

# The Fukushima Accident: Reflection in the Media and the Public Opinion in Belgium

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## Abstract

This paper analyses the impact of the accident in Fukushima in the Belgian media and public opinion. We study how mass media reported about the accident in Japan and how the public opinion related to nuclear energy changed. The research methodology consisted of: i) content analysis of two quality newspapers in Belgium, covering the first two months after the accident; and ii) public opinion research, based on more than 1000 personal interviews conducted in Belgium in the third month after the accident. The results show that the accident induced enormous media coverage in the first weeks after the accident, with focus on many different topics; yet, attention decreased with time and narrowed down to the future of nuclear, safety and crisis management aspects. It is also argued that historic nuclear accidents became part of the collective memory influencing media reporting and public opinion. As expected, the Fukushima nuclear accident has induced changes in the public opinion and attitudes towards nuclear energy.

**Keywords:** Fukushima nuclear accident, media reporting, public opinion

## 1. Introduction

Nuclear accidents have a strong impact on the public opinion and often lead to political discussions about the use of nuclear energy for power generation. In this context, media play an influential role in shaping public opinion about nuclear energy. Media do not only report about public issues, but they also have the power to influence people's opinion. This influence was pointed out already in 1922 by Walter Lippmann (1922). Further studies suggest that the salience of issues in the media reporting influences public opinion and even the behaviour of the people (Barnes *et al.*, 2008). When mass media report intensively about a certain topic, the people receiving the media information will consider this topic as important (Cohen, 1985; McCombs and Shaw, 1972). Moreover, numerous studies from political and risk research established strong correlations between media and public priorities (for overview: McCombs and Shaw, 1993).

Some particularities can be mentioned as regards media reporting and public opinion about the nuclear accidents and nuclear energy.

Information about the nuclear domain is not directly experienced, but rather learned through elite discourse and communication in the media (Boomgaarden and de Vreese, 2007; Perko *et al.*, 2012). Elite discourse is in turn driven by public opinion. For instance, the experience after the accident in Chernobyl showed that nuclear accidents have a strong impact on the public opinion and often lead to political decisions related to nuclear programs (Cantone *et al.*, 2007)

At the same time, media are usually more interested in politics than risk, in simplicity than complexity, and in danger rather than safety issues. A nuclear accident is extremely newsworthy, since it is strongly feared, it has catastrophic potential, and it can have long term consequences that usually exceed the geographical boundaries of the radioactive contamination. At the same time, it is an event that can be personalised, and for which politicians are used as a main source of information (Perko, 2011; Perko *et al.*, 2012). Dramatic and extraordinary real-world events are reported in the media and by itself have the power to impact on public opinion and to cause shifts in public attitudes (Boomgaarden and de Vreese, 2007).

Another important point is that the nuclear accidents at Chernobyl or Three Mile Island became part of the collective memory and as such, linked to media reporting about any nuclear event (Boomgaarden and de Vreese, 2007; Greenberg and Truelove, 2011; Triandafyllidou, 1995; van der Brug, 2001; Zorkaja, 2006). Linder (2000) compared the perception of the Chernobyl accident with other non-nuclear disasters and found that other human-made or natural disasters "*tend to be accepted*

*by the public much more readily*" and are relatively quicker forgotten in the media coverage (Lindner, 2000, p.282).

Most of the scholars exploring media reporting about nuclear accident report, directly or indirectly, the changes in the public opinion and the changes in the public acceptability of nuclear energy after the accidents. It is confirmed, that nuclear accidents reduce public support for nuclear energy and increase opposition (Boomgaarden and de Vreese, 2007; Greenberg and Truelove, 2011; Lindner, 2000; McDermott, 1982; Perko et al., 2010; Zorkaja, 2006).

Opinion polls show that public support for nuclear power has declined after the Fukushima nuclear accident, not only in Japan, but also in other nations around the world (Ipsos MORI 2011; Asahi, 2011; Ramana, 2011). People may oppose nuclear power for a variety of reasons, for example perception of nuclear technology as too dangerous. This paper reports on the role and principles of media and journalism with regards to the Fukushima nuclear accident and on the public opinion on issues related to the accident and to nuclear energy; the study of the causal link between the nuclear accident, media reporting and public opinion is beyond the scope of this paper.

The media analysis was done for the Belgian media reporting about Fukushima nuclear accident in the first two months, while the public opinion in Belgium was measured after this media exposure. The next section elaborates on the methodology used; the subsequent section reports on selected results and the final section summarises the conclusions.

