



Innovative integrated tools and platforms for radiological emergency preparedness and post-accident response in Europe

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Nuclear emergency management and countermeasures reported in mass media

Eduardo Gallego¹, Marie Claire Cantone², Deborah. H. Oughton³, Tanja Perko⁴, Iztok Prezelj⁵, Yevgeniya Tomkiv³

¹ Energy Engineering Department, Universidad Politécnica de Madrid, Spain

² Department of Physics, University of Milan, Italy

³ Norwegian University of Life Sciences, Norway

⁴ Institute for environment health and safety, Belgian nuclear research Centre SCK- CEN

⁵ University of Ljubljana, Faculty of Social Sciences, Slovenia

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University of Ljubljana





Introduction

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- **Focus:**

- Analysis in newspapers of the application and impact of protective actions taken in Japan after Fukushima-Daiichi accident, both during the emergency phase and later
- Differences in emphasis between countries

- **Objective:**

- Extract recommendations in order to improve general communication about these issues
- The period covered by the study is restricted (from 11th of March till 11th of May, 2011) → some decisions taken in Japan after that period are obviously not considered in the articles analysed

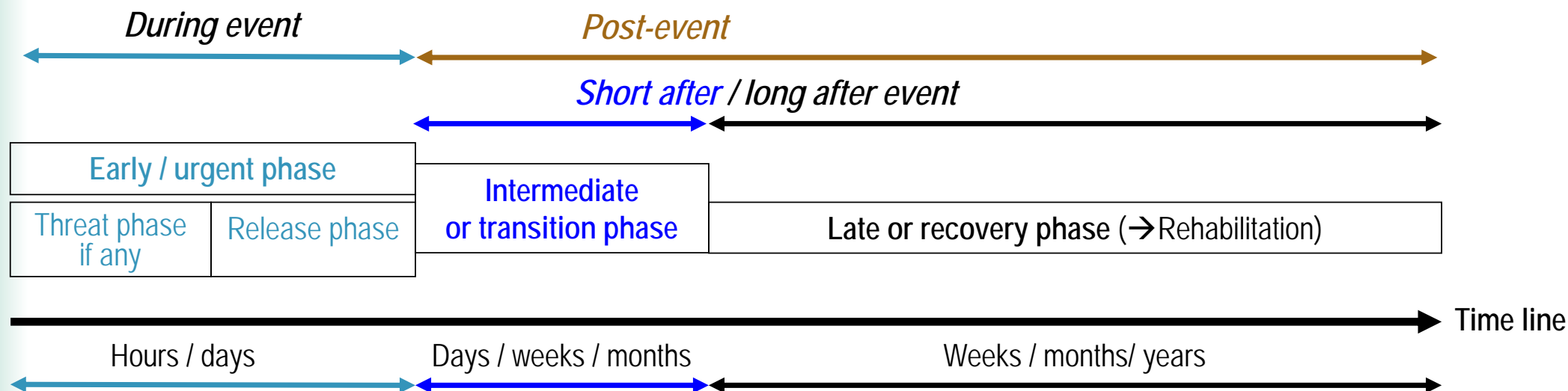


Nuclear Emergency situations

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- Emergency exposure situations may be characterised by a significant uncertainty concerning current and future exposures, rapidly changing rates of actual exposure, potentially very high exposures (i.e. those with the potential to cause severe deterministic health effects), or loss of control of the source of the exposure or release (ICRP, 2009)

Phases of a nuclear emergency response as usually considered:





Principles in which application of countermeasures should be based

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From the Recommendations of the International Commission on Radiological Protection

(ICRP, 2007) (ICRP, 2009)

- **Justification of protective actions:** they reduce exposures to radiation, but have always some disadvantages → should produce more good than harm
- **Optimisation of protective actions:** the level of protection should be the best possible under the prevailing circumstances, taking into account economic and societal factors, maximising the margin of benefit over harm
- **Protection against severe deterministic injury:** situations in which the dose thresholds for severe deterministic injuries could be exceeded should always require action



Phases of emergency response and associated countermeasures

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Emergency response phases	Some countermeasures
Pre-release	Access control to the area (Preventive) evacuation Pre-distribution of stable iodine tablets
Early phase (contaminated atmosphere)	Evacuation Sheltering Stable iodine Decontamination of people Restrictions to food consumption
Intermediate phase (rather rapidly decreasing contamination of surfaces and vegetation)	Relocation Food control
Late phase (long-lasting contamination of the environment)	Relocation Food control Agricultural protective measures Decontamination / environmental remediation process Restriction on diet / change in life styles



