

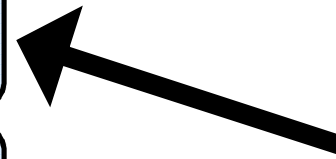
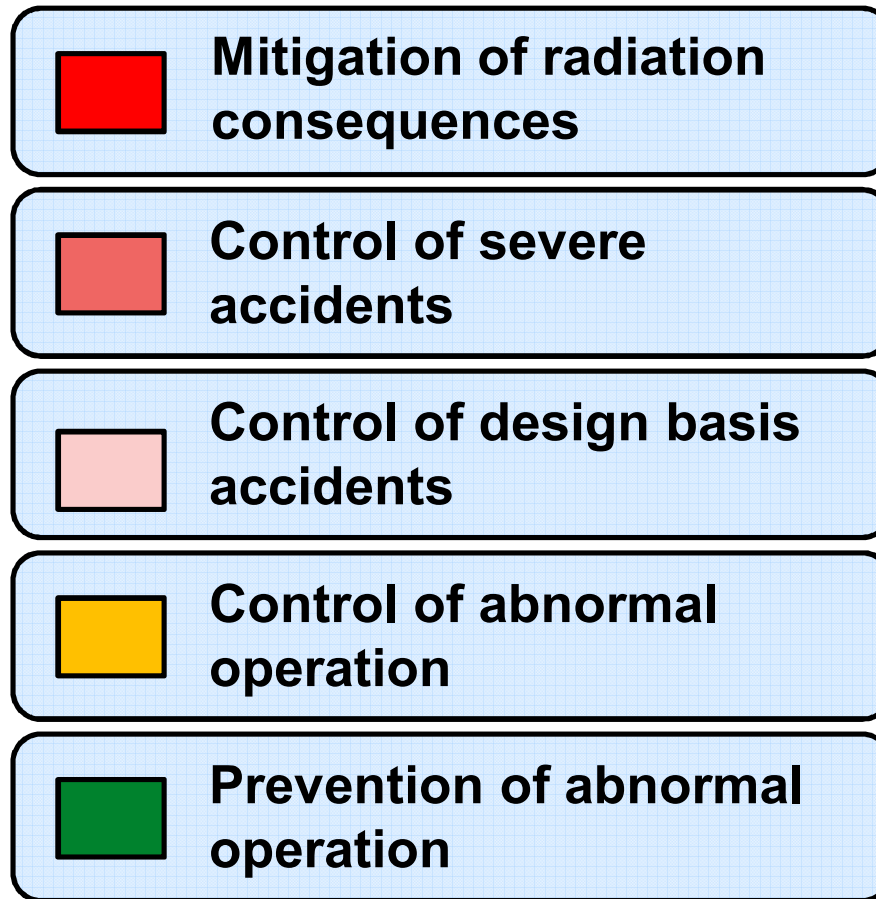
Emergency Preparedness and Response: A Safety Net

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Levels of defence in depth



**Emergency
preparedness
and response**

Goals of emergency response

- 1. To regain control of the situation;**
- 2. To prevent or mitigate on-site and off-site consequences;**
- 3. To avoid or minimize severe deterministic health effects;**
- 4. To render first aid, to provide critical medical treatment and to manage the treatment of radiation injuries;**
- 5. To reduce the risk of stochastic effects;**
- 6. To prevent, to extent practicable, the occurrence of non-radiological consequences;**
- 7. To keep the public informed;**
- 8. To protect, to extent practicable, property and environment;**
- 9. To prepare, to extent practicable, for the resumption of normal social and economic activity.**

Goals of emergency preparedness

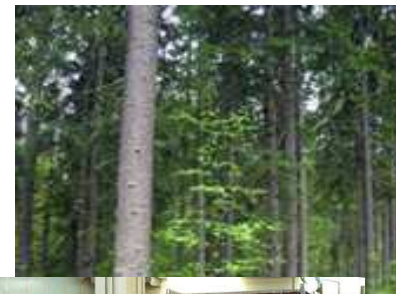
To ensure that adequate arrangements are in place among all actors:

- **Authority and responsibilities;**
- **Organization and staff;**
- **Plans and procedures;**
- **Tools, equipment and facilities;**
- **Training, drills and exercises;**
- **Overall managements system.**

