

ANNEX 1**DESCRIPTION OF WORK**

STRATEGIES AND GUIDANCE FOR ESTABLISHING A PRACTICAL
RADIATION PROTECTION CULTURE IN EUROPE IN CASE OF LONG TERM
RADIOACTIVE CONTAMINATION AFTER A NUCLEAR ACCIDENT

SAGE

PROPOSAL N°: FIS5-2002-00040

CONTRACT N°:

**PROJECT COORDINATOR: Centre d'étude sur l'Evaluation de la Protection dans le
domaine Nucléaire – CEPN (FR)**

CONTRACTORS:

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PROJECT SUMMARY

The evaluation of the management of the Chernobyl post-accident situation in the CIS countries indicated the need and importance to involving the population in the day-to-day management of the radiological situation to complete the rehabilitation programme implemented by public authorities. To be effective and sustainable, this involvement must rely on the dissemination of a practical radiological protection culture within all segments of the population and especially within professionals in charge of public health. The SAGE project will develop strategies and guidance for implementing and disseminating such a culture in Western Europe, in case of a nuclear incident or accident with long-term radiological impacts.

The objectives are developments of procedures:

- to educate professionals involved in the public health domain on the various aspects of the practical radiological protection culture needed in a contaminated environment resulting from a nuclear accident,
- to provide these professionals with guidance to re-organise their activities to integrate the radiological dimension in their day-to-day practice,
- to provide them with knowledge and material to educate and advice the general population within the course of their practice on how to protect oneself when living in a contaminated territory.

The key output of the project will be a handbook on the practical radiation protection culture for professionals. This includes a comprehensive guidance for the general population on practical advice to follow in a contaminated territory in order to avoid unnecessary exposures in the course of day-to-day activities and to adopt a responsible and prudent attitude in regard to the protection of health. This will be achieved by :

- reviewing and assessing the current infrastructures for the management of post-accident situations in three Western European countries (France, Germany and United-Kingdom),
- drawing the lessons from the feedback experience of the day-to-day management of the radiological situation by professionals and local populations living in the contaminated territories during the last fifteen years in Belarus.
- testing the proposed strategies and guidance in the contaminated territories in Belarus at the level of local communities by professionals involved in the public health area (nurses, midwives, medical doctors, radiation protection experts, medical social workers,...),
- validating the handbook through a consultation process of Western Europe public health and radiation protection professionals and relevant stakeholders (authorities, NGOs, ...),
- disseminating the results of the project through a European Workshop.

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1. OBJECTIVES

1.1. State-of-the-art

The experience of the ETHOS Project in Belarus (1996-2001), supported by the European Commission, has shown that the direct involvement of the population in the day-to-day management of the radiological situation resulting from a nuclear accident is a necessary approach to complete the rehabilitation programme implemented by public authorities in contaminated territories, especially in the long term. This was confirmed in the final declaration adopted by the participants of the international seminar held in November 2001 in Stolyn (Belarus) on "The rehabilitation of living conditions in the territories contaminated by the Chernobyl accident : the contribution of the ETHOS approach in the Stolyn District". This declaration states that such an approach was "efficient in practice" and "merits to be studied, developed and disseminated".

To be effective and sustainable, the involvement of the local population must rely on the dissemination of a practical radiological protection culture within all segments of the population and especially within professionals in charge of public health and education. Experience from the ETHOS project has demonstrated that the development of such a culture requires several factors to be combined. These include a basic knowledge about the mechanisms through which man is exposed within a contaminated environment combined with direct access to practical means by which the radiological quality of this environment can be evaluated and the levels of internal and external exposure of individuals and the whole population controlled. The establishment of such a shared culture also implies the setting up within the contaminated territories of a specific infrastructure related to the health care and education system. This infrastructure must bring together public and non-governmental organisations to implement the necessary management procedures. The involvement of non-governmental organisations and representatives of the public in the practical implementation of rehabilitation strategies has proved to be a key factor in the enhancement of public trust and confidence.

1.2. Objectives of the project

The overall objective of the proposed project is to develop strategies and guidance for implementing and disseminating a practical radiological protection culture in Western Europe required for the management of contaminated areas following a nuclear incident or accident having long term radiological impact. These strategies and guidance will be primarily targeted towards the professionals involved in the public health domain such as public health authorities, nurses, medical doctors in the private and public sectors, medical social workers, etc. However, other important roles within communities will also be considered. These could include local government officials, elected representatives, *teachers, religious leaders and the media*. The aim will be to develop tools and procedures that could be used by such individuals in the event of an accident. These would include the following:

- Education on the various aspects of the practical radiological protection culture needed in a contaminated environment resulting from a nuclear accident.

- Help in the re-organisation of health care activities to take account of this new dimension within their day-to day practice, particularly for the implementation of operational measurements systems to follow external and internal exposure of the population.
- Giving these individuals equipment and information so that within the course of their work they can educate and advise the general public on how to behave to protect themselves when living in a contaminated territory.

The Project will be developed based on both a detailed analysis of the current strategies, guidance and organisational arrangements that have been implemented in Western European countries to cope with long term radioactive contamination in case of a nuclear accident and the extended experience gained in Belarus associated with the practical management of the consequences of the Chernobyl accident over the last 15 years.

The key output of the project will be a handbook. Professionals will require guidance on the development of a practical radiological protection culture, i.e. the setting up of the basic infrastructure. The general public will require comprehensive practical information on ways in which unnecessary exposures can be avoided when using or living within a contaminated area on a day-to-day basis. Advice will also be provided on the adoption of a responsible and prudent attitude in regard to the protection of health, particularly for children or other critical population groups.

The originality of the approach will lie in the full scale testing in the contaminated territories of Belarus of the operational measurements systems and the administrative arrangements that will be proposed in the handbook. This testing will be concretely implemented during a full year and carried out at the level of local communities by professionals involved in the public health area (such as nurses, midwives, medical doctors, radiation protection experts and medical social workers) in co-operation with the local authorities and the active participation of the local population. The objective of this test will be the demonstration of the feasibility of the proposed approach including the detailed identification of all technical, economical and social implications.