Research Methods

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- Analysis of 1340 printed articles on Fukushima nuclear accident from two major newspapers in Belgium (“*Le Soir*” and “*De Standaard*”) (260 articles), Italy (“*Corriere della Sera*” and “*La Repubblica*”) (270 articles), Norway (“*Aftenposten*” and “*Dagsavisen*”) (133 articles), Russia (“*Komsomolskaya Pravda*” and “*Izvestiya*”) (172 articles), Slovenia (“*Delo*” and “*Večer*”) (190 articles) and Spain (“*El Mundo*” and “*El País*”) (315 articles).
- Based on two key words: “Fukushima” and “nuclear”.
- Published in the two month period after the beginning of the accident: from 11th of March till 11th of May, 2011).
- **Variables:**
 - Emphasis on the phases of the emergency mainly addressed by the articles.
 - Emergency management issues:
 - Actions of the emergency workers to control the damaged nuclear plant
 - Other emergency actors and actions implemented
 - Information to the public and the rest of the world
 - Protective actions (excluding food)
 - Protective actions on food
- Results over time and for every country.



Emphasis on the emergency phases covered by the media

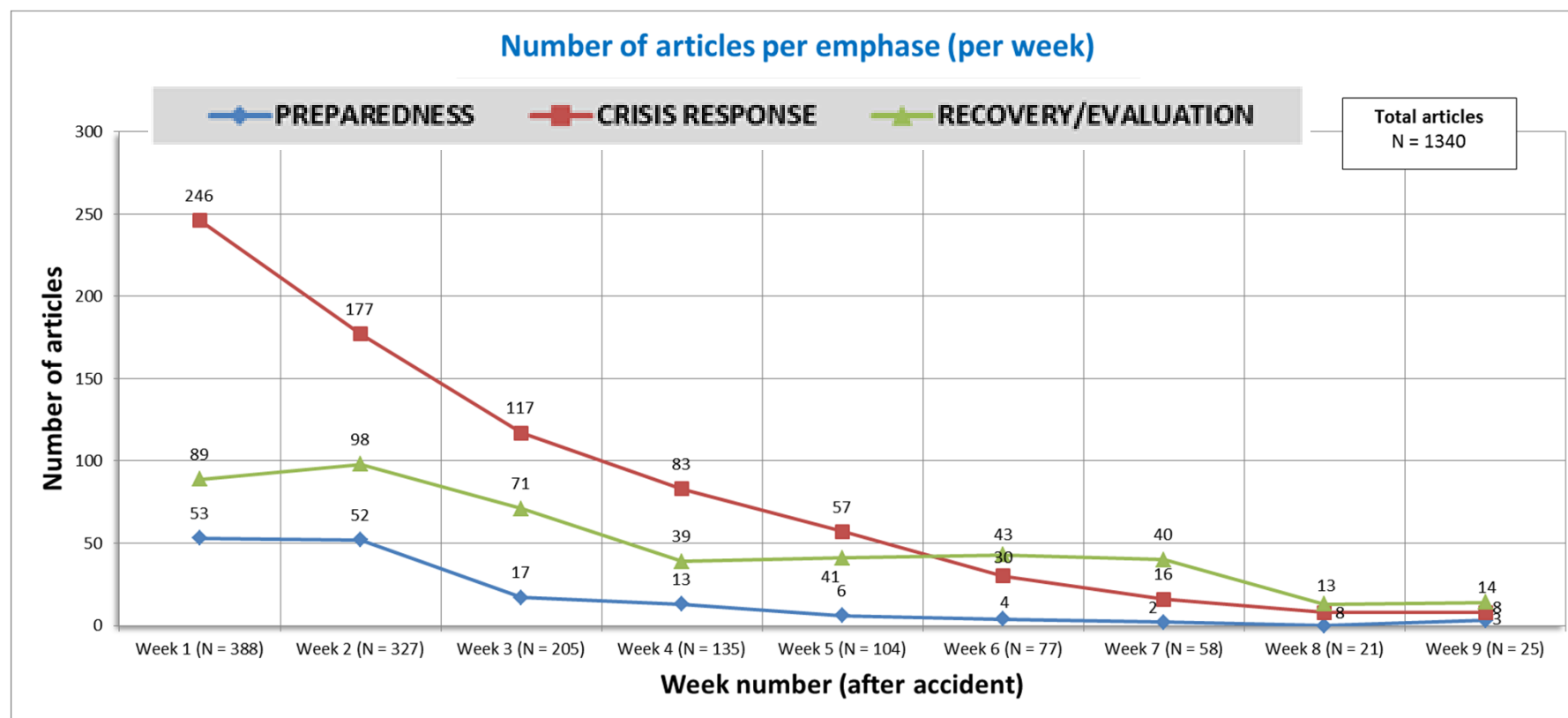
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- **'Preparedness'**: topics addressing emergency planning.
 - In the debate on nuclear energy and the safety of nuclear power plants, certain issues are very much present, like the stress-tests on nuclear installations and the pre-distribution of iodine tablets.
- **'Crisis Response'**, related to immediate happenings, actions and decisions in the aftermath of the accident.
 - Examples: communication about the INES-scale, food restrictions, costs, number of people being affected and evacuated, as well as on-site actions undertaken at the nuclear power plant, e.g. in order to regain control over the situation.
- **'Recovery and Evaluation'**, related to long-term recovery actions or the general evaluation of the future of nuclear energy after this disaster
 - Examples: decontamination and waste management; long-term societal, political and economic effects in general.



