



# Policy elements for post-accident management in the event of a nuclear accident: The French approach

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“Introduction (The CODIRPA activities)

“Policy elements for post-accident management  
in the event of a nuclear accident

“CODIRPA development (new tasks)

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## The CODIRPA activities (2005-2012)

The CODIRPA was implemented from 2005 to establish the framework, define, prepare and implement the steps necessary to deal with a post-accident situation

### The CODIRPA : a pluralistic structure

National and local administrations, expert bodies, operators

Non-institutional members: NGOs, local elected officials, professional unions, experts and consultants

Foreign radiation protection authorities (Germany, Switzerland, Luxemburg)

- Thematic working groups (technical reports available on [www.asn.fr](http://www.asn.fr))

Drinking water, foodstuffs, radioactivity measurements, health monitoring, remediation, waste management, protection of emergency workers, compensation, organization of public authorities, information of the public and radiation protection culture

- Two “transversal commissions” (transition and long term)
- Test of the doctrine at local level (3 NPP sites and one local community)
- 2 international seminars in Paris (Dec. 2007 and May 2011)



## The CODIRPA scenarios

### 2 scenarios of nuclear accident affecting a French NPP and leading to a release of radioactive substance in the atmosphere

- A short time release < 24 hours
- Release leading to :
  - The sheltering of the population living around the NPPs and iodine prophylaxis during the emergency phase on a perimeter < 5 km IA1
  - A level of contamination of locally produced foodstuffs exceeding Euratom ILs at a distance of several tens of kilometers from the NPP
  - Consider both irradiation from radionuclides deposited in the environment and ingestion of contaminated foodstuffs

### 1 scenario involving atmospheric dispersion of plutonium

Leading to consider inhalation of particles and ingestion of contaminated foodstuffs

**Slide 3**

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**IA1**

CFIL : Council Food Intervention Level (traduction des Niveaux Maximaux Admissibles/ NMA)

infoasn, 1/3/2013



## “Policy elements for post-accident management in the event of a nuclear accident” (Nov 2012)

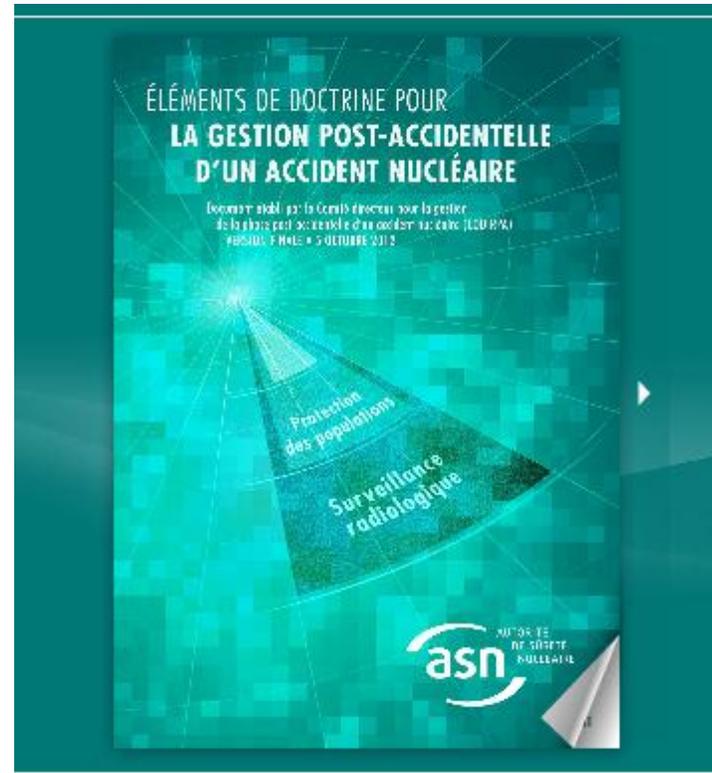
### Policy elements group together :

- Main document : objectives, principles, key actions and strategic orientations for the transition and long term phases
- Annex 1 : The first actions to be put in place at the end of the emergency phase
- Annex 2 : The guidelines for managing transition period (few months)
- Annex 3 : The guidelines for managing long-term period (several years)

Publication in 2012 ([www.asn.fr](http://www.asn.fr)) and wide dissemination to stakeholders

Traduction in English and Japanese available

and Russian (coming soon).