## **2. Methodology**

### **2.1. Media content analysis**

The newspapers included in the analysis (Perko *et al.*, 2011) were the Belgian newspapers "Le Soir" (French language) and "De Standaard" (Dutch language). The media news was obtained from press clippings by "Media data base at University Antwerp - MEDIARGUS" for the period between the 11<sup>th</sup> of March and the 11<sup>th</sup> of May, 2011. This time sampling of two months was focused on the "critical discourse moments", which made the nuclear issue visible in mass media.

The articles coded were either directly or indirectly related to the Fukushima nuclear accident and were collected by the following keywords: "Fukushima" and "nuclear\*". Every article was coded by two independent coders for each language group. In case of disagreement, the master-coder decided the final code based on a discussion. The Krippendorff's inter-coder reliability was calculated. Once the articles were selected according to the rules each article was assigned a number of codes as prescribed in a codebook.

### **2.2. The public opinion survey**

Since 2002 the Belgian Nuclear Research Centre SCK•CEN conducts periodical large-scale (N> 1000) public opinion surveys among the Belgian population (Perko *et al.*, 2010; Turcanu *et al.*, 2011; Van Aeken *et al.*, 2007). The data collection method employed is Computer Assisted Personal Interviewing, consisting of personal interviews of 30-45 minutes carried out at the home of the respondent, the answers being directly recorded on a portable hard disk. The field work is performed by a market research company with professional interviewers.

The 2011 edition of the survey (Turcanu *et al.*, 2011) included, among other, questions on the general attitude towards nuclear and the relevance of the accident in Fukushima for Belgium. The field work was carried out between 25/05/2011 and 24/06/2011. The population sample consisted of 1020 respondents and is representative for Belgium adult population (18+) with respect to sex, age, region, province, habitat and social class.

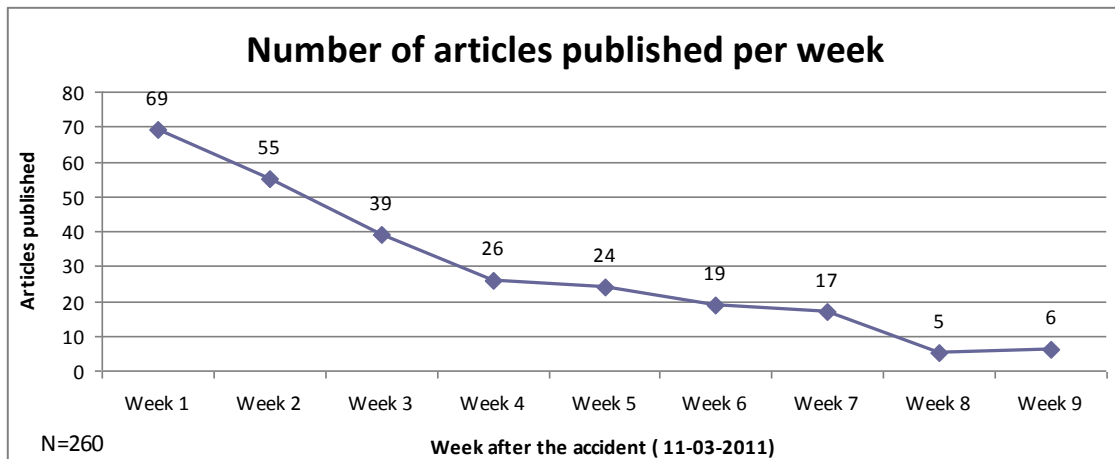
Most questions in the survey were formulated as statements, to which the respondent could answer using a five point Likert-scale (e.g. <strong disagreement, disagreement, undecided, agreement, strong agreement>), plus a sixth category (<no answer/don't know>). The latter answering option was allowed, but not encouraged.

### 3. Results

#### 3.1. Media reporting about the Fukushima nuclear accident

##### 3.1.1. Media attentiveness to the Fukushima nuclear accident

To identify the statistical signature of the Fukushima nuclear accident we analysed the media the outburst of attention and the decay in the rate of attention. The goal was to identify the accident as a topic in the media agenda and to determine how long the Fukushima nuclear accident was part of the media agenda.



**Figure 1: Number of articles published per week in *De Standard* and in *Le Soir***

To exclude the drops in media attention on Sundays and public holidays the frequency of published articles was calculated per week. Figure 1 clearly shows the explosion of media attention in the first week: the two newspapers published in total 69 articles, with 55 articles related to accident following in the second week. The rate of attention decayed to 6 articles in the ninth week after the accident in Fukushima.

