" projects, studies, and monitoring (Area 3) were easier to realise and thus became more central in the implementation of the Plan.

But this does not mean that the fundamental disagreements have disappeared. In a situation with fewer resources available for projects, one must expect more traditional resource conflicts, where institutional interests and principles are mixed in the discussion.

4.3 Project channels

Within the IMGSO, the MFA, the ME, the NRPA and the MOD have been most active in launching projects and proposals. But the channels that have brought the projects to these institutions vary. Most of the larger "hardware" projects have been discussed over several years, bilaterally as well as in multilateral fora like the CEG. On the Russian side, they have had Minatom as their main proponent. This is reflected in the Framework Agreement from 1998 between Minatom and the Norwegian MFA, where 10 such projects have been

defined. For the ME the Norwegian–Russian commission on environmental affairs and in particular its expert group on radioactivity are main channels. Goskomekologiya is ME's main counterpart, but the expert group is composed of experts as well as civil servants from several institutions, and is both an informal and formal network where project ideas can be floated. AMAP is an important source for projects in the field of monitoring and assessments. ME and NRPA are among Norway's representatives in this co-operation. The NRPA has its main links in Russia to Gosatomnadzor. Contact is well established and frequent. The latter has a channel to the IMGSO through the NRPA.

The MOD is presenting projects from AMEC. AMEC has a plan for main priorities, on the basis of which the parties invite their experts to elaborate project proposals. Proposals must be made as co-called Concept Level Proposals (CLP). The MOD has established a practice whereby CLPs are presented to the IMGSO in order to secure co-ordination and correspondence with overarching Norwegian policy in the field. If all three AMEC partners decide to go further, a Detailed Project Proposal (DPP) is worked out, and the projects are formally established in the form of an *Annex to the AMEC Declaration*. An application for funds from the Plan of Action is set up on the basis of this. Decision-making within AMEC has not been studied in this evaluation project, but it seems that on the Norwegian side an important premise-maker, beside the MOD, is the Norwegian Defence Research Establishment (FFI), which is the main Norwegian operator of AMEC projects.

Thus, established institutional contacts are very important, and many projects are "repeaters" or extensions of ongoing co-operation. However, there are also several, usually smaller, projects that are presented to the IMGSO. They stand less of a chance of being accepted. Many of them are irrelevant and poorly developed, but it is probably also decisive that they lack the institutional backing which projects launched via the channels above have. Russian proposals are never presented directly to IMGSO; they are always "filtered" through the respective Norwegian partner.

4.4 Integrated assessment of projects

With the variety of channels for project presentation and "lobbying", there is a risk that some projects are developed in isolation from each other. This is a serious challenge in this problem area, especially with regard to the physical handling of nuclear material. Removal, temporary storage, transportation, and final storage or treatment are linked in a chain. Development of one component may be in vain if the next component is missing. This is not only a technical or even financial problem. Division of authority on the Russian side, especially between the military and civilian authorities, has also caused a problem. The problems are being reduced with the transfer of authority over all nuclear waste to Minatom (cf. Section 3.2), but it has not disappeared. On the other hand, all action will be paralysed if the Norwegian side requires all institutional battles in Russia to be settled, and authoritative priorities to be made before projects can be implemented. For example, the building of special railway stock for transport to Mayak (Project 212; cf. Section 5.4) may be questioned since the Russians now seem to favour construction of storage on Kola. There are also unanswered questions with regard to Mayak's capacity for storage. Still, such critique misses the point that building of a storage facility, if it is decided, may take a very long time to undertake. In the meantime, Mayak will probably be used. To handle such uncertainty it would seem important to ensure contractually that the use of installations financed under the Plan of Action continues to benefit the goals of the Plan, even if the original direct usage becomes less relevant. In the example of project 212, this would mean that the railway wagons should be devoted to other transportation tasks on Kola and not being reassigned to another area in Russia if transportation to Mayak is curtailed.

Generally, it seems that too little has been done from the Norwegian side to look "horizontally"

at the projects, i.e. placing each proposal into its proper context in the chain, and also taking into account the development of neighbouring projects, conducted either under the Plan of Action or by other countries. The integration of the AMEC projects would seem to be very important, and AMEC in itself can be seen as a tool to avoid the insular attitude of the Russian military spreading into the area of nuclear safety co-operation. At the same time it seems that "civilian" projects that affect the Russian military have not always been properly co-ordinated with Norwegian military authorities.

Another aspect of the projects, which deserves more attention, is environmental impact assessments. Such assessments are not systematically included in the development of projects. The risk is that projects designed to solve one problem create new ones. An example would be construction of a facility for treating waste being located at a spot that already has a considerable, though permissible, radiation level, and that the combined radiation from the new facility and the old sources exceed this level. According to Goskomekologiya, environmental impact assessments will eventually be made by the expert commission that is set up according to Russian law for such projects, but it would seem more efficient to introduce environmental impact assessments before projects are handled by the IMGSO. Also Norwegian participants are surprised that this is not done on a systematic basis.

5 How are the projects implemented?

This chapter provides a description of how a few projects from Areas 2 and 3 of the Plan of Action have been implemented. The projects were selected according to the following criteria: size in terms of financing (the total budgeted Norwegian contribution to the selected projects amounts to some 110 mill. NOK); a certain maturity in implementation (avoiding projects that have recently been started); and institutional pluralism (attempting to cover a certain variety of institutions in Norway and Russia). In most of the projects, we have interviewed people at various levels in both countries. The interviews were oriented towards revealing both facts and perceptions. It was investigated whether goals, events and results were perceived differently in Norway and Russia. Naturally, our interviews were also directed towards the actual *outcome* of the projects: Have the established goals been achieved? What particular problems were encountered? How can co-operation between Norwegian and Russian participants in the individual projects be characterised? If not otherwise indicated, all information is based on the interviews.

5.1 Project 202: Effluent treatment facility for liquid radioactive waste in Murmansk

This project involves an upgrading and expansion from 1200 m2 to 5000 m2 of the effluent treatment facility for liquid radioactive waste at the facility serving nuclear-powered icebreakers in Murmansk. The project was conceived in 1994 as a bilateral Norwegian–Russian initiative; the USA joined the project in 1995. The final decision to go ahead with the upgrading and expansion was made in December 1995. The equipment and materials used are mainly Russian. The facility will serve both the nuclear-powered icebreaker fleet and the Russian Northern Fleet. The opening of the facility has been postponed several times. It is now supposed to be opened for test operations at the end of April 2000. The MFA and the NRPA have been responsible for the project from the Norwegian side; main project participants in Russia have been Nuklid and RTP Atomflot, on whose premises the facility is built. The total cost of the project is estimated at approximately NOK 43 mill. The Norwegian share amounts to NOK 17,470,750.

A major goal from the Norwegian side is to contribute to enabling Russia to accede to the London Convention's prohibition on dumping of nuclear waste (including low-level waste) at sea. In our interviews, this was mentioned by all Norwegians who had something to say about this project, but by none of the Russians. Instead, the latter stressed the need to solve the increasing problem of liquid radioactive waste, and to expand activities and secure revenues at RTP Atomflot (by selling services to the Northern Fleet). The Russians and Norwegians agree that the goals of the project have been "nearly achieved". The Norwegians here probably refer to the finalisation of the facility, and not to Russian accession to the prohibition on dumping of nuclear waste in the London Convention. To explain the delays in finalising the facility, the Russian project participants refer to changes in the Russian security norms twice during the project period (in 1996 and 1998). From the Norwegian side, "Russian bad (mangement) culture" and "the culture clash between Americans and Russians" are referred to as circumstances delaying the project. Both parties mention the Russian need for pre-payment as a major obstacle. Nevertheless, the bilateral co-operation between Norwegian and Russian project participants is generally perceived as unproblematic.

The project has been rather highly profiled and is also mentioned frequently in interviews other than with those directly involved in it. Most seem to perceive it as "semi-successful". For some time, it was clearly viewed as something close to an exemplary project since the parties indeed succeeded in getting something done here. With the repeated delays in finalising it, however, the enthusiasm has been somewhat

reduced. Several of our Russian interviewees not directly involved in the project refer to it as "too golden", indicating that the abundant financing reduced the wish on the Russian part to finalise it. Some say outright that the Norwegian side should have stood more firmly on its position and demanded the finalisation of the project with the funds initially allotted. In 1999, the Norwegian project participants increased their supervision of the project's progress. Since then, they have had their own representative from Kirkenes present at meetings in Murmansk every second week. The Russian project participants, on their part, claim that they have on several occasions had to use their own means to cover unforeseen costs. They also express gratitude towards Norway for yielding necessary additional assistance.

