

Lessons from Chernobyl post-accident management on stakeholder engagement

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- The Chernobyl accident and the Fukushima accident show that the long-term management of their consequences is not straightforward
- The main key issues for each inhabitant: to know if he/she would like to leave or to stay living in this territory
- Need to evaluate the possibility to work and to produce in the contaminated territories
- Need to consider the new conditions in comparison to the situation prevailing before the accident

The post-Chernobyl context in the mid-90s

A complex situation:

- All the dimensions of daily life affected :
 - Health, environment, education, social life...
 - Production, distribution of foodstuffs and commodities...
- Out of control for the inhabitants
- Strong concern about the future and particularly the health of children
- Inability of public actions to control the situation
- A lack of efficiency of classical approaches of communication

The ETHOS and CORE projects in Belarus (1996-2008)

- A pilot experiment supported by the Belarus Authorities and implemented by a European Team of experts
- Aiming at developing a sustainable improvement of the living conditions of the local population
- Based on the direct involvement of the local populations in their own protection
- Developed with groups of teenagers, young mothers, farmers, teachers, health care professionals and foresters in several villages
- Addressing their concerns :
 - Management of the radiological quality of milk and meat
 - Management of the radiological protection of children
 - Management of the radioactive waste

Key issues for the post-accident strategies

- New strategies experimented in Belarus mainly relying on:
 - The direct involvement of the inhabitants in their own protection,
 - The development of a radiation monitoring system and health surveillance at the local level,
 - The development of the radiation protection culture among the population,
 - The setting up of economic measures to favour the local development.

The direct involvement of the inhabitants in their own protection

1. The stakeholder engagement process implemented in the project

- **Listening and learning** from the villagers about their concerns, difficulties and wishes
- Developing a **common evaluation** of the local radiological situation
- **Implementing protective actions** for improving the local situation
- **Establishing (or re-establishing) links** between villagers and the local authorities and professionals

Listening and learning from the villagers

- Finding out stakeholders issues and concerns
- Elaboration of a contractual and ethical framework to overcome distrust
 - *Precautionary approach, open and honest information, problem solving attitude, commitment to improve the situation, voluntary involvement...*
- Setting up working groups for the effective involvement of stakeholders in the improvement of their own situation
- Empowerment, training and providing technical assistance to local stakeholders
 - *Access to relevant information, practical training on measurements, placing equipment at the disposal of interested stakeholders, access to independent technical expertise,...*

Listening about concerns - Public Meetings



Access to local expertise



Developing a common evaluation between the villagers and the European experts

- Collection and interpretation of available information on the radiological situation
- Identification of issues and problems according to the specific context
 - *Influence of local traditions, habits and diet, organization of local production...*
- Giving each individual a means to get a grip on its own day-to-day environment
 - *Reference values, comparison with other villages...*
- Revealing the heterogeneity of the local contamination and the distribution of exposures in relation to the individual behavior

