



Hheads of the European Radiological
protection Competent Authorities

Emergency Preparedness

Practical proposals for further
harmonisation of the reactions in
European countries to any distant
nuclear or radiological emergency

*Approved on the occasion of the 11th HERCA Board of Heads meeting on 27 June 2013 in
Reykjavik.*

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Definitions

In this document the following shortcuts will be used:

HERCA countries:	Each country represented through a competent authority within HERCA.
HERCA members:	Each authority who is a member of HERCA.
Accident country:	The country where the nuclear or radiological emergency has taken place.
Affected countries:	The countries (neighboring the accident country) where protective actions are implemented because of a transborder radiological contamination.

1. Introduction

It was clear from the accident at Fukushima Dai-ichi in Japan in March 2011 that national assessment and responses to nuclear emergencies even if at a great distance from Europe could be significantly improved by a more rapid exchange of information. Discussions on this point during the 7th HERCA Board of Heads meeting in June 2011 led to the 'Working Group Emergencies' (WGE) being tasked with reviewing the issues and proposing practical working solutions for a more harmonized approach in response to such distant nuclear and radiological emergency situations.

The present report is the result of that work. The aim of the report is on the one hand to assist radiological safety authorities to improve their preparedness in some areas and, on the other hand, to provide an overview of the important radiological issues to be considered by radiation protection authorities in the event of a nuclear or radiological emergency in a distant country.

2. Increasing the consistency of national decisions in response to a distant nuclear or radiological emergency.

2.1. Brief analyses

In the weeks following the accident in Fukushima, European Radiological Protection Competent Authorities had to deal with various issues for which, in many cases, no predefined answers or criteria existed. A few examples of such issues are:

- Communication of radiation protection advice to the public (for example, travel advice);
- Radiation screening of people and goods (for example pharmaceutical products), airplanes and ships;
- Liaising with European industries operating in Japan;
- Developing recommendations and ad hoc training for border control organizations.

Response decisions were sometimes taken based on whether the measure was feasible rather than whether it was justified on the grounds of radiological protection. For example, in considering whether the nationals of a particular country should be recommended to leave the affected area, the decision in some cases may have been influenced by the number of nationals involved, as where just a few of a country's nationals are in the area, it is easier to assist them to leave than in the case of larger populations. The availability of equipment or personnel may also have been the dominant criteria for actions, in some cases, for example regarding the availability of radiological screening gates at airports. Decisions were often based on national considerations and policy, and effective coordination between European States was the exception rather than the rule in the early phase of the response.

From June 2011 on, the WGE has worked towards identifying the most urgent needs for further harmonization of response in European countries to remote events. Since one of the main principles of HERCA is not to duplicate work done by others, the WGE has considered similar activities on emergency matters that have emerged following the Fukushima accident. Such initiatives have proliferated over the last two years. The WGE established first a list of issues and then concentrated on those issues not covered by the working plans of other organizations or bodies. With that approach, the WGE identified the areas discussed in the following sections as priorities.

2.2. Common assessment

A first and inevitable step to achieve the same or at least similar responses in European countries to any incident or emergency is a commonly shared understanding of what is happening. All countries therefore need reliable information on the on-site events and radiological consequence assessments. In most cases, it is likely that the accident country will provide such information through the established international channels. However most HERCA members will additionally perform their own assessments. Past experiences show that situations may be interpreted and assessed differently leading to differences in conclusions and decisions.

The Fukushima accident also showed that national resources particularly in the field of radiological consequence evaluation would not be sufficient in some countries to enable, for example, full assessments using real-time weather predictions to be undertaken. The HERCA WGE has therefore concluded that national resources need to be used effectively and the outcome of assessments should be shared with all HERCA members. The WGE is therefore working towards developing new mechanisms of cooperation that will provide a common technical analysis at the European level. This will enable a better use of human resources, for example via sharing of expertise between national expert organizations. It will also establish the available means necessary to share this expertise, possibly via a common situation report, to enable all HERCA members to share a similar level of information. This work focuses on a nuclear or radiological emergency, independent of where it may happen; it is not limited in application specifically to distant emergencies but also has relevance to emergencies originating closer to Europe or within Europe. In close cooperation with WENRA, the WGE expects to elaborate the general principles for a common approach by the end of 2013.

3. Perception in the accident country

3.1. Potential influence of decisions taken by European countries on nuclear emergency management in Japan

After the Fukushima accident, European countries made recommendations or took steps in Europe and Japan which could have been inconsistent with the crisis management by the Japanese authorities in Japan. The WGE assessed the potential influence of these actions taken by European countries on nuclear emergency management in Japan. Based on this assessment, recommendations are made regarding topics of countermeasures that need a more harmonised approach from non-accident countries to avoid or mitigate interference with the emergency response in the accident country.