To ensure the applicability of the proposed set of strategies and guidance to the Western European context, European end-users will be involved in the context of the preparation of the final version of the handbook through stakeholders panels run in France, Germany and UK as well as a European dissemination workshop.

1.3. Contribution to programme objectives

The SAGE project is a direct contribution to the priority "Restoration and long term management of contaminated environments" within the "Radiation Protection Area" of the Research and Training Programme in the Field of Nuclear Energy as described in the work programme revision August 2001.

The project will develop practicable strategies and guidance to implement a sustainable radiological protection management structure for areas contaminated as a result of a nuclear accident. The eventual goal would be to have a system in place that could be applied throughout the EU, but at this stage the feasibility will be tested by considering the three Member States involved in this proposal – France, Germany and the United Kingdom. The basis of the developed strategies and guidance will be the fifteen years experience of the

Belarus authorities since the Chernobyl accident. The project will therefore draw on the experience of those experts and professionals involved in the day-to-day management of the consequences of the accident and will take into account the lessons learnt from the ETHOS project. However, conditions in Western Europe are different from those in Belarus and the applicability of the ETHOS approach in such circumstances needs to be evaluated. Consequently, this project also requires information, opinion and feedback from Western European stakeholders. These would include radiation protection experts, local and national authorities, professional networks, non-governmental organisations and public health officials. In addition however the project will take into account the social concerns of a broader range of Western European stakeholders such as teachers, local elected representatives and religious leaders in order to evaluate how public trust and confidence in the capability of public authorities and relevant professionals can be enhanced.

The main output from the SAGE project will be the provision of practical strategies and guidance in the area of public health. This will form the basis for the development of a culture reaching all parts of a community affected by a nuclear accident. The education of schoolchildren and the supply of information and perspective to workers in the food production and agriculture sectors are of particular importance. It should be noted that countermeasures and remediation in food production systems in some Member States within the EU are being considered as part of the EC – funded FARMING network; formal links will be established between SAGE and this project.

2. PROJECT WORK PLAN

2.1. General structure

To develop the handbook on the strategies and guidance for establishing a practical radiological protection culture in Europe in case of long term radioactive contamination after a nuclear accident, the project work-plan has been divided into different phases and work-packages.

A specific work-package (N°1) is devoted to the scientific co-ordination of the Project and the general co-ordination of the various tasks to be performed by the different partners. This co-ordination work is particularly important to ensure that the key theoretic, methodological and practical elements to develop the handbook will be delivered in due time by the various partners. A detailed planning will be adopted at the very beginning of the Project.

Immediately after the official starting of the Project, the first co-ordination meeting will be devoted to the structuring of the first phase of the Project (Preparation phase) that will aim at achieving three main tasks:

- A review and an assessment of the current infrastructures for the long term management of post-accident situations in three western European countries i.e France, Germany and United-Kingdom (Work-package N°2).
- An evaluation of the strengths and weaknesses of the current monitoring and data management systems operated in Belarus and a drawing of the lessons learnt within the ETHOS Project as far as the development of an operational radiological protection culture is concerned. (First part of Work-package N°3).
- The preparation of the basic scheme to be tested in the contaminated territories by the local professionals and the populations (First part of Work-package N°4).

These three tasks will be performed in parallel and will allow the partners to reach the second co-ordination meeting of the Project with a clear view about the state-of-the-art and the basic needs in Europe as well as the key lessons gained in the contaminated territories of Belarus. The basic scheme of the handbook will be finalised at this meeting and the test launched in the villages with all involved stakeholders. (Milestone N°1).

The second phase of the Project (Test and development phase) will start immediately after the second co-ordination meeting and will be devoted to achieve the following main tasks :

- The preparation of a first version of the handbook as soon as possible after the second co-ordination meeting on the basis of the information collected in work-packages N°2 and 3. This first version will present the basic principles as well as the key operational arrangements underlying the proposed strategies and guidance for a practical radiological protection in Europe (Work-package N°4)
- The testing of the arrangements proposed for operational measurement systems concerning foodstuffs and internal exposures of individual and the corresponding data management. The test will imply a high level of commitment from the Belarus partners

that will be in charge to set up the measurement infrastructure, to build a team of local professionals and to train them and to supervise the test during a full operation year. This work will be done in close co-operation with the national authorities from the health care system and the Chernobyl Committee in charge of the general co-ordination of the rehabilitation programme of the country. The test will be implemented in the Stolyn district where the ETHOS Project took place from 1996 to 2001. This will allow the Belarus partners to benefit of the already existing network of professionals and members of the public who have been actively involved in the ETHOS Project and are familiar with the approaches developed in its context. The one year duration of the test will give enough time to identify the practical difficulties, the potential outputs, the resources needed to operate on a sustainable basis the proposed arrangements and also to obtain meaningful results of the radiological situation to be shared and discussed with the involved local population. Relevant national authorities will also be associated to the test to ensure that all necessary resources will be available. (Work-package N°4).

- The completion of Work–package N°3 by the Belarus partners to include in particular a description and an analysis of the evolution of the regulatory framework and the administrative arrangements implemented in Belarus to monitor the radiological situation (Second part of Work-package N°3).
- The launching of the consultation process with western Europe public health and radiation protection professionals and relevant stakeholders including authorities, NGOs, elected representatives, teachers, religious leaders... This consultation process will concretely start just after the second co-ordination meeting as far as the identification and the selection of the stakeholders are concerned. Meeting will be organised in each countries using the final report of Work-package N°2 and the first version of the handbook as basic material. (First part of Work-package N°5).

The third co-ordination meeting of the Project held in Paris will mainly serve to draw the lessons of Work-package N°2, to analyse the first results of the test, to discuss the draft version of the handbook and to prepare the following steps of the consultation process with the European stakeholders.

