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# D9.31 Report on international experts' dialogues

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## Abstract

The European project CONFIDENCE includes a specific task dedicated to exploring further the impact of controversies between institutional and non-institutional experts on the capacity of local actors to cope with uncertainties, consisting on the development of a framework of analysis and a European workshop gathering institutional and non-institutional experts.

A workshop with international experts was held in Bratislava on December 4, 2019. The duration of the workshop was 1.5 hours and gathered 17 participants from 9 countries.

The present document synthesises the outcome of the workshop, as well as the preparation works for the workshop, consisting in *i) Identifying key controversies in an emergency and post-emergency situation; and ii) Developing short scenarios enabling institutional and non-institutional experts to discuss the effect of these controversies on the capacity of local actors to deal with uncertainties.*

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## Introduction – uncertainties, controversies and the systemic role of experts

Emergency and post-emergency management strategies provide a framework that defines the responsibilities of different institutional actors, as well as the resources (financial, human, technical,...), means and tools to enable these actors to achieve their mission in this context.

Beyond this circle of actors, as shown in particular by the European research projects PREPARE and CONFIDENCE<sup>1</sup> based on the feedback from the Fukushima accident and on workshops with stakeholders (emergency and post-emergency managers, local actors, NGOs,...) in different European countries<sup>2</sup>, local actors (local authorities, economic actors, civil society organisations, scientists, families, etc.) are active from the first hours after an accident, including during the emergency phase, be it to take action to protect themselves (self-evacuation, decisions about food), to decide on the conduct of their personal and professional activities, to mobilize resources to qualify and understand the situation or to mobilize resources to help people cope with the situation (e.g. through citizen-led measurements of radioactivity in the local environment). The construction of the response of local actors to the post-accident situation is a social process composed of a multitude of decisions taken in a context marked by uncertainty and according to a broad set of issues (protection, human, social, economic, environmental, ethical and symbolic, etc.), which is not limited to the application of external prescriptions insofar as people are the only ones capable and legitimate to decide their future.

In contemporary, open and highly connected democratic societies, the information on which people rely to act in their environment comes from pluralistic and non-linear information systems. In the presence of major disruptive issues, people's ability to assess their own situation is based on the mobilization of diversified components of expertise. In an emergency and post-emergency situation following a nuclear accident, people actively seek information and develop their own actions, following or not the instructions of the authorities and developing their own actions independently if necessary.

In these contexts, experts are highly solicited, whether they are institutional experts with a specific mandate or non-institutional experts (academics, independent experts, NGO experts). These experts interact with each other in institutionalized or informal processes when, for example, they are solicited by the media or by society. These processes are intended to encourage the expression and discussion of disagreements or differences of interpretation (controversies) regarding the state of the situation and its potential evolutions, the consequences of the accidental situation in the short, medium or long term or the measures to be taken while managing the situation. The existence and expression of disagreement between experts is a matter of course. It is a necessary component of the expertise process.

These interactions between experts, when made visible, can help to clarify the understanding of the situation and its stakes or, on the contrary, reinforce the distress and loss of bearings of those involved in the accident situation. Indeed, they can take on a polemical or even agonistic character and lead to situations where experts bent on disqualifying or discrediting each other. These controversies can have multiple origins, for example when experts do not have the same ground of information along the evolution of the situation, or when their assessment is guided by different values and priorities. As the PREPARE project has shown, it is also linked to the nature of the pre-existing relationships between

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<sup>1</sup> See Baudé S., Crouaïl P., Dewoghélaëre J., Duranova T., Hériard Dubreuil G., Paiva I., Teles P. and Schneider T., CONCERT deliverable D 9.30 : “Uncertainties faced by the local actors and influence of emergency and post-emergency arrangements on their capacity to manage these uncertainties”

<sup>2</sup> France, Slovakia, Portugal

these experts, not only in an interpersonal perspective but also structurally between categories of experts where "contempt" phenomena are observed. The quality of the processes of interaction and clarification of controversies is linked with the format of these processes. It is also related to their pace and the places and times of their occurrence before or during the crisis situation. Experts, regardless of their initial relationships and diversity, constitute (form) a system whose modes of functioning have direct consequences on how people will experience the accidental situation and its uncertainties. Regardless of the state of their relationships, experts therefore perform a function in a systemic and collective manner (without necessarily being perceiving or assuming the collective consequences of those interactions as their responsibility) while affected persons are seeking for reliable information in the accident context<sup>3</sup>.

The European project CONFIDENCE (CONCERT WP9.1) includes a specific task dedicated to exploring further the impact of controversies between institutional and non-institutional experts on the capacity of local actors to cope with uncertainties, consisting on the development of a framework of analysis and a European workshop gathering institutional and non-institutional experts.

The first part of this document synthesises the outcomes of the preparation works for this workshop, which consisted in:

- Identifying key controversies in an emergency and post-emergency situation
- Developing short scenarios enabling institutional and non-institutional experts to discuss the effect of these controversies on the capacity of local actors to deal with uncertainties.

The second part of the document reports on the workshop with international experts held in Bratislava, on December 4<sup>th</sup> 2019.

## Method

The identification of uncertainties relied on face-to face interviews (when possible) or phone/Skype interviews with institutional and non-institutional experts covering different fields of expertise (environmental impacts, health and epidemiology, radiation protection, social sciences, ...).

7 experts were interviewed:

- Jean-Claude Autret, Association for radiation monitoring in western France (ACRO)
- Enora Cléro, Laboratory of epidemiology of ionising radiations (LEPID), French Institute of Radiation Protection and Nuclear Safety (IRSN), France
- François Jeffroy, Head of the Laboratory of Social and Human Sciences (LSHS), IRSN, France
- Dominique Laurier, Head of head of the Research Unit on the Biological and Health Effects of Ionizing Radiation, IRSN, ICRP member, France
- Tatiana Duranova, Emergency Planning Expert, Group of radiological consequence analyses, Department of Safety Analysis, Nuclear Safety Division, VUJE, Slovakia
- Nadja Železnik, President of Nuclear Transparency Watch (European civil society network), Senior researcher at EIMV, Slovenia

These experts were asked to identify the key controversies in their field of expertise that they deem prone to have an effect on the way local actors cope with uncertainties.

