HERCA

HEADS OF THE EUROPEAN RADIOLOGICAL PROTECTION COMPETENT AUTHORITIES

# HERCA Working group on Emergencies

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# Guidance document on the HERCA-WENRA-Approach:

# Strategies for extension of evacuation, sheltering and ITB protective actions

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**Title:** **Guidance Document on the HERCA-WENRA Approach: Strategies for extension of evacuation, sheltering and ITB protective actions**

**Summary:** In the event of a nuclear emergency, it may be necessary to extend protective actions beyond the pre-defined emergency planning zones (EPZ) within which detailed planning arrangements have been made. This guidance document describes a set of principles to extend the application of the protective actions of evacuation, sheltering and the distribution of stable iodine (ITB) as described in HWA Part II.

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# HERCA Guidance
# HERCA-WENRA-Approach:
# Strategies for extension of evacuation, sheltering and ITB protective actions

## 1. Introduction

This guidance document describes a set of principles to extend the application of the protective actions of evacuation, sheltering and the distribution of stable iodine (ITB), in the event of a nuclear emergency may be extended beyond the defined emergency planning zones (EPZ) within which detailed planning arrangements have been made.

Central to all of these principles is that such extension is about identifying what protective actions may be justified for extension, how and where those capabilities could be obtained from, and the anticipated time frames over which they are likely to become available during an emergency. The level of detail required in extendibility arrangements is therefore proportionate to the scale of the potential emergency and is different from detailed emergency planning where arrangements for the protective actions are for them to be in place and ready to mobilise without delay. Extendibility should identify the strategic arrangements and considerations that would be necessary; the tactical and operational arrangements will be developed on the day.

## 2. Extendibility and the HERCA-WENRA Approach

The issue of extendibility of the protective actions of evacuation, sheltering and ITB beyond the defined emergency planning zones is addressed in the document “HERCA-WENRA Approach for a better cross-border coordination of protective actions during the early phase of a nuclear accident” (HWA). As developed in the part II of the HWA (see chap. 3, al.1) when facing a potentially very severe emergency with great uncertainty about the situation, recommendations of these protective actions have to be defined following a simplified scheme. The protective actions are based on three Judgement Evaluation Factors (JEFs) which have the following outcomes (see chap. 4, al.2): evacuation over a distance of 5 km, and sheltering and ITB over a distance of 20 km. However, if when using this simplified scheme, it is assessed that, additionally, the containment

integrity is (or could be) lost, extendibility of these protective actions should be considered: evacuation up to 20 km, and sheltering and ITB up to 100 km. Depending upon the prevailing and forecasted wind conditions, these protective actions may be implemented either in a circular area around the plant or in a limited area (sectors…) within the extended area. The precise extension of the distances where these protective actions are justified is also adjusted as a function of local context and circumstances, including demography, wind speed and metrological stability.

Therefore, HERCA and WENRA recommend that a general strategy should be defined in Europe in order to be able to initiate and implement extendibility mechanism for these protective actions.

## 3. Extendibility and the IAEA requirements

In the IAEA's Safety Requirements, GSR Part 7, the concept of Extended Planning Distance (EPD) is introduced in par. 5.38 as follows:

> *An extended planning distance (EPD) from the facility, for facilities in category I or II (beyond the urgent protective action planning zone), for which arrangements shall be made to conduct monitoring and assessment of the radiological situation off the site in order to identify areas, within a period of time that would allow the risk of stochastic effects in the areas to be effectively reduced by taking protective actions and other response actions within a day to a week or to a few weeks following a significant radioactive release.*

## 4. HERCA principles for extendibility

Based on the practical experiences of extendibility of a number of European countries that take part in HERCA, this document proposes a set of principles (to be considered as a “shopping list”) that constitute elements for development and implementation of a national extendibility strategy for the protective actions of evacuation (up to 20 km) and sheltering and ITB (up to 100 km) outside of the defined emergency planning zones (EPZ) where detailed arrangements are in place.

The proposed principles are listed hereafter:

[1] Extension of protective actions (sheltering/ITB up to 100 km or evacuation up to 20 km) should be implemented at appropriate distances, either wholly or within sectors, through a **graded approach strategy** while keeping an appropriate balance between the extent of the area and the effectiveness of the actions to be implemented (in line with the radiation protection justification & optimization principles as also expressed in requirement 4.29 of the GSR Part 7[1]).

[2] This graded approach strategy would rely on outline/high level **arrangements developed in the preparedness phase** in order to be able to extend appropriately the protective actions by activation of these arrangements during the response phase.

[3] All administrative authorities (local, regional, national) having responsibilities in the decision making and/or implementation of the considered protective actions (sheltering, ITB, evacuation) would be **alerted** for any emergency notification leading to the activation of the national nuclear/radiological response plan [*awareness increase*].

[4] To facilitate the implementation of the evacuation, sheltering and ITB or their potential extension, the **use of developed and understood operational delimitation** for the area(s) where protective action(s) may be implemented should be considered (predefined operational zones/blocks, municipality/county/cantons/villages borders, rivers, etc.).

[5] **General (non-radiological/nuclear) arrangements** should be considered to support the extension of sheltering and evacuation considering various practical preparedness issues (e.g. transport, identification of appropriate locations to shelter or to welcome evacuated people, preparation of information sheets and general information messages)[2].

[6] To facilitate the implementation of extended ITB, outline **strategies for ITB** outside of the defined ITB EPZ should be considered. Such strategies should consider, in particular, children and pregnant and breastfeeding women including communities linked to these groups such as schools or nurseries. Various arrangements and practical issues should be considered to achieve this goal such as procurement and pre-distribution of stable iodine to particular locations, pre-distribution of stable iodine targeted to children, pregnant and breastfeeding women, and development or access to stable iodine tablet stocks coupled with a timely distribution plan.

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[1] *Each protective action, in the context of the protection strategy, and the protection strategy itself shall be demonstrated to be justified (i.e. to do more good than harm), with account taken not only of those detriments that are associated with radiation exposure but also of those detriments associated with impacts of the actions taken on public health, the economy, society and the environment.*

[2] *Examples of such general non-nuclear/radiological arrangements are contained in the "General Emergency & Intervention plans" (in Belgium) or "ORSEC plans" (in France).*

[7] To facilitate the implementation of extended evacuation, the **use of detailed arrangements for sheltering** in EPZ to extend evacuation gradually up to 20 km should be considered.