Emphasis on the emergency phases per week (absolute numbers)

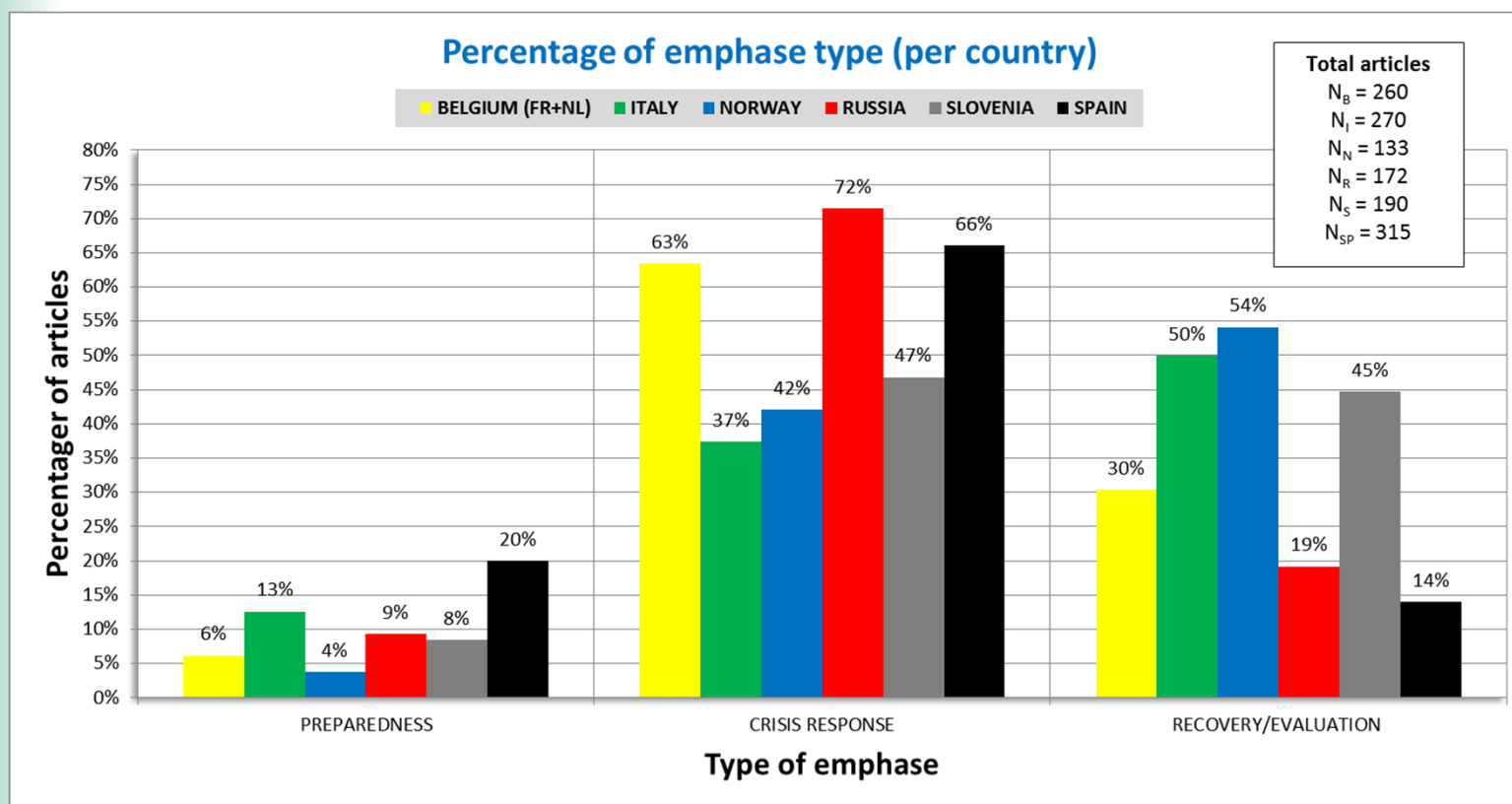
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Emphasis on the emergency phases per country (in percentages)