The fourth co-ordination meeting to be held in Belarus will be devoted to the drawing of the lessons of the testing phase and the preparation of a second version of the handbook that will serve to support the last phase of the project which will be mainly devoted to the applicability of the developed strategies and guidance to the Western European context in case of long term contamination after an accident (Milestone N°2).

The third and last phase of the Project (Consolidation phase) will allow:

- To finalise the consultation process that will allow in each country to evaluated and refined the prototype strategies and guidance against the needs of a diverse range of end users working in very different circumstances. This work will be important to differentiate between elements that can be applied in almost any circumstances and those for which there may be limitations or specific requirements. (Second part of Work-package N0°5).
- To prepare the European dissemination workshop that will be organised in conjunction with the fifth and last co-ordination meeting close to the end of the Project to broaden the perspective and get input from stakeholders and potential end-users from all interested

European countries. This workshop will be important to determine whether suitable guidance can be applied in a diverse range of circumstances across Europe as a whole and also to advertise the main results of the Project. Participants to the workshop will have available the set of documents prepared so far in the course of the Project i.e.: the final reports related to work-packages N°2 and 3 and the second version of the handbook including the input of the consultation process. (Milestone N°3)

- To prepare the final version of the handbook taking fully account of the results of the consultation process and the dissemination seminar. (Work-package N°4).

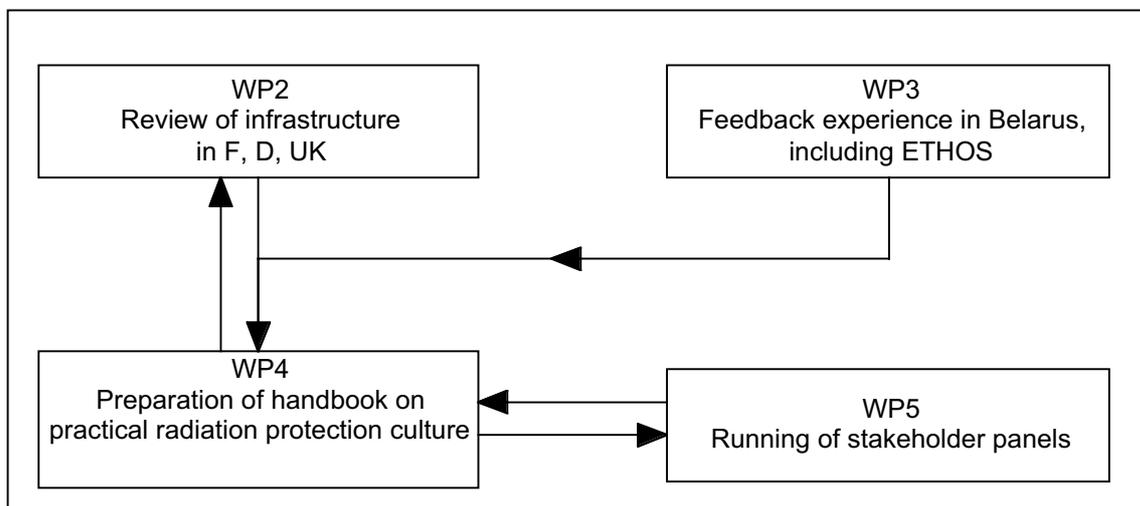
2.2. Project planning and timetable

The following Table presents how the 5 work-packages are spread over the 2,5 year duration of the Project. It also points out when the 5 co-ordination meetings involving all partners and the dissemination workshop will take place as well as the key milestones of the Project and the time at which the deliverables will be available.

Years	Y1				Y2				Y3		
Months	M1	M4	M7	M10	M13	M16	M19	M22	M25	M28	M30
Phases											
1. Preparation	█										
2. Test and development				█							
3. Consolidation							█				
WP1 - Project scientific co-ordination	█										
WP2 - Review of infrastructures in F, D, UK	█										
WP3 - Feedback experience in Belarus, including ETHOS	█										
WP4 - Preparation of a handbook on practical radiation protection culture	█										
WP5 - Running of stakeholder panels	█										
Meetings (+ minutes)	◆ m1 (Paris)	◆ m2 (Pinsk)	◆ m3 (Paris)	◆ m4 (Pinsk)	◆ m5 (Paris)						
Stakeholder panels	◆										
Dissemination workshop	◆ (Paris)										
Milestones	■										
Deliverables	■ D1, D2, D3, D4, D5										

2.3. Graphical presentation of the project and components

The following graphic displays the 4 key work-packages that will be co-ordinated under work-package N°1 with their relationships. WP2 and WP3 will be developed in parallel right from the beginning of the Project and serve as basic inputs for WP4.



2.4. Detailed project description

Tables 1 and 2 presents the lists of work-packages and deliverables with their detailed components. Table 3 describe the various tasks to be performed in each work-package.

Table 1 Work-package list

Work-package No	Work-package title	Lead contractor No	Person-months	Start month	End month	Deliverable
WP1	Project scientific co-ordination	1	3,5	1	30	D5
WP2	Review of infrastructures in F, D, UK	2	6	1	9	D1
WP3	Feedback experience in Belarus including ETHOS	4	25	1	16	D2
WP4	Preparation of a handbook on practical radiation protection culture	1	95	1	30	D3
WP5	Running of stakeholder panels	3	12	10	29	D4
	TOTAL		141,5			

Table 2 Deliverables list

Deliverable No	Deliverable title	Delivery date	Nature	Dissemination level
D1	Review of infrastructure in W. Europe	M9	Re	Pu
D2	Feedback experience in Belarus	M16	Re	Pu
D3	Handbook on practical radiation protection culture	M30	Re	Pu
D4	Feedback from stakeholder panels	M29	Re	Pu
D5	Proceedings of dissemination workshop	M30	Re	Pu