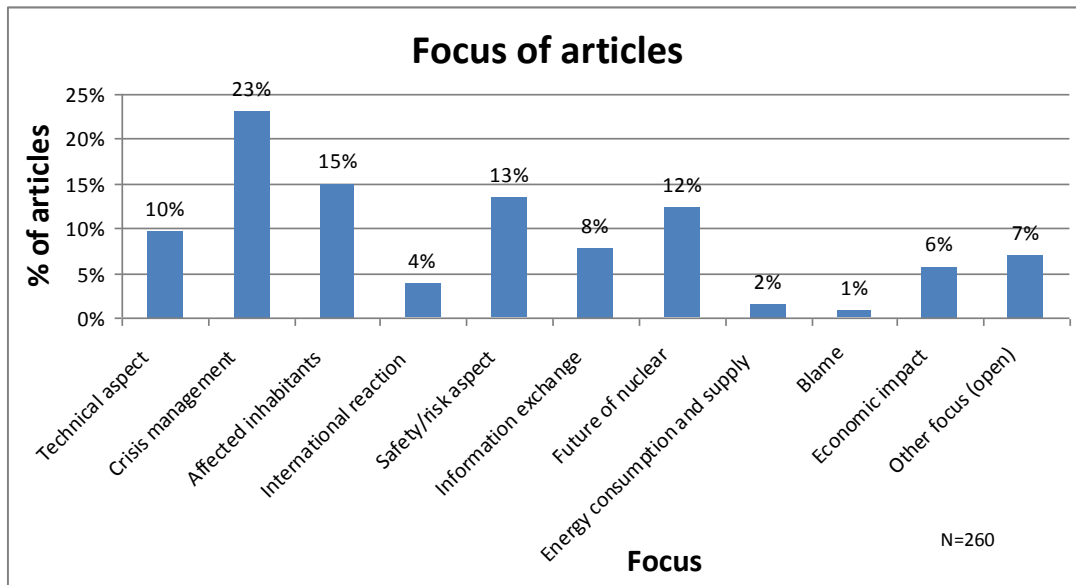
The Fukushima nuclear accident was newsworthy information for the media, since it was an extraordinary event, new or unusual information, conflict was present, drama, tragedy, presence of elite or celebrities, the situation could be personalized and it evoked emotional response. Media also have to fulfill the economic aspects of publishing or broadcasting, with the "bad news is good news" slogan being a well-known phenomenon in journalism and from this point of view the Fukushima nuclear accident was newsworthy. However, the nuclear accident attracted a lot of media attention in the first weeks; afterwards the attention monotonously decreased.

##### 3.1.2. Focus of the media articles related to the accident

The analysis of the main focus of the articles allowed identifying the main challenges of media communication in case of a nuclear accident and the focal point of the media. We investigated what media wrote about related to the nuclear accident, since the media may address an event from different perspectives. The categories used to describe the focus of the articles are summarised in the following.

The category '*Technical aspects*' contained all articles that dealt with the technical aspects of the accident, e.g. technical data about the state of the reactors or the spent fuel ponds. All articles about emergency management and protective actions for people, the food chain or the environment were categorized as '*Crisis management*'. '*Affected inhabitants*' contained all articles that described the situation of people that were victims of the accident. '*International reaction*' presented all articles that described an international reaction on the Fukushima nuclear disaster. Articles on the '*Safety/Risk aspect*' described the possibility of an accident, the probabilistic estimations of accidents in NPP's or referred to the stress tests. '*Information exchange*' contained all articles that described the problems with the information exchange. The category '*Future of nuclear energy*' included all articles reporting about decisions or discussions of (international) governments towards the choice of nuclear energy in

the future. *'Energy consumption or supply'* addressed the articles about the energy consumption and/or energy supply, including discussions about the policy of electricity suppliers or operators. The articles that discussed whether there is someone to blame belonged to the category *'Blame'*. *'Economic impact'* contained all the articles that discussed the effects of the Fukushima accident on the national or international economy. Figure 2 depicts the percentage of articles (from the total articles published in *Le Soir* and *De Standaard*) reporting on each of these focus points.



**Figure 2: Focus of the articles**

We can conclude that the main focal point of the articles was the crisis management of the Fukushima nuclear accident (see Figure 2). 23% of the newspaper articles focused their attention on the emergency management and the protective actions for the people, food chain or environment. 15% of the articles described the situation of people who were victims of the nuclear accident. Interestingly, there were only a few articles that focused on *'blame'* (1%), *'international reaction'* (4%) and *'energy consumption and supply'* (2%).