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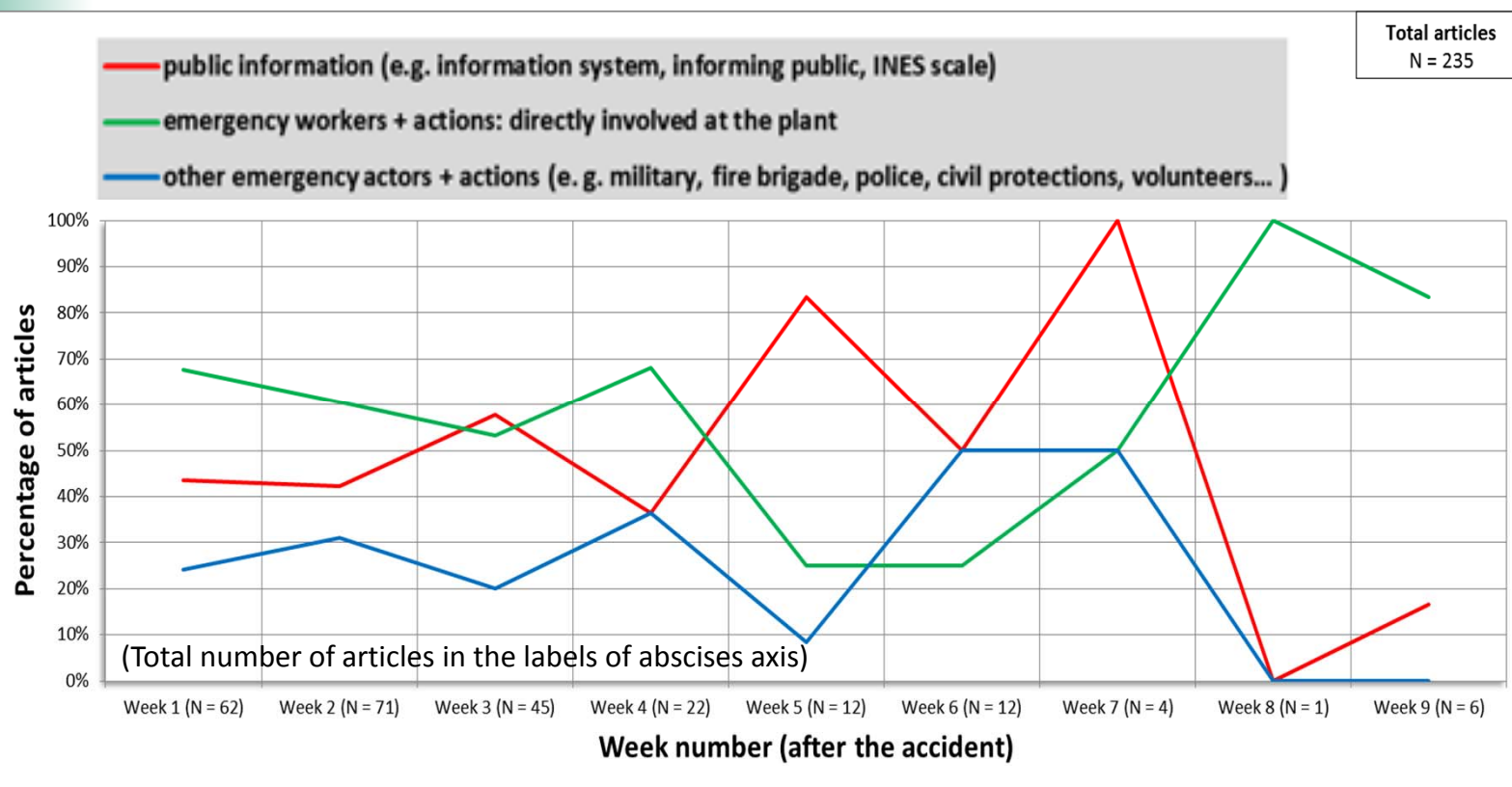


