

PROGRESS REPORT

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ACRONYM : SAGE

TITLE :

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

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PARTNERS :

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NRPB (National Radiological Protection Board), United Kingdom. (Partner no 3)
BB RIR (Brest Branch of the Research Institute of Radiology), Belarus. (Partner no 4)
BELRAD (Belarussian Radiological Safety Institute), Belarus. (Partner no 5)**

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2. EXECUTIVE PUBLISHABLE SUMMARY

The overall objective of the SAGE Project is to contribute to the development of 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 consequences. The main output of the project is expected to be a handbook on radiation monitoring and protection. This includes comprehensive guidance for the health authorities, nurses, medical doctors in the private and public sectors, medical social workers, etc, and 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 with regard to the protection of health. Other important roles within communities are also considered. These could include local government officials, elected representatives, teachers, NGOs, etc.

The Project is developed based on both a detailed analysis of the current strategies, guidance and organisational arrangements that have been implemented in France, Germany and United-Kingdom 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.

To ensure the applicability of the proposed set of strategies and guidance to the Western European context, European end-users are involved in the context of the preparation of the handbook through stakeholders panels run in France, Germany and UK. The panel are composed of professionals involved in the public health area (such as nurses, midwives, medical doctors, radiation protection experts and medical social workers) as well as representatives of the local population. A panel of local stakeholders from the contaminated territories in Belarus also contributes to the development of the strategies and guidance and evaluate the practicability of the proposed radiation monitoring and protection system including the detailed identification of all technical, economical and social implications.

3. OBJECTIVES AND STRATEGIC ASPECTS

The aim of the project is to develop procedures, tools and guidance that could be used by health professionals and the population in the event of a long-term contamination situation. These would concern the following:

- Organisation of health care activities to take account of this situation within day-to-day practice, particularly through the implementation of an "inclusive" radiation monitoring system to measure external and internal exposure of the population and the contamination of foodstuffs.
- Advice for the health care professionals and the general public on the various aspects of the practical radiological protection culture needed in a contaminated environment resulting from a nuclear accident.

The key output of the project will be a handbook on radiation monitoring and protection of the population. In the handbook, professionals will find guidance on the setting up of the basic infrastructure and procedures to operate an inclusive radiation monitoring system; they will also find advice to help them in having an efficient dialogue with their patients. The general public will find a 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.

A workshop will be organised toward the end of the project to give the opportunity to relevant European stakeholders (health professionals, public health authorities, NGOs, etc) to bring their views and interact with all the project partners.

4. SCIENTIFIC AND TECHNICAL PERFORMANCE

4.1. Summary of the specific project objectives for the relevant period

4.1.1. Project scientific coordination (WP1)

As scheduled, two coordination meeting have been organised during the last twelve months.

The first coordination meeting, took place in Paris - Fontenay aux Roses, in November 2002. The first phase of the programme of work was launched with reviews and assessments of the current infrastructures for the management of the post-accident situations in France, Germany and United-Kingdom (WP2). There was also input on the lessons learnt on 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 (WP3).

The Second Coordination meeting took place in Pinsk, in June 2003, at the Brest-Branch of the Research Institute of Radiology (BB-RIR). Belarussian stakeholders, many of whom were involved in the ETHOS project, joined the coordination meeting. They actively took part to the discussions related to the state of development of (WP4) and (WP5).

4.1.2. Review of infrastructures in France, Germany and the United Kingdom (WP2)

The overall objective of WP2 is to evaluate the state of preparation in France, Germany and United Kingdom in facing the situation in case of long term radioactive contamination of the environment after a nuclear accident, as far as the radiation monitoring of the situation and the involvement of stakeholders are concerned.

The corresponding deliverable (a report) was initially scheduled in month 9, but during the Start-Up meeting, SAGE Members have considered that, in order to make the content coherent with the outcomes of the (WP3), it would be necessary to postpone the issuing of deliverable 1 to month 15.

4.1.3. Feedback experience in Belarus (WP3)

The objective of WP3 is to draw the lessons from 15 years of practical experience 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 (including the ETHOS project).

The corresponding deliverable (a synthesis report) was initially due in month 16. During the Start-Up meeting, it has been finally proposed to deliver the report one month before.