The detailed analysis of the focal interest of the media revealed the changes in media attention towards different subjects through time in the weeks after the accident. In the first weeks media focused on many different topics, from technical aspects, crisis management, safety risk aspects to energy consumption and supply. Eight weeks after, the media focused their attention to a limited number of topics. In the ninth week after the accident half of the articles focused on the future of nuclear energy, 33% on safety and risk aspects and 17% on crisis management.

### 3.1.3. Conflict and disagreement related to the accident

In order to identify the existence of conflicts we investigated whether the media reported about conflicts or disagreements related to nuclear emergency. Conflict stories involve a conflict between people/groups/parties/countries. Such stories contained an explicit mention of the fact that there was disagreement about the issue (e.g. nuclear energy, emergency management, monitoring). This disagreement was expressed in words (e.g. contradictory positions or claims) or in deeds (e.g. protest, stigmatisation).

The results presented in Figure 3 show that the amount of articles reporting on conflictual issues had an erratic course: it fluctuated in the weeks after the accident between 20% and 41%. At some points in time there were more articles describing conflicts than at others. One remarkable peak occurs in week 7, the same week in which the accident in Chernobyl was remembered all over the world. More than 40% of the articles published in this week contained a conflict or disagreement.

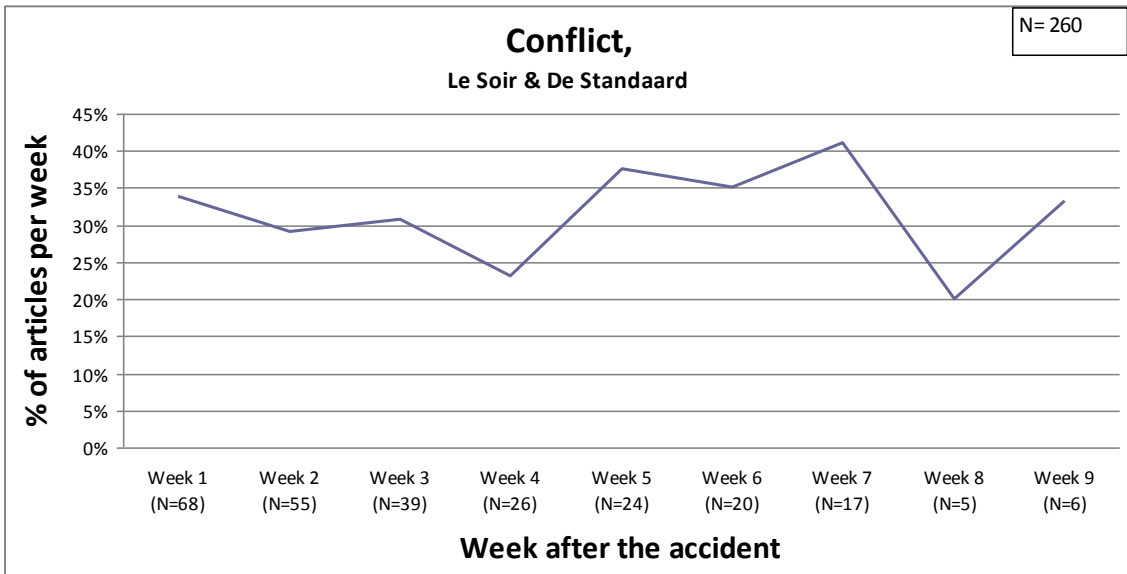


Figure 3: Conflict or disagreement in the articles per week for both newspapers (cumulated)

3.1.4. Article orientation toward nuclear energy

The variable coding the orientation of the article towards nuclear energy explored the way of journalistic reporting about nuclear energy and the arguments used. This refers to the subjective intention of the author or newspaper policy to expose the arguments in favour or against nuclear energy. The articles that presented an opinion about nuclear energy were categorised as 'positive', 'negative' or 'balanced'. To classify a media text as balanced implied that both pro and contra arguments and statements concerning the nuclear energy were equally presented in the article, without a preference for one; therefore the article was coded as a balanced article. The other two options, being pro and contra nuclear energy, were not balanced, but biased towards one orientation.

The results of media analysis show that the overall orientation of the published articles towards nuclear energy was neutral. This means that most articles did not really address the topic of 'good or bad' and that they did not express an opinion about nuclear energy.