Severe accidents affect the whole society

In addition to protection of the public (sheltering, ITB, evacuation), e.g. the measures for following areas may be needed:

- **Agriculture and forestry;**
- **Water supply;**
- **Food industry and other production;**
- **Road, aviation, marine & trail traffic;**
- **Trade, trafficking, export, import;**
- **Recreational activities;**
- **Decontamination;**
- **Management of waste containing radioactive material.**



“All severe nuclear or radiological emergencies may have direct or indirect impact to all countries”

Prerequisites for successful response

In addition to effective emergency preparedness (up-to-date plans, procedures and arrangements) and knowledgeable & trained staff we need

Willingness and proactive attitude to

- communicate in a timely manner**
- co-operate and co-ordinate actions locally, nationally and internationally**
- provide / receive assistance**
- evaluate and improve emergency arrangements**

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Communication

Fukushima accident, again, revealed importance and difficulties of

- **timely sharing of information among all actors within the accident host country**
- **timely sharing of information by the accident host country to other countries impacted directly or indirectly**
- **timely sharing of information of decisions made from all countries impacted by the emergency**
- **timely and understandable information and instructions to people in all countries**

Typical problems in communication

In an acute phase of an emergency

- lack of essential information
- difficulties to receive reliable information rapidly

At later stages of emergencies

- enormous amount of information received / available
- difficulties to recognise the relevant pieces of information for organization's response purposes

In addition, needs for content of information are different among domestic and international counterparts.

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On-site and off-site co-operation

- **Decisions of urgent protective measures in the emergency planning zone should base on prevailing and postulated progress on on-site situation**
- **On-site and off-site plans shall be co-ordinated to ensure timely response**

YET

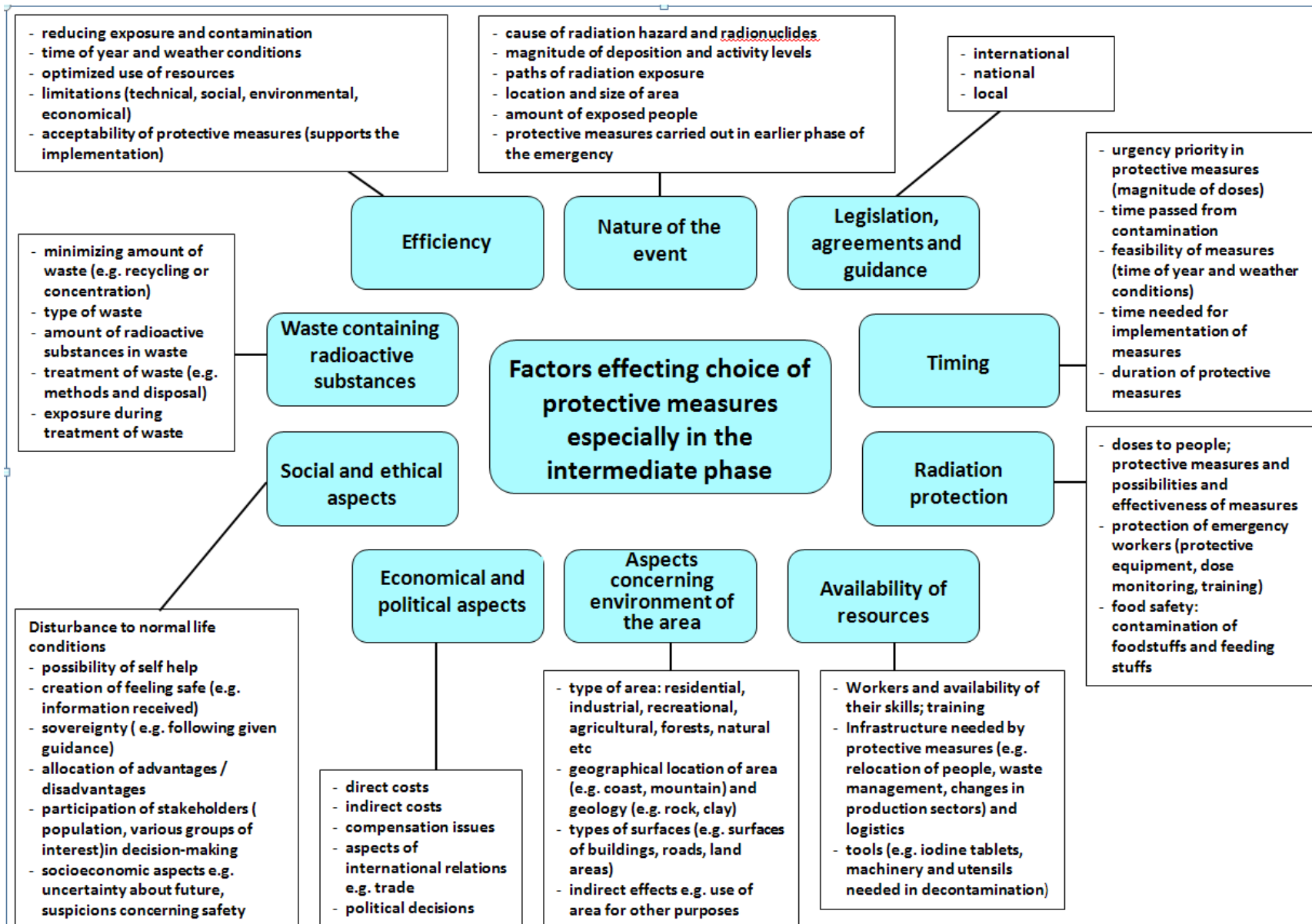
- **In emergency planning, it is important to include extendibility of arrangements beyond pre-designated zones.**