A list of topics (appendix 7.1) was drafted on which European decisions were made that could have had an impact on decisions taken in Japan and WGE members then asked their embassies in Japan to investigate and comment on these issues. In particular two questions were asked:

1. Please describe any eventual impact in Japan with regard to countermeasures taken or advised by European countries.
2. Please describe, briefly, how these countermeasures were perceived by the Japanese government, companies and the general Japanese population.

A total of nine embassies answered the request. Despite these responses being subjective (given by a single person or a very small group of individuals) and despite the fact that the information provided is not empirical, the responses gave valuable indications as to those topics that may require further harmonisation, be it at international or European level. A compilation of all responses can be found in appendix 7.2.

3.2. Overall conclusions

Three important conclusions can be drawn concerning the European reaction to the Fukushima accident.

1: Differences between protective actions.

Some European countries took and/or advised protective actions that differed from the actions other European countries took and/or advised, and that also differed from the protective actions applied in Japan. This caused confusion among some European citizens in Japan and caused concern among some relatives back home, especially when other European countries decided upon actions that were additional to those taken in Japan.

2. Extent of protective actions

Some European protective actions were more extensive than the Japanese ones. This caused confusion among Japanese citizens and implied that the threat was underestimated by Japanese authorities.

3: Duration of protective actions taken/advised by European countries.

Although some (precautionary) actions were necessary to protect European citizens (in Japan as well as in Europe), the European decisions were sometimes not reviewed or re-assessed such that withdrawal of the action was timely. This resulted in a situation with extensive recommendations (e.g. on travel and tourism) that may have lasted longer than was actually required, which could have had an influence on the Japanese economy, tourism etc.

3.3. Recommendations

The main problem is the difference between the protective actions that are taken by the accident country and varying actions that are recommended/taken by other countries. These differences can cause confusion among citizens in the accident country as well as in other countries. This may be a negative influence on the economy, tourism etc., especially when the asymmetry persists over a longer period. To prevent or at least mitigate these problems in the future, a more harmonised approach to the following is required:

- Definition of protective action zones (evacuation, sheltering, stable iodine).
- Definition of travel advice.
- Withdrawal of protective actions.

Other protective actions such as the closing of companies or the relocation of embassies are closely related to advice on evacuation and travel. The most important condition for a harmonised approach is a shared interpretation of the available information, as different interpretations are likely to lead to different decisions.

4. Good practices on the communication of decisions

After the Fukushima accident in 2011, surveys on different aspects of communication have been performed in several European countries. In addition, two international meetings have taken place: OECD/NEA arranged a conference in Spain in May 2012 and IAEA held an international expert meeting in Vienna in June 2012.

It is beyond the remit of the HERCA WGE to make qualified assessments of what good communication practices are. The working group, however, has identified some topics from

surveys and other input¹ which are relevant to harmonisation from a technical point of view but which also form a basis for communication with the public:

- The technical capabilities must be good enough to be able to quickly and understandably share information on the progression of the accident (see also chapter 2.2).
- The use of the INES scale in a developing accident situation must be pre-agreed and understood.
- The radiation protection concepts (e.g. ALARA and the reference level approach) do not necessarily make communication more easy. Therefore, pre-emergency discussion between HERCA members of the practicalities of these concepts in response would be of assistance.
- Experts in the field must be prepared to deal with questions from media and the press.
- The sharing of dispersion predictions and monitoring data with the public must be pre-agreed and understood (e.g. common templates for situation displays should be a goal).
- There should be a common basis for comparison with other accidents such as Chernobyl.

Successful communication with stakeholders is the ultimate test of successful crisis management. However, there are additional findings and comments which have not been dealt with further by the HERCA WGE, but which may also be relevant from a communication perspective, e.g:

- Whether it is preferable to use only a single spokesperson in a crisis situation?
- The pre-sharing of common talking points between HERCA members, as briefing for spokespersons during a crisis situation.
- The need for joint press conferences between the operator, the local and the national officials.
- Communication from non-governmental professional organisations might contribute to better understanding.
- Public awareness and involvement in emergency preparedness and response should be strengthened through exercises, seminars etc on a regular basis.

5. Identification of key recommendations

5.1. Recommendations to authorities and delegations of HERCA countries in case of a nuclear or radiological emergency in a distant country.

In the case of a distant emergency, the immediate focus should be on the protection of nationals living, staying, or planning to visit the country where the accident takes place. Each State is expected to assist their nationals living, staying or visiting foreign countries and offer them a level of health protection comparable to that provided at home.

However, the responsibility for the health protection of nationals abroad should be taken up with due consideration of the interests of the overall population in the accident country. Solidarity with the affected population is a key factor in the recovery of the accident country. Hence actions or recommendations should preferably not conflict with the actions and recommendations of local authorities. Contradicting statements may generate distrust of the public, both in the affected

¹ IRSN "Baromètre IRSN 2012; Personal communication from NL; The SCK•CEN Barometer 2011 Perception and attitudes towards nuclear technologies in the Belgian population; Surveys made in the Nordic countries; International Experts Meeting Enhancing Transparency and Communications; Effectiveness in the Event of a Nuclear or Radiological Emergency 18-20 June 2012, Vienna; INTERNATIONAL WORKSHOP ON CRISIS COMMUNICATION: FACING THE CHALLENGES, Madrid, 9-10 May 2012.

country, the country where the advice originates, and possibly in other countries. It is also important to involve promptly the departments and delegations responsible for external policy, both at national, EU and other international levels; in these discussions, the political situation and the degree of confidence in how the government of the affected country will manage the emergency situation should be considered.