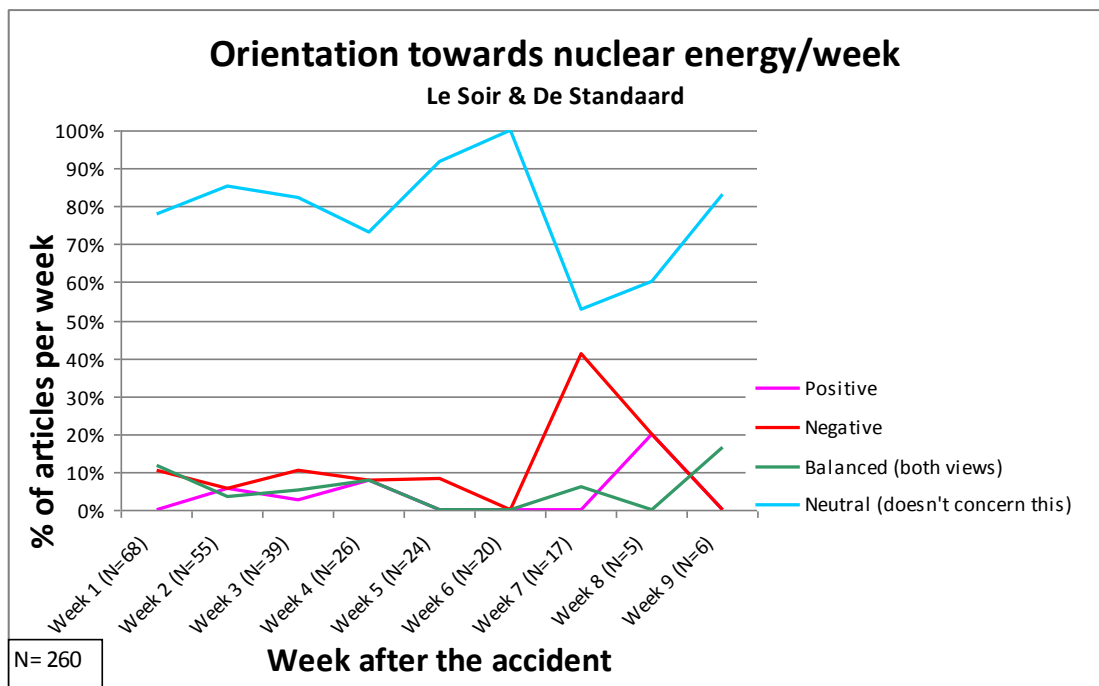


Figure 4: Orientation of the article towards nuclear energy per week

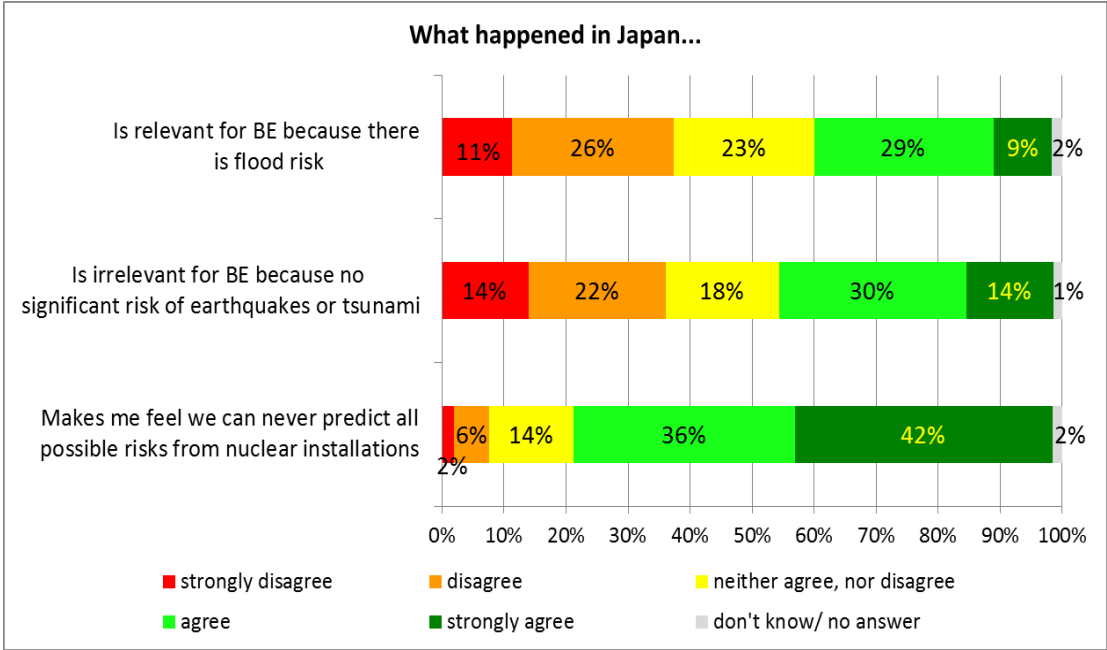
The comparison of the orientation of the articles towards nuclear energy in the weeks after the nuclear accident gives an indication that the negatively orientated articles in the week 7 are not only due to the accident in Fukushima. During the period of analysis, the world commemorated the 25<sup>th</sup> anniversary of the accident in Chernobyl (1986), still the worst nuclear accident in the history. In this period we observed a significant increase of articles negatively orientated towards nuclear energy and a significant decrease of neutral articles.