Empowerment of villagers



Local farmers meeting



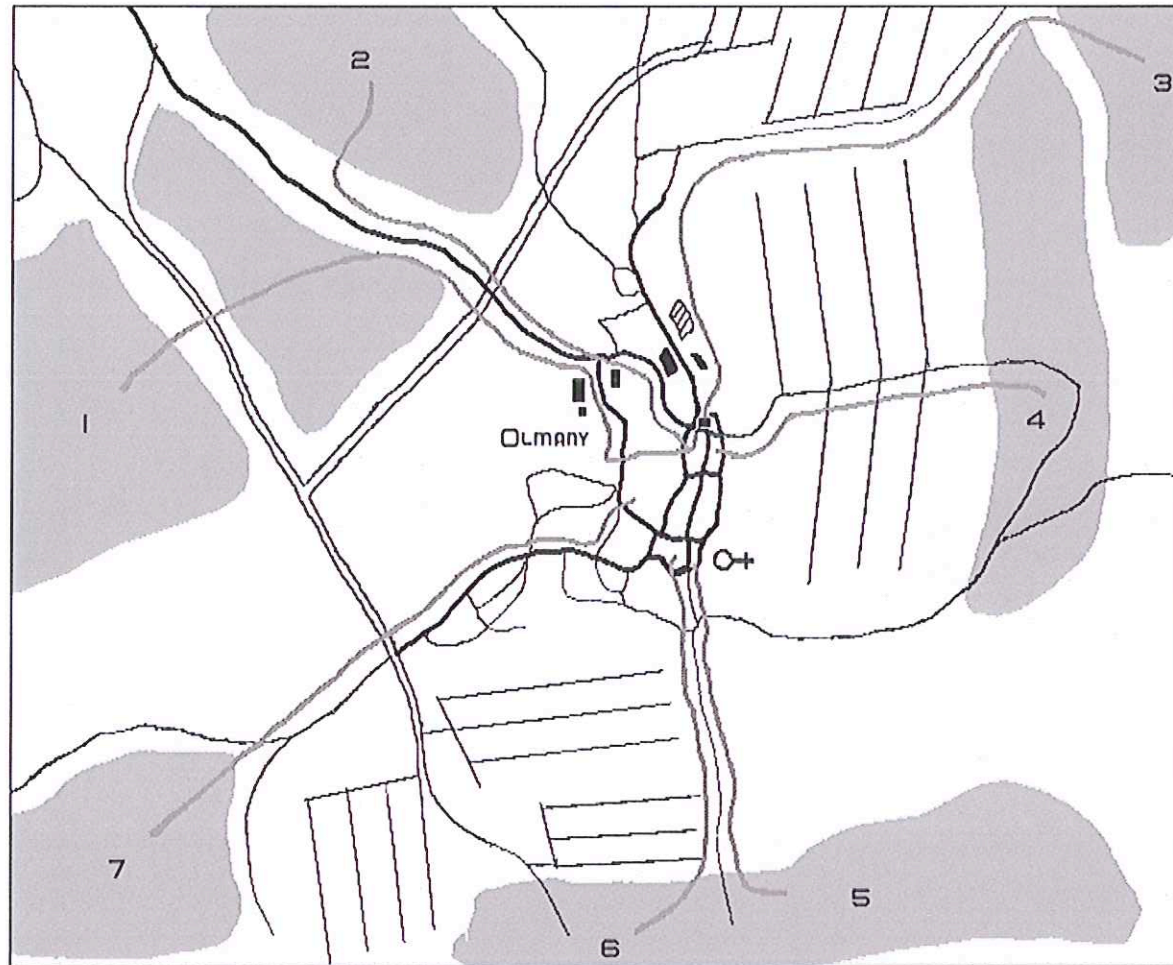
Elaboration of a radiological scale for external exposure