- Russia: Interest linked to the geographical proximity of the Far East part of the country + Russian rescuers sent to Japan
- Italy and Slovenia put more focus on recovery and evaluation, probably linked to the debate on future of nuclear energy
- Norway paid more attention to recovery, probably due to post-Chernobyl experience



Articles dealing with emergency management issues (percentage per week)

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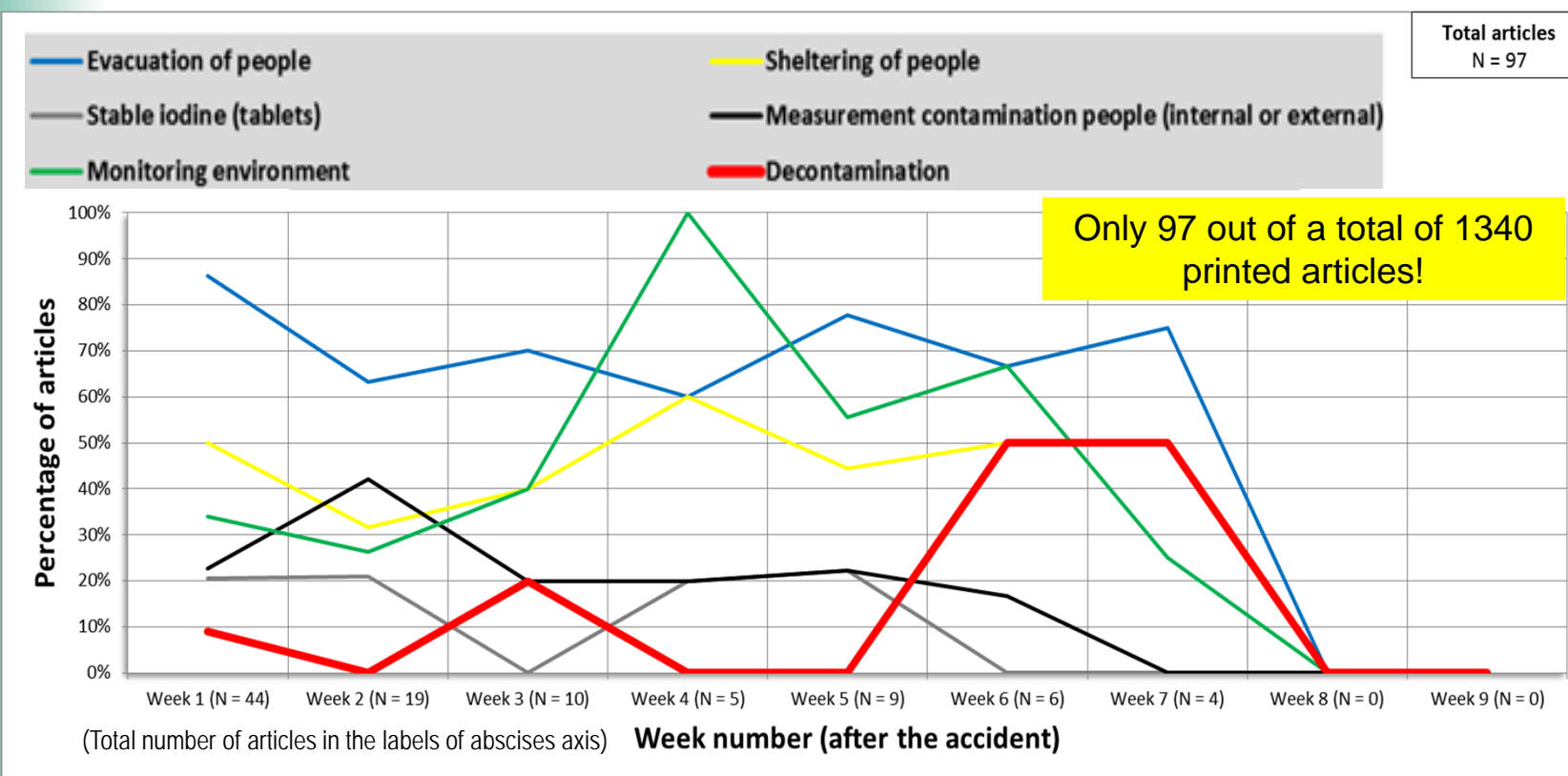