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<sup>3</sup> See notably Y. Marignac, J. Hazemann, S. Baudé, Managing the complexity of societal needs in a nuclear emergency situation: towards further experts collaboration for the "enlightened protection" of populations, in *Radioprotection* 51 S159-S161 (2016)

The outcomes of these interviews was synthesised under the form of a list of controversies. Based on these controversies, the authors have elaborated short scenarios involving local actors confronted with uncertainties and impacted by such controversies. These scenarios were elaborated on the basis of the data and experience gathered by the authors through many European research projects since 2004 about local populations, stakeholder involvement, ... in emergency and post-emergency situations, notably the EURANOS, NERIS-TP, PREPARE and CONFIDENCE WP5.3 (CONCERT WP9.1.5.3).

A subset of these scenarios was proposed as the basis for discussion of controversies during the European workshop initially foreseen by CONFIDENCE WP5.4 (CONCERT WP9.1.5.4).

## Link with dignified living conditions

A way of assessing if and how controversies impact the capacity of local actors to cope with uncertainties is to use the set of criteria for dignified living conditions developed in the framework of CONFIDENCE WP5.3 (CONCERT WP9.1.5.3) and presented in the WP final deliverable<sup>4</sup>.

This set of seven complementary criteria referred to as the criteria of "dignified living conditions" has been developed to characterize the several categories of anthropological resources that are at the origin of resilience capacities. This concept of dignified living conditions has been developed as a potential common objective for emergency and post-emergency managers and local actors confronted with the consequences of a nuclear accident. As such, these criteria do not constitute "material" conditions or targets (e.g. in terms of health protection, healthcare, environment, economic resources, ...). They do not only represent a state of affairs, a desirable objective for a population (to benefit from dignified living conditions), but also, and above all, dynamic conditions for enabling a human community facing a major disruptive event, in the short, medium and long term, to contribute to the rehabilitation of its living conditions.

The seven criteria of dignified living conditions are the following:

1. Integrity and personal ability to act,
2. The existence of conditions allowing the effective satisfaction by people of their basic needs,
3. The ability to act with others,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective, to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it,
6. The territorial rooting of individuals and communities,
7. The Symbolic and Spiritual resources.

These criteria, developed hereunder, constitute above all, different tools to analyse and discuss, from an anthropological perspective, how local populations and actors are confronted to an emergency and post-emergency situation resulting from a nuclear accident, covering a wide range of dimensions of this situation. The proposed criteria are designed from a model of resilience that encapsulates several complementary dimensions that are all interconnected in a systemic perspective.

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<sup>4</sup> See Baudé S., Crouaïl P., Dewoghélaëre J., Duranova T., Hériard Dubreuil G., Paiva I., Teles P. and Schneider T., CONCERT deliverable D 9.30 : "Uncertainties faced by the local actors and influence of emergency and post-emergency arrangements on their capacity to manage these uncertainties"

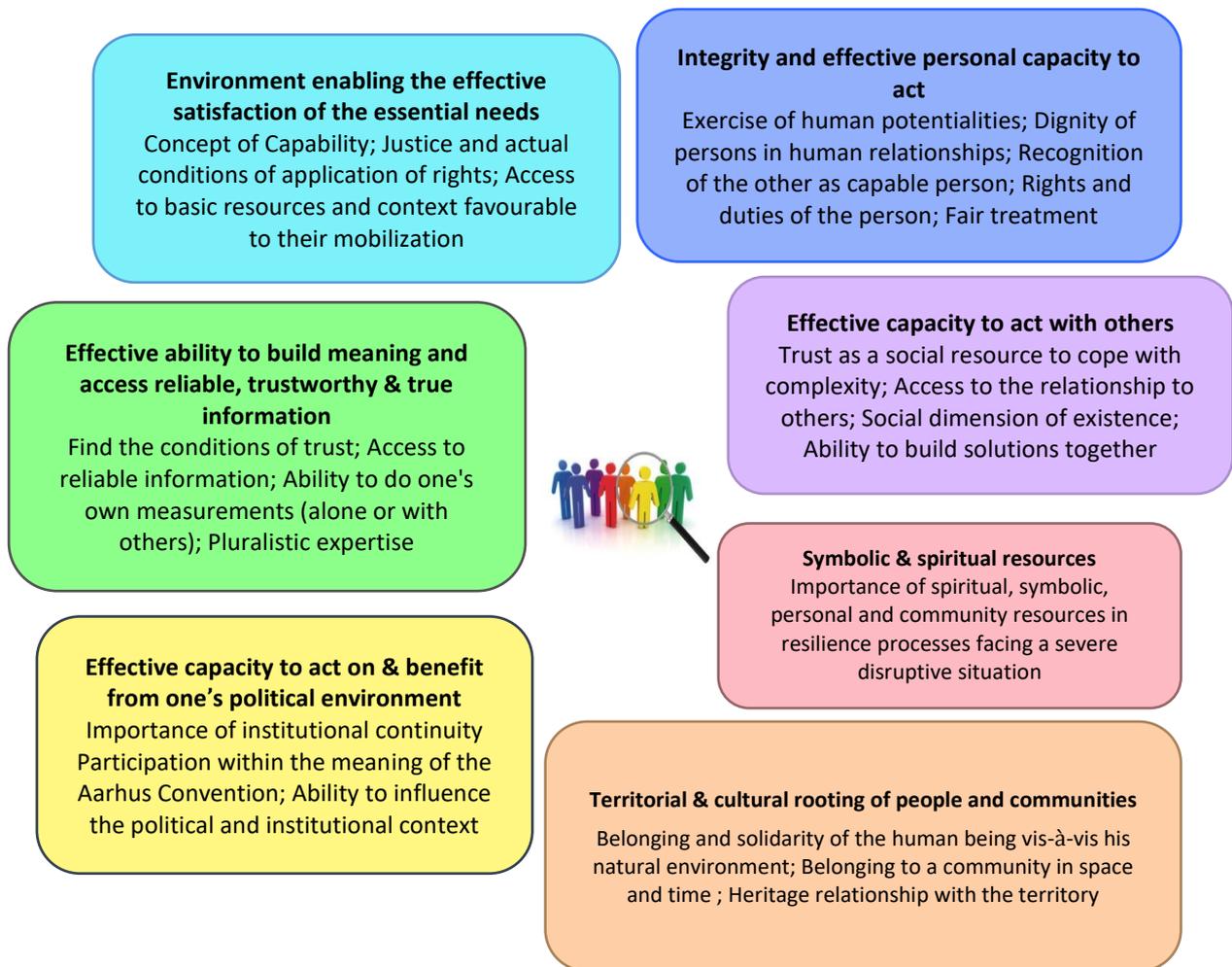


Figure 1 - 7 criteria of dignified living conditions as developed in CONFIDENCE WP5.3

## Identification of controversies

During the above-mentioned interviews, the following controversies have been identified as relevant for local actors potentially entailing a significant impact on their capacity to deal with uncertainties. They are summarised hereunder under the form of questions.