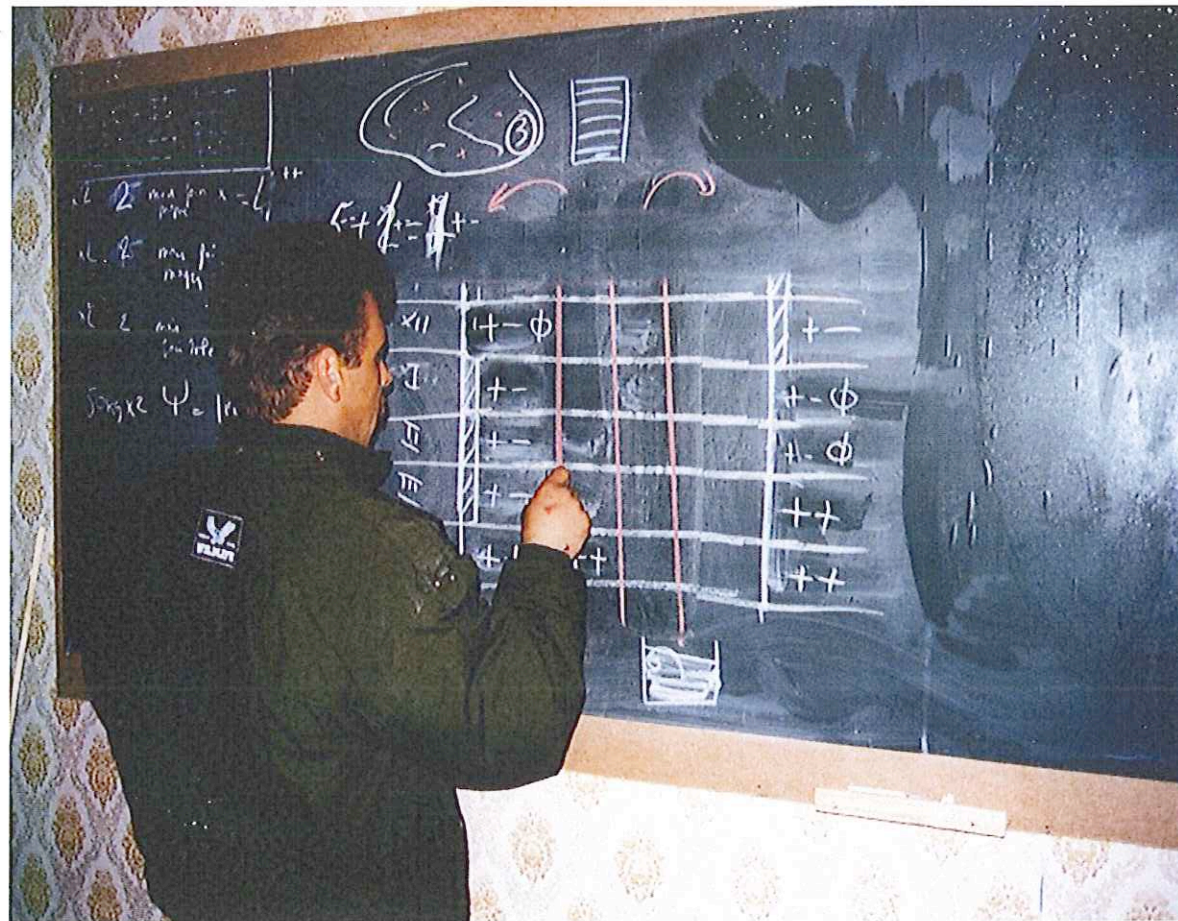
Implementing protective actions

- Identification of possible protective actions including the individual and collective values and constraints:
 - *To reduce the contamination of milk according seasons and local contamination maps*
 - *To improve the food production according available resources*
 - *To reduce the contribution of fire-ashes to the contamination of gardens*
 - ...
- Evaluation of the alternative actions including **self-help protective actions** complementary to the collective actions implemented through the national rehabilitation program
- Adoption of actions on a broad-based consensus between the villagers and the local authorities

'Milk mapping' for summer production



Optimization of winter milk production



Establishing (or re-establishing) links between villagers and the local authorities