- High relevance to the actions of emergency workers to control the damaged nuclear plant:
 - To re-establish cooling of the reactors and the spent fuel cooling pools,
 - To re-establish electrical supply at the plant,
 - To extinguish fires and to mitigate the impact of the explosions
 - To monitor radiation levels
- Next issue by relevance: information to the public and the rest of the world
- Other actions by emergency actors (army, fire brigades, civil protection, volunteers, etc.) received lower attention in general



Articles dealing with protective actions excluding food (percentage per week)

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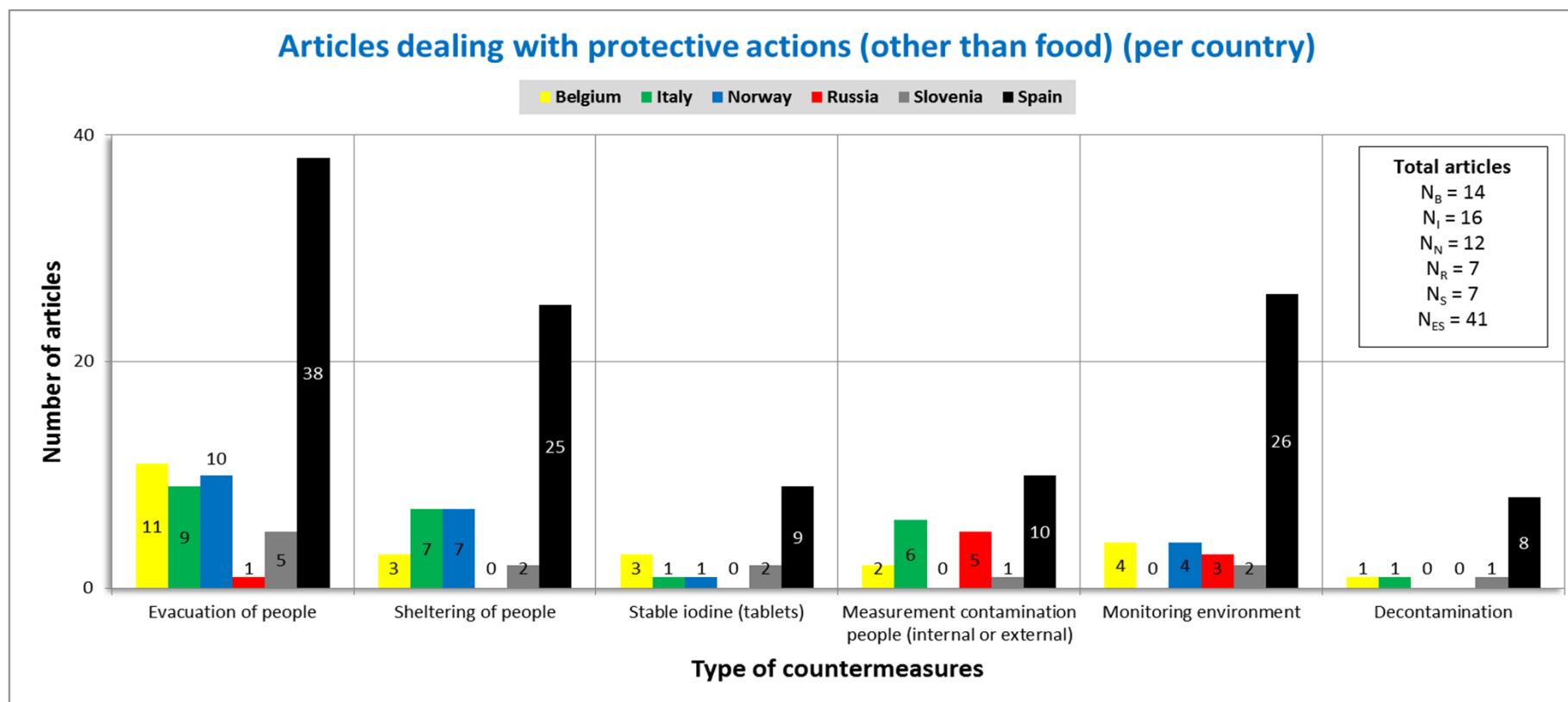


- **Evacuation** received a significantly larger attention in the first weeks
- Frequently in articles:
 - **Long-duration sheltering** of the population
 - Measurement of **people's contamination** (iodine in thyroid of children),
 - **Iodine tablets** as a prophylactic measure
- **Monitoring radiation levels** in the environment also deserved several articles
- **Decontamination** only in a few articles (typical countermeasure of the recovery phase → later stages of the accident)