**3.2. Public opinion after Fukushima nuclear accident**

*3.2.1. The relevance of the accident in Fukushima for Belgium*

Even if the accident in Fukushima occurred far away from Belgium and was due to a combination of specific natural hazards, it was important to find out how was it perceived by the population in terms of its relevance and the feelings triggered by this accident.

Results show that public opinion in Belgium was divided as regards the relevance of the accident for Belgium (see Figure 5).



**Figure 5: Opinions and feelings triggered by the accident at Fukushima (part 1), N=967**

From the 967 respondents who had heard about the accident (out of 1020 interviewed), 38% thought that the accident in Japan is relevant for Belgium because there are flood risks, but almost the same percentage (37%) did not agree with this statement. 44% of the respondents (out of the 967) were of the opinion that the accident in Fukushima is not relevant for Belgium, since there are no significant risks of earthquakes or tsunami, while 36% disagreed with this. For the big majority (78% out of 967) the accident in Fukushima induced a feeling of uncertainty over how well we can predict the risks from nuclear installations.

As regards the management of nuclear installations in Belgium, 36% of the 967 respondents who had heard about the accident felt relieved that the nuclear installations in Belgium are well managed compared to 30% disagreeing this (Figure 7). What is somewhat striking is that 49% (out of 967) worry about dangers from Belgian nuclear installations, but only 31% want to know how to protect themselves in case of a nuclear emergency.

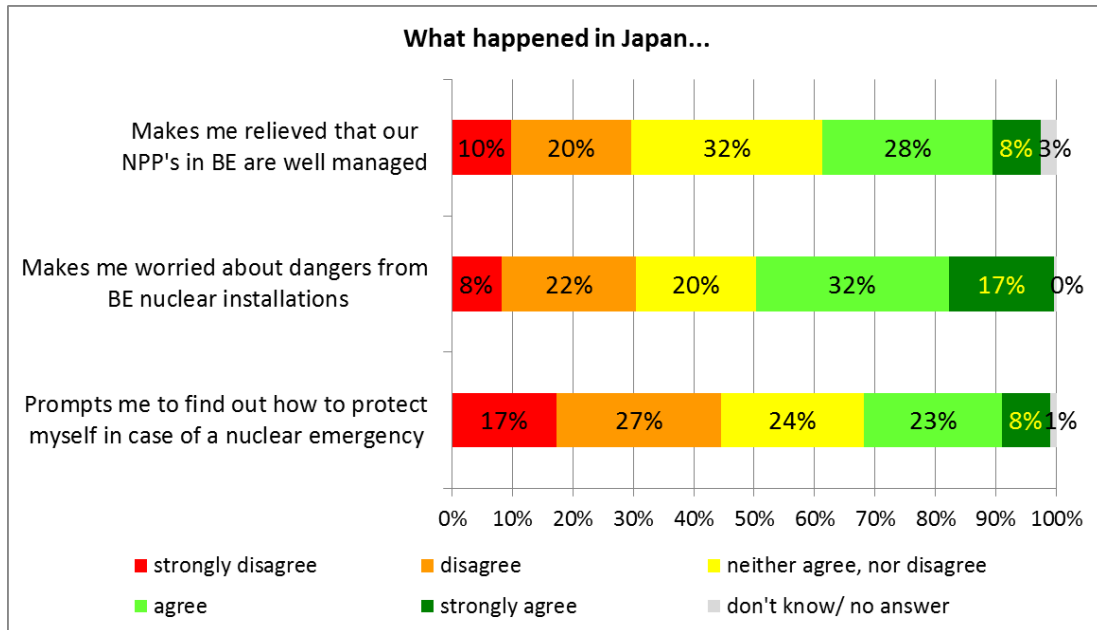


Figure 6 Opinions and feelings triggered by the accident at Fukushima (part 2), N=967