The measures or recommendations to protect each country's nationals may differ between those living in the country or having important professional reasons to stay there, and tourists or other people whose presence in the country is not strictly necessary or who may more easily return home or move to areas far away from the accident site.

In the early phase, little information regarding the technical situation, the potential releases to the environment and the expected radiological consequences may be available. When available, recommendations and dose assessments by the country where the accident takes place should be used as a common basis for the early stage. When no information regarding the technical status of the installation is available, and no radiological threat is provided by the accident country or when the information provided is not considered as reliable, a rapid and commonly agreed assessment or action plan should be used by European countries as a basis for defining protective actions. Mechanisms for sharing national assessments should preferably make use of existing structures such as ECURIE and USIE.

The WGE recognises that a harmonised response in Europe also depends on harmonised planning and harmonised policies for protective actions among the European countries. One of the reasons for the diverse response regarding protective measures during the Fukushima accident is that the European countries followed their own national emergency plans and policies for protective actions, however applying them to their nationals in the accident country.

The WGE has identified a set of recommendations to be considered by radiation protection authorities in the case of a nuclear or radiological emergency in a distant country. These recommendations relate to the advice they should provide, the measures that need to be taken in the home country, and to good communication and response, in particular to avoid distrust among nationals in, and citizens of the accident country as a result of the distribution of inconsistent information. The role of the embassy delegations in the accident and affected countries is crucial for the implementation of these recommendations. A preparedness guide for embassies is appended to this document (appendix 7.3).

5.2. Recommendations for HERCA members during the crisis

- [1] HERCA members should establish contact between themselves by making use of the contact list of HERCA members to be able to exchange information on specific topics of interest. The relevant IAEA and EC mechanisms should enable an effective supply of information from the accident country or from any other affected or third country.
- [2] Each HERCA member should establish links with their national embassy/consulate in the accident and affected countries.
- [3] Each HERCA member should organize the translation into its national languages of key documents issued by the authorities in the accident and affected countries. If translations are available in a HERCA country, they can be shared among other countries.
- [4] Each HERCA member may consider, if feasible, the sending of a radiation protection expert to their local embassy/consulate, and for making contact arrangements with other national experts being seconded to embassies/consulates in the country, to establishing a European coordination. Otherwise, each country's embassy should have clear arrangements for communication with experts in their home country.

- [5] Each HERCA member should coordinate with authorities in other HERCA countries concerning the assessments being undertaken to inform or advise on protective actions for nationals abroad and on monitoring of travellers returning from the region and of imported food/goods.
- [6] Authorities in HERCA countries should provide information to enterprises importing goods from the accident and/or affected countries, and coordinate any actions regarding such goods.

5.3. Advice to nationals of HERCA countries living or working in the accident or affected countries

- [1] Nationals of HERCA countries living or working in the accident and affected countries should as a matter of principle follow the recommendations provided by the local authorities in the accident and affected countries concerning protective actions (sheltering, stable iodine intake, evacuation, food bans ...).
- [2] However if authorities in HERCA countries suspect that the accident and/or affected countries are not offering the expected level of radiation protection to their population, HERCA members should have the liberty to issue specific recommendations to their nationals based on their knowledge and understanding of the situation in the accident and affected countries. These recommendations should be harmonised as far as is possible on the necessary timescale between competent authorities of HERCA countries (through HERCA).
- [3] Nationals of HERCA countries living or working in the accident and affected countries should establish contact with their embassy/consulate and provide them with information about their situation, location and contact details.

5.4. Advice to nationals of HERCA countries visiting the accident or affected countries

- [1] While the situation is not fully understood or if it is confirmed to be severe, non-essential travel to the countries or regions affected or threatened should be advised against. People should avoid travelling to the (vicinity of the) affected countries and areas.
- [2] People travelling to the accident and/or affected countries should register with and stay in touch with their national embassy/consulate.

5.5. Actions to be prepared/taken in HERCA countries²

- [1] Upon return of nationals from the accident or affected countries, and especially from the region where the emergency has taken place, authorities in HERCA countries should provide information in the first airport or harbour reached, including to passengers in transit, and organize making contact. Authorities should have a template available for giving information to travellers, describing the problem, an indication of the health risk if available, a contact point (phone number, e-mail address ...) for further information and a questionnaire for the travellers to complete in case further contact is needed (see chapter 6).
- [2] If needed, authorities in HERCA countries should be prepared to offer radiological screening and possibly internal dosimetry analysis to those who would request such contamination control, if agreed to be necessary and appropriate. Further proportionate arrangements should be in place in the country of residence of the passengers, in particular to provide psychological support and information in their native language.