1. **What are the health consequences of the accident (health risks)?**
  - a. Health risk assessment: which risks at low doses?
    - i. Which models are the most suitable?
    - ii. Is the Hiroshima-Nagasaki model relevant?
    - iii. Is there a linear relationship without a threshold? Is there a dose where we can consider that there are no effects?
    - iv. What consideration should be given to uncertainties (Are they taken into account in the quantitative risk assessment work?)
  - b. Should we talk to people about the situation in terms of Becquerel or in terms of increasing the risk of this or that disease?
  - c. What about heart diseases?
  - d. What about congenital malformations?
  - e. What risks for responders (firefighters,...) in post-accident situations?
2. **What are the non-radio-induced effects of the accident (effects related to measures taken**

- following the accident - including evacuations - and not related to the exposure itself)?
- a. How to measure them? What should be looked for?
  - b. How can these non-radio-induced effects be taken into account?
- 3. *How is thyroid screening relevant?***
- a. What is the benefit-risk balance?
  - b. Who should make the screening decision?
  - c. What are the effects of the screening itself?
  - d. How to prepare for screening beforehand?
  - e. How can we distinguish between the artefacts of the screening itself and the effects of the accident? Especially if you don't have a zero point
  - f. How to reconcile a scientific observation of health effects with a fair relation with affected people (avoiding people to be placed in a "guinea pig" position) providing them with due care, advice and answers to their concerns, with the potential consequence that if the system improves people's health, it also might modify the observed health effects.
- 4. *What is the assessment of the health consequences of the accident (epidemiology)?***
- a. What pathologies should be observed?
  - b. Through which tools? Systematic screening? Register?
  - c. What is the reference point on the ante situation (zero point)? How can the quality of the reference point be improved?
  - d. What are the conditions for setting up epidemiological studies? How can the scientific and social objectives of such studies be balanced? Should epidemiological studies be carried out even when scientists are certain that they will not see anything?
- 5. *How effective is iodine intake in preventing the absorption of radioactive iodine?***
- a. What are the conditions of taking? What recommendations? Will they be followed?
  - b. In the case of long discharge, what are the effects of repeated iodine intake on pregnant women and babies in and out of utero? (rather a question that mainly concerns specialists)
- 6. *Effective implementation of the recommendations by the population, spontaneous actions by local actors***
- a. How is it assessed how the population is likely to follow or deviate from the recommendations made during the emergency phase? post-emergency? What will be the spontaneous actions of the population (e.g. self-evacuation)?
  - b. How to take into account the degree of non-application of recommendations and spontaneous actions?
- 7. *What is the environmental contamination?***
- a. Which models predict environmental contamination?
  - b. How reliable are the different measurement sources? (good intercomparison IRSN- CRIIRAD - ACRO in the French case for example)
  - c. In a measurement strategy, what place do associative or university measures have?
- 8. *Zoning***
- a. How to define the distance perimeter? Where to place your borders? How can authorities justify not evacuating those who are just outside?
  - b. What justification for other types of zoning (outside the evacuation zone)?
- 9. *Assessment of past and future exposure of individuals***
- a. According to which scenarios, which modelling?
  - b. What modes of exposure measurement? Direct by wearing an individual dosimeter? Or environmental measurements and calculation?
  - c. Are there exposures to more specific categories of people (e. g. people working in sewage treatment plants)?
  - d. How to anticipate cases of overexposure?
  - e. What references in terms of the link between dose and risk? What reference levels linking environmental contamination and dose (e. g. 3.4  $\mu\text{Sv/h}$  equivalent to 20 mSv/year)? How is the calculation done?

10. ***What justification for protection actions (or the absence of such or such action for such and such a population)?***
11. ***Evacuation and returns: which zoning, which thresholds, below or above which thresholds is unacceptable or safe, and for whom (children or adults)?***
  - a. 10 mSv/year, 20 mSv/year: is it legitimate to accept in an accident area a threshold different from the public threshold in normal times?
  - b. What equity issues related to threshold effects in zoning and compensation?
  - c. What are the conditions for the return of populations after an evacuation?
12. ***What compensation schemes? On what basis? For how long? For what purpose?***
13. ***Should the environment be decontaminated? How? Why? What about waste? Is this an alternative to evacuation?***
14. ***Can people consume the products (especially water)?***
15. ***Resilience and empowerment of local actors***
  - a. Are policies giving space for local actions a way for national authorities to discard their responsibilities to local actors?
  - b. What sense and what justice is there in involving local stakeholders after the accident when decisions to locate power plants were not taken democratically?

## Short scenarios for discussing the impact of controversies on the capacity of local actors to deal with uncertainties

Short scenarios have been elaborated by Mutadis in order to discuss these controversies. For each of these scenarios, seen from the point of view of a particular local actor, the associated controversies are pointed out (according to their number in the above list of controversies), as well as the criteria of dignified living condition that are impacted.

### Scenario 1: An accident with significant radioactive releases

Related controversies: n°1, 5, 6, 10, 11,

A major accident is ongoing, major releases have occurred and are still expected, and the national authorities decide to evacuate an area. The situation of the accident site and discharge is still evolving

A family living outside (but close to) this evacuation area is therefore not evacuated on the grounds that the estimated dose they could receive should not (according to forecasts) exceed 20 mSv during the first year. Several controversies are developing. Parents are helpless... Should they leave on their own? At what cost?

