
Assessment of the Strategy Countermeasures by the French Farming Working Group

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ABSTRACT : In France, for several years, IRSN has been working on technical solutions for the rehabilitation of rural, urban and industrial areas, contaminated by radioactivity. However, the post-accidental rehabilitation is a complex problem. It concerns others elements than the radiological quality of the territory and implies various stakeholders. On this basis, IRSN is deeply engaged in actions involving these other stakeholders, in particular in rural environment. The FARMING project constituted an interesting initiative in this direction, since it aimed to set-up a multi-field network, with European stakeholders, engaged in a common reflection about the rehabilitation of a rural territory, following a nuclear accident. Within this framework, this group has been involved in the evaluation of a rural countermeasures compendia, suggested by STRATEGY, another European network. The French working group gave various comments, on the scientific, technical and strategical points of view. It first addressed the two main options of rehabilitation objectives, “concentration” or “dilution” of radioactivity, with their respective advantages and drawbacks. It then suggested some actions to realize “in normal time” in order to facilitate the management of the nuclear crisis. And finally proposed some new strategic criteria to add to the datasheets.

1 INTRODUCTION

The contamination of a rural territory following a nuclear accident would have a strong potential to destabilize food production industry. And in France, where food production is, from an economic but also historical point of view, a very significant activity, such an event could durably unsettle economy, but also public institutions functioning and even social relations.

After Chernobyl accident, a real need has thus been identified, in France, like in some other European countries, to initiate a reflexion on the consequences of a nuclear accident in the long term. However, the main improvements in terms of preparation to a nuclear crisis mainly benefited to the management of the emergency phase.

Then, the complexity of the radioactivity integration’s mechanisms into the environment and into the foodchain, but also the important number of concerned actors and the inevitable incompatibilities between their respective expectations of the rehabilitation, make the post accidental management a challenging question for the responsible organisations at local, national and international levels.

The involvement of persons in charge of agriculture in a collective reflection on the conditions and means of the post accidental situation's management seemed therefore necessary, in order to allow them to express the farmers point of view.

Research about rehabilitation of contaminated territories after a nuclear accident is mainly been conducted by radiation protection experts, with a few involvement of agronomists and farmers representatives. But the updating and therefore the expansion of present knowledge required a broadened framework through in depth discussions between radiological protection experts and various actors of the food production sector.

The FARMING Program, gave, three years ago, an occasion for IRSN to come up to these expectations. Coordinated by a Research Institute for Agronomy, the French Farming Group, met during two annual seminars, that framed the discussion on the stakes and conditions of the post accidental management of the agriculture and food industry.

Then, the means to achieve rehabilitation have also been discussed for one year on the basis of the countermeasures compendium for agriculture and food, produced by another European program, STRATEGY.

This paper provides an overview of the approach adopted and of the French agriculture and food countermeasure working group achievements.

2 THE FRENCH AGRICULTURE AND FOOD COUNTERMEASURES WORKING GROUP

The mobilization of the actors was a multistage process. In a first step, a core stakeholder group was created.. This group, coordinated by National Institute for Agronomy Paris – Grignon, and chaired by a representative of the French Department for Agriculture is mainly composed of:

- French Farmers National Association (FNSEA),
- National Federation for Milk Producers (FNPL),
- Institute for Radiological Protection and Nuclear Safety (IRSN),
- Study Centre on the Evaluation of Protection in Nuclear Field (CEPN),
- A NGO called Formation pour l'Epanouissement et le Renouveau de la Terre (FERT).

The second meeting of the French Group took place on the 16th and 17th October 2002. It was given the title 'what will we do at the local, national and European level, the day, month and year after a nuclear accident if there are post-accidental consequences on a territory and its agricultural area'.

A wide range of agro-technical institutes were then invited to take part in the evaluation of the STRATEGY countermeasures, after two briefing meetings, during which members chose a scenario, for the countermeasures' evaluation.