4.1.4. Preparation of a handbook on practical RP culture in case of a nuclear accident (WP4)

The Work Package 4 is exclusively devoted to the preparation of a handbook on radiation monitoring and protection of the population.

During the first year, the audience, scope, format and content of the handbook were designed and validated both through the Belarus and West-European stakeholders panels (WP5) and the SAGE partners. A preliminary version of the handbook was prepared.

4.1.5. Running of Western stakeholders panel (WP5)

This task was not scheduled to start until month 13; consequently there were no objectives given in the Technical Annex for this reporting period. However, previous experience of the WP leader in the setting up and running of European stakeholder panels suggested that work should be initiated earlier than originally planned i.e. at around month 6. A methodology was circulated to partners following the 1st co-ordination meeting outlining timescales for the relevant tasks. Those relevant to this reporting period were:

- To establish the composition of stakeholder panels in UK, France, Germany and Belarus,
- To organise initial meeting of stakeholders to discuss objectives, protocols, training requirements, membership and timescales.

4.2. Overview of the scientific and technical progress made

4.2.1. Project scientific coordination (WP1)

During the first coordination meeting all SAGE-partners agreed to the creation of a SAGE website to ensure a regular dissemination of the results.

This website has been constructed by the SAGE project coordinator (CEPN). It has been launched in month 6 and is from this date hosted and maintained by the SAGE scientific coordinator. It contains public and private (for members only) areas.

The address for the website is <http://www.ec-sage.net/>.

4.2.2. Review of infrastructures in France, Germany and the United Kingdom (WP2)

In the first year of the project the individual partners compiled information about emergency preparedness and operating organisations in case of a nuclear incident. The results of these data collation on the infrastructure in Germany, France and the UK were presented at the first coordination meeting in November 2002 and the second meeting in June 2002.

The following table of contents was proposed and adopted for the WP2 report and deliverable:

- Description of the regulatory framework
- Overview of existing organisations on a local and national level responsible during the emergency phase and for post-accidental long term phases; this chapter will also include technical capabilities for measurements, analysis and dose assessments and for medical support as well as the existing measurement programmes to monitoring nuclear facilities and environment.
- Existence of professionals training related to post-accidental management (especially for professionals from the medical sector)

Contributions were drafted according to the above-mentioned scheme and sent to GSF for consolidation. The emergency systems in place for the case of a nuclear accident are similar at a local level. At the national level slight differences exist, however in principle the offices responsible for environment protection are working together with the according ministries and offices depending on the accident. Recommendations and decisions to protect the population and environment are made at the level of the involved ministries. On-line decision support systems and modelling programmes should support the authorities. A similarly detailed inventory of all available measurement and analytical devices as in France does not exist in Germany and the UK. Although arrangements exist in the three country to ensure the monitoring of individuals and foodstuffs related to the emergency phase of an accident, no particular strategies and guidance have been envisaged for long-term rehabilitation. Furthermore, all these arrangements are based on top-down approaches without consideration for involving local professionals and the population. However, the existing measuring systems could serve as a basis for implementing a long-term post-accidental radiation monitoring system.

For the education of professionals especially universities and research institutions offer a broad range of courses and training possibilities. The courses cover in principle the emergency phase but not explicitly the long term. As summary of WP2 it must be emphasized that the problems of a long-term contamination are not solved in the participating countries neither by the legislation nor by the existing organisation and education schemes.

4.2.3. Feedback experience in Belarus (WP3)

During the first year, materials concerning the experience of radiological situation management in the Republic of Belarus during the whole period since the moment of disaster at Chernobyl NPP were prepared, summarized and analyzed. It includes

1. A survey of human and technical resources implemented to reduce the consequences of the accident. A report was written by BB-RIR on that topic.¹
2. The study of the system implemented in Belarus to manage the radiological situation and especially the chronic low-dose irradiation:
 - a. Development of a specific regulatory framework;
 - b. Organisation and interaction between State institutions and independant companies to manage the radiological situation in the country;
 - c. Methodological and technical support for dosimetric and radiometric control of the environment and food products; a report was written by BELRAD on that topic.²
 - d. Description of the existing system for whole-body counting.
3. The analysis of the experience which consisted to enhance the radiological culture of people who live in the contaminated territories (project «ETHOS»)
4. The evaluation of emerging problems, experience in finding solutions and ways for further improvement.