5.2 Project 203: International Advisory Committee for the storage vessel for radioactive waste, the Lepse

Lepse is the nuclear-powered icebreaker fleet's old storage vessel for radioactive waste. It is used for interim storage of spent nuclear fuel, a large portion of which is classified as damaged fuel. This stems mainly form the nuclear-powered icebreaker Lenin, which suffered a reactor accident in 1966. The damaged fuel must be removed by specialised remote-controlled equipment. The vessel itself is also contaminated by radioactivity, and parts of it must be stored as radioactive waste. A Norwegian initiative has resulted in the establishment of an international advisory committee, which is supposed to work for the solution of the environmental threat posed by Lepse. The committee is led by Norway; the other participants are Russia, France, the USA, the European Commission and NEFCO. A steering committee, composed of representatives of all donors, is also led by the Norwegian side. The cost of removing the damaged fuel and placing it in containers for further transport is estimated at approximately NOK 72 mill. NOK 25 mill. have been set aside for the project from the Plan of Action. Responsible for the project on the Norwegian side is the MFA. Major participants on the Russian side include Minatom, Nuklid, Murmansk Shipping Company (the owner of Lepse), Goskomekologiya, Gosatomnadzor and various research institutes and enterprises.

The vessel was docked in the summer of 1999 and is assumed by Russian experts to be safe for another 10 years. Documentation is being elaborated on the whole process of removing the damaged fuel and liquidating the vessel; the present project only embraces the former. There has been very little progress in the project so far, except for a fruitful sub-project on licensing. The international advisory committee and the steering committee have each met a few times; the former had its last meeting in September 1998, the latter in February 1999. From the point of view of the Norwegian leadership of the project, practical work cannot start until all Western parties involved have been secured tax release and indemnity against liability through framework agreements with Russia. Such agreements are still lacking for NEFCO and the USA. An agreement between Russia and France was signed in June 2000. The case of NEFCO is more complicated as the Russian MFA does not recognise NEFCO as an international organisation. The USA also needs an agreement before its participation in the project proceeds much further.[11]

Russian actors at both the project participant level in Murmansk and the co-ordinating level in Moscow show little understanding for the Norwegian stance and complain about the lack of progress in the project:

> If nothing happens in a year's time, I'll be compelled to find other solutions; there are alternative solutions in Russia; we'll just have to go searching for money… (Russian project participant)

11) American participation in AMEC projects is covered by the Nunn-Lugar Co-operative Threat Reduction (CTR) Programme framework agreement between the USA and Russia where those projects have a direct linkage to CTR activities (e.g., the elimination of ballistic missile submarines). AMEC projects without such a nexus are not covered by the CTR framework agreement.

> Why cannot Norway and Russia start the project bilaterally? Lepse is included in the Framework Agreement [between Norway and Russia]; parts of the work can be started; design has to be elaborated by organisations licensed to do this, that is Russian organisations; let's start that work. (Russian co-ordinator)

The Lepse project seems by many to be perceived as the unsuccessful project per se in the Plan of Action. It is a highly profiled project involving many actors and much money, and no work has been done in the industry project so far. The Norwegian leadership of the project emphasises that even with the necessary framework agreements in place a wide array of contracts will have to be elaborated between the organisations involved, which will also be no easy task. As follows from our discussion in Chapter 2, there were strong political guidelines towards including Lepse in the Plan of Action. In hindsight, it can be argued that giving such a prominent place to this complicated issue has contributed to giving the Plan of Action a negative image. Some of our interviewees stress that Lepse poses no radiation threat to the Norwegian population, indicating that it should not have been given priority if the goal had been only to maximise Norwegian interests:

> It wouldn't have been any problem for us [in Norway] if Lepse had sunk in Murmansk harbour; this is a local problem, but Lepse became a symbol case for Norway. (Norwegian project participant)

Also several of our Russian interviewees show irritation at the Norwegian flagging of the Lepse project:

> Lepse was raised as a flag ship [by the Norwegian side], and then it's become the greatest failure; if we hadn't docked Lepse, it might have sunk; I don't understand why Norway raised this flag; I don't understand how you can sit there producing paper while nothing is being done with the ship; do you really want to take that responsibility? (Russian co-ordinator)

In addition to providing an indication of Russian irritation at the lack of progress in the Lepse project, the above citation shows that the considerable Norwegian involvement in the project might have led to a somewhat diffuse perception of responsibility for the Lepse problem. Of course, the interviewee does not mean that it would have been better not to dock the vessel and let it sink. However, he/she expresses irritation at the fact that the Russians had to go to such a measure themselves, implying that they perceived the Norwegians as having taken over the responsibility for Lepse.

5.3 Project 211: Specialised vessel for transport of spent nuclear fuel

It has long been acknowledged that Russia will need a specialised vessel for safe transport of spent nuclear fuel and possibly also other radioactive waste from decommissioned nuclear submarines from remote locations in Northwestern Russia to transfer terminals in Murmansk and the Sevmash shipyard in Severodvinsk. The background is that the spent fuel is transported in containers that are too heavy to be transported by road. The ship will be required to have independent propulsion machinery, a double hull and other safety features. The firm Moss Maritime (former Kværner Maritime), is responsible for the project on the Norwegian side; the main actors on the Russian side are Minatom and a co-ordinating body for some Russian shipyards Morskoye Korablestroyeniye (Maritime Ship-building). The project has been allotted NOK 3,300,000 from the Plan of Action for an elucidation.

The original plan was to build a new ship. However, in 1998 the Russian party announced that it would instead reconstruct an old vessel, the Amur, arguing that this would be a less expensive solution. The Norwegian stance has been that the costs of reconstructing Amur will hardly be lower than those of building a new vessel. It also argued that Amur will not be fit to fulfil the tasks of the required specialised vessel. Separate expert groups were established in Norway and Russia in 1999, and in the autumn that year these arrived at the joint conclusion that building a new vessel will be the better alternative. At the beginning of 2000, Minatom formally informed the Norwegian party that it will go in for a new vessel. Since then, planning

of the building of the ship has progressed rapidly.

The Norwegian project participants assume that external concerns have delayed the project. Amur has constituted a problem for Minatom – how could it get rid of this old and polluted vessel? – and the planned specialised vessel for transport of spent nuclear fuel was perceived as a possible way of solving this problem. The co-operation between Moss Maritime and Morskoye Koroblestroyeniye is by both parties reported to be very good. The Norwegian project leader has control over all steps in the process and full overview of all financial dispositions on the Russian side. The Russian project participant views its role as that of co-ordinating activities in Russia and to exert control on behalf of Minatom. When the parties agree on a concrete project, an agreement will have to be signed between the Norwegian MFA and Minatom on building of the vessel. A limited tender will then be prepared, and the successful party will conclude a contract with Minatom. Money will be transferred directly from Moss Maritime to subcontractors in Russia. The Russian project participants view the Norwegian approach to the project as highly constructive and acknowledge that the delay is due to problems on the Russian side.

5.4 Project 212: Specialised railway rolling stock of the type TK-VG-18 for transport of spent nuclear fuel

In order to transport spent nuclear fuel from terminals in Murmansk and Severodvinsk to interim storage or reprocessing in Mayak, Russia will need specialised railway rolling stock that can carry safety-approved transport containers of the type TK-18. The present project involves procurement of four such specialised wagons, of which Russia already has four. The project has a total budget of NOK 24,980,000. Moss Maritime is responsible on the Norwegian side; Nuklid is the main Russian contractor of the project. The wagons – finalised in March 2000 – were built at Tver' Railway Factory in Central Russia. All subcontractors were also Russian.

Negotiations on the realisation of the project were commenced in September 1998. The Norwegian project manager claims that it was "forced" by the Norwegian MFA to accept Nuklid as main contractor on the Russian side. It would have preferred to control all activities in Russia itself, selecting subcontractors by means of tenders (cf. Sections 5.3 and 5.5). Nuklid does not use tenders; it selects subcontractors to carry out the work at fixed prices. According to the agreement between the Norwegian project leader and Nuklid, the former should not even be informed about financial dispositions on the Russian side. The only reason Moss Maritime accepted this solution was that this is a very concrete project, where progress is fairly easy to control.

The wagons have been built without any particular problems. A major problem arose, however, when they were finalised in the spring of 2000. The Norwegian project manager was informed that the Russian main contractor had changed ownership of the wagons. Moss Maritime's agreement with Nuklid states that the wagons will be owned by the Mayak facility (Moss Maritime 1998). However, it turns out that they have been transferred to a newly established firm called *Atomspetstrans*. Moss Maritime requested further information on this enterprise and immediately stopped remaining payments to Nuklid. (The parties had agreed on 12 installments from Moss Maritime to Nuklid.) Moss Maritime is above all concerned at the lacking respect for concluded agreements on the Russian part. They claim not to have been informed about the change of ownership, nor about the status of Atomspetstrans. Moreover, they state that this is mostly a matter of principle for themselves, but that it should be a matter of substantial worry for the Norwegian MFA, whose reaction to the change of ownership they would have preferred to be firmer. Other agencies in Russia claim that Atomspetstrans does not exist and that if it is in fact established, it will be a "paper firm" only performing an unnecessary middle-man role, leasing the wagons to the Mayak facility. (Other problems related to the final use of the wagons are briefly discussed in Section 4.4.)