## “Policy elements for post-accident management in the event of a nuclear accident” (Nov 2012)

### 3 fundamental objectives (strongly connected)

- protecting the population against the dangers of ionising radiations
- providing support for members of the population who have suffered the consequences of an accident
- preparing the social and economic recovery of the affected areas

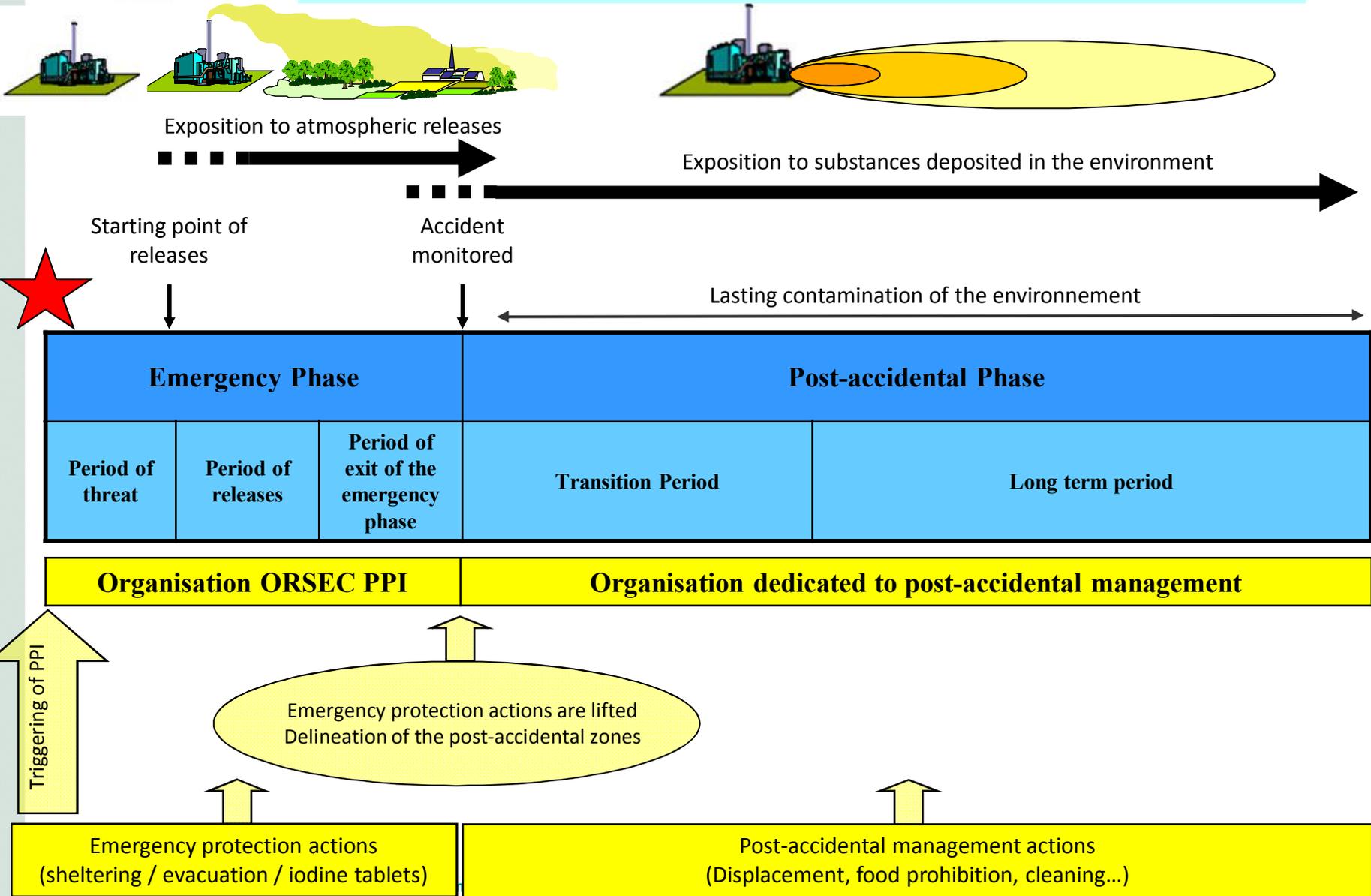
### 4 principles (very closed to ICRP 103 and 111)

- **Principle 1 : Anticipation** → issues relating to nuclear post-accident management must be taken into account immediately once the emergency phase is over, consequently the first actions for the protection of the population must be planned in advance.
- **Principle 2 : Justification**
- **Principle 3 : Optimisation**
- **Principle 4 : Co-construction and transparency** → the management of post-accidental situation must involve the stakeholders : population, elected officials, the social economic and “communication” stakeholders ; “transparency of information” is linked with co-construction .