Table 3**Work-package description**

Work-package N°1	Project scientific co-ordination
Start and end dates:	Month 1 to month 30
Partner number:	1
Person-months per partner:	3,5

Objective : to ensure the scientific co-ordination of the project and the dissemination of the results

Detailed tasks

The co-ordination of the Project is important to ensure that the expected results from the various work-packages will be delivered as initially planned to allow the development and the finalisation of the handbook in good conditions. For this purpose, the following tasks have been identified for CEPN (Partner N°1), the project scientific co-ordinator:

- to prepare a detailed planning taking into account the interaction between the different work-packages that will be discussed and adopted at the first co-ordination meeting by all partners.
- to prepare the agenda and the minutes of the 5 co-ordination meetings
- to follow the implementation of the decisions adopted during the meetings
- to organise the dissemination workshop and to prepare the proceedings (Deliverable N°5)
- to validate the final reports prepared by the other partners (quality insurance)
- to co-edit the deliverables N°1, 2 and 4 and edit the handbook (Deliverable N°3)

Deliverables : final reports (D1, D2, D4), handbook (D3) and proceedings (D5)

Table 3 **Work-package description**

Work-package number N°2	Review of infrastructure in F, D, UK		
Start and end dates:	Month 1 to month 7		
Partner number:	1	2 (leader)	3
Person-months per partner:	1	4	1

Objective : to evaluate the state of preparation in F, D and UK in facing the situation in case of long term radioactive contamination of the environment after a nuclear accident, as far as the monitoring of the radiological dimension and the involvement of stakeholders are concerned.

Detailed tasks :

Each involved partners in the work-package - CEPN, GSF (Partner N°2) and NRPB (Partner N°3) will carry out a survey dealing with the institutional arrangements already in place in its country to cope with the long-term management of contaminated environments. A particular attention will be given to the available measurement equipment that have been planned or already put in place to cope with a post-accident situation i.e. :

- the measurement of ambient dose rates (external exposure);
- the measurement of the radiological contamination of food products;
- the measurement of the whole body contamination (internal exposure).

The objective of each survey will be to identify in each country the appropriateness of the current equipment and what is needed to enable an effective implementation of a practical radiological protection culture to be implemented by local professionals and members of the public in their day-to-day practices and activities. Qualitative and quantitative requirements will be considered. Experts on dosimetry and environmental measurements will be associated with this part of the study in order to determine the adequacy of the monitoring equipment adapted. Another important aspect that will be considered in the survey are the data management systems that have been implemented for the control of the quality of food-products (i.e. certification systems) and for the follow-up of the health status of the population at the individual (i.e. identification of critical groups) and collective levels (i.e. epidemiological studies).

A third objective will be to identify existing experiences related to the development of a practical radiological culture among professionals, particularly within the health care system, and among the general population to cope with a post accident situation.

As far as possible, each partner will use a common structure for running the survey that will be elaborated at the first co-ordination meeting. Preliminary results will be used to prepare the basic scheme that will be tested for the handbook. Results of the completed surveys will be compared and evaluated during the second co-ordination meeting. Based on this evaluation, GSF, the work-package leader, will prepare a document presenting a synthesis on the situation in the three countries (Deliverable N°1).

Depending upon the results of the survey, it will be then possible to develop recommendations on the infrastructures, equipment and organisational arrangements that would need to be put in place to ensure an effective implementation of the instructions, guidelines and advice given in the final version of the handbook.

Deliverable : edit the report describing the situation in the 3 countries (France, Germany and the United-Kingdom) with a synthesis pointing out the key achievements and gaps identified (Deliverable 1)

Milestone : assessment of the infrastructure in the three European countries (M8, Milestone 1)

Table 3 **Work-package description**

Work-package number N°3	Feedback experience in Belarus, including ETHOS	
Start and end dates:	Month 1 to month 16	
Partner number:	4 (leader)	5
Person-months per partner:	15	10

Objectives : to draw the lessons from 15 years of practical experience (including the ETHOS project) in Belarus in the management of the long term contamination from Chernobyl accident as far as the monitoring of the situation and the involvement of the stakeholders are concerned

Detailed tasks :

The two partners in charge of this work-package, BB RIR (Partner N°4 and) and BELRAD (Partner N°5) will prepare a comprehensive overview of the experience gained so far in Belarus including the following aspects:

- A description of the evolution of the regulatory framework and the administrative arrangements implemented in Belarus to monitor the radiological situation and to involve the professionals and the public in the management of this situation. A particular attention will be given to the elucidation of the rationale underlying the successive steps of this evolution.
- A detailed analysis of the current monitoring and data management systems operated by the Belarus administration, with an evaluation of the human and technical resources that are needed to operate these system. This part will aim at the identification of the elements that can be considered successful, those which remain problematic and at evaluating the overall effectiveness of the system.
- A specific evaluation of the experience gained through the operation of the independent monitoring system that has been implemented by BELRAD (Partners N°5) to complement the official system.
- An analysis of the experience associated with the ETHOS Project aiming at developing an operational monitoring system involving more directly the professionals of the health care system and the general population.

The detailed distribution of the work between the two partners will be decided at the first co-ordination meeting. Interim results related to the evaluation of the current operating systems, including the ETHOS experience, will be included to prepare the basic scheme that will be tested during the second phase of the Project. The second co-ordination meeting will be used to prepare the practical recommendations on the infrastructures, equipment and organisational arrangements that will be put together in the first draft of the handbook in co-ordination with the input of work-package N°2. Consultation with key Belarus stakeholders, particularly the ministry of health and the Chernobyl Committee will be important at this stage.

The completed work will be evaluated at the third co-ordination meeting and BB-RIR. The work-package leader will then prepare the final document summarising the whole Belarus past-experience related to the monitoring of the radiological situation in the contaminated territories and the involvement of the population in the development of a practical radiation protection culture (Deliverable N°2).

Deliverable : edit a report describing the Belarus experience with a synthesis pointing out the key lessons (Deliverable 2).