² Without prejudice to already existing national arrangements and any further need for guidance or harmonization, the list gives an overview of what arrangement should be prepared in HERCA countries. HERCA members may initiate those actions.

- [3] Authorities in HERCA countries should organize and prepare the control of **food products** imported from a country where the accident has taken place, and in case it would be needed, the temporary storage, elimination, decontamination, or the return to the country of origin. This should be organized in the first airport or harbour reached, also for products in transit (maximum permitted levels of radioactivity are laid down in EC regulations).
- [4] Authorities in HERCA countries should organize and prepare the control of **non-food products** imported from the accident or affected countries, and in case it would be needed, the temporary storage, elimination, decontamination, or the return to the country of origin. This should be organized in the first airport or harbour reached, also for products in transit. Criteria for the control of non-food products should be agreed upon between HERCA members prior to issuing instructions to customs offices and harbour authorities. International guidance on this matter should be pursued by IAEA.
- [5] Authorities in HERCA countries should organize other controls, such as and in case it would be needed, for the monitoring and if necessary decontamination of planes or ships that have landed or harboured in, or close to the accident or affected countries or planes having flown through the cloud (radioactive plume).
- [6] Authorities in HERCA countries should issue specific information on radiological risks and recommendations for customs officers and various worker categories (crew, luggage handling workers, dockyards workers ...).
- [7] Authorities in HERCA countries should organize information for their population regarding the safety of imported goods and the actions taken.
- [8] Authorities in HERCA countries should define a "minimum emergency kit" ready to be sent to embassies/consulates (for example, protective material such as protective overall, gloves, masks and stable iodine tablets. Experts could be sent in support of their embassy/consulate to explain the situation and provide adequate information to their nationals in the accident or affected countries (see also appendix 7.3).

5.6. Avoid wherever possible creating confusion and causing distrust

- [1] Authorities in HERCA countries should not unilaterally decide (unless justified and concerted between European authorities) supplementary actions, not following local authorities' decisions/recommendations, or "going above" the recommended actions, e.g. unilaterally increasing the radius of the zone from which nationals should evacuate.
- [2] Authorities in HERCA countries should not systematically evacuate their own nationals from the accident or affected countries or affected areas if not necessary (States could provide assistance to those who would prefer to leave the country, especially pregnant women and families with small children).
- [3] Authorities in HERCA countries should not declare a systematic embargo on food and non-food products from the affected country.
- [4] Authorities in HERCA countries should prepare for rapid coordination and implementation of response actions.

6. People returning from the affected country or region

6.1. General guidelines for preparing the reception of people returning from an area or country affected by a nuclear or radiological emergency³

Since an emergency is by definition 'an unexpected and undesirable event', it is important to prepare in advance. While planning and preparing for the reception of people returning from a country affected by a nuclear or radiological emergency, various provisions need to be considered:

1. Installation of a reception centre as required.
2. Providing people with information, reassurance and psychological care.
3. Monitoring, decontamination and specialized contamination detection if necessary.
4. Medical follow-up, if required.

Also, different strategies on how to receive nationals should be planned in advance. Depending on the severity of the nuclear or radiological emergency and the number of people returning home, different scenarios need to be taken into account:

- (1) small numbers of people returning after an emergency with limited impact;
- (2) small numbers of people returning after an emergency with a severe impact to the surrounding area;
- (3) large numbers of people returning after an emergency with limited impact;
- (4) large numbers of people returning after an emergency with a severe impact to the surrounding area;

For an incident with limited radiological impact to the general public, even within the 'affected area', but with extensive reports in the media, the most important objective will be to inform, support and reassure people. However, when there is a possibility of high level contamination or doses, measurements and medical follow-up of the affected individuals may also be necessary.

Communication between HERCA members and harmonisation of the information to the public is important since there is a possibility that people will return by different means and they may pass through other countries.

6.1.1. Installation of a reception centre

In the event of large number of people, returning simultaneously, buildings or establishments should be available that can be used as a reception centre in each arrival location. For small numbers returning, the reception centre can take up limited space and should preferably be located close the arrival point (airport, harbour, train station,...).

The primary objective of the reception centres is to inform, support and reassure people and provide a contamination survey when necessary. In case of a separate building, it should preferably be situated near the point of arrival where simple decontamination facilities (showers, replacement clothes) might be available, if decontamination has not taken place in the accident country..

³ Without prejudice to further discussion between HERCA members to assist in making the various national arrangements broadly consistent between the different countries.

Note: It is possible that contamination measurement and decontamination was already performed in the affected country.

6.1.2. Providing people with information, reassurance and psychological care

In most situations, the psychological care and reassurance of the returning citizens will be the most important task at hand.