There seems to be a major antagonism between the Norwegian project management and Russian main contractor of this project:

> As far as our relationship with [Moss Maritime] is concerned, our functions are quite similar, but we're interested in the end result, and we know the Russian management culture; [Moss Maritime] exaggerates its function; they're only interested in making money, which is quite understandable, but they shouldn't have been given so much money for doing this; they have only been a financial agent for the MFA; I don't know how much [Moss Maritime] took from the MFA, and it really doesn't interest me, but I proposed to manage the project on my own and inform [Moss Maritime] of its progress; […] it would have been financially beneficial also for Nuklid only to be a financial agent and receive money from [Moss Maritime] for our intellectual services, but it wouldn't have been beneficial for Russia. (Russian project participant and co-ordinator)

> [The Russians] view themselves as responsible for the project and us as donors; Nuklid thinks of itself as contractor, but they're not able to manage projects; the [Norwegian] MFA should support us here…, they should at least insist on professional project management; the MFA can avoid using Nuklid by arguing that experience from other projects is not too good, for instance in [Project 202]; […] Norway displays naivety in relation to Nuklid, if the authorities suspect that not all money goes to the agreed measures, it's wrong to continue… (Norwegian project participant)

In sum, this project has been successful in the sense that the physical product it intended to produce, has in fact been produced. There is, however, a fundamental disagreement between the Norwegian project manager and the Russian main contractor on how such projects should be run. As a matter of principle, the former insists on its prerogative to be responsible for selecting sub-contractors in Russia, whereas the latter claims this is impossible:

> These aren't commercial projects, but environmental protection; you use far too much money on [Moss Maritime]; now look how much cheaper things turned out in the Murmansk initiative [Project 202], where the NRPA was responsible; I – Nuklid – can do everything much cheaper, I'm a small firm, I'm financed by the state budget, my employees don't earn much, I can do everything much cheaper; Norwegian firms cannot evaluate the end result; if you want to reduce expenses, you should start with yourselves, you should use smaller and less expensive firms on the Norwegian side; besides, you're not in a position to evaluate Russian firms, you need help to obtain the necessary information in a tender situation, you could be represented in the committee that evaluates the tenders, but you cannot do this alone. (Russian project participant and co-ordinator)

5.5 Project 213: Upgrading of storage tanks for liquid radioactive waste at the "Zvezdochka" shipyard in Severodvinsk

In contrast to Project 212, Moss Maritime was given the opportunity to carry out the present project without the involvement of Nuklid. The project involves the upgrading of two existing tanks for liquid low-level radioactive waste of 500 m3 each at the Zvezdochka shipyard in Severodvinsk in Arkhangel'sk *oblast'*. The project also comprises modernisation of piping systems and control equipment at the premises. The tank facility is located next to a planned effluent treatment facility for liquid radioactive waste and will primarily function in connection with the dismantling of nuclear submarines at the shipyard. The project was started in May 1998 and completed in August 1999. As mentioned, it was led from the Norwegian side; all subcontractors were selected through tenders in Russia. Its budgeted costs amounted to NOK 36,189,000. Gosatomnadzor's licensing of the tanks was developed in dialogue with NRPA.

The project is generally perceived of as one of the most successful under the Plan of Action. It involved intensive work for 14 months and ended in the completion of the modernised tank facility. Moss Maritime used a Russian employee as project manager, who spent most of the project period in Severodvinsk. In contrast to several other projects under the Plan of Action, this one was completed without delay. The total costs amounted to NOK 5.7 mill. less than budgeted. In explaining the success of the project, Moss Maritime points at its freedom to

select Russian subcontractors itself, i.e. the non-interference by Nuklid. At an early stage in the project, it discovered that payments from the Norwegian side had been used by the shipyard for other purposes than agreed upon. The project leader warned the Zvezdochka leadership that he would have to report this to the Norwegian MFA. The shipyard then decided to take up loans to pay for the agreed equipment. Another problem was to make workers at the shipyard actually work. A rather unconventional measure by the project management was to physically show up at the yard and promise to pay the workers a reward if they performed the work they were supposed to do. The project manager circumvented the requirement (in line with the provisions of the Framework Agreement) that inputs to the project be tax and customs exempted, by simply buying materials in the Russian market at whatever price was offered.

As mentioned, this project can also be classified as highly successful in the sense that the agreed-upon measures were completed by the given date. However, the director of Nuklid – who was initially appointed by the Russian side as "leader of the project's working group" (The Ministry of Foreign Affairs 1998b) – sharply opposed the objective of the project. She recognises that the project was successfully implemented, but strongly opposes its rationale, arguing that it was "basically unimportant, […] far too expensive, and directed towards a completely irrelevant goal". However, her position seems to be in direct contradiction to the nuclear safety priorities as presented by her own government to the international community and by the expert opinion issued by the CEG: that Russia requires additional capacity to collect and process liquid radioactive waste from the Northern Fleet, Atomflot, and the shipyards that are dismantling decommissioned submarines (Gubanov & Akhunov 1995; Semenov & Bonne 1999).

5.6 Project 301: Completion of analysis work from the 1994 expedition and preparation of a collective scientific report of the Norwegian/Russian joint expeditions 1992–94 to the Barents and Kara Seas

In the period 1992–94, three joint Norwegian–Russian scientific expeditions were carried out in the Barents and Kara Seas. The background for the joint expeditions was rumours emerging towards the end of 1990 that the Soviet Union had dumped radioactive material in the Barents and Kara Seas. The rumours, which were later confirmed by the Russian Yablokov report (Yablokov et al. 1993), led to a certain unrest in the international market about fish from the Barents Sea. Hence, it was decided at the 1992 session in the Joint Norwegian–Russian environmental commission to conduct joint investigations of radioactivity levels in the Barents and Kara Seas.[12] For the first expedition, Russian authorities gave permission only for the Barents Sea and open areas of the Kara Sea; for the two next expeditions, the scientists were allowed to investigate dumping sites east of Novaya Zemlya. The expeditions revealed that the dumping had not been conducted co-incidentally or recklessly, but in consciously selected places upon the advice of radiation experts. Many objects had, for instance, been dumped in very shallow waters so that it would be possible to remove them later. More importantly, the analyses showed negligible leakage of radioactivity from the dumped objects. On the basis of this conclusion, the parties agreed that the safest measure would be to leave the dumped objects where they were. Only the completion of analysis work from the 1994 expedition and preparation of a collective scientific report of the three expeditions constituted a project under the Plan of Action. The costs of these activities amounted to NOK 2,272,000 plus NOK 508,000 for reprint. On the Norwegian side the ME and the NRPA were responsible for the project. The major

12) By all our interviewees this is presented as a joint Norwegian–Russian initiative. However, it is hard to see that the Russian concern for markets for fish was as serious as Norwegian concerns since Russia at the time only exported a very limited part of its Barents Sea fish. Moreover, the Russian party asserts that it knew the areas in question were clean, but it realised that Russian research reports were not fit to convince people in the West.

participant on the Russian side was Goskomekologiya, represented by both its federal agency in Moscow and regional agencies in Murmansk and Arkhangel'sk *oblasti*. It should also be mentioned that representatives from the EU and the IAEA participated in one or more of the expeditions in order to give the results international credibility.

All project participants we have interviewed – at various levels and in both countries – have characterised the project as extremely successful. First, the established goals of the project were all achieved; the expeditions were carried out and all necessary analyses performed. Second, there were no major problems in the co-operation between Norwegian and Russian actors in the project; on the contrary, our interviewees involved in the project perceived the atmosphere and practical co-operation between scientists and other personnel from the two countries as exceptionally good. Third, the results of the analyses have allegedly been of utmost importance in maintaining the "credibility" of Barents Sea fish on the international market; hence, Norway and Russia have had direct economic gains from the scientific expeditions. Fourth, Norwegian project participants emphasise that this is one of the few projects under the Plan of Action that has had a complex approach in terms of including an analysis of consequences of various possible measures.

As a follow-up measure of the expeditions to the Barents and Kara Seas, an initiative was made in the Joint Norwegian–Russian expert group for investigation of radioactive contamination in the northern areas to carry out joint Norwegian–Russian expeditions to investigate the level of radioactivity in the Kola and Motov fjords. Such an expedition is included in the Plan of Action as Project 313, *Radioactivity investigations in fjord areas on Kola*. However, the Russian authorities failed to give permission for such investigations in both 1996, 1997 and 1998, and the project has been put on hold. In our interviews, it seemed as if both parties have now given up this project. The Russian party expressed a desire to instead carry out a new expedition to the areas that were investigated in 1993. Such a proposal may come up in the Joint Norwegian–Russian environmental commission.