¹ A.S. SUDAS. « Emergent, initial and consequent activities to protect the population from radiation and to eliminate the consequences of radioactive contamination of environment on the example of Chernobyl disaster »

² V.B. NESTERENKO, A.V. NESTERENKO. « Belarussian experience in the field of radiation monitoring and radiation protection of population and role of governmental and non governmental structures in solving these problems »

Moreover, in order to describe the feedback experience and the results of the ETHOS project, a Belarussian stakeholder group was created in June 2003. This panel includes health professionals as well as people who were responsible for foodstuff monitoring. Most of them were directly involved in the ETHOS project. A specific meeting between SAGE partners and members of the Belarussian stakeholder group was organised by the WP3 leader to identify the future cooperative works. Especially, they have been invited in helping in the elaboration of the handbook (deliverable from WP4).

4.2.4. Preparation of a handbook on practical RP culture in case of a nuclear accident (WP4)

During the first year of the project, a draft version of the handbook, drawn from the ETHOS experience in Belarus, was prepared [Ref. 1] and circulated between all partners of the project for critical review. The structure which was retained at this stage for the final handbook is a modular leaflet primarily tackling the “Questionings” of the concerned actors of the society: *e.g.* the general population, the health professionals, the responsible bodies for radiation monitoring and the co-ordinating and advisory bodies. From these questionings, different “Topics” are further developed through “Technical sheets” which provide more description on technical aspects.

Up to now, only the proposed structure and a preliminary list of topics and their related technical sheets have been presented in the draft version. Some technical sheets were also prepared as examples of “what can be done”. The draft of the handbook was also discussed during the national stakeholder panels meetings (SAGE WP5) which were held during this first year.

Period	Action/Release
Beginning of the Project – August 2003	1st Draft version of the handbook Contents: <ul style="list-style-type: none"> • Basic scheme for an inclusive radiation monitoring • Structure of the final handbook • First detailed contents of the final handbook
Autumn 2003	Draft circulated among the Project partners <ul style="list-style-type: none"> • First review by the Project partners • Discussed during national stakeholder panels

4.2.5. Running of Western stakeholders panel (WP5)

The composition of stakeholder panels in UK, France, Germany and Belarus has been established. Stakeholders include senior public health physicians, doctors, nurses, dosimetrists, teachers and experts in communication. The inaugural meetings of panels in UK, France and Belarus were convened in June and July 2003. The German panel is scheduled to meet in November 2003. The objective of the first meetings was to describe the SAGE project to panel members, to give an overview of the radiological protection culture adopted so successfully in Belarus following the Chernobyl accident and to present the ETHOS video. The working procedures for the different panels were also established. In France and Belarus it was agreed that the main panel would provide feedback on the handbook. The UK group agreed to take on responsibility for the setting up of several satellite stakeholder panels in different regions of the UK, to evaluate the applicability of the handbook. The composition of these panels has yet to be finalised although, they are likely to include doctors, nurses, health visitors and environmental health officers. Stakeholders from each of the national panels were keen to participate in the project and to contribute to a handbook that would benefit long-term rehabilitation in Western Europe following a nuclear accident. In discussion, several parallels were drawn with the approaches currently adopted to rehabilitate land after chemical spills.

4.3. Comparison of planned activities and actual work accomplished by the partners

4.3.1. SAGE Gantt Chart

Based on the changes mentioned here above (see § 4.1.), the Gantt chart has been modified as follows:

Years	Y 1				Y 2			Y 3						
Months	M1	M4	M7	M10	M13	M16	M19	M22	M25	M28	M30			
Phases														
1 Preparation														
2 Development														
3 Consolidation														
WP 1 Project scientific co-ordination														
											D5			
WP2 Review of infrastructures in F, D, UK														
											D1			
WP3 Feedback experience in Belarus, including ETHOS														
											D2			
WP4 Preparation of a handbook on practical radiation protection culture														
											D3			
WP5 Running of stakeholder panels														
											D4			
Meetings (+ minutes)	◆ m1 <i>(Paris)</i>		◆ m2 <i>(Pinsk)</i>		◆ m3 <i>(Paris)</i>		◆ m4 <i>(Pinsk)</i>		◆ m5 <i>(Paris)</i>					
Stakeholders Panels					◆				◆					
Dissemination Workshop					◆				◆	◆ <i>(Paris)</i>				
Milestones					■	■						■		
Deliverables					■							■ ■ ■ D4 D3, D5		