Objects of controversy:

- it is not clear that populations will not be exposed above 20 mSv in the first year (doubt about release models, about estimating possible accident trends, uncertainties)
- it's might be better to stay in place, as evacuation might entail a major trauma.
- Anyway, 20 mSv in the first year is too much.
- Are countermeasures (iodine, containment, supply restriction, etc.) really effective (with what objectives? To maintain < 20 mSv? To minimize exposure?)
- Is this 20 mSv standard a social level of eligibility? A physical threshold for the appearance of somatic effects due to radiation? An authorized limit legitimately decided on the basis of a general interest?

For this family:

- a choice is to be made: should we stay or leave on our own?
- to go where? To jump into the unknown and leave home, work, children's school, the territory, friends, family (those who remain)?
- if they decide to leave, they won't get any compensation?

Impacted criteria of dignified living conditions:

1. Integrity and personal ability to act,
2. The existence of conditions allowing the effective satisfaction by people of their basic needs,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information

## Scenario 2: Situation of injustice related to compensation schemes for evacuees vs. non-evacuees

Related controversies: n°8, 12

The decision to evacuate an area potentially (or actually) exposed to discharges is accompanied by support arrangements (free temporary relocation, transport, payment of compensation).

In a family group in the same village, some are evacuated and receive this support and compensation, others, sometimes living very close, are not evacuated and do not receive any support on the grounds that their exposure (actual or potential) is just beyond the threshold for being included in the evacuations.

Objects of controversy:

- How is the zoning or the evacuation decisions justified? How can authorities justify not evacuating those who are just outside? Is this situation fair regarding those who are exposed? Are they actually not exposed to risks?
- What is the reason for compensations? Inconvenience for relocation? Having been subjected to health risks? Why do some exposed families not receive compensation? Is this justified?

Impacted criteria of dignified living conditions:

3. The ability to act with others,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it,

## Scenario 3: How can I protect my children?

Related controversies: n°1, 6, 10, 15

A family is living in the area where the accident took place. They are outside the evacuation perimeters, and are not affected by countermeasures. The scenario takes place three days after the end of the releases and the family hasn't been evacuated. Yet independent measurements show that there is a certain level of contamination in the village. This is new data regardless of the official discourse. Conflicting discourses are developing locally on the existence of health risks. For this family, considering their situation of radiological exposure to linear effects without a threshold, their understanding is that

no one can guarantee that this situation of contamination is safe for their children. The family does not accept this change in the environment: these radioactive elements don't have to be there and no one can guarantee them that there is no risk. Beyond health risks, there is also a symbolic dimension: they do not want radioactive pollution in their place of living to be passed to the children and grandchildren.

Objects of controversy:

- Several things are coming into play: the discourse on radiological risk modelling and a socio-ethical and anthropological controversy
- This contamination has nothing to do there, the family has to suffer this situation that they refuse and were not responsible for. They refuse to be told that it is a *de facto* situation.
- For this family, the public policy, that acknowledges the existence of a contamination situation but does not take particular action on the grounds that the risk is sufficiently low, is illegitimate. They are told that radioactivity is not a problem for them but they doubt the reliability of official risk assessment, and there is more here than sole health risks at stake: for them this situation is a global problem.
- They have to make choices and trade-offs that will lead to their children's exposure. They do not want to balance between exposure to radiation and life. They refuse to be turned into radiation protection specialists for their whole life in order to manage their daily life.
- There are contradictory speeches from different experts (institutional and non-institutional): some say the situation is OK, some say it is still dangerous to live here.

Questions that the family has to solve:

- What can I do for my children? Do as usual? Avoid the garden? Avoid drinking tap water?
- My lifestyle oriented towards preserving health, eating organic food, ... is very important to me, am I able to preserve such lifestyle in these conditions?
- Is it contaminated around me? My question is not what the dose is. My little child swallows dust in the schoolyard. I am not satisfied with being in a situation where I will have to act in my daily life to reduce the radiological risks.
- I want to deploy a precautionary approach, while nothing is planned for that, how can I adopt maximum precaution approach?
- I am obliged to expose my children if I accept the official speech. Can I escape that? Am I *de facto* socially excluded (or discard) if I do not accept official speech?
- How can I leave? My house is now difficult to sell for a proper price. If I decide to leave, I open a chapter in my life and that of my family full of uncertainty... I am stuck, blocked, alone in a situation where I have no other solution than to accept the *de facto* situation in which I consider that my responsibility is not engaged. it's a scandal for me.

Impacted criteria of dignified living conditions:

1. Integrity and personal ability to act,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it,
6. The territorial rooting of individuals and communities.

## Scenario 4: Should the retirement home be evacuated?

Related controversies: n°1, 2, 6, 10

Just after the accident, the town situated inside the evacuation zone, near the border of the zone, has to be evacuated. However, the Mayor and the Director of the retirement home fear that evacuation of elderly people (some of them being in fragile somatic and psychic health conditions) would cause a lot of harm to them. Avoiding evacuation would nonetheless require agreement of national authorities. Some families asked their elderly parents to be moved, others share the concerns of the Mayor.

Questions that the Mayor and the Director of the retirement home have to take:

- How to organise the evacuation or the stay of the elderly people?
- In case they are not evacuated how to keep the minimal staff necessary to take care of them? What are the necessary measures to protect the staff?
- What to say to the families?

Questions that the families have to solve:

- If we do not agree with the Mayor and the Director, what do we do? Should we evacuate our parent/grandparent whatsoever?

Impacted criteria of dignified living conditions:

1. Integrity and personal ability to act,
2. The existence of conditions allowing the effective satisfaction by people of their basic needs,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it

## Scenario 5: Families are shocked that they are refused thyroid screening

Related controversy: n°3

A while after the accident, some families that lived in the evacuation zone or have resided in the trajectory of the plume create an association and ask the authorities for thyroid screenings of all children who were exposed to the plume during the accident and the first week after the end of the discharge. However, the authorities answer that thyroid screening will lead to more harm than good for the children.

Questions that the families and authorities have to solve:

- What is the benefit/risk balance for thyroid screening?
- Are the criteria for this assessment the same at a collective level for the state authorities and at an individual level for the families?
- Who should decide?