- Trained staff should be available for providing information and answering questions when the people arrive (at the reception centre) so that the most prominent fears can be addressed personally.
- Contact information (institution, address, telephone and email) needs to be distributed to inform people where they can obtain reliable information and answers if they have additional questions on a later date. In order to avoid confusion, the contact information should preferably be limited to one contact point where all questions from the returning citizens can be answered and/or referred to the appropriate institutions/experts.
- Material with general information can be prepared in the native language(s). Guidance for information content is given in chapter 6.2.
- For those who do not visit the reception centre after their return, the information should be made available on the internet (for example the national authority's web-site).
- For further reassurance, there is the possibility of offering contamination monitoring for people and/or luggage, if justified. This should also be supported by adequate information.

6.1.3. Monitoring, decontamination and specialized contamination detection

In the event of an accident with a significant radiological impact, implying a real risk of contamination, psychological care will still be of paramount importance. In addition, other arrangements may also be planned and prepared:

- Monitoring external and internal contamination can be offered in case monitoring and decontamination has not taken place in the accident country. In the event of significant contamination being detected, decontamination may be performed. Again, it is important to inform people so they can make an informed decision on whether they want to undergo a contamination measurement (what is a contamination measurement, when is it useful, when is it recommended, what does it measure, what it doesn't measure, how will it be performed).
- In the event of significant contamination, it may be warranted to do a follow-up measurement of the internal contamination with more specialised techniques. In the event of an accident with a severe impact on the surrounding area, with an increased risk of significant contaminations, it is likely that the decontamination will be performed in the country where the accident happened.

During the preparation phase, each HERCA member should collect information concerning measurement capacity, and what kind of specialised equipment (technical advantages and limitations, throughput capacity,...) and knowledge is available, together with information on where it is available and the contact information for support. Examples are:

- availability of portal detectors for external contamination monitoring of a large group of people;
- specialised equipment and knowledge for whole body monitoring and measurements in bioassay samples for measurement of internal contamination;
- availability of biological dosimetry, which may give additional information in certain exceptional circumstances;

For certain specialized facilities that may not be available in each member state, resources can be shared with neighbouring countries. This is subject to arrangements through existing mechanisms.

6.1.4. Medical follow-up

Under highly improbable circumstances, medical follow-up of people potentially exposed to high doses may be needed. During the preparation phase, it may thus be useful to collect information on the available capacities, in terms of resources, equipment and competences. Where those capacities do not exist, cooperation mechanisms with neighbouring countries should be arranged.

6.2. Guidance for information pamphlets, templates and interesting sources of information

It is beyond the remit of the HERCA WGE to decide on what communication material should be used to inform citizens and how it should be distributed. However WGE can give some guidance on the information that should be addressed in the material.

Past experiences show that the general public does not understand or know the effects arising from a radiological emergency situation. It may thus be worthwhile to have information pamphlets for returning nationals, to inform them of the situation and to give guidance on how people may protect themselves (on the principle of 'help to help oneself').

The material should contain:

- the possible pathways by which people could be exposed to radiation.
- orders of magnitude of radiation doses to people from different sources (such as natural background radiation or medical practices) to allow people to make a comparison with doses from other sources of radiation and understand the associated risk;
- a description of how people can reduce radiation doses and minimise the possible health effects; describe easy decontamination procedures (Undress and wash your clothes if been wearing in the emergency area; Take a shower and wash yourself thoroughly but gently with soap; avoid contact between contaminated water and mouth; hair conditioner should not be used since this may bind radioactive material to the hair; Put on clean clothes).
- When appropriate, the possible health implications of the doses received, and symptoms to be aware of.
- The contact point for future questions and information (institution, address, telephone, web-sites and email). Since the contact information is national, people who continue their travel after receiving the information should be informed how they can reach their own national contact points.

The information should be accompanied by clear and factual information on the emergency and its on-going evolution, including potential doses received by the people, the types of radiation involved and the radionuclides involved, although this will be an evolving situation and subject to change as time progresses and understanding develops. This information can be based on the received situation reports but these may need to be adapted for distribution to the general public

General knowledge concerning ionizing radiation (such as the basics of ionizing radiation and radiation protection, the protective measures that are generally used in emergency situations and

how they help to protect the public) is already available on Internet. References to these information sites can be included in the information material.

When people are offered the possibility of body measurement, the information material can also include some information on what they may expect during the contamination measurement.

Some interesting sources that may help in the preparations are for example (not exhaustive):

- **IAEA** (EPR-Public Communications 2012): Communication with the Public in a Nuclear or Radiological Emergency. Emergency Preparedness and Response.
This book not only describes how to prepare for emergency communications, it also provides tools that can be used to communicate the basics of irradiation, health effects, exposure pathways, doses, dose rates,... not only by text but also by comprehensive figures (see pages 25 to 40).
<http://www-pub.iaea.org/books/iaeabooks/8889/Communication-with-the-Public-in-a-Nuclear-or-Radiological-Emergency>.
<http://www-pub.iaea.org/books/iaeabooks/8889/Communication-with-the-Public-in-a-Nuclear-or-Radiological-Emergency>.
- The **World Health Organisation** (WHO) also has interesting information and publications on their website, including general information on ionizing radiation and environmental radiation, links to different FAQ-lists, radiation accidents and emergencies and a leaflet on the basics of radiation and radiation protection.
(http://www.who.int/ionizing_radiation/en/,
http://www.who.int/ionizing_radiation/a_e/en/,
<http://www.who.int/mediacentre/factsheets/fs371/en/index.html>).
(http://www.who.int/ionizing_radiation/en/,
http://www.who.int/ionizing_radiation/a_e/en/,
<http://www.who.int/mediacentre/factsheets/fs371/en/index.html>).