Milestone : evaluation of the lessons learnt from the Belarus experience (M8, Milestone 1)

Table 3 **Work-package description**

Work-package number N°4	Preparation of a handbook on practical radiation protection culture in case of nuclear accident				
Start and end dates:	Month 1 to month 30				
Partner number:	1 (leader)	2	3	4	5
Person-months per partner:	6	4	2	51	32

Objective : to elaborate a pedagogic handbook presenting the theoretical and practical elements necessary to develop a practical radiation protection culture among the population of a contaminated territory after a nuclear accident

Detailed tasks :

The instructions, guidelines and advice in the handbook will be develop based on the following logical steps:

- Elaboration, during the first co-ordination meeting, of a basic scheme that will serve as structure of the handbook.
- Identification during the early phase of development of work-packages 2 and 3 of the practical infrastructures, equipment and organisational arrangements that will be tested in the contaminated territories.
- Preparation during the first phase of the Project by the Belarus partners of the test of the arrangements proposed for operational measurements systems concerning foodstuffs and internal exposures of individual and the corresponding data management in co-operation with Belarus relevant national and local administrations and authorities and the local professionals that will be concretely involved. This will involve to identify the measurement points, to install all necessary equipment in co-operation with authorities, to identify and select local professionals willing to participate to the test and to train them.
- Launching of the test with all relevant stakeholders in the Stolyn district at the occasion of the second co-ordination meeting to be held in Belarus.
- Follow-up of the test by the Belarus partners. This will involve to regularly visit of the various measurement points participating to the test and to interact with the local professionals to ensure an on-going availability of the equipment, a good management of the data collected and to respond to any particular problems that could emerge.
- Presentation of the first results of the test at the third co-ordination meeting in Paris and evaluation of the proposed scheme for the handbook.
- Preparation of a first version of the handbook taking into account all results, information and experience evaluated so far as in Europe and in Belarus, including the test. This will be done as soon as possible at the beginning of the second phase of the Project to facilitate the consultation process with Western European stakeholders.
- Evaluation of the full year test at the occasion of the fourth co-ordination meeting in Belarus with local professionals and representative of the population.
- Preparation of the second version of the handbook including the full results of the test.
- Integration of the results from consultation with stakeholders and dissemination workshop
- Preparation of the final version of the handbook.

Deliverables : a pedagogic handbook with accompanying informative material (Deliverable 3)

Milestones : launching of the test of the procedures and guidance in the contaminated territories (M7, Milestone 1) and their evaluation (M20, Milestone 2). Integration of the results of the stakeholder panels and the dissemination workshop (M27, Milestone 3).

Table 3 **Work-package description**

Work-package number N°5	Running of western Europe stakeholder panels		
Start and end dates	Month 10 to month 29		
Partner number:	1	2	3 (leader)
Person-months per partner:	3,5	3,5	5

Objective : to involve western European stakeholders (professionals, experts, authorities, representatives of the population) to test and to validate the scheme proposed in the handbook

Detailed tasks :

The western European countries stakeholders panels will be established in the three European countries involved in the SAGE Project (France, Germany, United Kingdom) and will comprise national authorities, radiation protection experts, non-governmental organisations in the field of consumers or environmental protection, as well as representatives of the professionals of the public health sector. Representatives of the education sector, local community leaders and the media will also be involved. Consultations with the stakeholder panels will be organised in order to address the validity of the different parts of the handbook and to recommend any necessary improvements.

The reports resulting from work-package N°2 and 3 will serve as background material to get the stakeholders used to the subject.

Each European partner will perform the following tasks:

- to identify key stakeholders for participation in western Europe stakeholder panels
- to set up working procedures with the different panels. This part of the work will be done using the expertise of consultants having experience with setting up stakeholder panels.
- to identify requirements of stakeholders (i.e. information, training) and target audiences (i.e. public health professionals, schools, local authorities, NGOs, elected representatives, religious leaders, media,) and their requirements.
- to present and to discuss within stakeholder panels the first version of the handbook
- to compare and to contrast findings from the stakeholder panels in the three countries
- to provide feedback and recommendations to prepare the handbook.
- to present and discuss within stakeholder panels the second version of the handbook.
- to produce a synthesis of the experience with stakeholders in the three countries

The consultation process with stakeholders will start in the continuation of work-package N°2.

After the identification of the stakeholders, the third co-ordination meeting in Paris will allow to structure and harmonise the process. A first panel meeting will be organised between the third and fourth co-ordination meetings using the results of the surveys in France, Germany and UK (Work-package N°3) and the results of the analysis of the Belarus partners concerning the experience in the contaminated territories including the lessons from the ETHOS project.

During the meeting the first version of the handbook will be presented and discussed. Results of this consultation will be included in the preparation of the second version of the handbook. A second panel meeting will be held between the fourth and the fifth co-ordination to discuss the second version of the handbook including the feed back of the test.

All stakeholders having participated to the panels will be invited to participate at the dissemination workshop.

Deliverable : edit a report (Deliverable 4) summarising feedback from stakeholder panels.

Milestone : evaluation of the outcomes of the European stakeholders panels at the dissemination workshop (M27, Milestone 3)

3. SCIENTIFIC AND TECHNICAL PROSPECTS

The result of the SAGE Project will be the handbook on the strategies and guidance for establishing a practical radiation protection culture in case of a long term contamination after a nuclear accident. This handbook will be a stand-alone document which will comprise all the components for developing a practical radiation protection culture as well as the key elements for its implementation. Therefore, this handbook will be published and largely distributed among the professionals of radiation protection in Europe as well as professionals in the field of public health. This distribution will include presentation in national and international conferences in the area of radiation protection as well as the publication of papers in international journals. It has also to be noticed that the results of the work will be a valuable input from the European Union in the international forums and working groups set up by several international organisations (such as the International Commission on Radiological Protection - ICRP -, the International Atomic Energy Agency - IAEA -, Nuclear Energy Agency from OECD - NEA) which are concerned with the involvement of stakeholders for developing strategies for post-accidental situations.