5.7 Conclusions – project implementation

Our analysis covers only a few of the projects under Areas 2 and 3 of the Plan of Action. Based on incidental information about other on-going and completed projects, it nevertheless seems to reflect a more general trend: The implementation of projects from Area 3 is less problematic than that of Area 2 projects. The former mainly involve research, assessment and monitoring activities where there is a common interest between Russian and Norwegian project participants, i.e. the conflict potential is rather low. Moreover, these projects have profited to some extent from already established institutional and personal contacts between the parties. Finally, it can be argued that it is easier in practical terms to manage joint research and monitoring activities than international projects that involve construction of physical objects in Russia, as do many of the Area 2 projects.

The co-operation between Norwegian and Russian project participants can generally be characterised as very good. We have revealed no major differences in how goals, events and results are perceived – except in some of the projects where Nuklid is involved. The role of this co-ordinating body in nuclear safety projects is highly disputed in both Norway and Russia. This is even more explicitly reflected in the analysis of concrete projects. First, Norwegian project managers oppose the lack of financial transparency that results when Nuklid takes responsibility for project management on the Russian side. Second, working relations between Norwegian and Russian project participants are reported to be far more problematic when Nuklid is involved than when it is not.

6 Conclusions and recommendations

6.1 Conclusions

There is a high degree of correspondence between the official aims of the Government and the practical intentions spelled out in the Plan of Action. But a range of underlying dilemmas faces Norway in its nuclear safety co-operation with Russia. This relates to priorities between different goals, to the organisation of activities on the Norwegian side, and to contact patterns with Russian partners. The policy pursued thus far has attempted to face these dilemmas and to achieve a balance between the various Norwegian considerations.

There has been little conflict among Norwegian bodies over priorities in the distribution of resources since funds have been ample. Some 68% of the total funds allotted have been given to construction of facilities to handle, store or transport nuclear material, but a considerable part of this money has not been spent, mainly due to long and uncertain lead times, and various problems related to project implementation. From a "surplus situation" in the initial years, the situation over the last two years has been characterised by budget cuts, which have put some project plans in jeopardy. Uncertainty about the budget situation creates problems for the planning of projects with long lead times.

The projects planned or implemented are mainly concentrated in Northwestern Russia. However, several larger projects fall outside the area which can be reasonably termed "our near abroad", but are still very relevant with regard to protection of health and environment in Norway. The overwhelming share of funds has been used or is planned to be used in Russia. Still, a sizeable sum has been given to activities in Norway, for instance to research and competence-building in the field of nuclear safety.

The concrete project proposals stem from several sources. Some of the projects were already underway when the Plan of Action was adopted. Concrete project proposals come from the various mechanisms that have been established for bilateral and multilateral co-operation with Russia. There is no lack of possible projects. The constraint is finding *implementable* projects.

The development of projects in isolation from each other is a serious challenge, in particular with regard to the physical handling of nuclear material. Development in one component in the chain may be in vain if the next component is missing. Moreover, it is a problem that environmental impact assessments are not systematically included in the development of projects. These challenges can to some extent be met by better procedures and organisation of the Plan of Action from the Norwegian side. But the problems are compounded by lacking co-ordination between various authorities in Russia. Norwegian authorities have very limited influence on this situation, but must nevertheless find ways to handle it.

As to the organisation on the Norwegian side, a dilemma is whether Norwegian measures in the field of nuclear safety should be viewed as a temporary measure or a permanent activity. There is also a need to balance foreign policy concerns as opposed to the environmental profile of the co-operation. There are two main bodies involved in the co-ordination and organisation of activities under the Plan of Action: the Committee of Deputy ministers (CDM) and the Inter-ministerial Group of Senior Officials (IMGSO). The former is the decision-making body in matters related to the Plan of Action and usually bases its decisions on recommendations from the latter. Co-ordination of the work of the CDM and the IMGSO is carried out by the MFA. This organisation of activities seems to have functioned rather satisfactorily. However, the limited capacity of the "semi-secretariat" available to the IMGSO is striking considering the high number of projects and amount of money involved. There are indications that this has led to detailed, but

still unsatisfactory discussions of incoming proposals and applications at the expense of strategic thinking, and that there is lacking capacity to follow up on-going projects in an adequate way.

The main governmental bodies on the Russian side in issues covered by the Plan of Action are the Ministry of Atomic Energy (Minatom), its so-called Interbranch Co-ordination Centre Nuklid, the Ministry of Defence, the State Committee for Environmental Protection (Goskomekologiya) and the Federal Nuclear and Radiation Safety Authority (Gosatomnadzor). There is limited horizontal integration between these agencies, and the level of conflict is high. A main line of conflict runs between the "hard" agencies of Minatom and Nuklid on the one hand, and on the other the "softer" agencies of Goskomekologiya and Gosatomnadzor. There are also signs of internal conflict inside Minatom. The role of Nuklid is highly controversial in both Russia and Norway. Foreign projects sometimes facilitate co-ordination and contact between Russian agencies. Changes in the organisational structure on the Russian side can create problems, but may also open new channels and opportunities for co-operation.

The bilateral co-operation between Norway and Russia in areas covered by the Plan of Action has found its form, although some problems and dilemmas remain. Co-operation between environmental and nuclear safety authorities functions to the satisfaction of both parties. The signing of the Framework Agreement and establishment of the Joint Commission for its implementation in 1998 represent major achievements at the highest political level in the two countries. Current problems, such as the inclusion of new projects under the provisions of the Framework Agreement, are mainly to be found on the Russian side. However, where the Norwegians feel that the Russian counterparts are moving too slowly, some Russian participants in the co-operation miss a more profound understanding by the Norwegians of the difficulties on the Russian side. Regional actors in Northwestern Russia also complain that the Norwegian party relies too heavily on contacts with federal agencies in Moscow.

Finally, it is a dilemma how the Norwegian side shall relate to project organisation and implementation within Russia. How much weight should be attributed to the fulfilment of formal requirements for project implementation, as opposed to rapid progress? Norwegian project managers oppose the lack of financial transparency that results when Nuklid takes responsibility for project management on the Russian side. In the two more or less successfully completed hardware projects evaluated (Project 212 – specialised rolling stock, and project 213 – upgrading of storage tanks at Zvezdochka), the Norwegian project participant accepted deviations from the principles of transparency and tax exemption to get the projects underway and completed in time.

Norway has laid down a considerable work for nuclear safety in Russia in the multilateral arena. Awareness of the issue has been raised and there is movement towards a Multilateral Nuclear Environmental Programme in the Russian Federation. But it is still too early to gauge the potential for financial contributions from the multilateral level.

Experience from implementation of projects from Areas 2 and 3 is highly variable. As a rule, the implementation of projects from Area 3 is less problematic than that of Area 2 projects. The former mainly involves research and monitoring activities where there is a common interest between Russian and Norwegian project participants. These projects have also profited from already established institutional and personal contacts between the parties. Moreover, it can be argued that it is easier to manage joint research and monitoring activities than international projects that involve construction of physical objects in Russia, as many of the Area 2 projects do. The co-operation and working relations between Norwegian and Russian project participants are generally good. There are no major differences in how goals,

events and results are perceived – except in some of the projects where Nuklid is involved.

6.2 Recommendations

6.2.1 The relations with Russia

In a rational decision-making process, one would expect Norway to require or work for maximum co-ordination of Russian policy and priorities. This would make it easier for the Norwegian part to relate and form its own policy. However, our judgement is that a high level of integration and co-ordination of interests on the Russian side in the foreseeable future is unrealistic. If the Norwegian side requires one voice from the Russian side, the likely result is that the body currently enjoying the strongest position in Moscow will monopolise the co-operation without necessarily representing broader societal interests. The co-operation pattern that has emerged over the years may seem a little chaotic for the outsider, but it allows for considerable flexibility in the dealings with Russia, ensuring that bodies that in a Norwegian context would have had the most central positions, Goskomekologiya and Gosatomnadzor, have good access to Norwegian authorities. At the same time good relations with the heavyweight on the Russian side – Minatom – are secured. In addition to maintaining a broad intake to the nuclear safety issues, the co-operation structure satisfies a major foreign policy goal for Norway – developing a broad set of contacts with Russia. Maintenance and establishment of contacts in the regions with a view to acquiring a fuller picture of the problems and of the various considerations on the Russian side would be helpful for the development of projects and their implementation. Moreover, there are no obstacles towards an extension of direct contacts from Norway to regional actors in Northwestern Russia. Formal project partners must of course be the organs (usually federal) given authority over the various issues.

Many Russian partners have little understanding for Norwegian requests for authoritative decisions and stable and predictable rules. The Russians are accustomed to a state with conflicting authorities and are used to working around the problem. They expect the Norwegians to do the same. While 'looking the other way' with regard to principles may ensure project progress in the short term, we believe it is essential that Norway stands firm on the need for stable and predictable framework conditions at both the bilateral and multilateral level in order to secure long-term legitimacy nationally and internationally of its co-operation with Russia.

Hence, we recommend that Norway:

- maintain a broad approach to various federal agencies in Russia involved in matters of nuclear safety, not confining contacts to one main partner

- maintain and further develops contacts in the regions and in the organisations directly causing or working with the solution of problems, not confining contacts to Moscow

- maintain its firm stance on the need for stable and predictable framework conditions for co-operative projects in Russia.