The agro-technical institutes that finally participated to the evaluation were :

- Animal Husbandry Institute,
- Arvalis - Plant Institute,
- Association for Technical Co-ordination in Agriculture (ACTA),
- Inter-professional Technical Centre for Oleaginous Plants (CETIOM),
- Inter-professional Technical Centre for Fruits and Vegetables (CTIFL),
- Inter-professional Technical Centre for Vine and Wine (ITV),
- Technical Institute for Linen (ITL),
- Technical Institute for Pig (ITP).

The working group divided in two subgroups respectively specialised in vegetal and animal food productions. The results of the subgroups were finally integrated together.

Some adjustments were also carried out to adapt the evaluation of the STRATEGY countermeasures to the French processes and context.

In order to comply with time constraints, the working subgroups decided to target the study on ten countermeasures among the forty-one, according to the interests and competencies of the participants. The selected countermeasures are:

- “Animal food production” working group
 - Live monitoring
 - Distribution of concentrates with AFCF
 - Slaughter dairy cows
 - Dilution
 - Salting of meat for subsequent consumption

- “Vegetal food production” working group
 - Food bans
 - Deep ploughing
 - Select edible crop that can be processed
 - Select alternative land use
 - Incineration

3 ACHIEVEMENTS

All in all, it arises that the document proposed by STRATEGY is a first very useful synthesis of the existing solutions, as regards the health protection of the people and rehabilitation of the environment after a nuclear accident.

However, the analysis of the STRATEGY document put into light technical, strategic and methodological questions concerning the countermeasures and the approach selected for their evaluation.

3.1 Specificities of the French context

Some of the results of the French working group seemed, to the other European stakeholders, to be very specific to France, and thus not extensible to the whole Europe. The description of some specificities of the French economical and social context was consequently a good instrument for better further comprehension.

The French agriculture is firstly characterized by a significant diversity of food products and modes of production, due to the diversity of climate and relief, agricultural traditions or regional specialization.

This multiplicity of contexts may, in crisis period, generate a large panel of specific local constraints and of available rehabilitation means, that could deeply influence the countermeasures efficiency. The local component of rehabilitation objectives definition may then vary a lot from case to case, what makes national reflexion even more complex.

Its second characteristic is a relatively important effort of the farmers towards the « quality process ».

Actually, the recent food or sanitary crises at the national and European levels have called into question some of the food industry intensive methods, and have therefore generated a

durable demand of “quality” for the food. This demand covered several aspects, like for example the respect for environment or the gustative quality of food. It began to express itself through the success, for example, of organic food and agritourism.

Some farmers and food industries, who perceived these changes, began to invest into extensive farming, improvement of traceability, development of “labels” and diversification of the agricultural activities.

The “quality process” appears therefore as a source of confidence and then, as a key factor for the choice of rehabilitation strategies.

3.2 Main results on the selected datasheets

3.2.1 A definition problem: In time of crisis, which foodstuffs would be considered as unfit for human consumption?

One of the first difficulties met by the two sub-groups has been the definition, with the countermeasure “food bans” for instance, of a threshold between marketable food and food to be banned for the crisis period.

A first response was given by radiation protection experts, with the Council Food Intervention Levels for Food (CFILs), which define maximal acceptable concentrations levels in marketable food for several radionuclides. Then, if the levels for one radionuclide are exceeded, food will be banned.

But some agricultural stakeholders brought up a problem of acceptability, for the consumer, of food labelled as coming from the contaminated territory but characterized by concentrations below the CFILs. Actually, the strong demand for quality in food production and the high availability of other foodstuffs than the ones produced in the contaminated territories may incite the consumers to reject these contaminated foodstuff..

Then, trying to sell these could even reactivate mistrust towards entire food production, notably quality foodstuffs, exported at the international level, like cheese or wine.

Within the French context, banning all foodstuffs coming from the contaminated territories in order to preserve the image of quality for food production might be more profitable, than using CFILs as threshold. However such a policy would have many drawbacks and would undoubtedly deserve careful consideration by the food and agriculture stakeholders.

3.2.2 A strategic choice: « diluting » or « concentrating » the contamination

French stakeholders classified the evaluated countermeasures in two main categories, that correspond to two options of rehabilitation: “concentration” or “dilution” of the radioactivity. All the countermeasures belonging to one of the categories are characterized by quite the same social and economical constraints.