Number of articles dealing with protective actions excluding food (per country)

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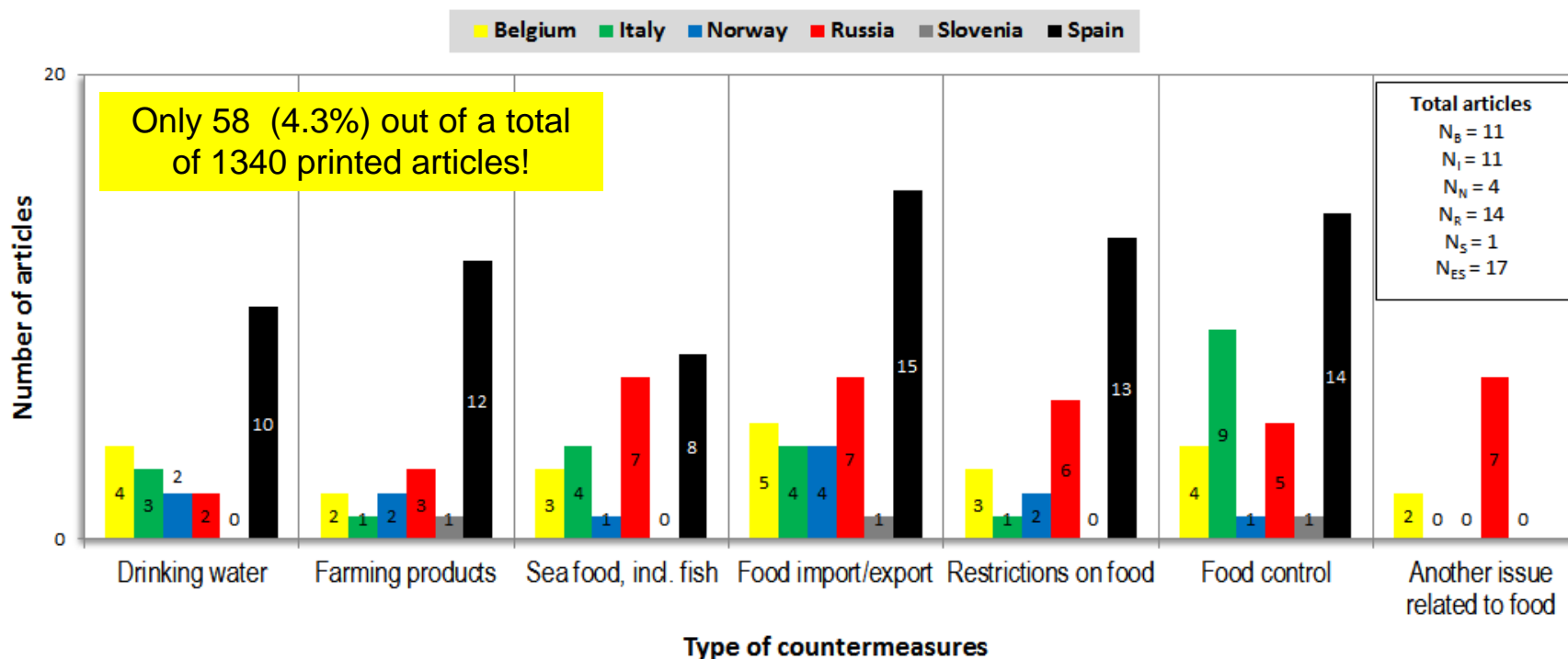




Number of articles dealing with protective actions affecting food covered by the media per country

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Articles dealing with protective actions (food) (per country)