Impacted criteria of dignified living conditions:

3. The ability to act with others,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it,

## Scenario 6: An association requests the establishment of a health register

Related controversy: n°4

A few months after the accident, claims raise that radiation exposure will lead to the development of various diseases (ranging from cancers to heart condition, disturbance of neurologic development of children, ...). Associations (both pre-existing NGOs and associations formed by inhabitants of contaminated zones after the accident) request the development of a health register for a wide range of pathologies, including pathologies not usually associated with radiation exposure. This is in a context in which such registers do not previously exist. Authorities are reluctant to develop such a register, as the lack of data for the period preceding the accident is impeding the evaluation of the specific impact of exposure to radiations.

Questions to solve by association:

- What strategy of health assessment? How to articulate individual healthcare and collective health assessment by epidemiological tools?

Question to solve by authorities:

- What decision to take vis-à-vis the development of a register? With which objectives? What would be the perimeter of the registers (both in terms of population and of pathologies)?

Impacted criteria of dignified living conditions:

2. The existence of conditions allowing the effective satisfaction by people of their basic needs,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it

## Scenario 7: People reject the idea of taking iodine tablets again (long-lasting discharge)

Related controversies: n°5, 6

During the considered accident, the discharge lasts several days, long enough for one intake of iodine tablet to be not enough to protect the populations. Just after the accident, the Authorities asked the population in an exposed zone to take iodine tablets again. Various Twitter accounts discourage people to take iodine tablets arguing that repeated take of iodine tablets could be dangerous for health (especially for children).

Impacted criteria of dignified living conditions:

4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,

## Scenario 8: Shortly after the end of the rejections, citizen measures contradict the official contamination map

Related controversy: n°7

A few weeks after the accident, authorities communicate contamination maps based on environmental measurements. Measurements made by an association in a place which was supposed to be lightly contaminated, and which was not subject to particular countermeasures, show hot spots with high

contamination levels in places frequented by children. This triggers local suspicions of hidden agendas and diffusion of false information by the authorities.

Some people immediately request their community to be included in the zone that have access to countermeasures, while others inhabitants are displeased of this, arguing that it will stigmatise their community.

Impacted criteria of dignified living conditions:

2. The existence of conditions allowing the effective satisfaction by people of their basic needs,
3. The ability to act with others,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it,
6. Territorial rooting of individuals and communities,

### Scenario 9: Are the protection measures set in place safe enough?

Related controversies: n°8, 10, 11, 12

The scenario takes place in a village outside of the evacuation zone, but near the border of the evacuation zone. The village is included in a “protection zone” where people, albeit not being evacuated, are subjected to specific restrictions and precautionary measures.

However, different NGOs as well as newly formed local association put in doubt that these protection measures are sufficient to ensure the protection of the population, in particular the most vulnerable ones. They demand that the village be included in the evacuation zone and the inhabitants receive proper compensation for their loss of value, moral damage, etc. Non-institutional experts (academics or NGOs) show that, in certain scenarios, and for certain categories of populations, living in the village would lead to an exposure that is deemed unacceptable by these experts.

Objects of controversy:

- Is the level of exposure decided as “acceptable” by the authorities (i.e. not requiring evacuation) really acceptable?
- Are the protection measures that have been set in place safe enough?

Impacted criteria of dignified living conditions:

1. Integrity and personal ability to act,
2. The existence of conditions allowing the effective satisfaction by people of their basic needs,
3. The ability to act with others,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it,

### Scenario 10: Maximum remediation versus pragmatism

Related controversies: n°2, 13, 6, 12

Public authorities give priority to a conservative approach to radiation protection that translates into a very ambitious remediation programme. This strategy is at the root of multiple situations of exposure for workers, displacement of contamination, it is also at the origin of unexpected impacts such as an

unmanageable situation of waste management that no one wants to accept (private, community, etc.). Considerable financial resources are committed without the populations participating in the choices of allocation of these resources...

The objectives and efficiency of the remediation policy are challenged by several local governments confronted to quantities of waste difficult to manage, as well by citizens that do not want the radioactive waste buried in their vicinity.

Objects of controversy:

- Justification of decontamination policy
- Radioactive waste management policy

Impacted criteria of dignified living conditions:

2. The existence of conditions allowing the effective satisfaction by people of their basic needs,
3. The ability to act with others,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,

### Scenario 11: Lifting of evacuations after 3 months

Related controversies: n°8, 10, 11, 12, 15

3 months after the accident, the evacuation orders are lifted in Evacuation orders are lifted in a municipality. In some areas, evacuation is maintained. The people concerned have not been involved in this decision. Relocation & compensation stops for people who were inhabiting the zones where the evacuation order has been lifted.

Association and experts (including foreign experts) dispute the justification for this decision at this stage of the situation.

Object of controversy in the situation:

- Can we force the hand of the people by abruptly removing the compensation without them being involved in the decision?

Impacted criteria of dignified living conditions:

1. Integrity and personal ability to act,
4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it,

### Scenario 12: Neglect of vulnerable populations

Related controversies: n°14, 6

A few weeks after the accident, national authorities set in place post-emergency policies that rely on active participation of the populations to their protection. However, some individuals or families in particularly vulnerable situations (e.g. isolated people, socially vulnerable people, families economically vulnerable enough to be forced to rely to some extent to self-cultivation of food products in their garden, to forest picking, ...) are not in a position to take charge of their protection.

Social workers report different families in such situations but there is no clear assessment of how many people are in such position of vulnerability and what are the associated impact for them (including social, economic, health impact – including psychological impacts of being forced to rely on potentially or actually contaminated food for living).

Object of controversy:

- The very choice of delegating part of the protection to the people and families themselves
- Social justice
- Freedom of choice of vulnerable families
- Effectiveness of protection policy

Impacted criteria of dignified living conditions:

Integrity and personal ability to act,

4. The ability of people to build meaning, personally and with others, to orient themselves and, in this perspective to access reliable, meaningful, true information,
5. The possibility for people to benefit from a fair and equitable institutional and political environment and to have influence on it.