6.3. Template for a questionnaire for nationals returning to their country of origin

The template for a questionnaire for nationals returning to their country of origin (see appendix 7.4) is intended only as a way to collect the contact information of returning people (phone number, e-mail address ...) and to collect information for a possible, future health survey.

This questionnaire can be distributed while people are returning home or upon arrival in the reception center. It is adapted from the questionnaire A3.3 in the "TMT Handbook. Triage, Monitoring and Treatment of people exposed to ionizing radiation following a malevolent act."

7. Appendixes

7.1. European protective actions that might have had an impact in Japan (economic, social, political, other) - List of topics

Zones for evacuation and sheltering

Japan evacuated in an area 20 km around the NPP's and after one month in a larger area at the northwest of the NPP's. From 20-30 km people had to shelter.

During the first week(s) some European countries evacuated their nationals in larger areas than 20 km. Some countries evacuated their nationals from Tokyo. The same goes for sheltering.

Distribution and taking of stable iodine tablets

Several European embassies distributed stable iodine tablets to their nationals and immediate family members. Sweden recommended their nationals within a 250 km radius from the accident site to take the tablets.

Relocation of European embassies

The Japanese government did not take any direct countermeasure in Tokyo.

Some European countries evacuated their embassies from Tokyo and moved them to Osaka.

Negative travel advice

European countries advised their nationals against travel to parts of Japan, either for all travel or for non-necessary travel.

Departure of European citizens on own initiative

Some European citizens left Japan on their own initiative, while others stayed.

Closing of European companies in Japan

In general large European companies acted according to the advice given by their embassy and closed and/or moved their offices. As a result some European shops were closed while other shops stayed open.

International trade

Some countries put in place import restrictions for food products and goods from Japan.

Japan tried to convince countries that products shipped from Japan were subject to stringent control and therefore safe. Even after 1.5 month, no country eased their import restrictions.

Import control of ships, planes and cargo in and outside Europe

Some European countries measured planes, ships and cargo arriving from Japan.

This European import control triggered some non-European countries (at least Malaysia) to start import controls as well.

Offers of cooperation

Japan received multiple offers for help and/or equipment. Japan declined some offers for instance of equipment that needed training, or equipment that was plentiful in Japan.

Communication and press releases in Europe about Japanese actions

Other

7.2. Compilation of the embassies feed-back

7.2.1. Evacuation/relocation

7.2.1.1. Protective actions

Concerning evacuation/relocation, there were considerable differences in the actions and advice of some European countries. Some countries took the decision to evacuate their nationals, while others left the decision to evacuate/relocate to the nationals themselves and in some case offered help to them who wanted to leave. Some European nationals left Japan on their own initiative. The different protective measures/advice were:

- Some countries advised their nationals to follow the advice of the Japanese authorities
- Some countries advised their nationals not to stay in the Tokyo/Kanto/Yokohama area unless it was necessary.
- Some countries evacuated their nationals from Japan or Tokyo.
- Some countries offered their nationals the opportunity to leave Japan or relocate to Tokyo and took measures to support their departure, such as free flights.
- Some embassies offered assistance when citizens evacuated or left Japan on their own initiative.

Some European nationals also left on their own initiative. Some of the evacuated/relocated European nationals returned after several weeks, depending on the necessity of their presence. Working people returned, while their families sometimes stayed outside Japan.

7.2.1.2. Perception in Japan

The departure of European nationals from Japan was reported in the media with a negative coverage and had a negative impact on public perception. The evacuation of European nationals from Tokyo was considered unfavourably. The evacuation from Tokyo caused additional confusion among the Japanese and after some month the Japanese officials made critical comments on the issue when some European evacuation zones stayed too large (larger than the 20 km area)

Confusion was not only caused among the Japanese, but also among European nationals that were not advised to evacuate while other European nationals were advised to do so. The different European measures and advice also caused concern among relatives back home.

Although there would have been some advantages in a reduction in the number of non-Japanese speaking people in the most affected areas should the situation have deteriorated, there was some perception in Japan that the country was being abandoned, which had a lowering effect on morale.

Overall the departure of European citizens influenced crisis management in Japan, for example regarding the infrastructure at the airports.

It was also noticed that the presence of European communities that stayed in Japan was appreciated by the Japanese authorities.