National co-ordination of actions

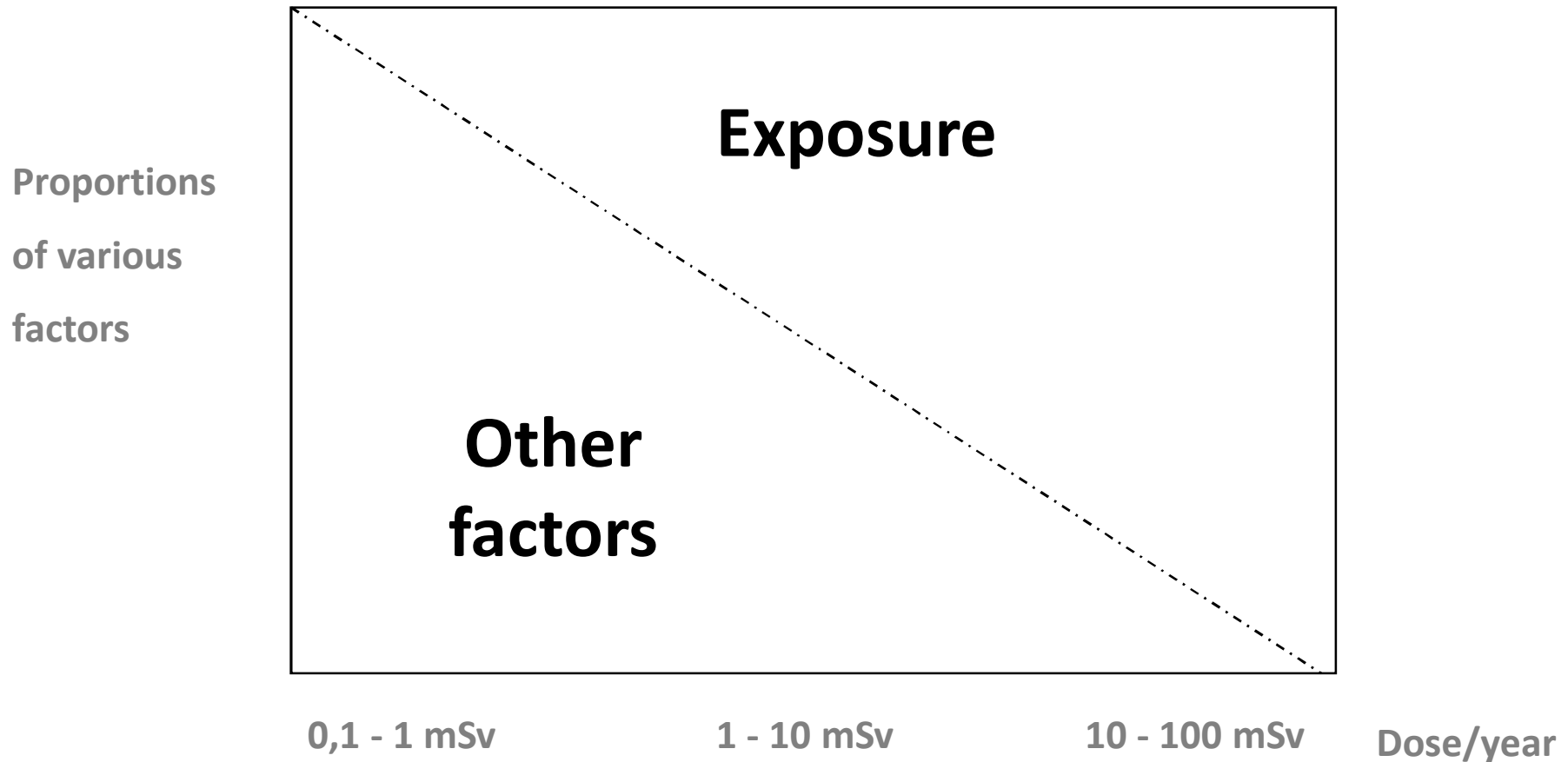
- **In decision-making concerning protective actions there are many factors, especially at later phases of emergency, affecting to the final outcome: radiation is only one of the components!**
- **In addition, there are many organisations that have a role in decisions about protective measures under their own administrative sector.**