### 3.2.2. Changes in the attitude towards nuclear

The attitude towards nuclear energy was first assessed through a number of general questions on which the respondents had to state their agreement or disagreement degree. The opinion on whether "the reduction of the number of nuclear power plants in Europe is a good cause" has been measured in all SCK•CEN Barometers since 2002 (see Figure 7). The percentage of respondents agreeing with this statement decreased from 66% in 2002 to 51% in 2006, and 47% in 2009. In 2011 the trend has changed: 61% of respondents agreed with this statement, which is comparable to the year 2002, before what is sometimes referred to as the "nuclear renaissance".

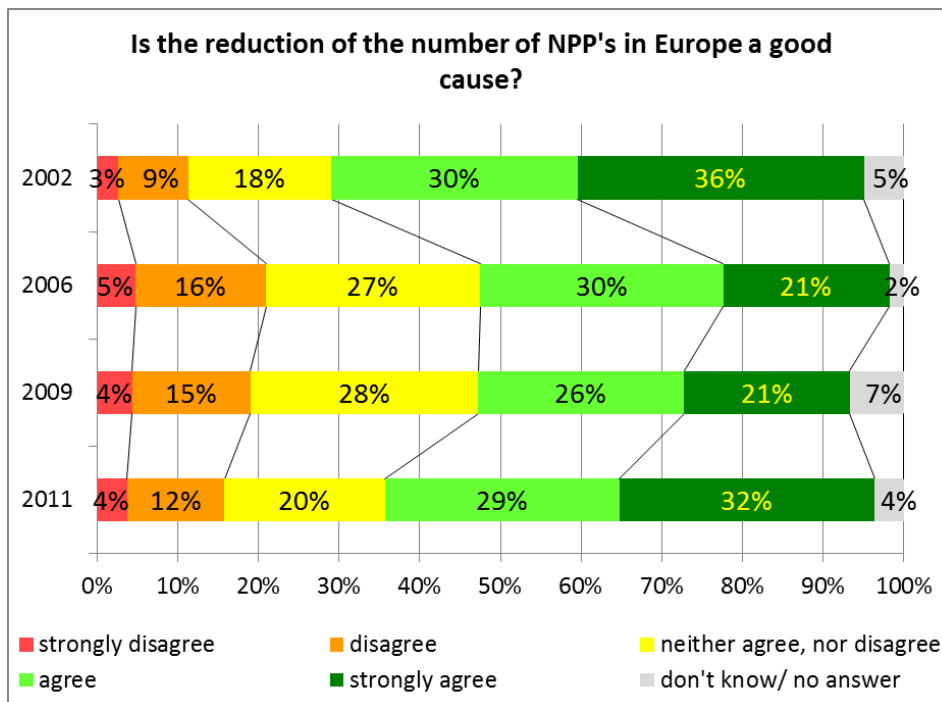
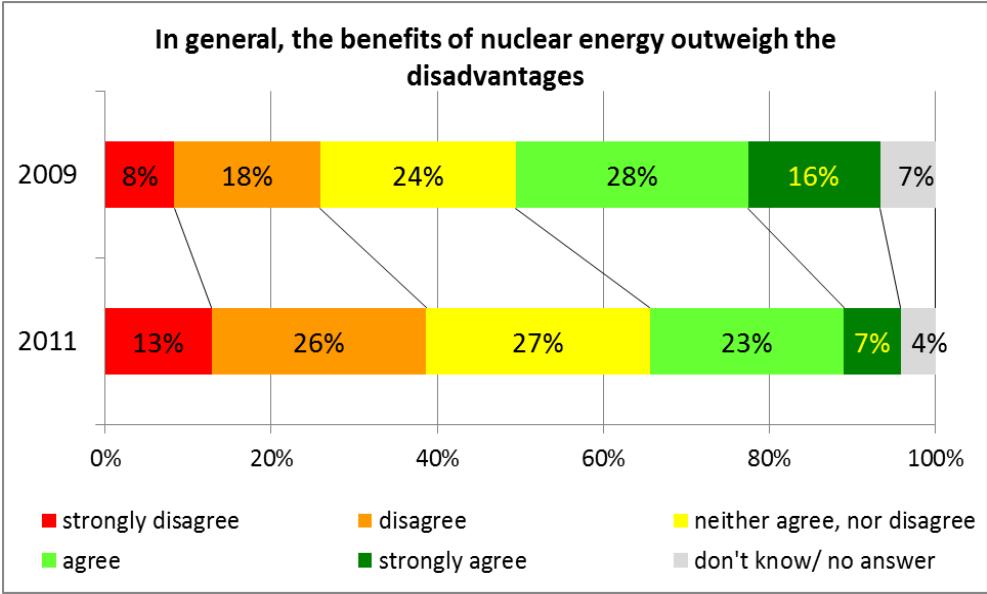