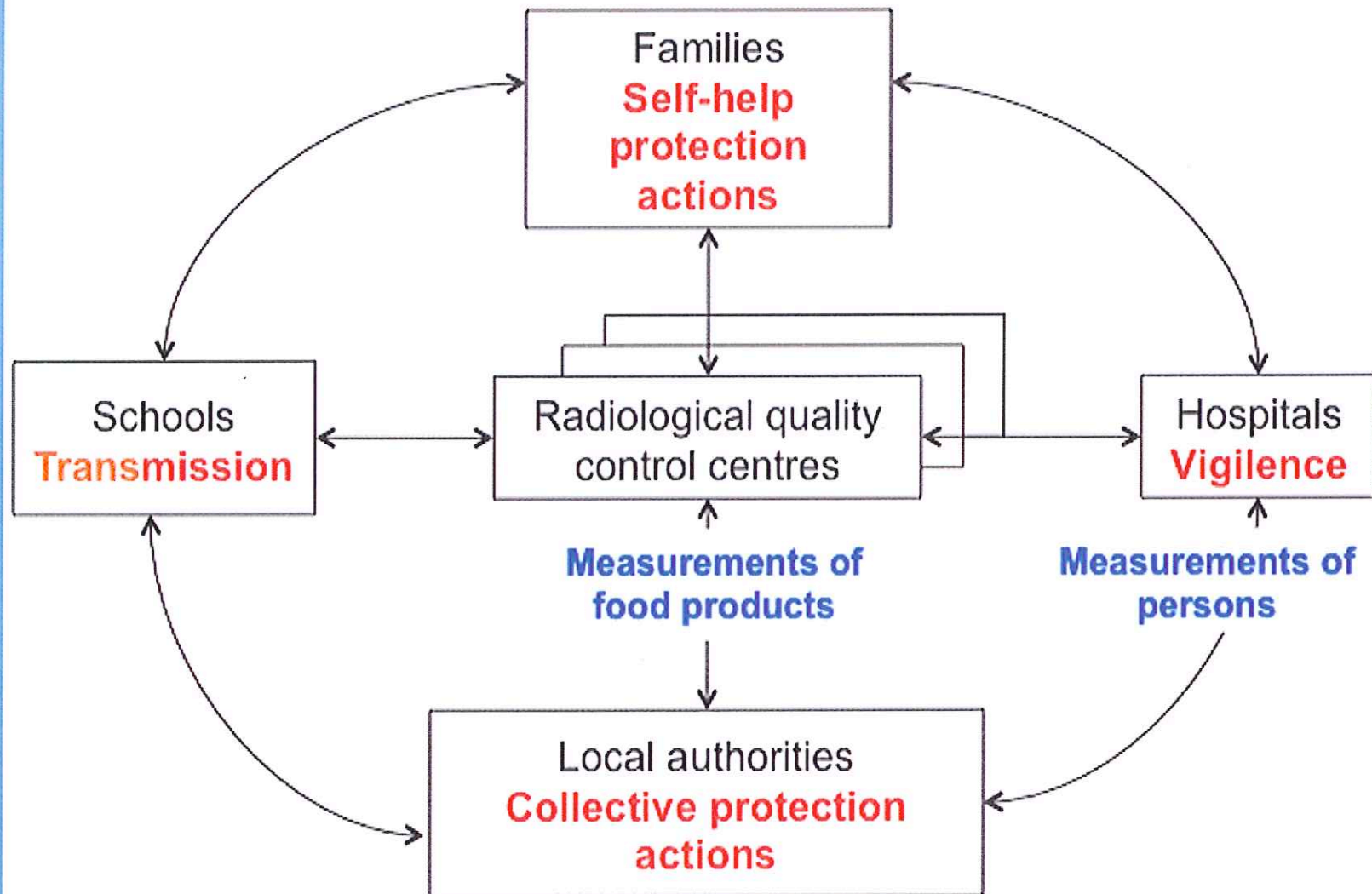
- Empowerment of local professionals to directly implement the step-by-step approach with the villagers
- Involvement of the different levels of authorities and national scientific institutes to accompany this process to:
 - *Ensure availability of information and equipments*
 - *Allow adaptations of the protective strategies according to the evolution of the local situation*
 - *Maintain the cooperation between the different stakeholders in the rehabilitation process*
- Involvement of the education and the health care professionals to develop a **practical radiation protection culture** among the villagers necessary to ensure the sustainability of the rehabilitation program

The development of a radiation monitoring system and health surveillance at the local level

2. The radiation monitoring system and health surveillance at the local level

- Establishment of an operational radiation monitoring system including measurement of foodstuffs and whole-body contamination
- Aiming at providing the access to the measurements for all the inhabitants
- Allow the population to be able to participate to its own protection and to regain self-control on its direct environment
- Importance of the pluralism of sources of measurement for ensuring confidence and providing useful information to cope with the local situation