# From emergency to post-accidental: Issues to be faced & management tools





## Immediate delineation of a PA zoning for the contaminated area : a key point

Immediately at the end of the release, by modeling (IRSN) and gamma radiation mapping (HELINUC)

**Public protection zone (ZPP)** where actions are needed to reduce population exposure

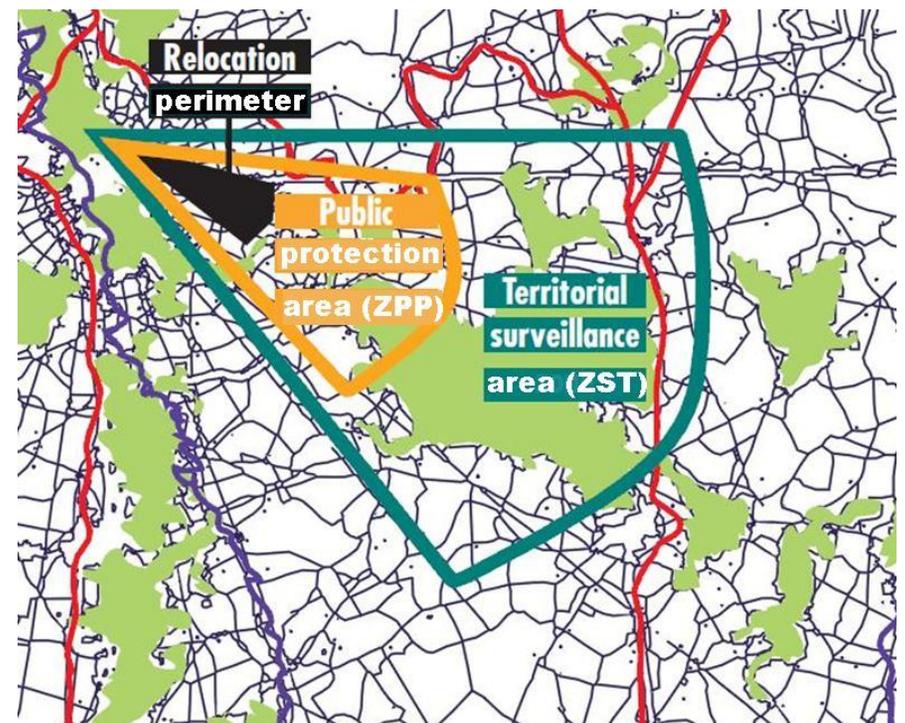
**Delineation based on dose criteria :**

Effective dose (external + ingestion) > 10 mSv / 1<sup>st</sup> month or

Thyroid equivalent dose > 50 mSv / 1<sup>st</sup> month

May include a Relocation perimeter

If effective dose from external exposure alone > 10 mSv/ 1st month



Food bans of locally produced food and feedstuffs  
in ZPP, for a long period



## The main protective actions in the ZPP

Immediate delineation of the ZPP provides the structural framework for early decisions at the end of the release:

### For initial protection measures

- To decide about the long term evacuation and relocation (after sheltering during the early phase)
- To organize food bans of locally produced food and feedstuffs
- To engage the first clean-up operations within urban areas

For the organization of medical and psychological care, human radiation monitoring, financial support and compensation

- Opening information centres for the affected populations



## The main actions in the Territorial surveillance zone (ZST)

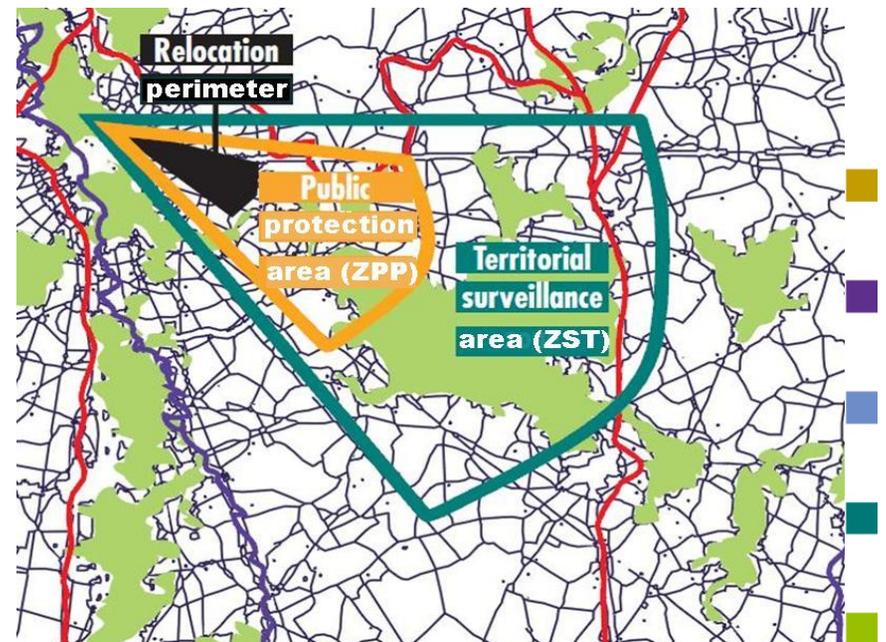
Immediately at the end of the release, by modeling (IRSN) and gamma radiation mapping (HELINUC)