However due to the fact that only three EU countries and a limited number of stakeholders will be involved in the SAGE project, it will be possible to build on the result of the project, and especially the handbook, to develop a European Network including the specialists in radiation protection as well as a large range of relevant stakeholders, directly concerned with the development of a practical radiation protection culture to be implemented in case of a nuclear accident affect in a territory of the European Union to ensure a wider dissemination and an overall coherence on the management of post-accident situation. This possible continuation will also contribute to maintain the know-how and its transfer beyond the time frame of the project.

Furthermore, the SAGE project has been voluntarily focus on the development of strategies and guidance in the area of public health as far as it can be considered as a pre-requisite for involving local stakeholders in the management of long term contaminated territories. Nevertheless, other domains need to be investigated for allowing the development of a practical radiation protection culture. Firstly, it will be possible to adapt the handbook in the perspective of further developing this culture through the education system in the school programmes for the education of future generations, having also in mind that children may contribute to disseminate this culture in their own families. Secondly, the approach developed in the SAGE project will be shared with other domains, especially with groups concerned with agriculture, such as the FARMING network, in order to define the conditions for developing a practical radiation protection culture adapted for these domains.

An important element of the dissemination plan for the results of the SAGE project will be the organisation of a European Workshop close to the end of the contract with all interested parties. This workshop will allow to present to a wide audience the findings of the project, to discuss ways to implement concretely the strategies and guidance and to prepare recommendations for further possible developments at the European level. As such the workshop will contribute to the development of a common radiological

protection culture in Europe in case of long term radioactive contamination after a nuclear accident.

Finally, the approach developed in the SAGE project will provide the basis for establishing similar approaches for the management of territories concerned with long term contamination, either from radioactivity (being from industrial or natural origins) or chemical toxic.

4. PROJECT MANAGEMENT

The partnership

The partnership of the project is composed of 5 teams of researchers from the following institutions: CEPN, GSF, NRPB, the Brest Branch of the Research Institute of Radiology (BB RIR) and the Belarussian Institute of Radiation Safety ‘BELRAD’. The expertise of this work group covers mainstream disciplines such as radiation protection (including public health issues), dose and risk assessment, dosimetry (including measurements of foodstuffs and internal exposures), radioecology, environmental monitoring, economics, social management of risk, countermeasures after accidents, regulation and risk policies. In addition, participants have experience and expertise in the development of stakeholder involvement (particularly for post-accident situations), training of non-specialists in various areas of radiological protection and the communication of scientific information to both the general public and technical, regulatory and political groups.

Co-ordination of the project

The co-ordination of the project will be carried out by CEPN – Nuclear Protection Evaluation Centre. The co-ordinator (J. LOCHARD) will be responsible for the organisation of the co-ordination meetings and the dissemination workshop, the validation of final reports, and all other administrative, and financial matters related to the contract.

Work Package Leaders

Each of the five work packages defined in the proposal will be steered by a Work Package Leader (WPL), who will co-ordinate the work packages tasks, and report the progress to the co-ordinator of the project.

Table 4 shows the distribution of the WPL and the names of the key persons.

Table 4. Distribution of the Work Package Leader

Work Package	Work Package Leader	Key person
WP1: Project management	CEPN	J. LOCHARD
WP2: Review of infrastructure in France, Germany, and the UK	GSF	G. VOIGT
WP3: Feedback experience in Belarus including ETHOS	BB RIR	A. SUDAS
WP4: Preparation of a handbook	CEPN	J. LOCHARD
WP5: Stakeholder involvement	NRPB	A. NISBET

As far as the development of the handbook is concerned, all partners of the consortium will be involved and CEPN, as co-ordinator of the project, will lead the work package (WP4). In the first phase, the work of other work packages (WP2, WP3 and WP5) will

be used as an input to the preparation of the draft handbook which will contain prototype strategies and guidance. In the second phase, a significant part of the work will be devoted to evaluate the prototype strategies and guidance using a diverse range of local and national stakeholders in the different circumstances found in Eastern and Western Europe. In particular, the arrangements proposed for the operational measurements systems concerning foodstuffs and internal exposures of individuals and the corresponding data management will be practically tested at the level of a district in Belarus during of period sufficiently long to validate the measurement and the data management systems.

Co-ordination meetings

The scientific co-ordination of the project will be structured by five meetings. Table 5 presents the planned date and location of meeting (2 in Belarus, 3 in France).

Table 5. Project co-ordination meetings

Meeting No	Place	Envisaged date of meeting
m1	CEPN (Paris-France)	M1
m2	BB RIR (Pinsk-Belarus)	M7
m3	CEPN (Paris-France)	M14
m4	BB RIR (Pinsk-Belarus)	M20
m5	CEPN (Paris-France)	M27

Stakeholders panels

The stakeholders will be formed within the three countries during the first part of work-package N°5. Although the procedure to involve the stakeholders is not known at this stage, it is anticipated that two meetings will be organised in each country : the first one at about month 18 of the Project when the first version of the handbook will be available, and the second one at about month 24 when the second version of the handbook will be ready.

Dissemination workshop

The dissemination workshop will be organised in Paris at the same time of the fifth co-ordination meeting i.e. at Month 27. A first announcement of the workshop will be prepared during the third co-ordination meeting and sent just after to potential interested experts and institutions. A European programme committee will be establish to prepare the scientific programme and to ensure a large participation. Stakeholders having participated to the panels in France, Germany and UK will be invited to participate to the workshop together with some key representatives from Belarus.

Manpower matrix

Table 6 presents the distribution of manpower on a partner-by-partner and task-by-task basis.