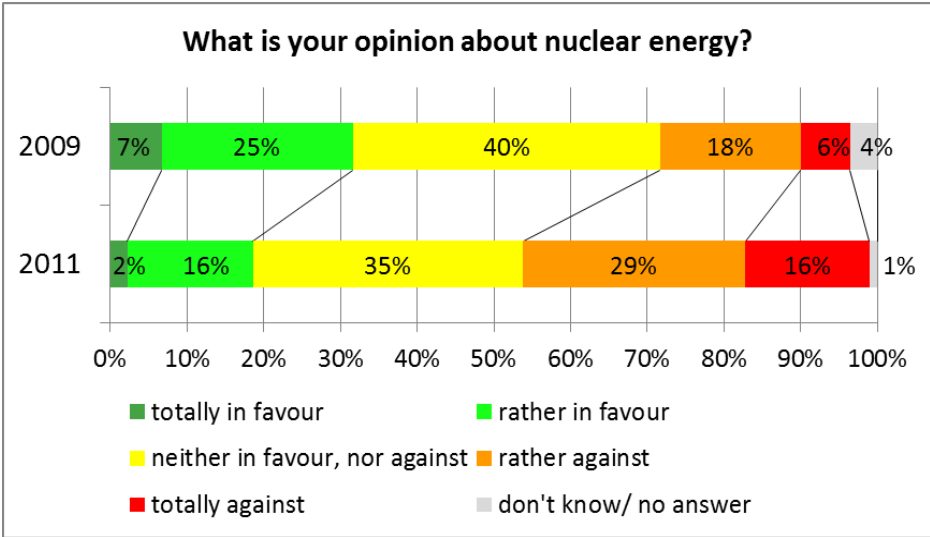
Figure 7 On the reduction of NPP's in Europe, N=1020

The negative switch in the attitude towards nuclear energy was observed also with the statement "in general, the benefits of nuclear energy outweigh the disadvantages". In 2011, 30% of the respondents agreed or strongly agreed with this statement, compared to 44% in 2009, and 39% disagreed in 2011, compared to 26% in 2009. This is illustrated in Figure 8.



**Figure 8 On the benefits vs. disadvantages of nuclear energy, N=1020**

Opinion about nuclear energy was afterwards measured by a direct question whether the respondent was in favour of nuclear energy or not. A change of attitude towards a more negative opinion about nuclear energy could be noticed in 2011 compared to 2009 (see Figure 9).



**Figure 9 Opinion about nuclear energy, N=1020**

In 2009, the opinions about nuclear energy were rather balanced, with a slightly higher number of respondents in favour (32% pro, 24% against nuclear energy) and a large number of people undecided. In 2011, there is a clear switch: only 18% of the respondents are in favour of nuclear energy, whereas 45% are against. It can also be noticed that, similarly to 2009, more than one third of the population does not take a clear stand as regards nuclear energy.



## 4. Conclusions

The nuclear accident in Japan has predictably induced enormous media coverage. Mass media played a dominant role at all levels of communication on nuclear emergency issues. While they closely monitored the nuclear emergency management during the event phase, the media interest in the accident decreased rapidly with time in the weeks after the accident. Conflicts and disagreements were highly presented in the media articles.

Although the results of media analysis show that the overall orientation of the published articles towards nuclear energy was neutral, a clear emphasis on the negative aspects was observed in April 2011, at the time of the 25<sup>th</sup> anniversary of the Chernobyl accident.

Subsequent to the media reporting analysed in this study, changes in public opinion could be monitored in the third month after the accident; these changes point towards more negative opinions and attitudes with regards to nuclear energy as compared to previous years.

The relationship between the media content and the public opinion was thus confirmed.

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