The radiation monitoring system implemented in the Bragin District



Radiological Quality Control Centre



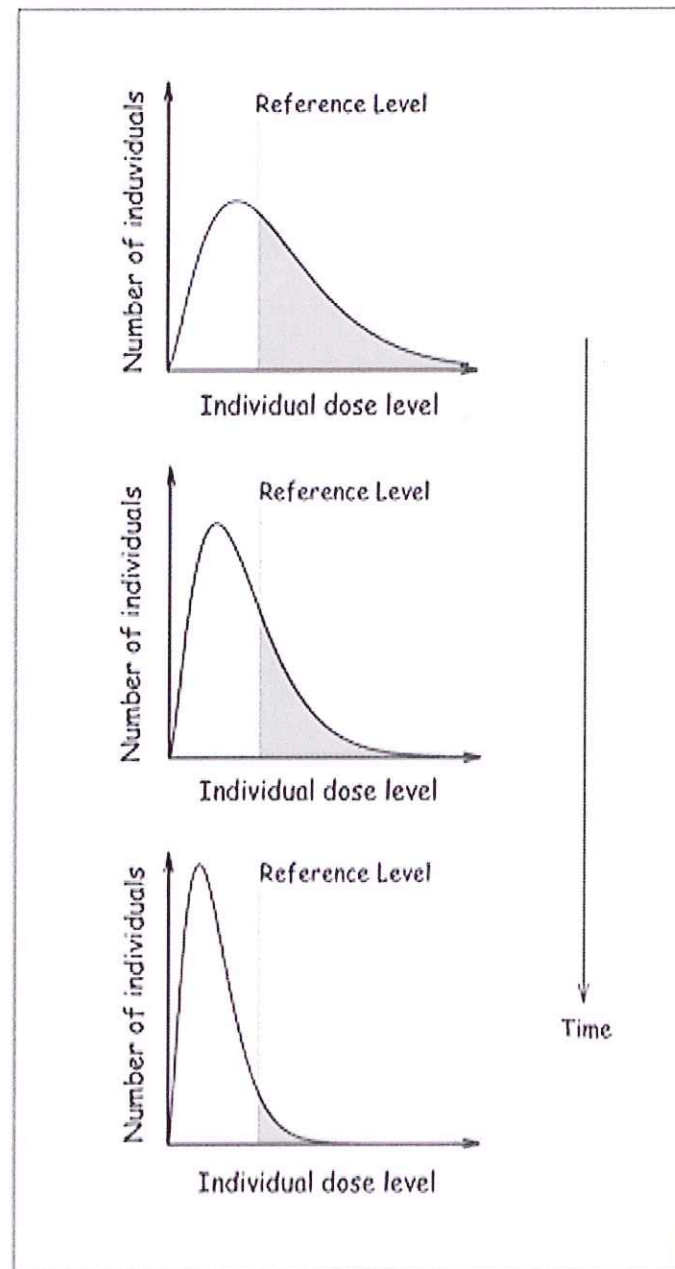
Measurements of foodstuffs



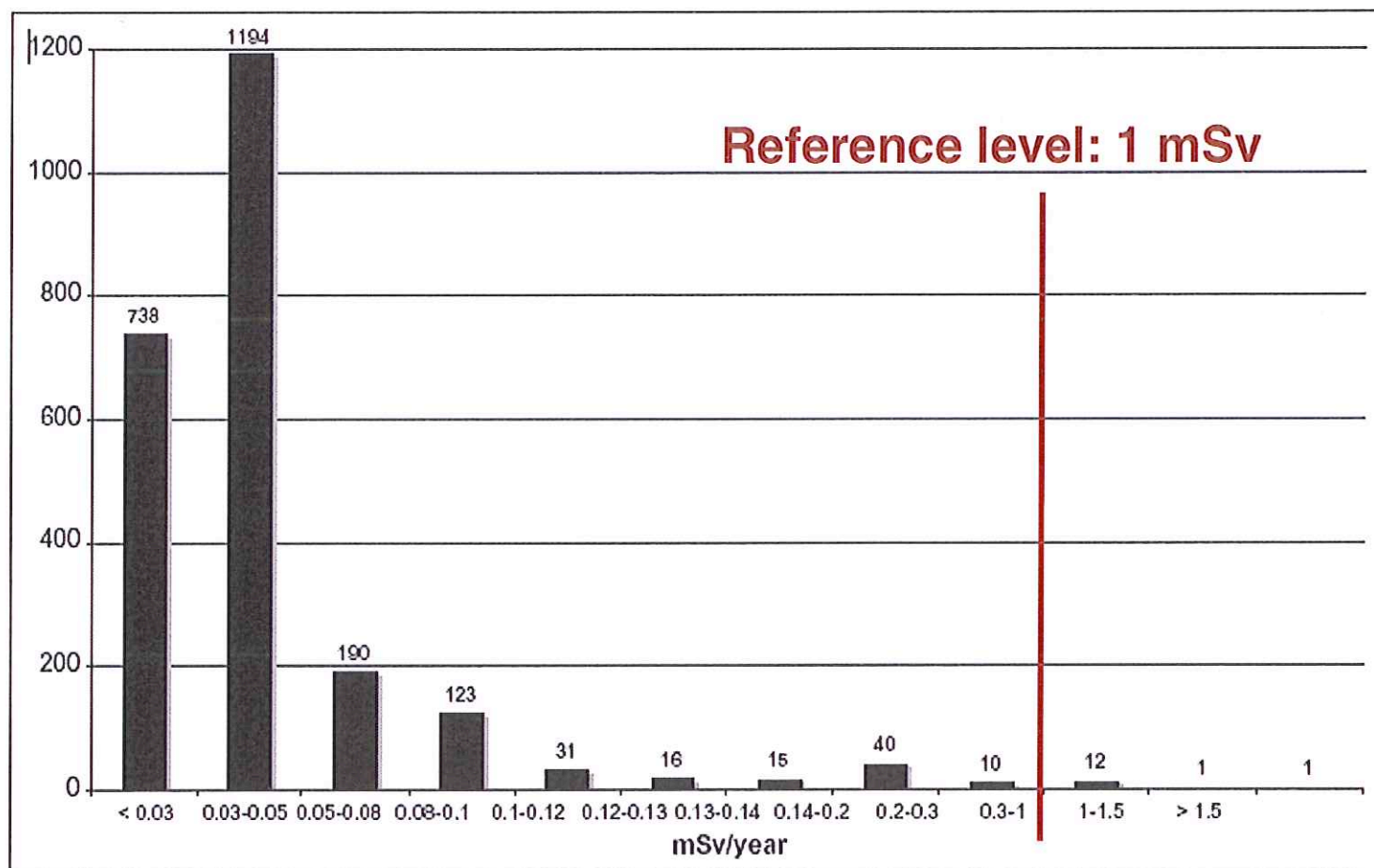
Whole body measurements