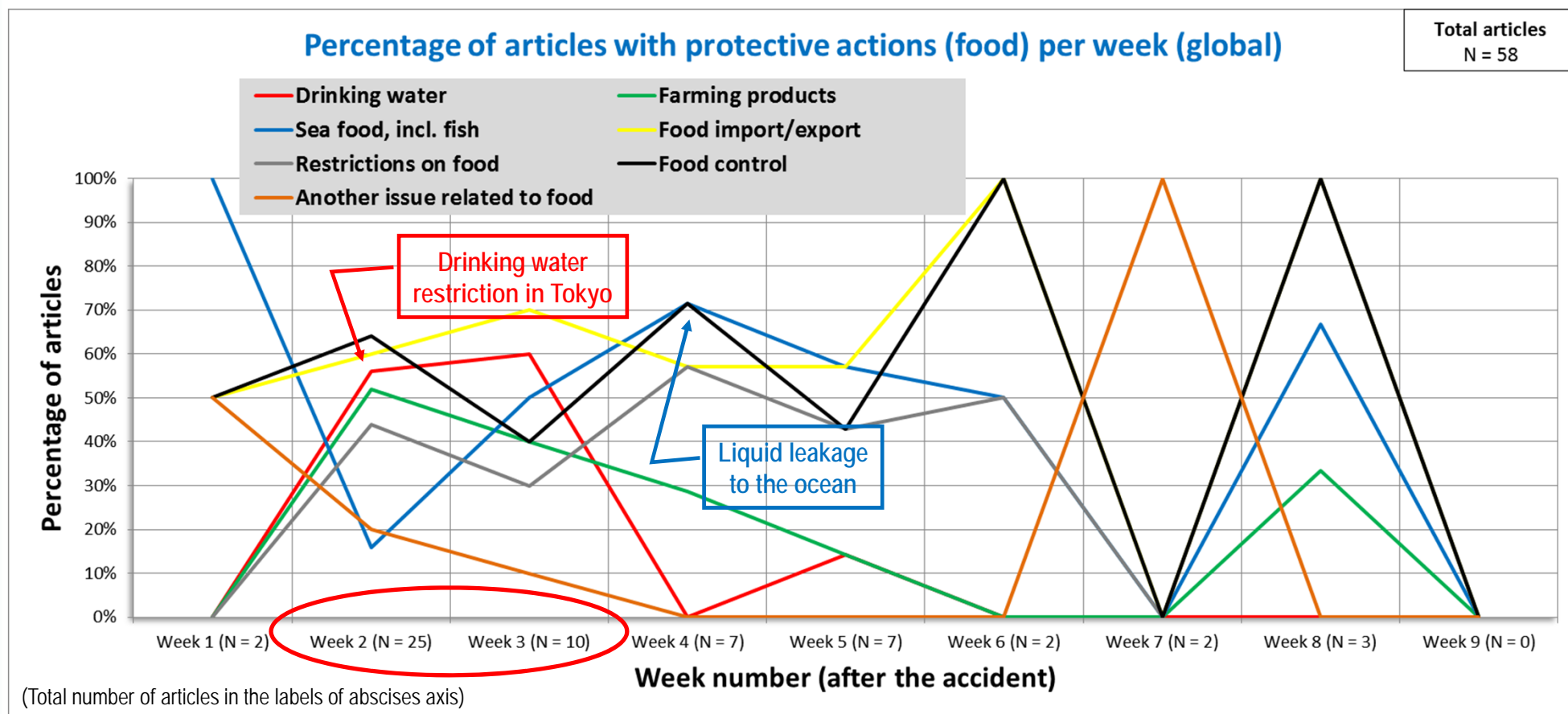


- Strong overlapping between topics
- Similar attention to drinking water, farming products, fish and sea food, food control in Japan
- Control of food exports in many papers: topic of interest in Europe
- Quite surprisingly low number of articles in Norway and Slovenia



Articles dealing with protective actions affecting food (percentage per week)

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Some conclusions...

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- Media from countries that produce nuclear energy covered crisis response more intensively than media from the countries without nuclear energy production
- However, recovery and evaluation seems more newsworthy in countries without nuclear energy installations
- Public communication is one of the most followed aspects of a nuclear emergency management
- Media are interested in evacuation since it can be presented as an event itself. Evacuation has to be communicated intensively, not only to evacuees, but also to a global public worldwide
- Long-duration sheltering of the population, measurement of people's contamination, especially of iodine in thyroid of children, and the use of iodine tablets as a prophylactic measure, are also topics in a media interest
- Water consumption issues, followed by control of farming products already during an early phase, are also newsworthy



... and a few recommendations

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- Communicate about crisis response in details, especially if you communicate in a country with nuclear energy programme
 - Even under uncertainty and recognising their limitations, transparent, clear, understandable information must be provided to the public and the mass media since the beginning of the early phase of any nuclear emergency by the responsible authorities and government
 - Failing to do that may seriously harm the credibility of authorities and cause large difficulties in management of the situation in the longer term.
- Develop clear information on the main features of the countermeasures that can be applied
 - This should be part of the emergency preparedness
 - Assess and foresee in advance the most common questions demanded by the media to the nuclear emergency management
- Food control measures, as well as for other goods, can also be necessary in case of a nuclear accident happening in a foreign country.
 - Clear, concise messages should be given. Mass media could play a key role in reassuring the public if the countermeasures are clearly explained