6.2.2 The development and implementation of projects

While the complexities of operating in Russia must not be underestimated, our evaluation has shown that the potential for Norwegian direction of construction projects implemented in Russia is greater than argued by some Russians. The Norwegian side should make a more thorough, independent assessment of the scope for market-based implementation of projects in Russia before funds are committed. Whether projects are directed from Norway or not, transparency and use of competitive tenders should be demanded wherever possible in the dealings between contractors and project participants. A problem in Russo-Norwegian project co-operation is the mutual allegation of excessive commercial interests, which further underscores the need for transparency in economic arrangements.

In several cases project development has been very slow. The reasons are manifold, but it seems important to put more emphasis on designing the larger projects with clear milestones making it possible to check progress or eventually withdraw from the project if progress is very unsatisfactory, before large Norwegian "investments" in the project make this a too problematic option. Generally, while it is very important that commitments are being adhered to, Norway should be reluctant to engage itself in new complex construction projects until the ones presently being undertaken show adequate progress.

One problem with regard to organisation of projects in Russia is the general Russian lack of understanding of conflict of interest issues and the need for separation of roles. But also on the Norwegian side a clarification is needed. Project co-ordination should be separated organisationally from policy development and oversight functions by governmental organs. This issue is particularly acute with regard to complex "industrial" projects. This means that NRPA should be relieved of co-ordination duties for such projects and instead perform advisory and oversight functions with regard to all projects requiring NRPAs competence. The MFA should relinquish its role as project co-ordinator in the large construction projects as soon as a project becomes concrete. Separation of roles should also be aimed at in other categories of projects, such as studies and assessments. Organs that are members of IMGSO should not be co-ordinators unless they are absolutely needed in the execution of the project. When recommendations on projects in the latter group are being decided upon in IMGSO, the affected agencies should not participate. Again, this particularly refers to NRPA, but also some activities under ME would seem to belong to this group. (See also under 6.2.3 about other activities under the Plan of Action.)

In sum, we recommend that Norway:

- demand full financial transparency and, wherever possible, use of competitive tenders in co-operative projects in Russia
- include environmental impact assessments on a more systematic basis in the development of projects
- put more emphasis on designing the larger projects with clear milestones making it possible to check progress early
- should be reluctant to engage itself in new complex construction projects until the ones presently being undertaken show adequate progress.
- separate out the function of project co-ordinator from bodies participating in policy development and governmental oversight.

6.2.3 Organisation on the Norwegian side

The main features of the present organisation should be maintained (CDM, IMGSO and a "semi-secretariat" located at the MFA) with some adjustments and additions to give the IMGSO more time to focus on strategic thinking, policy development and evaluation. One measure to facilitate this would be to set up an expert group to assist the IMGSO in the assessment of incoming proposals. The group should consist of 5–6 persons, representing both technical expertise and experience from project implementation in Russia. It should provide the IMGSO with contextual information and evaluations of project proposals and not itself propose projects. The group should solely advise the IMGSO and not the CDM directly.

The Plan of Action represents a comprehensive commitment to a long-term problem where Norway has a fairly limited competence and knowledge base. If the longevity of the problem is acknowledged, the need for systematic competence-building must be considered. So far, such needs have unsatisfactorily been treated as action-oriented projects. Funding for such research, should, after a thorough assessment of competence and knowledge needs have been made, be separated out from the Plan of Action and transferred to a body that could handle proposals in a scientifically more satisfactory manner. The establishment of a special research programme within the

Norwegian Research Council (NFR) is one obvious possibility, where the evaluation of proposals and project development is left to a programme committee with representatives of both science and users (the general NFR scheme). The main specialist state organs, such as the NRPA and the Norwegian Polar Institute, should, of course, have access to such funding. Support to international research programmes – such as EU programmes – might also be considered.

Finally, some of the long-term institutional co-operation, in particular that between the NRPA and Gosatomnadzor, ought to be separated out from the Plan of Action and be designed as a special co-operation programme with set goals and milestones, but with considerable discretion as to the use of funds by the Norwegian part. Information activity under the Plan of Action should be delegated to the MFA. In sum, we believe the proposed measures will provide for more optimal use of funds and enable the IMGSO to devote more time to strategic planning and follow-up of on-going projects.

In summary, the following measures are recommended:

- to maintain the main features of the present organisation;

- to set up an expert group, comprising specialists with competence in technical issues and with experience from project implementation in Russia, to assist the IMGSO in the evaluation of incoming proposals;

- to separate out research activities from the Plan of Action to competent scientific organs, institutional co-operation with Gosatomnadzor to the NRPA, and information activities to the MFA.

6.2.4 Further evaluations

The present evaluation has been aimed at the totality of the plan, focusing mainly on policy and organisational issues. A full evaluation would also include the final results of the various projects carried out. However, it is still early to evaluate results from the largest projects. An evaluation of costs and organisation of several projects is being conducted by the Auditor General. Upon conclusion of that project the need and possible value of further project evaluations should be discussed. If the main aim is to improve work under the Plan, it is important that experiences and lessons from past and on-going projects are transmitted to the decision-makers. Project evaluations may be a tool in this respect, but more emphasis on current project review and evaluation within IMGSO and the expert group proposed under 5.2.3 would also be helpful. One area that would seem more fruitful to study in the short term is the various other bilateral and multilateral efforts in this field, synthesising other evaluations that have been made and drawing parallels with the Norwegian experience. Such a project may be handily combined with an assessment of the international attitude to Norwegian efforts, as mentioned under Section 3.4.

Thus, we recommend that

- the need for more detailed project evaluations is discussed when the Auditor General has completed his report;

- that a study be commissioned to bring together experience from other bilateral programmes and that this is combined with an evaluation of Norway's efforts through multilateral channels.