7.2.2. Distribution and taking of stable iodine tablets

7.2.2.1. Protective actions

Some countries distributed iodine tablets to their nationals with the instruction not to take them unless advised to do so by Japanese or by their own authorities.

7.2.2.2. Perception in Japan

There is no indication that the European actions influenced the Japanese distribution and taking of iodine tablets or created any negative impressions among the Japanese public. The Japanese Government assured its people that they had sufficient supplies for any citizen who might need them, so the fact that nationals of other countries were receiving them was not a major cause of tension.

Confusion was mostly caused among European nationals. The Japanese policy for the distribution and taking of iodine tablets differs from policy in European countries and the policy differs between European countries as well. These differences caused some confusion among European nationals.

7.2.3. Relocation of European embassies

7.2.3.1. Protective actions

Concerning the European embassies, different measures were taken:

- Some embassies closed their doors in Tokyo.
- Some embassies were partly relocated from Tokyo.
- Some embassies stayed open in Tokyo, but sometimes with a lower availability of services.

7.2.3.2. Perception in Japan

The European embassies reported a high range of variation to the question on how the relocation of their embassies was perceived in Japan. Responses ranged from "Japanese authorities expressed their understanding for the European decisions" and "the relocation of the embassy was noted" up to very explicit statements, such as "The evacuation of the Embassies from Tokyo was taken really hard by the Japanese authorities and quickly became a political issue, which Japanese media picked up quite heavily". In one case the relocation of the embassy caused additional criticism among the nationals of the own country, because it was, in their view, sending the wrong signal and was destabilizing their business.

7.2.4. Negative travel advice

7.2.4.1. Protective actions

Several countries issued travel advice. Mostly it was recommended to avoid travel to specific areas. Some of this advice was based on radiologic data, other advice was given because of the uncertain situation and the probability of disruptions in transport or food shortages. Because of this, travel advice differed between countries.

7.2.4.2. Perception in Japan

There was a measurable decrease in tourism in Japan, not only around Fukushima. Strict travelling advice combined with broad media coverage in the home country made many people cancel arrangements to travel to Japan, even though the planned goal for the travel could be other places in the country far away from Fukushima. In addition many, both tourists and natives, chose to interrupt their visits or temporarily leave the country due to uncertainty. It is not clear though how much this was affected by there having been a national disaster in the region at the same time, with over 20,000 deaths.

In the early phase, Japanese authorities did not comment the travel advice, but after a while the authorities intervened in order to obtain a softening or lifting of the travel advice, especially when after a while travel advice was still too extensive.

Besides the negative impact on tourism, the negative travel advice caused, because travel advice differed between countries. (Tourism normalized fast. In 2012 tourism in Japan as a total is on the same level as before the earth quake.)

7.2.5. Closing of European companies in Japan

7.2.5.1. Protective actions

Some foreign companies closed their doors as a consequence of the radiation risk. The companies' decisions to close down might have been affected by the advice from their embassy but some companies took action independently or before any advice from the embassy. The final decision and responsibility was with the companies themselves.

Some companies continued their business activities, but under various contingency plans. Although some companies closed, business continuity was ensured in most cases.

7.2.5.2. Perception in Japan

The closing of European companies obviously complicated and/or delayed cooperation with Japanese companies. It is reasonable to believe that such a delay/stop, even when temporary, might have led to a certain scepticism to foreign companies and might have caused damage to the overall image of European businesses in Japan, even though business continuity was ensured in most cases. The Japanese authorities expressed their concern at companies leaving Japan.

It is to be noted that foreign employees of Japanese companies who chose to stay away for longer periods did in many cases encounter problems with their Japanese employers, more so than the Japanese employees who remained and continued to work.

Problems with perception and image seem to have been short-lived.

7.2.6. International Trade, import control etc.

7.2.6.1. Protective actions

Not all countries applied import control because there were no direct flights or shipping routes from Japan. The countries that had import control acted in line with EU requirements.

7.2.6.2. Perception in Japan

Import control by European countries was frequently criticized by Japanese officials. The authorities intervened in an early stage to get the import restrictions eased. In one reaction it was noticed that Japanese authorities were probably more concerned about a negative public perception on the safety of food that could be the result of strict import controls, than they were on the impact of the import control on trade.

Nevertheless, import control might have had an impact on Japanese export and on cross border cooperation. Despite the import control (and their easing after some months), consumers and costumers in Europe did not feel comfortable with Japanese products. It is worth noting that the Japanese consumers felt the same.

7.2.7. Communication

7.2.7.1. Protective actions

With few exceptions the European media coverage of the nuclear crises, was extremely negative. Initially lack of information was a problem and as the situation progressed to become worse and

more complicated than initially described. The information consistently turned out to be wrong or incomplete and the severity of the situation was always minimized. Some information was held back, like the timing of the actual meltdown. The available information was sometimes explained differently between nuclear experts of different countries.

7.2.7.2. Perception in Japan

Concerning the negative media coverage, it seems that the Japanese authorities did not respond to this. The negative media coverage, on the other hand, caused anxiety among the European citizens in Japan and their relatives at home.