## Topical Workshop: The impact of Experts' interactions on the resilience of affected people

### Introduction

Experts play an essential role in management of nuclear emergencies and post-accident recovery situations (Marignac, Hazemann et al. 2016). The complex nature of such situations that is caused by a large number of dimensions and issues involved as well as by the diversity of actors involved, creates the need for a variety of experts with different competences, topics of expertise and social position (Hériard-Dubreuil and Baudé 2016, Marignac, Hazemann et al. 2016). Experts interactions (from early to later accident stages) impact capacities of people to access reliable information and to elaborate a meaningful understanding of the complex situation they are plunged in. The differences in the views of experts could be a valuable asset that would help clarify the understanding of the situation or stakes from different perspectives. However, the interactions between experts can be detrimental as well and contribute to confusion, social distrust and disarray. Analysis of the media coverage of the Fukushima accident in European newspapers showed that a variety of institutional and non-institutional experts were used as a source of information and opinions in the newspapers, which in turn resulted in one third of the articles explicitly mentioning a disagreement or conflict (Prezelj, Perko et al. 2016). Due to the complex nature of nuclear accidents, one should always expect the presence of the controversies resulting from experts' disagreements and conflicting. Examples of such controversies have previously been described in the CONFIDENCE deliverable D9.31 (Baudé and Hériard-Dubreuil 2019).

The aim of CONFIDENCE Task 5.4 was to explore Experts' interactions during nuclear emergencies and post-accident phases and their relations with the capacity of local actors to cope with uncertainties. This was planned to be addressed through an international workshop.

### Context, objectives and organization of the workshop

On the ground of the methodology presented above, CONFIDENCE Task 5.4 has performed a topical workshop pursuing two objectives:

- To better understand the impact of Experts' interactions on the resilience of affected people
- To identify the conditions for affected people to benefit from Experts' interactions

The workshop took place in Bratislava on December 4<sup>th</sup> as a side event to the CONFIDENCE Dissemination workshop. The duration of the workshop was 1.5 hours and it gathered 17 invited participants.

The scope of the workshop was set by a presentation giving an overview of background research on the expert interactions that has been performed within the PREPARE and CONFIDENCE projects. It covered topics of experts and expertise, including the variety of roles, fields and social positions experts can have and explained the framework of the dignified living conditions that can be used to assess the efficiency of public policy and its ability to enable personal and community resilience (see Annex B).

The presentation was followed with an "icebreaker" discussion where participants were asked to share their views on how to improve the impact of experts' interaction on the resilience of affected people.

Thereafter, a case study presentation "*Experts interactions in Minamisoma during the Fukushima accident*" was given by Dr. Masaharu Tsubokura (Fukushima Medical University, School of Medicine). In this presentation he described his personal experiences as an expert in the post-Fukushima transition and recovery phases in the affected areas (see case description).

Case study "*Experts interactions in Minamisoma during the Fukushima accident*" presented by Dr. Masaharu Tsubokura

Dr Tsubokura worked as a haematologist in Tokyo and moved to Fukushima prefecture four weeks after the accident to help affected populations in evacuation camps. Although he worked with non-radiation related medical conditions, he received a lot of questions about radiation from the local communities, especially from young mothers who were wondering about the health impacts of radiation on the children. Upon request from the mothers, he held lectures in radiation protection. City government then asked him to give a large number of similar lectures in other towns and cities as it was difficult to find radiation protection specialists that could answer specific questions that people in the affected communities had. Although a vast amount of general information about radiation was available on the internet, it was not sufficient and could not help answering practical questions on the local situation (e.g. whether food is safe to eat or if children could play outside). Dr. Tsubokura was criticised by institutional experts for speaking about radiation protection without being an expert in this specific field, on the one hand, as well as by some NGOs who accused him of downplaying the risks, on the other hand.

While interacting with local people, Dr. Tsubokura realised there was also a need for individual measurements to help people make decisions, so he started to perform whole body counting. At first, he provided explanations to each measured person individually (together with other doctors), however, due to time constraints that was not sustainable. Therefore, the results of measurements were given on paper, which resulted in incomprehension from people who didn't understand the meaning of the results. Moreover, Dr. Tsubokura's experience and capability of performing WBC measurements were criticized. Therefore, he reached out to a recognised radiation protection expert, Prof. Hayano, who helped and advised on the measurements and supported his action. This helped to recover trust of both the public and the institutional experts.

In the discussion session that followed the case study presentation, participants of the workshop were asked to address the following issues:

- investigating the impact of experts' controversies on the resilience capacities of affected people, on the ground of the criteria for the dignified living conditions,
- setting proposals in order to improve the impact of experts' interactions on the resilience capacities of the affected population.

### Summary of discussions

The case study has demonstrated that Dr Tsubokura's work was extremely important for supporting dignified living conditions of the affected populations (e.g. effective ability to build meaning and access reliable, trustworthy & true information and Integrity and effective personal capacity to act). However, a range of issues have complicated this cooperation, compromising the resilience capacity of the community.

First of all, interactions in the case study were based on volunteer engagement of one individual on a huge task with very limited resources. There is, therefore, a need to recognise the scope of this task and the amount of resources (both financial and personnel) that would be needed to support this kind of activity.

It must be underlined that this personal initiative was taken in a context where institutional experts were highly reluctant to take an official role in communicating on this sensitive question of assessing the radiological risks of the public. It was reminded that, in the aftermath of Fukushima, some institutional experts were heavily criticised for the advice they gave, which resulted in heavy damage to their social reputation. Experience of Fukushima demonstrated that in many countries, experts were not prepared to deal with increasing requests of information from the concerned public.

It should be underlined that such voluntary individual initiatives answer an actual and crucial need of the population to access information and meaning. However, the case study demonstrates the high vulnerability of the position of such initiators and their exposure to criticism and accusation from several parties. Working alone appears as an important factor of vulnerability.

The issue of experts' affiliation with standing expertise or academic institutions and how it can impact both on the trust from population and attitude of other experts has also been raised multiple times.

Another challenge is to create the conditions of constructive dialogue between parties having a priori different political perspectives (notably vis-à-vis nuclear), and to overcome mutual contempt (Marignac, Hazemann et al. 2016), each experts being perceived as "infected" by other parties. It is underlined that experts interactions should by not be aimed at creating consensus but, on the contrary, at creating the conditions for fair investigation of differences in views.

Another aspect highlighted by the case study was the need for practical responses, not general expert advice in jargon that people do not understand. In an emergency situation there will be a need to answer very complex questions such as: "what would you do in my place"? What is "safe"? Answering these and other questions is not straightforward and needs careful preparation; therefore it should be developed well beforehand.