Figures

Figure 1. Distribution of project budgets between priority areas

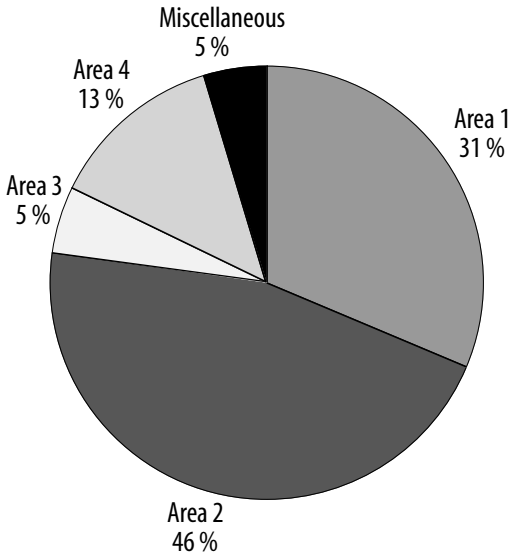


Figure 2. Budget distribution – within and between priority areas

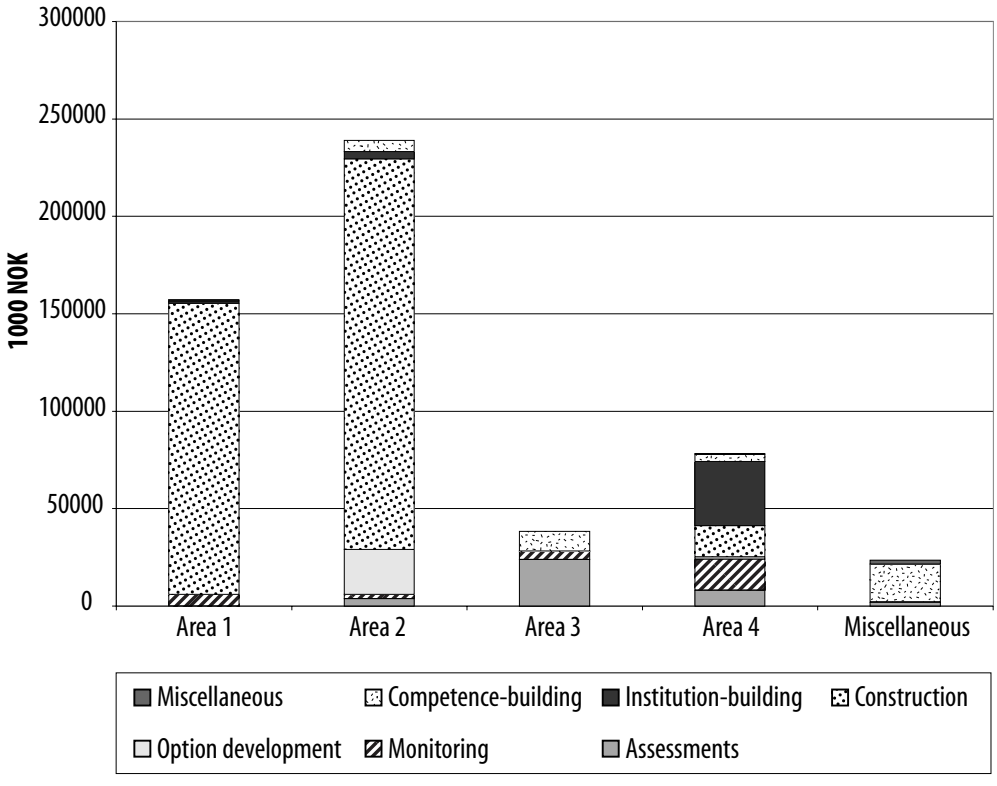


Figure 3. Total allocation to Plan of Action vs disbursed sums

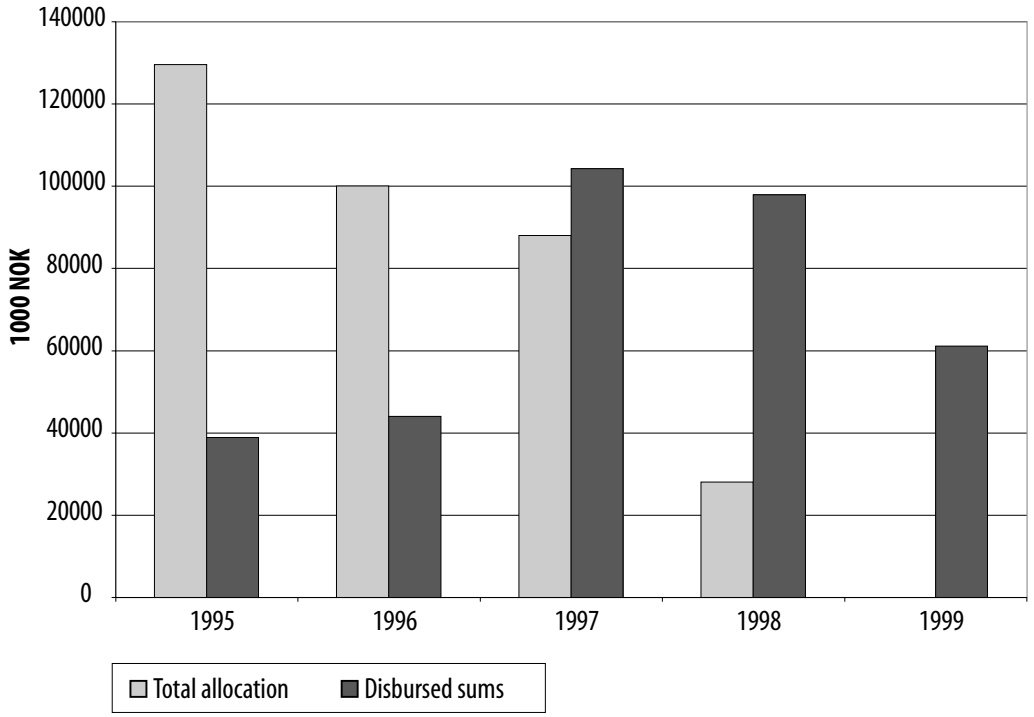
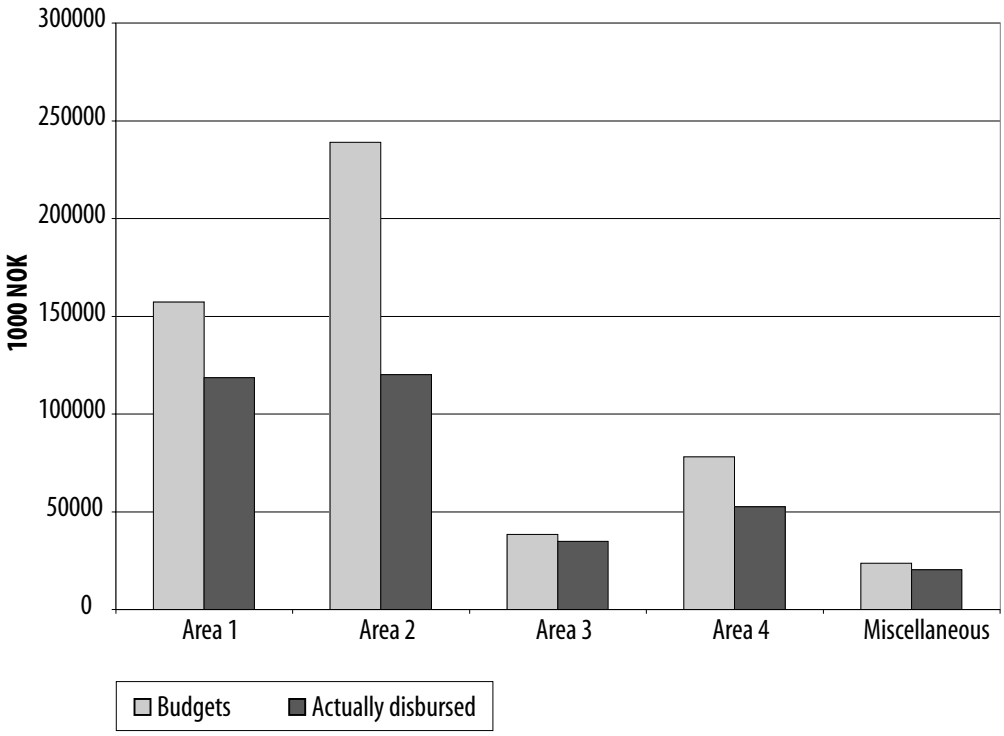


Figure 4. Project budgets and actually disbursed sums 1995–99



Annex 1 Terms of Reference

Policy Planning and Evaluation Staff
Royal Norwegian Ministry of Foreign Affairs
20 October 1999

Evaluation of the Plan of Action for the implementation of Report No. 34 (1993–1994) to the Storting on nuclear activities and chemical weapons in areas adjacent to our northern borders

Introduction

Report No. 34 (1993–94) to the Storting focuses on nuclear activities and chemical weapons in areas adjacent to our northern borders. According to the report, one of the Government's overriding goals is to protect health and the environment against radioactive contamination and pollution from chemical weapons. To attain this objective, the Government will make use of all expedient forms of collaboration. The Government states its willingness to take on a catalytic role in international efforts to combat the dangers of radioactive contamination.

To follow up the concerns expressed by the Government and in the subsequent Recommendation No. 189 (1993–94) from the Standing Committee on Foreign Affairs, the Ministry of Foreign Affairs drew up a "Plan of action for the implementation of Report No. 34 (1993–1994) to the Storting on nuclear activities and chemical weapons in areas adjacent to our northern borders". The Plan of Action was implemented as from April 1995. In the period 1995–1999 NOK 343 million has been allocated to activities supported under the Plan of Action, which has not been evaluated since its establishment.

The main objectives of this evaluation are:

1) to assess the extent to which the Plan of Action comes into line with the concerns expressed by the Government, and

2) to assess the activities supported under the Plan of Action in terms of choice of activities, their implementation, outcome, results, cost effectiveness and relevance.

On the basis of the analysis, the evaluation team is to make recommendations for improving the performance and impact of activities undertaken under the Plan of Action.

Scope and focus

In a statement to the Storting on 29 October 1996, the Minister of Foreign Affairs placed the Plan of Action in the following context:

> One of the Norwegian Government's overriding goals is to protect human health, the environment and people's means of livelihood from radioactive contamination and pollution from chemical weapons. The efforts to deal with the problems of radioactive contamination in north-western Russia have become one of our main foreign policy tasks and represent a central element of our relations with Russia.
>
> Although we feel that significant environmental benefits can be obtained if we focus our efforts on selected projects in certain important areas, we cannot achieve very much on our own. Thus an important part of our work on nuclear safety issues is to involve other major western countries and relevant international organisations as closely as possible. Norway's most important task is probably to play a catalytic role in the international arena and thereby raise political awareness of and encourage financial support for projects in the field of nuclear safety. The funds allocated to projects within the framework of the Plan of Action make it possible for us to play such a role.

The Plan of Action has four priority areas:

1. Safety measures at nuclear facilities

2. Management, storage and disposal of spent nuclear fuel and radioactive waste

3. Radioactive pollution of northern areas

4. Arms-related environmental hazards

A committee of state secretaries and an interministerial group of senior officials are coordinating the work. The committee is drawing up guidelines for Norwegian efforts and making decisions on the use of funds.

The above quote indicates the complexity of issues and interests – including environmental protection, foreign and security policy interests, and the interests of business and industry – that are involved in the implementation of this Plan. To these issues and interests may be added decision-making processes, and the fact that Russian and Norwegian priorities do not necessarily coincide. The implementation of the Plan of Action is complex both in technological, administrative and political terms.