Note: the timing of stakeholder panel meetings (mentioned hereabove as “dissemination workshops”) varies according to member state. One of them was already organised in France (19 June), one in Belarus (27 June), and one in the United Kingdom (1 July).

SAGE Man Power and Progress Follow-up Table (1st year)

Work Packages (n°/title)	Partner (Name, abbrev.)	Planned efforts at start of period (MM)				Actual Effort (MM)	Forecast Effort (MM)				Deviation (MM)	Planned (%)		Assessed (%)		Deviation (%)		Comments on major deviations
		Year 1		Year 2			Year 3		Total			Year 1		Year 1		Year 1		
		a	b	c	d		a1	b1	c1	d1		Totals	d1-d	Year 1	Year 1	Year 1	Year 1	
WP1 Project Scientific Co-Ordination	CEPN	1.60	1.10	0.80	3.50	1.60	1.10	0.80	3.50	0.00	45%	45%	0%					The collation of the infrastructure in the involved countries is completed as planned. The individual draft reports are finalised. The final report has to be written.
	GSE	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
	NRPB	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
	BBRIR	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
	BELRAD	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
TOTAL WP1	TOTAL WP1	1.60	1.10	0.80	3.50	1.60	1.10	0.80	3.50	0.00	45%	45%	0%					
WP2 Review of Infrastructure in France, Germany and the UK	CEPN	0.75	0.25	0.00	1.00	0.75	0.25	0.00	1.00	0.00	75%	75%	0%					The collation of the infrastructure in the involved countries is completed as planned. The individual draft reports are finalised. The final report has to be written.
	GSE	3.25	0.75	0.00	4.00	4.75	0.50	0.00	5.25	1.25	80%	80%	0%					
	NRPB	0.75	0.25	0.00	1.00	0.75	0.25	0.00	1.00	0.00	75%	75%	0%					
	BBRIR	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
	BELRAD	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
TOTAL WP2	TOTAL WP2	4.75	1.25	0.00	6.00	6.25	1.00	0.00	7.25	1.25	75%	75%	0%					
WP3 Feedback Experience in Balarus including ETHOS	CEPN	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	Two separate reports have been provided by the partners but a synthesis which is deliverable no 2 has still to be written.
	GSE	-	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
	NRPB	12.00	3.00	0.00	15.00	22.00	3.00	0.00	25.00	10.00	80%	70%	10%					
	BBRIR	9.50	0.50	0.00	10.00	13.50	0.50	0.00	14.00	4.00	90%	70%	20%					
	BELRAD	21.50	3.50	0.00	25.00	35.50	3.50	0.00	39.00	14.00	85%	70%	15%					
TOTAL WP3	TOTAL WP3	21.50	3.50	0.00	25.00	35.50	3.50	0.00	39.00	14.00	85%	70%	15%					
WP4 Preparation of a handbook on practical RP culture in case of a nuclear accident	CEPN	2.00	2.50	1.50	6.00	2.00	2.50	1.50	6.00	0.00	33%	33%	0%					As planned, the detailed summary and a preliminary version of the handbook was prepared and discussed.
	GSE	0.00	2.50	1.50	4.00	0.00	2.50	1.50	4.00	0.00	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
	NRPB	0.00	1.00	1.00	2.00	38.00	1.00	1.00	2.00	0.00	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
	BBRIR	21.00	20.00	10.00	51.00	38.00	20.00	10.00	68.00	17.00	40%	40%	0%					
	BELRAD	13.00	16.50	2.50	32.00	18.00	16.50	2.50	37.00	5.00	40%	40%	0%					
TOTAL WP4	TOTAL WP4	36.00	42.50	16.50	95.00	58.00	42.50	16.50	117.00	22.00	35%	35%	0%					
WP5 Running of Western stakeholder panels	CEPN	1.25	1.75	0.50	3.50	1.25	1.75	0.50	3.50	0.00	15%	33%	-18%					The activities carried out are ahead of schedule, to minimise the time available for stakeholder participation and feedback on the handbook.
	GSE	1.25	1.75	0.50	3.50	1.25	1.75	0.50	3.50	0.00	15%	33%	-18%					
	NRPB	0.25	2.75	2.00	5.00	1.25	1.75	2.00	5.00	0.00	15%	33%	-18%					
	BBRIR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
	BELRAD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
TOTAL WP5	TOTAL WP5	2.75	6.25	3.00	12.00	3.75	5.25	3.00	12.00	0.00	25%	33%	-8%					
TOTALS	CEPN	5.60	5.60	2.80	14.00	5.60	5.60	2.80	14.00	0.00	40%	40%	0%					
	GSE	4.50	5.00	2.00	11.50	6.00	4.75	2.00	12.75	1.25	40%	40%	0%					
	NRPB	1.00	4.00	3.00	8.00	2.00	3.00	3.00	8.00	0.00	15%	25%	-10%					
	BBRIR	33.00	23.00	10.00	66.00	60.00	23.00	10.00	93.00	27.00	50%	40%	10%					
	BELRAD	22.50	17.00	2.50	42.00	31.50	17.00	2.50	51.00	9.00	50%	50%	0%					
	TOTAL	TOTAL	66.60	54.60	20.30	141.50	105.10	53.35	20.30	178.75	37.25	45%	40%	5%				