Finally, with regard to training of local personnel in radiation protection in order to increase resilience of the community in the aftermath of nuclear accident, some participants shared their experience of failed attempts to engage local doctors in such training. The reason for such failure is often the lack of motivation and skills for the doctors. Therefore, a kind of organisation involving training and financial resources should be considered to support such engagement.

## Improve the impact of experts' interaction on the resilience of affected people?

Based on the experience from past accidents, many of the expected emerging controversies can be identified (see above). The key point here would be to prepare beforehand. Participants formulated several proposals for improving the impact of expert interaction on the resilience capacity of the local population. First, they highlighted the need to stimulate expert interactions in the preparedness phase. These could be done by creation of expert networks that should include various groups of experts regardless of their background or social roles (e.g. institution, academics, NGOs). These networks should support dialogue not only on technical matters, but other dimensions as well. For instance, the disagreements between experts could be motivated by the ethical principles they are applying to the situation (e.g. precautionary principle vs lack of positive evidence). Open dialogue could enlighten these differences and help mitigate controversies. Another important topic to address in expert dialogues is empathy, which is one of the essential components of the interaction with affected communities.

In addition to that, expert interactions with populations should be encouraged and promoted. The presented case study clearly demonstrated that there will be need for expertise locally to support resilience of the affected populations. Participants suggested that it could be done by “going to the field and interacting face to face” with the communities, the topics for joint discussions could be existing radiation sources, smaller incidents, threat of radiological terrorism etc. Another participant shared their positive experience with “open door days” as potential setting for interaction that could be considered.

At the same time, participants raised a bigger overall question: who has the responsibility to reach out to the communities at need? The case study made it evident that a lot of personal commitment was involved. However, personal commitment is not sufficient since isolated individuals would not necessarily be able to cover all the grounds in terms of expertise and resources available. Isolated individuals also appear to be vulnerable to all kinds of attacks and criticism. However, what would happen if nobody took upon themselves this responsibility to engage with communities? This points towards the need for collective responsibility that could be a feature of an expert network. Perhaps some deeper reflections on the current expert culture and responsibilities especially with regard to the public outreach could be helpful.

Moreover, given that general information about the protective actions will not be enough and more personalised advice will be required, the countries need to reflect upon how they would address and fulfil that need and build it into their preparedness systems. Another issue that countries should consider is the aspect of multiple languages (both within the country and internationally) and different target groups, and how that should be dealt with in terms of preparing information material and setting up interactions.

## Conclusions

The workshop explored how expert's controversies could be handled so that affected populations would benefit from their interactions in the aftermath of an accident. Several key points emerged from the discussions, such as:

- Encouraging the creation of open networks involving all categories of foreseen experts (academics, institutional experts, NGO experts, etc) in the preparedness phase, setting appropriate methods to engage them in discussions on controversial issues in 'peace time', favouring the establishment of mutual recognition and mutual respect beyond differences in views, arranging places and procedures for fair dialogue,

- But also, setting up infrastructures that could support people information before and after an accident; Identifying local resources/personnel who might be in a favourable position to interact with the affected people (e.g. teachers, doctors) ; preparing/training them with relevant knowledge and communication skills

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## Annex A

### List of workshop participants

Name	Organization, country
Bleher, Martin	BfS, Germany
Duranova, Tatiana	VUJE, Slovakia
Gallego, Eduardo	UPM, Spain
Hamburger, Thomas	BfS, Germany
Heriard Dubreuil, Gilles	MUTADIS, France
Jaworska, Alicja	DSA, Norway
Kuca, Petr	SURO, Czech Republic
Melicherova, Tereza	JHMU, Slovakia
Mihok, Peter	UMB, Slovakia
Nalbandyan-Schwarz, Anna	DSA, Norway
Oughton, Deborah	NMBU, Norway
Raskob, Wolfgang	KIT, Germany
Schneider, Thierry	CEPN, France
Skuterud, Lavrans	DSA, Norway
Tomkiv, Yevgeniya	NMBU, Norway
Tsubokura, Masaharu	FMU, Japan
Turcanu, Catrinel	SCK•CEN, Belgium

## Annex B

### Introductory presentation

**Confidence**  
Coping with uncertainty for improved modelling  
and decision making in nuclear emergencies

**MUTADIS**

EUROPEAN JOINT PROGRAMME  
FOR THE INTEGRATION OF  
RADIATION PROTECTION RESEARCH  
**CONCERT**

**WP5.4 Topical Workshop: The impact of Experts  
interactions on the resilience of affected people  
Introduction**

**Introduction**  
*Gilles Hériard-Dubreuil (Mutadis)*

**DSA** (Norwegian Radiation and Nuclear Safety Authority, lead partner)  
**Mutadis** (France),  
**VUJE** (Slovakia)  
**NMBU** (Norwegian University of Life Sciences)

CONFIDENCE Dissemination workshop  
2-5 December 2019, Bratislava, Slovak Republic

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**Objectives of the workshop**

CONFIDENCE Task 5.4 is exploring Experts interactions during nuclear emergencies and post-accident phases and their relations with local actors capacity to cope with uncertainties, with two objectives :

- To better understand Experts' interactions impact on the resilience of affected people
- To identify the conditions for affected people to benefit from Experts interactions

## Background from Prepare WP6.1 (2013-2016)

- Experts interactions (from early to later accident stages) impact capacities of people to access reliable information and to elaborate a meaningful understanding of the complex situation they are plunged in.
- Experts views differences are an asset (diversity is a resource)
- But the interactions of the Experts can also be highly detrimental to society
- Instead of contributing to make explicit the rationale of their respective position, it might be confusing and contributing to social distrust and to people disarray.

## An Open Definition of Experts (Prepare)

- In the wider sense of “knowledgeable person” or “person recognised as such” typically ranging :
  - from institutional experts, academics, non institutional scientific experts
  - to people “spending significantly more time than the average population” on the issues raised by the emergency and post-accident situations
- Experts are not necessarily scientists but people who develop a capacity to express knowledgeable views in a refutable way (logical argumentation based on reliable data, etc.)
- Experts are not self-declared but acknowledged by social processes

## Various Roles of the Experts

Experts can contribute to:

- Explain what happens
- Characterize and assess the seriousness of the emergency
- Model and forecast the consequences
- Provide advice or recommendations
- Alert on wrong developments
- Criticize decisions being made

Experts Interact with decision makers, stakeholders,  
journalists, local populations, individuals...