- The « dilution » strategy means a reduction of the radiological concentrations in the food products and in the environment by increasing the volume of contaminated material.
“Dilution of contaminated milk with milk contaminated below the CFILs” or “deep ploughing of the contaminated soil” are for instance “dilution” countermeasures. In the first case, the problem of CFILs acceptability could signify drop of the sales and then of the farmers income. In the second situation, agricultural stakeholders pointed out that radionuclides will be irreversibly integrated into the environment, by the farmers,

what may rather be badly accepted by the population and could destabilize the existing confidence towards food production.

- The « concentration » strategy means, on the contrary, a reduction of the volume of contaminated material for storage. “Slaughter dairy cows”, then “incineration” for subsequent storage would decrease the volume of contaminated material but increase the radionuclides concentrations in wastes. This strategy seemed to be more acceptable for the population, but is characterized by high implementation costs and problems of storage feasibility.

« Dilution » strategy has often been perceived as an irreversible redistribution of the contamination that asks the question of the residual risk acceptability and « concentration » strategy raises problems of feasibility.

But French stakeholders also pointed out that the acceptability of “dilution” and the costs of the implementation of the “concentration” could significantly vary according to the scale of the accident and to the local characteristics of the rehabilitation.

3.2.3 Influence of the legal and the communication constraints on the feasibility and the acceptability of the countermeasures

3.2.3.1 Legal constraints:

The implementation of some countermeasures proposed by STRATEGY raised problems of legal feasibility evaluation. In fact, the European legislation, as far as quality of food production or environmental management is concerned, becomes stricter and stricter with the years. And some of the proposed countermeasures would be forbidden “in normal time”.

In “crisis period”, legal texts specify that some adjustments to the “normal time” legislation could be realised, but without precisising up to what point.

It has also been difficult for French stakeholders to estimate the legal feasibility of the countermeasures. This difficulty impacted on the reflection about rehabilitation strategies, because strategic choices could be limited, if the means to achieve the objectives are forbidden by the law.

3.2.3.2 Communication/ information constraints:

The experiment of recent food crisis demonstrates that communication strategy would be a key element of the crisis management, since it will partly define the perception of the crisis by the population.

But in time of crisis, it seems that the information sources will be numerous, with no coordination between them, and also possible inconsistencies. This situation of uncertainties could then create suspicion towards the rehabilitation managers at the national and local levels and increase the socio economical crisis generated by the contamination.

French stakeholders therefore emphasised the importance of a preparation of the information sources “in normal time” in order to organize the coordination and form them to explain simply and precisely the situation in “crisis period”.

3.2.4 Proposal for criteria addition

A wide range of criteria have been defined by STRATEGY and integrated in the datasheets for the countermeasure appraisal. The French stakeholders proposed some additional criteria to widen the information contained in the datasheets.

The first one is related to the “local constraints”, in order to assess the local feasibility of the countermeasure and the possible evolution of the contamination throughout the different environment of the territory.

The second one involves “the interactions with the others considerations of the living, of the economy, of the civil society” in order to improve the relevance of the countermeasure as strategic rehabilitation tool.

The third one concerns “the interactions between the countermeasures, in the time and space” in order to set up coherent rehabilitation strategies and increase their efficiency.

At last, a hierarchical integration of the principal characteristics of the countermeasure with the “global efficiency criteria” makes it possible a fast comparison between the countermeasures.

4 PERSPECTIVES

This framework gave to IRSN a good opportunity to initiate a discussion with some French responsible for agriculture and food industry. It allowed to inform these persons about the consequences of a nuclear accident and also to collect their advices about the strategic rehabilitation choices and the means to achieve these aims.

But only ten countermeasures among the forty-one have today been appraised by the French working group. And then, only the food production sector has been studied.

The follow-up of the collective work in view of the preparation to the management of a nuclear crisis will be organised by the French group within the framework of the European integrated project EURANOS, during the 6th PCRD.

French stakeholders will work on countermeasures strategies related to rural as well as urban areas.