**The Territorial surveillance zone (ZST)**  
where actions are needed for the radiological characterisation of environment, foodstuffs, manufactured products and drinking water.

**Delineation based on the contamination levels of locally produced foodstuffs**

**Étaking into account the Euratom Food Intervention Levels (Council regulations Euratom n° 3954/87, n°944/89 and n°770/90) ;**

**Éconsidering as the most sensitive to radioactive contamination (eg. milk, salads)**





## The main protective actions for the transition period (few months)

The transition period (considered as an “existing exposure situation”) is characterized by:

- changes in the radiological situation as well as in the economic and social situation
- need for a flexible management strategy based on evolving decision-making criteria

Protection actions implemented at the exit from the emergency phase shall be continued but some of them may evolve:

- To adapt the initial post-accident zoning to take into account results of the radiological surveillance of the environment
- To set up a radiation monitoring strategy in order to free locally produced foodstuffs (Euratom FIL’s) and manufactured products (“contamination management level” to be defined)
- To gradually replace the temporary waste management solutions selected at the exit from the emergency phase by long-term management solutions (“contamination management level” to be defined)



## The main actions for the transition period (10 goals)

### Protection of population

- Reducing population exposure
- Improving the radiological quality of the environment and living
- Managing radioactive waste
- Developing environment monitoring

### Support for members of the population

- Receiving the population
- Addressing public health issues
- Providing grants and compensation
- Informing the population.

### Preparation of the social and economic recovery

- Improving stakeholder involvement toward an appropriate governance mode.
- Supporting and re-deploying economic activity.





## And for the long term period...

The transition period comes to an end when the situation in the territories can be observed to have stabilized:

- A relatively good understanding of the contamination in the environment and the population's exposure conditions has developed
- The post-accidental zone has stabilized
- The first questions regarding the future of the persons affected have been addressed in a coordinated manner
- The public authorities have implemented an initial post-accident management plan

As a result of the actions already initiated, during the long term it is important to:

- Provide support to those who have chosen to remain
- Continue to monitor radiological conditions
- Ensure the radiological, medical and epidemiological follow-up of persons
- Improve the radiological quality of products
- Maintain and redeploy activity across the territory



## CODIRPA development under the new governmental action plan

1. The new governmental action plan on nuclear emergency (2013) takes into account CODIRPA recommendations (the main PA protective actions in the ZPP decided at the end of the emergency phase)

2. The recent decision of the PM to update local emergency plans (each NPP site), introducing the main PA protective actions.

### CODIRPA will :

- Assist in the preparation of tools to support the local declination
- Participate in the dialogue with state services, in charge of the preparedness at the territorial level

3. The recent decision of the PM requesting to ministries (health, agriculture, environment, economy, ...) to develop “road maps”, taking into account the CODIRPA recommendations (transition period)



## CODIRPA development (2013-2018)

### 3 new objectives

#### 1. Accompany the preparation of the post-accident management at the territorial level (on each NPP site)

- Transfer the doctrine to the elected officials, associations, economic stakeholders
- Ensure the information, training of local stakeholders

#### 2. Test and complete the post-accidental doctrine

- Take into account various accident scenarios, including those involving long-term release of radioactivity in environment
- Analyze the feedback from real accidents (Fukushima, Chernobyl) and from crisis exercises
- Further some topics related to the beginning of the transition period (sea contamination, management of manufactured products, waste management, stake holders involvement...)

#### 3. To take into account HERCA works (WGE), to organize exchanges with neighboring countries and to participate to international organizations works (IAEA, WHO, NEA)



## Conclusions

The development and publication of the “Policy elements for post-accident management in the event of a nuclear accident” is an important first step in preparing for the management of nuclear post-accident situations

ASN recommends to continue and intensify the process of preparation:

- É by initiating the planning of the first protective actions to be implemented at the end of the emergency phase, to be able to organize it quickly in case of nuclear accident
- É by preparing in advance the health, social and economic elements that would be necessary to establish, in the first months after the accident, the first national plan for the management of contaminated territories