Jointly agreed intervention criteria, efficient coordination system, and clear understanding of responsibilities & tasks of all actors throughout the whole emergency are critical!

There are many factors effecting decision making



Exposure vs other factors



International coordination of actions

- **We need joint approach for intervention strategy and eventual operational criteria (= triggers for response: emergency action levels and operational intervention levels)**
- **We need to have efficient communication system for coordination purposes**
- **When protecting people and society during emergencies, actual options / measures may vary from country to country ... but the crucial thing is that we understand reasons behind decisions and be able to explain them our own stakeholders!**

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Assistance

Especially for a prolonged widespread situation, it is important that....

we are willing to identify resources, capabilities and knowledge

– which we can provide to those requesting assistance

AND

– which we might need in our domestic response

Prerequisites for successful response

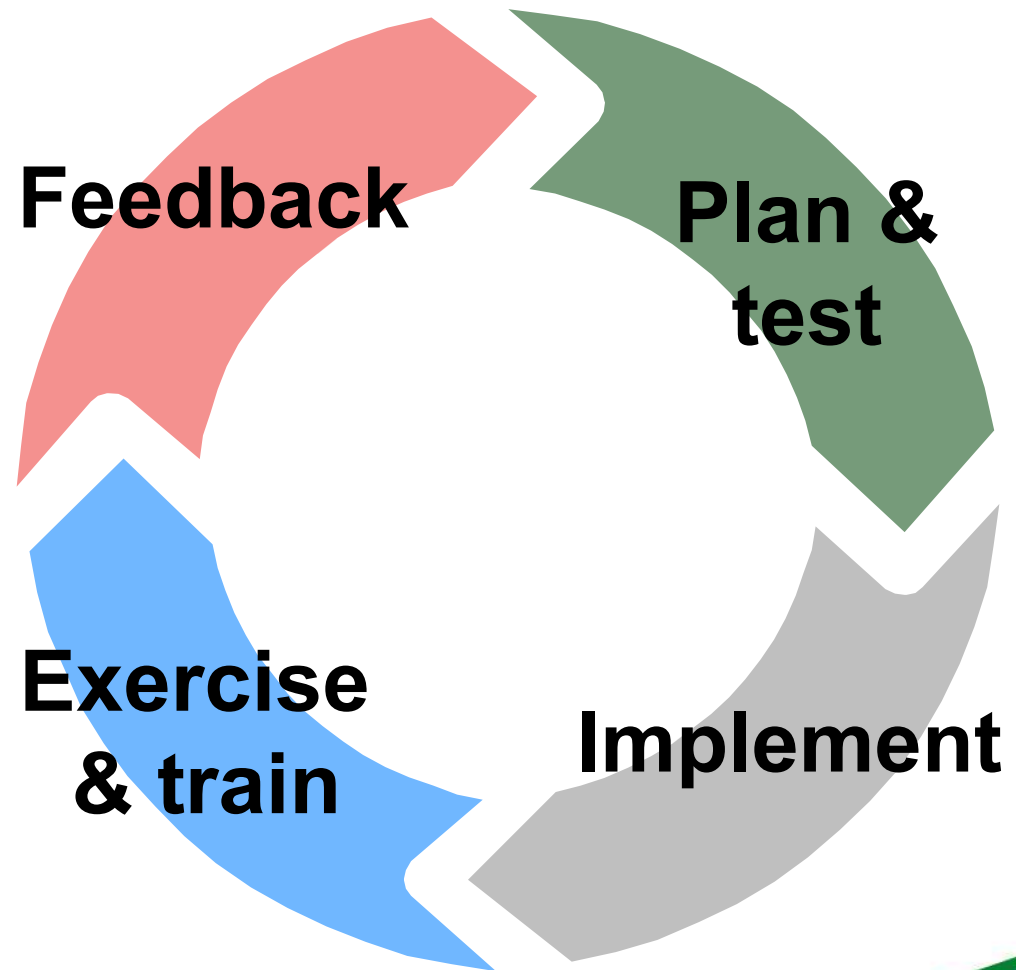
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Adequate resources are needed for...