Issues to be covered

The objectives of the evaluation are as follows:

1) To assess the Plan of Action as an operationalisation of the major concerns and priorities set out in Report No. 34 (1993–94) to the Storting and Recommendation S. No.189 (1993–94)

2) To describe and assess the organisation and forms of collaboration established bilaterally and internationally to implement the Plan of Action, and the catalytic role Norway aimed at playing

3) To assess the project portfolio supported through the Plan of Action and the allocation of funds seen in relation to the four priority areas of the Plan

4) To draw up recommendations on how to improve the impact of the activities supported under the Plan of Action with reference to the objectives set out in Report No. 34 (1993–94) to the Storting.

Methodology

Different methodological approaches should be used in considering each of the main objectives of the evaluation, of which these approaches will be central:

- Analysis of relevant framework documentation, including reports to the Storting/white papers, written agreements at the bilateral or international level, summaries from meetings of the committee of state secretaries and the interministerial group of senior officials, and archive documentation in the Ministry of Foreign Affairs

- Review of documentation at the project level

- Interviews with central persons in Norway, Russia and internationally

- Field visits to the following projects in Russia: 1) the civilian nuclear power plant at Kola; 2) the prototype storage tanks for interim storage of spent (military) nuclear submarine fuel at Severodinsk; and 3) the effluent treatment facility for liquid radioactive waste in Murmansk.

Qualifications of the evaluation team

The evaluation team should be composed of 2–3 senior researchers with expertise in the following areas:

- Russian civilian, military, and economic development

- Public sector evaluations

- Analyses of international agreements and international collaboration in the environmental field

- The planning and implementation of incentives in the field of environmental pollution, in particular related to nuclear safety and handling of radioactive waste.

Timetable and Reporting

The evaluation should start in 1999. The preliminary report should be presented for open discussion in the committee of state secretaries and in the interministerial group of senior officials, including representatives of the Policy Planning and Evaluation Staff, no later than 1 May 2000. The evaluation team should present their final report no later than 14 days after receiving written and oral comments on the draft report.

Budget

The total expenses of the evaluation should not exceed NOK 400,000.

Annex 2 List of Projects in the Plan of Action

Projects in the Plan of Action for Nuclear Safety Issues (per January, 2000)
Budgets 1995 – distributed by project category in 1000 NOK

	Assessments	Monitoriing	Option development	Construction	Institution-building	Competence-building	Miscellaneous	**Remarks**
101 Safety Measures at Kola Nuclear Power Plant				84757				25 mill 1992-94
102 Impact assesment of a hypothetical accident at Kola nuclear power plant		2500						
103 Studies and measures concerning the use of alternative energy sources, energy efficiency and measures to improve the efficiency of the energy sector in north-western Russia	available funds							
104 Strengthened collaboration between Norwegian and Russian radiation protection authorities					planned			
105 Safety Culture training, institution-building and accession to / compliance with relevant international agreements by Russia and eastern Europe					available funds			
106 The Nuclear Safety Account/EBRD – Kola nuclear power plant								16.5 mill 1993
107 Support aimed at the closing down of the Chernobyl nuclear power plant								16.5 mill 1994
110 Investigation of the sunken nuclear submarine, the Komsomolets	x							Over the budget of Institute of Oceanographic Research
111 Establishment of a monitoring station near the Kola nuclear power plant		380						
112 Improved safety in connection with reactor control room operations	50							
113 The IAEA's programme for improving the safety of RBMK and VVER reactors					100			
115 Television programme about the Medzamor nuclear power plant in Armenia							100	
115 Safety measures at Medzamor				1000				Uncertain content
116 Establishment of a telecommunication line to the Kola nuclear power plant for transfer of radioactivity data		1150		1150				
117 EUREKA/MEMBRAIN – a computer-assisted decision support system for crisis management and contingency planning						200		
118 Extension of the monitoring network for radioactivity in north-western Russia		1800						
119 New power source for Russian lighthouse lanterns				2215				
120 Upgrading of systems for physical protection at the Ignalina nuclear power plant				13600				
121 Extension of the early warning agreement between nuclear emergency preparedness authorities in the counties Finnmark, Norway and Murmansk, Russia		90						
122 Chernobyl Shelter Implementation Project				40000				
124 Upgrading of safety at the Leningrad Nuclear Power Plant – a Finnish/ Norwegian co-operation project to improve fire safety and the integrity of the primary circuit				6700				
125 Strengthen the co-operation between the Russian and Norwegian nuclear regulatory bodies in supervising the safety of Russian nuclear power plants					1000			Undecided

		Assessments	Monitoriing	Option development	Construction	Institution-building	Competence-building	Miscellaneous	**Remarks**
128	Emergency planning in Russia and the Baltic states (Preliminary study)						350		
201	NATO/NACC/CCMS pilot study on cross-border environmental problems emanating from defence-related installations and activities	2000							4 mill. 1993-95
202	Effluent treatment facility for liquid radioactive waste in Murmansk				17500				
203	International Advisory Committee for the storage vessel for radioactive waste, the Lepse				25000				
204	Transfer of expertise concerning plans for an underground disposal facility in north-western Russia					212			
205	AMEC - Norwegian, Russian, American Arctic military environmental co-operation						2900		
206	International seminar under the auspices of IAEA on management of radioactive waste and spent nuclear fuel in Russia	540							
208	International action programme and fund				x				Funds available
209	Study of the Russian programme for dismantling of decommissioned nuclear submarines in the Northern Fleet			8750					
211	Specialized vessel for transport of spent nuclear fuel			3300					
212	Specialised railway rolling stock of the type TK-VG-18 for transport of spent nuclear fuel				25980				
213	Upgrading of storage tanks for liquid radioactive waste at the "Zvezdochka" shipyard in Severodvinsk			500	36189				
214	Mobile facilities for treatment of liquid radioactive waste				x				Considered
215	Storage facility for solid radioactive waste on Kola			3200	72000				
216	Emptying and discontinuation of the hazardous storage facility for spent nuclear fuel in Andreev Bay			3215	3215				
217	Possible participation in the completion of environmentally safe interim storage for spent nuclear fuel at Mayak			1632					
218	Support for expert participation and the secretariat of the "Contact Expert Group for International Radwaste Projects", IAEA						2150		
219	Methods for assessing the safety of facilities for radioactive waste					1950			
220	Criticality assessments for nuclear fuel from Russian ships' reactors	980							
224	AMEC 1.4 Identification of innovative technologies for application to an interim storage facility for solid radioactive waste			730					
225	Nordic seminary focusing on Novaja Zemlja as repository for radioactive waste						540		
226	AMEC 1.3 Design and construction of treatment systems for solid radioactive waste generated and accumulated during the decommissioning of Russian nuclear submarines			660					
227	AMEC 1.5 Cooperation in radiation and environmental safety (Advanced technologies for dose assessment and control, environmental monitoring, toxicology, electromagnetic and laser emission)					1677			
228	AMEC-Programme Area 3, joint sea expedition in the Arctic	286				x			
229	Development of a prototype container for transport/ storage of spent nuclear fuel including pad prototype				4134				

		Assessments	Monitoriing	Option development	Construction	Institution-building	Competence-building	Miscellaneous	**Remarks**
230	AMEC 1.1 Development and manufacture of a prototype transportable interim storage container for spent naval nuclear fuel				5345				
231	Completion of the cementation facility at RTP Atomflot				3530				
232	AMEC 1.1-1 Design, construction, evaluation and commissioning of a pad for temporary storage for spent nuclear fuel in TUK-MBK-VMF containers				5215				
233	AMEC 1.5-1 Installation of the computer programme Picasso-3. Control of radioactivity at sites for decommissioning of nuclear powdered vessels and handling of radioactive waste.		2059						
234	MNEPR - Multilateral nuclear environmental programme in the Russian Federation – Covering of negotiation expenses						150		
235	AMEC 1.4-1 Development of a prototype concrete interim storage container for solid radioactive waste				2250				
236	Feasibility investigation into a nuclear repository on Novaja Zemlja			1200					
301	Completion of analysis work from the 1994 expedition and preparation of a collective scientific report of the Norwegian/Russian joint expeditions 1992–94 to the Barents and Kara Seas	2780							
302	International impact assessment of the danger of human exposure to radiation and pollution of the environment by dumped radioactive waste (IASAP)	137							
303	Programme for monitoring of radioactive and other environmentally hazardous substances in the northern seas		172						
304	Norwegian/Russian joint investigation of the danger of radioactive pollution from the reprocessing plant at Mayak	1760							
305	Norwegian/Russian impact assessment of accident scenarios at the nuclear facilities at Mayak for river systems and the northern seas	4550							
306	International database for radioactivity in the Arctic areas	1350							
307	Leadership of the group for radioactivity in AMAP						2164		
308	Participation in a German expedition in the northern seas	300							
309	Additional allocation to the Institute of Marine Research to cover unforeseen expenses in connection with the expedition to the Kara Sea in 1994	101							
310	Norwegian–French collaboration concerning radioactive pollution in rivers, estuaries and marine ecosystems						2125		
311	Survey of transport pathways and amounts and contribution to an agreed documentation of the state of the Arctic environment						3165		
313	Radioactivity investigations in fjord areas on Kola	x							Postponed
314	Investigations of the mobility of plutonium isotopes in sediments						1200		
315	Laboratory simulations of transport processes in the eastern Barents Sea and the Kara Sea						800		
316	Third International Conference on Environmental Radioactivity in the Arctic						x		No budget