In Europe there was a strong distrust of any information coming from either the Japanese Government or TEPCO. This distrust of the information had a big impact on the level of confidence the public had in the way the authorities were handling this difficult situation.

Maximizing the crisis in foreign media might have created a mistrust in Japanese media. Many in Japan already at an early stage felt that Japanese authorities and media withheld information.

7.2.8. Offers of cooperation

7.2.8.1. Protective actions

Several countries offered help in the form of funding, (assistance in) rescue teams, humanitarian aid supplies etc. Several countries gave their donation to the Red Cross. Also some foreign countries in Japan contributed to rescue work, logistics and supplies.

Some countries had dignitaries visit Japan.

7.2.8.2. Perception in Japan

At first the Japanese authorities were reluctant to accept help, but when the scale of the disaster became apparent, they accepted the offered help. Japanese authorities have repeatedly expressed their thanks for the material contributions and moral support offered.

Public perceptions of the outpouring of international assistance are overwhelmingly positive. The help of foreign countries in Japan may have improved the negative perception caused by foreign companies closing their doors.

7.3. Preparedness guide for Embassies

General considerations:

The present guide contains recommendations to facilitate timely preparedness of Embassies potentially affected by a nuclear or radiological emergency, provided there is prior acceptance by foreign affair authorities of the HERCA countries in question. It distinguishes between minimum requirements that embassies should have in place and additional equipment, respectively measures that would be of benefit in case of a crisis, but which do not seem realistic in each case, in particular for small embassies.

Criteria for determining the embassies to which the present guide applies depend on national circumstances and risk assessment. It is left to each country to decide on the relevance and implementation of the different recommendations.

Minimum preparedness requirements for Embassies.

- Basic information material on radiation and protective measures;
- Possibility to rapidly activate an emergency response;
- Emergency plans and procedures (following a graded approach), contact list;
- Independent communication equipment (satellite telephones, Smartphones, etc.);
- KI-tablets for the staff;

Beneficial emergency equipment and preparedness

- Regular training on nuclear emergency activities (e.g. testing of communication channels);
- Available KI-tablets for own citizens;
- Contamination detector and arrangements for staff decontamination;
- A hand held radiation detector, instructions for use and maintenance (on-site or fly-in);
- Protective clothes, masks;
- Vinyl plastic and adhesive tape to provide confinement to the Embassy;
- Arrangements for automatic monitoring;

First responses in case of a nuclear and radiological emergency

- Collect information on the situation;
- Contact with own country authorities, own nuclear and/or radiation safety authority(-ies) and/or experts organisation as identified in national emergency plans;
- Contact other, in particular other European Embassies in the country to exchange information and advises;
- Check if the Embassy/Consulate(s) staff and their families are safe (eventually give shelter to their families);
- Preparation of stockpiles of water, food, drugs, electric generators, etc;
- Establish radiological protection of the Embassy (access control, control of contamination, etc.);
- Inform own citizens and organize a hotline;

7.4. Template for a questionnaire for citizens returning to their country of origin

A. Personal information		
Family name:		
Name		
Date of Birth	(dd/mm/yyyy)	
Usual address	apartment/house number & street	
	Town	
	postal code	
	country of residence	
Current address (if different from above)	apartment/house number & street	
	Town	
	postal code	
	country of residence	
Telephone numbers	Home	
	Work	
	Mobile	
email address		
Name and address next of kin/guardian	Name & Family name	
	apartment/house number & street	
	Town	
	postal code	
	country of residence	
Date of arrival in [member state] (dd/mm/yyyy)		
Method of transportation (and when possible, identification such as flight number)		
Gender	Male	Female

B. Nuclear power plant emergency (preferably with map of affected country/region provided in attachment)			
Where did you stay since the [start date NPP accident]			
Location 1 & time (days)			
estimated distance to NPP accident (km)			
Location 2 & time (days)			
estimated distance to NPP accident (km)			
Location 3 & time (days)			
estimated distance to NPP accident (km)			
Location 4 & time (days)			
estimated distance to NPP accident (km)			
Location 5 & time (days)			
estimated distance to NPP accident (km)			
...			
Did the local government inform you on the situation?	yes/no/don't know		
Did the local government inform you on possible protection measures?	yes/no/don't know		
Were any protective actions declared or advised in the area you stayed?	yes/no/don't know		
Which measures and did you make use of them?	Declared?	Did you use them?	Location?
Sheltering	yes/no/don't know	yes/no	
Intake iodine tablets	yes/no/don't know	yes/no	
Decontamination	yes/no/don't know	yes/no	
Evacuation	yes/no/don't know	yes/no	
Actions with relation to food supply	yes/no/don't know	yes/no	
C. Other Environmental contamination event.			
Have you been within 400 m of the source of the contamination?			
	Yes	no	
D. External radiation event.			
Have you been (or may have been) within 30 meters of the source?			
	Yes	no	