Evolution of the distribution of individual doses with time as a result of the process of optimisation of protection in an existing exposure situation



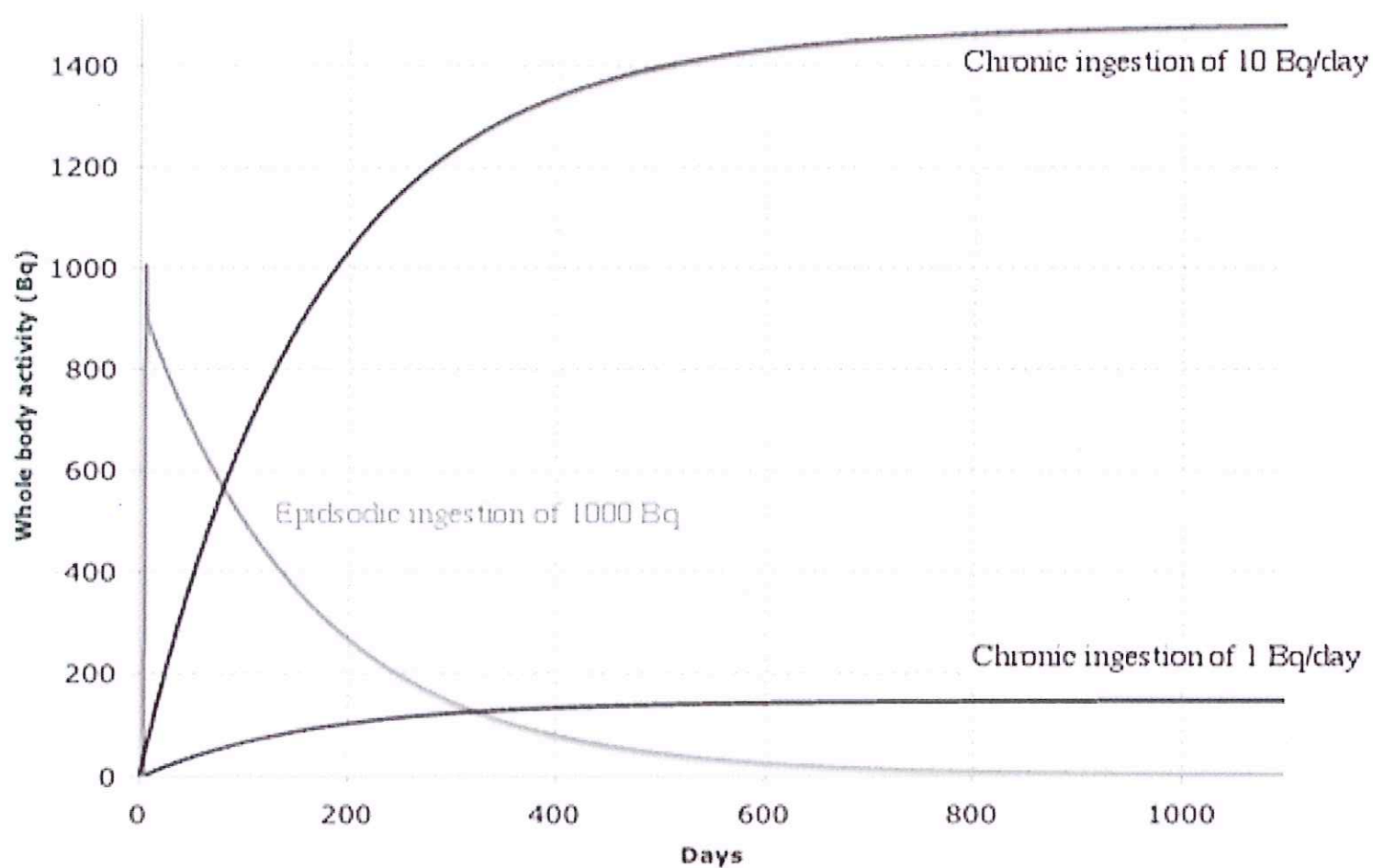
Typical dose distribution from caesium intake of children in the contaminated area around Chernobyl 20 years after the accident