Table 6. Manpower matrix

SAGE	WP1	WP2	WP3	WP4	WP5	TOTAL
						man.months
CEPN	3,5	1,0		6,0	3,5	14,0
GSF		4,0		4,0	3,5	11,5
NRPB		1,0		2,0	5,0	8,0
Pinsk			15,0	51,0		66,0
Belrad			10,0	18,0		42,0
Total	3,5	6,0	25,0	95,0	12,0	141,5

5. THE CONSORTIUM

The format adopted in this project being based on an interdisciplinary approach, the Project Team relies on a Consortium under the leadership of the Nuclear Protection Evaluation Centre - CEPN.

Composition

The Consortium is composed of the following organisations:

- CEPN (Nuclear Protection Evaluation Centre - France), which is particularly experienced in radiation protection (notably in post-accident situations), and economics.
- GSF which is one of the important research centres for environment and health in Germany.
- NRPB, the National Radiological Protection Board which is an independent public authority in the United Kingdom, with functions concerning the protection of people from radiation hazards
- The Brest Branch of the Research Institute of Radiology (BB RIR), located in Pinsk (Belarus) is involved in the rehabilitation of health and the environment in the contaminated territories.
- The Belarussian Institute of Radiation Safety 'BELRAD' (NGO) is a research institute operating an independent measurement systems of foodstuffs and internal exposure of individuals in the Belarussian contaminated territories.

The project organisation chart is presented in Figure 1. It describes the key roles in the management of the project as well as interactions and interfaces between the work packages. For each work package, the leading organisation is also mentioned.

Commitments and roles of each partner:

CEPN will performed the following tasks:

1. The general scientific co-ordination of the Project including:
 - the preparation of a detailed planning of the Project
 - the preparation of the agenda and the minutes of the 5 co-ordination meetings
 - the follow up of the implementation of the decisions adopted during the meetings
 - the organisation of the dissemination workshop and the preparation of the proceedings
 - the validation of the final reports prepared by the other partners (quality insurance)
 - the co-edition of the deliverables and the edition of the handbook
2. The review of the French infrastructure for the management of long term radioactive contamination.
3. The leadership of the preparation of the handbook which will include the co-ordination of the work related to the development of the handbook and the contribution to the following tasks:
 - the elaboration of the basic scheme that will serve as structure of the handbook

- the preparation of the test of the arrangements proposed for operational measurements systems concerning foodstuffs and internal exposures of individual and the corresponding data management
 - the launching of the test with all relevant stakeholders in the Stolyn district
 - the preparation of a first version of the handbook
 - the evaluation of the full year test
 - the preparation of the second version of the handbook
 - the integration of the results from consultation with stakeholders and dissemination workshop
 - the preparation of the final version of the handbook.
4. The running of the French stakeholder panel.

GSF will perform the following tasks:

1. The review of the German infrastructure for the management of long term radioactive contamination.
2. The preparation of the synthesis of the review of infrastructures in France, Germany and UK.
3. The contribution to the preparation of the handbook including:
 - the elaboration of the basic scheme that will serve as structure of the handbook
 - the preparation of the test of the arrangements proposed for operational measurements systems concerning foodstuffs and internal exposures of individual and the corresponding data management
 - the preparation of a first version of the handbook
 - the evaluation of the full year test
 - the preparation of the second version of the handbook
 - the integration of the results from consultation with stakeholders and dissemination workshop
 - the preparation of the final version of the handbook.
4. The running of the German stakeholder panel.

NRPB will perform the following tasks:

1. The review of the UK infrastructure for the management of long term radioactive contamination.
2. The contribution to the preparation of the handbook including:
 - the elaboration of the basic scheme that will serve as structure of the handbook
 - the preparation of the test of the arrangements proposed for operational measurements systems concerning foodstuffs and internal exposures of individual and the corresponding data management
 - the preparation of a first version of the handbook
 - the evaluation of the full year test
 - the preparation of the second version of the handbook
 - the integration of the results from consultation with stakeholders and dissemination workshop

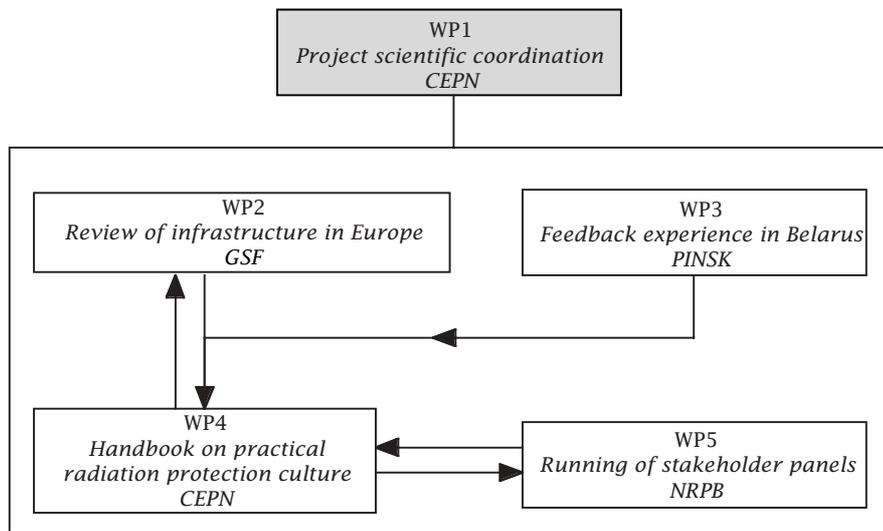
- the preparation of the final version of the handbook.
3. The running of the UK stakeholder panel.
 4. The preparation of a synthesis of the stakeholder panels in France, Germany and UK.