... maintenance and continuous development of emergency arrangements.



And adequate resources are needed for response...

- **Balanced taking into account e.g.**
 - **Hazard assessments;**
 - **Justified expectations of society;**
 - **International requirements.**



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International Conventions and Legal Agreements

Convention on Early Notification of a Nuclear Accident

Our emergency arrangements shall

- be in place and up-to-date for nuclear or radiological emergencies and incidents

BUT

- be flexible enough to be applicable in any nuclear or radiological emergency and incident irrespectively of its cause and location

AND

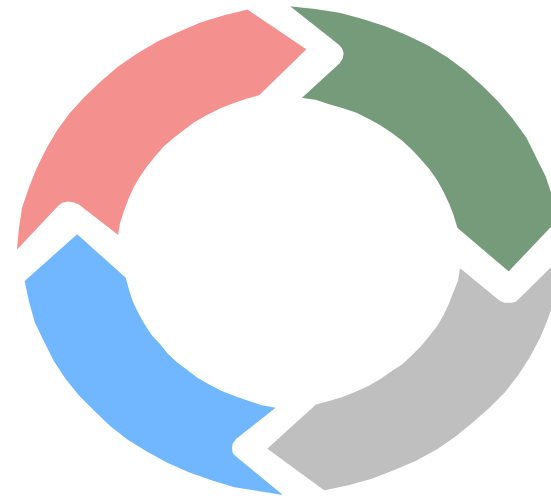
- cover the needs of national / regional / international stakeholders concerning communication, co-operation, coordination and assistance

Robust emergency arrangements

- **Unexpected things happen during response (e.g. malfunctions of instruments; plans and procedures are not clear, applicable or compliant enough; experts forget to follow procedures).**
- **Redundant arrangements needed concerning e.g. communication means and decision support systems.**
- **Quality checks - which do not unduly delay adequate response - needed**
 - **for ensuring that vital parts of response are activated, operational and operate according agreed procedures;**
 - **for ensuring that information provided is correct.**

Training, training, training... (1)

**Without knowledgeable
and regularly trained
staff we will surely fail in
our response!**



Training, training, training... (2)

In addition to increase in know-how, we need at regular intervals exercises

- which cover different types of emergencies, different phases of an emergency and which also include severe scenarios;**
- in which all relevant national emergency response arrangements are activated to reveal needs for domestic improvements;**
- in which other countries and international organisations will take part in to reveal improvements for regional / international response.**

We shall not miss any opportunity to learn...

- past nuclear or radiological emergencies and
incidents;**
- findings from exercises and drills;**
- studies and reviews;**
- ... and from each other...**

**Important to share experiences gained and
lessons identified / learned in a transparent
manner also internationally!**



We are all in the same boat !!

Important to all countries that safety nets of emergency arrangements are reliable and operate efficiently, when needed, on national, regional and international levels.

Thank you for your attention !

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