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## Diversity of Experts Social Positions

Diversity of Experts statute :

- Institutional experts, from public bodies (State administrations, authorities, public agencies...), and the industry
- Academic experts (universities...)
- Non institutional experts, from independent consultancy groups, NGOs, or even simple trained citizens...

Other differences:

- Experts in the country of the accident, from neighbouring or remote countries
- Local, national, international experts
- Experts with a reputation, new to the field

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## Fields of Knowledge

### Various competencies needed:

- Nuclear safety
- Radiological protection and health physics
- Geophysics (geology, seismology, climatology...)
- Ecology, environmental sciences
- Civilian protection
- Social sciences (sociology, socio-psychology, psychology...)
- Economics, energy policy, agriculture...

### Other factors:

- Broad and systemic expertise / very specialized expertise
- Level of training to the interactions involved
- Return of experience of similar situations, etc.

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**PREPARE** WP6.1

## Diversity of Expertise Themes & Topics

### Main themes:

- The nuclear accident and its developments
- The radiological situation and its developments
- The decisions to be made to protect the populations
- The reasons for the accident and the chain of responsibility
- The consequences of the accident on economics, energy policy

### Topics:

- Generic or specific (food contamination / marine food)
- Expected or unexpected (core melting / use of salted water)
- Various level of relevance (Fukushima radioactive fallout in Europe)
- Context dependent (e.g. the national status of energy debate)
- Developing in social dynamics (controversies, media picked...)

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## Expertise & affected people From Confidence 5.3

- The complexity of emergency and post-accident situations makes it necessary for affected people to reach by their own a comprehensive and reliable picture of the situation they are plunged in (beyond blind trust in one source of expertise)
- With an extreme diversity of discipline, status and opinion, Experts do not form a homogeneous social community
- They however share a collective responsibility to enable affected populations to build a comprehensive and reliable understanding of the situation

## Workshop Methodology

The workshop will ground on participants' experiences and views, the work programme entails :

- **Short discussion:** participants views on How to improve the impact of experts interaction on affected people resilience ?
- **A case study presentation** "*Experts interactions in Minamisoma during the Fukushima accident*" by Masaharu Tsubokura (Fukushima Medical University, School of Medicine).
- **Discussion session**
  - **part 1** : investigating the impact of experts controversies on the resilience capacities of affected people, (45mn)  
A structured discussion along the THE DIGNIFIED LIVING CONDITIONS framework (CONFIDENCE WP5.3)
  - **part 2** : setting proposals in order to improve the impact of experts interactions on the resilience capacities. (15mn)

## The dignified Living Conditions

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## Characterisation of emergency and post-accidental situations (PREPARE)

- A severe disruption of people's lives, hardly reversible, affecting all dimensions of life (health, social, economic, environmental, human...)
- Radiation protection, an important dimension, among others important aspects of life



## An essential role of individuals and local communities

- The authorities have a key role in organizing the emergency and post-accident response.
- However from the beginning, individuals and groups inform themselves, communicate and act autonomously (whatever is the result)
- The autonomy and capacity to act of local actors and communities is an essential resource to ensure protection of people and to enable future reconstruction of a life that is "Worth to Live"
- Local actors response is deeply connected with public authorities response
- Emergency and post-accident policies may foster or conversely impede local actors capacities to cope with uncertainty and to engage into recovery processes

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## Uncertainty on information

- Uncertainties and high tensions around information: connected to desire to protect oneself, one's family and close relations, uncertainties about the accident and its evolution,
- Questions on reliability of various sources of information, doubts on institutional behavior (censorship ?), controversies, rumours released by informal or social networks
- Local populations and citizen initiatives, also a source of information (fast and responsive)
- Public access to relevant and reliable information (from the perspective of the persons concerned) is a major challenge in a context of disrupted information flows & social distrust
- Article 5.1 (c) of the Aarhus Convention requires the "*immediate dissemination to affected populations of any information held by public authorities that may contribute to their protection*"

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## [ The dignified living conditions (1) ]

- A set of "living conditions" criteria to characterize the anthropological resources of person and communities confronted with severe disruptive event.
- While aiming at returning to previous living conditions is no more possible
- It is based on the observation of large-scale nuclear accidents, also inspired by academic works in multiple disciplines and situations (Paul Ricœur, Amartya Sen, Niklas Luhmann, John Dewey, Viktor Frankl, Philippe Descola, Boris Cyrulnik).

## [ The dignified living conditions (2) ]

- The proposed criteria are proposed to assess the efficiency of public policy and its ability to enable personal and community resilience
- The 7 criteria deeply interrelated
- Each national or local context is specific, depending on history, culture and nature of the institutions, facilitating or, conversely, impeding the ability of individuals and communities to access resilience resources.

## The dignified living conditions

**Environment enabling the effective satisfaction of the essential needs**  
Concept of Capability; Justice and actual conditions of application of rights; Access to basic resources and context favourable to their mobilization

**Integrity and effective personal capacity to act**  
Exercise of human potentialities; Dignity of persons in human relationships; Recognition of the other as capable person; Rights and duties of the person; Fair treatment

**Effective ability to build meaning and access reliable, trustworthy & true information**  
Find the conditions of trust; Access to reliable information; Ability to do one's own measurements (alone or with others); Pluralistic expertise



**Effective capacity to act with others**  
Trust as a social resource to cope with complexity; Access to the relationship to others; Social dimension of existence; Ability to build solutions together

**Symbolic & spiritual resources**  
Importance of spiritual, symbolic, personal and community resources in resilience processes facing a severe disruptive situation

**Effective capacity to act on & benefit from one's political environment**  
Importance of institutional continuity  
Participation within the meaning of the Aarhus Convention; Ability to influence the political and institutional context

**Territorial & cultural rooting of people and communities**  
Belonging and solidarity of the human being vis-à-vis his natural environment; Belonging to a community in space and time ; Heritage relationship with the territory