	Assessments	Monitoriing	Option development	Construction	Institution-building	Competence-building	Miscellaneous	**Remarks**
317 Contamination from the Mayak nuclear facilities; doses and consequences for human health	800							
318 Analysis of the long-term consequences of a large radioactive release in the northern areas	2300							
319 Monitoring the radioactive contamination of the marine environment in the area for releases of water from the effluent treatment facility for liquid radioactive waste in Murmansk		4000						
320 Estimating transport pathways of toxins in the environment of the northern seas areas	4200							
321 Toxic pollution of marine ecosystems in northern seas areas	3400							
322 Joint Norwegian-EU Lake Karachay project					140			
323 Continuation of AMAP: Leading and operating the expert group on radioactivity and the database						2420		
324 Fourth International Conference on Environmental Radioactivity in the Arctic						350		
401 International scientific survey of radioactive pollution following nuclear testing	x							
402 Contribution to the establishment of an international system for verification and control in relation to a Comprehensive Test Ban Treaty		15900						
403 Pilot projects concerning the environmentally safe destruction of Russian chemical weapons in areas adjacent to Norway			x					
404 Investigation of any chemical weapons dumped in the northern seas	x							
405 Support for projects concerning defence-related pollution of the Baltic								Unclear
406 Investigations of radioactive pollution from the former Soviet surface repository in Sillamäe, Estonia			1300	16000				
407 Control and physical protection of fissile material in north-western Russia	8000				8000			
408 Measures to prevent illicit trafficking in radioactive and fissile material						3300		
409 Norwegian participation in the International Science and Technology Centre in Moscow					21600			
410 Training in combating illicit trafficking in radioactive and fissile material							65	
411 Efforts to strengthen the legislation and prevent illegal trafficking in radioactive and fissile material in the former Soviet-republic					500			
412 Nuclear terrorism	60							
413 Supporting Latvian authorities in non-proliferation control					1200			
414 Development of legal framework within the nuclear energy area. Seminary with former Soviet-republics					510			
415 Upgrading of security systems at SEVMASH Production Association, Severodvinsk								Withdrawn
416 Purchase of computer and office equipment for GAN's local branches in the Ural region					462			
417 Support to develop a legal framework in connection with transfer of nuclar excess material of weapon quality from military to civilian control authority						676		
420 Criticality assessments for spent fuel from ship reactors during transport						390		
501 Support for NGO work						11300		

	Assessments	Monitoriing	Option development	Construction	Institution-building	Competence-building	Miscellaneous	**Remarks**
502 Translations and other miscellaneous expenses in connection with the Plan of Action						68		
503 Norwegian participation in the EU research programme "Nuclear Fission Safety"						5000		
504 Information activities						1602		
505 Perception of risk associated with nuclear activities on the Kola Peninsula	1602							
507 NGO participation in connection with the G-7/P-8 Nuclear Safety and Security Summit in Moscow, April 1996						350		
508 Participation in the "International Group of Legal Experts"					x			
509 Support for the international conference "Radioecological Safety in the Russian and European North"						35		
510 Advisory Committee on protection of the seas (ACOPS)						294		
511 Seminary regarding closed "atomic cities": Alternative employment						30		
512 The Pugwash Conference						630		
513 Marina Balt Seminary						40		
514 Secretariat for the joint commission under the Framework Agreement					91			
515 The Framework agreement – various expenses						35		
516 Infobulletin						15		
517 KEDO							2000	
518 Evaluation of Plan of Action	400							

Annex 3 Travels Conducted and Institutions Visited

Travels:

- Murmansk 23 February–1 March 2000
- Moscow 1–8 April 2000

Institutions visited:

- RTP Atomflot
- Bellona Murmansk
- the Committee for Conversion and Nuclear Radiation Safety, Murmansk regional administration
- the Federal Nuclear and Radiation Safety Authority of the Russian Federation (Gosatomnadzor)
- the Interbranch Co-ordination Centre Nuclide
- Murmansk regional branch of the State Committee of the Russian Federation of Environmental Protection (Goskomekologiya)
- the Norwegian Consulate General in Murmansk
- the Norwegian Ministry of Defence
- the Norwegian Ministry of the Environment
- the Norwegian Ministry of Fisheries
- the Norwegian Ministry of Foreign Affairs
- the Norwegian Ministry of Health and Social Affairs
- the Norwegian Ministry of Trade and Industry
- the Norwegian Radiation Protection Authority
- the Ministry of Atomic Energy of the Russian Federation
- the Ministry of Transport of the Russian Federation
- Morskoye Korablestroyeniye
- Moss Maritime
- Murmansk Shipping Company
- the State Committee of the Russian Federation for Environmental Protection (Goskomekologiya)

Annex 4 Persons Interviewed

Akhunov, Viktor, Head of the Department for Ecology and Nuclear Facilities, Decommissioning Department, the Ministry of Atomic Energy of the Russian Federation (Minatom)

Amozova, Lyudmila, Head of the Department for State Control and Radiation Safety, Murmansk regional branch of the State Committee of the Russian Federation for Environmental Protection (Goskomekologiya)

Askerøi, Jan Eilert, Adviser, the Norwegian Ministry of Trade and Industry

Aturin, Mikhail, Head of the Division of the Nuclear Fleet, Maritime Department, the Ministry of Transport of the Russian Federation

Avdonin, Eduard, Deputy Director of the International Center for Environment and Safety of the Ministry of Atomic Energy of the Russian Federation (Minatom)

Borgås, Bjørn, Senior Project Manageer, Moss Maritime

Brynildsen, Lisbeth I., Adviser, the Norwegian Ministry of Agriculture

Dementiyev, Aleksandr, Project Manager, Moss Maritime

Eusebio, Turid, Adviser, the Norwegian Ministry of Foreign Affairs

Filippov, Sergey, Consultant on Public Affairs, Bellona Murmansk

Harbitz, Ole, Director General, the Norwegian Radiation Protection Authority

Heesch, Tore B., Manager QA/HSE, Moss Maritime

Golovinskiy, Stanislav, Technical Director, Murmansk Shipping Company

Hetland, Tarald, Senior Adviser, the Norwegian Ministry of Health and Social Affairs

Horneland, Oddvin, Adviser, the Norwegian Ministry of Defence

Kolesnikov, Aleksandr, Head of the Department for Nuclear and Radiation Safety of Fuel Cycle Facilities, the Federal Nuclear and Radiation Safety Authority of the Russian Federation (Gosatomnadzor)

Kutsenko, Viktor, Head of the Department for Ecological Safety, the State Committee of the Russian Federation for Environmental Protection (Goskomekologiya)

Mamelund, Otto, Consul General, the Norwegian Consulate General in Murmansk

Markarov, Valentin, Main Specialist, the Department for Supervision of Research and Ship Reactor Nuclear and Radiation Safety, the Federal Nuclear and Radiation Safety Authority of the Russian Federation (Gosatomnadzor)

Murko, Valentin, President, Morskoye Korablestroyeniye

Napriyenko, Viktor, Director General, Morskoye Korablestroyeniye

Norendal, Torbjørn, Ambassador, the Norwegian Ministry of Foreign Affairs

Pichugin, Stanislav, Chief Engineer, RTP Atomflot

Rossebø, Solveig, Executive Officer, the Norwegian Ministry of Foreign Affairs

Rusten, Karl, Deputy Director General, the Norwegian Ministry of Fisheries

Ruzankin, Aleksandr, Chairman of the Committee for Conversion and Nuclear Radiation Safety, Murmansk regional administration

Røed, Magne, Deputy Director General, the Norwegian Ministry of the Environment

Siem, Harald, Senior Adviser, the Norwegian Ministry of Health and Social Affairs

Sokolova, Irina, Co-ordinator of International Co-operation Programmes, the Federal Nuclear and Radiation Safety Authority of the Russian Federation (Gosatomnadzor)

Strand, Per, Deputy Director General, the Norwegian Radiation Protection Authority

Stranden, Erling, Deputy Director General, the Norwegian Radiation Protection Authority

Ulvevadet, Per Johan, former Adviser on Environmental Affairs, the Nowegian Embassy in Moscow

Yanovskaya, Nina, Director, the Interbranch Co-ordination Centre Nuclide

Zhavoronkin, Sergey, Main Radiologist, Murmansk Shipping Company, co-founder of Bellona Murmansk

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6.89 DUHs Forskningsprogrammer
7.89 Rural Water Supply, Zimbabwe
8.89 Commodity Import Programme, Zimbabwe
9.89 Dairy Sector Support, Zimbabwe

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6.00 Making Government Smaller and More Efficient. The Botswana Case
7.00 Evaluation of the Norwegian Plan of Action for Nuclear Safety Priorities, Organisation, Implementation

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