BB RIR will perform the following tasks :

1. The leadership on the feedback experience analysis in Belarus including:
 - a description of the evolution of the regulatory framework and the administrative arrangements implemented in Belarus
 - an analysis of the current monitoring and data management systems operated by the Belarus administration
 - an analysis of the experience associated with the ETHOS Project
 - a preparation of the synthesis on the Belarus experience.
2. The contribution to the preparation of the handbook including:
 - the elaboration of the basic scheme that will serve as structure of the handbook
 - the preparation of the test of the arrangements proposed for operational measurements systems concerning foodstuffs and internal exposures of individual and the corresponding data management
 - the launching of the test with all relevant stakeholders in the Stolyn district
 - the follow-up of the test
 - the preparation of a first version of the handbook
 - the evaluation of the full year test and the presentation of the results of the test
 - the preparation of the second version of the handbook
 - the preparation of the final version of the handbook.

BELRAD will perform the following tasks:

1. The contribution to the feedback experience analysis in Belarus including:
 - a description of the evolution of the regulatory framework and the administrative arrangements implemented in Belarus
 - an analysis of the current monitoring and data management systems operated by the Belarus administration
 - an evaluation of the experience gained through the operation of the independent monitoring system that has been implemented by BELRAD
2. The contribution to the preparation of the handbook including:
 - the elaboration of the basic scheme that will serve as structure of the handbook
 - the preparation of the test of the arrangements proposed for operational measurements systems concerning foodstuffs and internal exposures of individual and the corresponding data management
 - the launching of the test with all relevant stakeholders in the Stolyn district
 - the follow-up of the test
 - the preparation of a first version of the handbook
 - the evaluation of the full year test and the presentation of the results of the test
 - the preparation of the second version of the handbook
 - the preparation of the final version of the handbook.

Figure 1. Organisation chart of the project

6. OTHER INFORMATION

6.1 Related references

FARMING: Food and Agriculture Restoration Management Involving Networked Groups, European Commission, 5th Framework Programme, Co-ordinated by NRPB, UK, 2000.

RESTORE: Restoration strategies for radioactive contaminated ecosystems, European Commission Nuclear Fission Safety Programme E.2, Co-ordinated by GSF, Germany, 1998.

ETHOS: Rehabilitation of living conditions in contaminated territories affected by the Chernobyl accident, European Commission, 4th Framework Programme and DG Environment funding, 1996-2001, Co-ordinated by CEPN, France.

Relevant references:

BERESFORD, N.A., WRIGHT, S.M., **Self-help countermeasure strategies for populations living within contaminated areas of the former Soviet Union and an assessment of land currently removed from agricultural usage**. Joint deliverable of the EC funded projects RESTORE and RECLAIM, Institute of Terrestrial Ecology, 1999.

HERIARD DUBREUIL, G., et al, **Chernobyl post-accident management: the ETHOS project**, Health Physics, No 77, pp 361-372, 1999.

HERIARD DUBREUIL, G., et al, **The decision-making process in dealing with populations living in areas contaminated by the Chernobyl accident: the ETHOS project**, The societal aspects of decision making in complex radiological situations, Workshop Proceedings Villigen, Switzerland 13-15 January 1998. OECD Proceedings, Nuclear Energy Agency, 1998.

LEPICARD, S., HERIARD DUBREUIL, G., **Practical improvement of the radiological quality of milk produced by peasant farmers in the territories of Belarus contaminated by the Chernobyl accident: The ETHOS project**, Journal of Environmental Radioactivity, No 56, pp 241-253, 2001.

LOCHARD, J., **Stakeholder involvement in the rehabilitation of living conditions in contaminated territories affected by the Chernobyl accident**. Proceedings of the International Symposium on 'Restoration of Environments with Radioactive Residues', IAEA International Symposium, Arlington, VA, USA, IAEA-SM-359/5.2, 495-506, 1999.

HERIARD DUBREUIL G., SCHNEIDER T. - **Rehabilitation of the living conditions in the contaminated territories after Chernobyl: the ETHOS project**. In: The 2nd

VALDOR Symposium addressing transparency in risk assessment and decision making, Stockholm, Sweden, 10-14 June 2001, pp. 122-131. 0105.

NISBET A.F. and MONDON K.J. - **Development of strategies for responding to environmental contamination incidents involving radioactivity: The UK Agriculture and Food Countermeasures Working Group 1997-2000.** NRPB-R331, 2001.

NISBET A.F. - **Stakeholder involvement in the management of rural areas following a nuclear accident.** EUROS SAFE 2001, Paris. 5-6 November 2001.

NISBET A.F. and MERCER J.A. - **Food and Agriculture Restoration Management Involving Networked Groups (The FARMING network).** ECORAD 2001, Aix-en-Provence, September 2001.

VOIGT G. et al. - **Restoration strategies for radioactive contaminated ecosystems (RESTORE).** In: Proceedings of the 2nd Hiroshima International Symposium: 'Effects of Low Level Radiation for Residents near Semipalatinsk Nuclear Test Site', Hiroshima, Japan 23.-25.7.96, (eds. Hoshi, Takada, Kim, Nitta), Research Institute for Radiation Biology and Medicine, Hiroshima University, Daigaku Letterpress Co., Ltd, Hiroshima, Japan, 101 - 114 (1997)

VOIGT G., NISBET A. F., et al. - **Countermeasures: Radioecological and social impacts. A wider perspective on the selection of countermeasures.** J Rad Prot Dosim 92, 45-48 (2000)

FIRSAKOVA, S.K., ZHUCHENKO, YU.M., VOIGT, G. - **An example for rehabilitation strategies of radioactive contaminated areas in Belarus.** J Environ Radioactivity 48, 23-33 (2000)

VOIGT G., et al. - **Environmental decision support system for restoration strategies of contaminated ecosystems.** In: Proceedings of the workshop on restoration of contaminated territories resulting from the Chernobyl accident Brussels, 29-30 June 1998 (L. Cecille Ed.) EUR report 18193 EN, 126-132 (2001)

WHICKER F.W., SHAW G., VOIGT G., HOLM E. - **Radioactive contamination of the environment: State of the science and its application to predictive models.** Environmental Pollution 100; 133-150 (1999)

6.2 Clustering with other projects

No similar or related application is planned to be submitted to a Community programme or to another European or international programme.