4.4. Planned activities for the next period

4.4.1. Project scientific coordination (WP1)

Three other coordination meetings will be organised in 2004-2005 (1 in Belarus and 2 in France). The scientific coordinator will seek sponsorship as well as prepare the organisation of the final workshop which is scheduled at the beginning of 2005.

4.4.2. Review of infrastructures in France, Germany and the United Kingdom (WP2)

The reports of the participating countries will be revised and summarized. A draft report of the compiled contribution of France, Germany and UK will be circulated for final agreement by all partners. After the review the report of the infrastructures in France, Germany and the UK will be finalised for delivery.

4.4.3. Feedback experience in Belarus (WP3)

Before the mid-term of the project, BB-RIR and BELRAD will synthetise their two separate reports into a single one which will constitute the deliverable no 2.

4.4.4. Preparation of a handbook on practical RP culture in case of a nuclear accident (WP4)

A second version of the handbook will be prepared within the next 2 months to be circulated for the future national stakeholder panels meetings planned by the end of January/February 2004. This second version will take into account the various remarks from the Project partners and from the national stakeholder panels. The technical sheets associated with the various topics will be presented as much as possible.

4.4.5. Running of Western stakeholders panel (WP5)

Planned WP5 activities for the second year are:

- To circulate a draft of the handbook to stakeholder panels
- To convene meetings of the panels to discuss handbook, as necessary
- To provide feedback and recommendations on the handbook to WP4

5. LIST OF DELIVERABLES

No deliverable was expected during the first period of the contract.

6. DISSEMINATION AND USE OF THE RESULTS

As already mentioned, a web site (<http://www.ec-sage.net/>) dedicated to the SAGE project was issued in March 2003. It presents the background, the objectives of the project, as well as partners, work packages, milestones and the project progress. A specific section available only to partners presents all the working documents of the teams (draft reports, slide presentations, stakeholders panels meeting minutes...).

A poster presentation of the SAGE project objectives was performed during the National Congress of the French Society for Radiological Protection (SFRP), which took place in Montpellier in June 2003 (available in French only). The abstract is downloadable on the SAGE website (http://www.ec-sage.net/D03_01.pdf).³

An abstract entitles « Strategies and guidance for establishing a practical radiation protection culture in Europe in case of long term radioactive contamination after a nuclear accident: the sage project » was submitted for the IRPA-11 International Congress in Madrid, and accepted for oral presentation.

³ CROÛAIL P., NESTERENKO V., NISBET A., VOIGT G., SUDAS A. « Stratégies pour le développement d'une culture de protection radiologique pratique en Europe en cas de contamination radioactive à long terme suite à un accident nucléaire. »