Interpretation of whole body measurements

- Three basic “profiles” of contamination
 - Chronic ingestion
 - Episodic ingestion
 - Mix of chronic and episodic ingestions
- Need to dialogue with the contaminated persons to identify the relevant profile and the possible actions to reduce the level of contamination
- Attempt of CEPN and NRPA to develop a tool to interpret whole body measurements and to inform the dialogue with measured persons (CORPORE)

Evolution over a pluri-annual period (1000 days) of the whole body activity associated with an episodic intake of 1000 Bq and daily intake of respectively 1 and 10 Bq of caesium



The development of the radiation protection culture among the population

3. The practical radiation protection culture

- Defined as:
 - *“The introduction in the daily life of the means and actions to be implemented to ensure the radiological safety of the inhabitants living in contaminated territories”*
- Contamination criteria for foodstuffs and whole body cease to be blocking factors for their involvement
- Criteria are considered as benchmarks to guide their actions and behaviours in the day-to-day life
- Dissemination of information and development of a common language favoured through the creation of places for dialogue

Key features of the practical radiation protection culture

- To respond to practical questions
 - *Where, when and how am I exposed?*
 - *What can I do to manage my own radiological situation?*
 - *In which area of my day-to-day life can I intervene?*

- Key features:
 - Provide capabilities for identifying and having references regarding the presence of radioactivity in the day-to-day life
 - Allow the interpretation of the measurements produced at the local and regional levels
 - Allow the involvement of the local stakeholders to the decision-making process regarding protection
 - Favor the evaluation of the results of protection actions

The setting up of economic measures to favour the local development

4. The economic measures to favour the local development

- Two laws adopted in Belarus in 1991 in order:
 - to ensure the social protection of the citizens
 - and to define the legal framework for the territories.
- Progressively, emerged the need to address at the local level the possible future development of the territories
- Dedicated accompaniment measures tested in partnership with local, national and international stakeholders.
- Implementation with the aim of improving the quality of life of the inhabitants and the radiological quality of the production



CEPN

Conclusions

Lessons from the ETHOS Project (1996-2001) and the CORE Programme (2004-2008) in Belarus (1)

- Living in a contaminated environment is a **complex situation generating a lot of concern** among the affected population
- In the long term ingestion is by far the dominant pathway
- Exposures are driven by **individual behaviours** and the socio-economic situation
- To be effective protection strategies should include actions implemented by authorities at the national and local levels and by the affected population itself = **self help protection actions**
- This is the **responsibility of authorities** to establish programmes for continuous radiation monitoring, health surveillance, information and education of the population

Lessons from the ETHOS Project and the CORE Programme in Belarus (2)

- The **involvement** of local professionals and inhabitants in the implementation of protection strategies is key to the **sustainability** of rehabilitation programs
- Radiation monitoring in contaminated territories is an **unavoidable dimension** which is linked to all other dimensions involved in the improvement of living conditions : health, environment, agriculture, social, cultural...
- The **pluralism** of sources of measurement (public and private local, regional and national actors) is a key factor for ensuring confidence of the population in the results
- Establishment of **places for dialogue** is important for the dissemination of **information** and the development of a **common language** between all involved stakeholders

Lessons from the ETHOS Project and the CORE Programme in Belarus (3)

- Over the years emerged the notion of **practical radiation protection culture**, which can be defined as : “the introduction in the daily life of the means and actions to be implemented to ensure the radiological safety of the inhabitants living in contaminated territories”
- When inhabitants have a direct access to measurements and understand how they can control their own exposures, contamination criteria for foodstuffs and whole body cease to be blocking factors for their involvement and they become **benchmarks** to guide their actions and behaviours in the day to day life