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Current trends in communicating safe transport of radioactive materials

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Abstract

The World Nuclear Transport Institute (WNTI) has now over fifteen years of experience in communicating the safe transport of radioactive materials. During this period of time, communication tools have evolved greatly. While originally communication was almost only paper-based, it is now heavily dependent on electronic tools and gadgets. These tools have permanently modified the way people communicate nowadays, using for instance a Facebook message to instantly broadcast information to "friends" or a Twitter account to broadcast a message to "followers", while the same information would have been hard to disseminate otherwise in a short period of time.

At the same time, the environment in which the transport industry operates has changed – from a reduction in nuclear power generation to the "Nuclear Renaissance" and then to a post-Fukushima period. Also, while safety was the main concern, the security of transport seems to attract interest from our stakeholders. Throughout the years, our communication has had to evolve to best answer questions from the general public.

The IAEA, as well as the industry, have worked hard to understand the lessons learnt from the communication during the Fukushima accident. While not related to transport, the communication during the Fukushima accident can allow us to learn some lessons which could apply to transport operations. While the safety record for the transport of radioactive materials spans over 50 years, we cannot take it for granted. The communication strategy for our industry, preparing for the eventuality of an accident, needs to reflect these lessons learnt.

This paper will review the evolution of the communication of the safe transport of radioactive materials, around the world, and the current trends in the industry on communicating the safe transport of radioactive materials in routine operation as well as in the eventuality of an accident, highlighting some good practices in our industry.

1. Introduction

In recent years, the world of communication has been greatly affected by the development of the World Wide Web and associated applications (apps), platforms, tools and technologies, while at the same time, changing people relationships dramatically. It is interesting to see that, like the invention of the steam machine that revolutionised transport for goods, the invention of the World Wide Web, and technological supports, has revolutionised what we say and how we say it.

While a few years have passed since we were first introduced to Facebook and Twitter, those using these technologies have been followed by the general public. I have already, in a past PATRAM 2010 paper, talked about the development of new technologies and their use in communicating the safe transport of radioactive materials. This paper is aimed at reviewing what has changed since PATRAM 2010 with an impact on our communication, both in routine condition of transport and in the unfortunate event of an accident.

2. What recent changes in the world should affect our communications?

It is incredible to see how many events have happened in the past three years. Out of all these events, some have direct short term consequences on the transport of radioactive materials and its communication, while others have long term consequences.

An example that immediately comes to mind is the Fukushima Daiichi Power Plant nuclear accident, which took place in March 2011, caused by the tsunami created off the Pacific coast of Tohoku Earthquake in Japan. This event has led to a review of the way Competent Authorities, International Agencies and Industry communicate in an emergency situation, and to how these communications can be coordinated. The use of the International Nuclear and Radiological Event Scale (INES), its interpretation, what radiation is and what the associated risk is and the work load on communicators during the months that followed the accident have all been reassessed. Crisis communication will be further discussed later.

Another key element of nuclear transport communication regards the forecast of expansion of the use of nuclear power. The US Energy Information Administration suggests in its *International Energy Outlook 2013* [1] that the total world energy use will increase by 56% between 2010 and 2040, with half this growth attributed to China and India only, while the total energy demand in non-OECD countries is seen to increase by 90% by 2040. While the share of nuclear in the energy mix should not change by more than 1%, to 14% in 2040, this transfers to the generation of electricity from nuclear power plants from 2620 TWh in 2010 to 5492 TWh in 2040. This will have a direct impact on the transport of materials for the nuclear fuel cycle, as it will increase the need for nuclear fuel, therefore requiring more transport.

At the same time, more mines are opening, and the main spots of uranium mining are changing location around the globe. Kazakhstan is now number one producer of uranium, ahead of more traditional players such as Australia and Canada. Transport routes for uranium ore are changing and will be reshaped even more. The augmentation of the number of power plants combined with the number of mines around the world should also attract more transporters interest in carrying radioactive materials. Communication is a key factor to ensure the opening of new routes.

On the back-end of the nuclear fuel cycle, strategies for long-term storage are now being refined in some countries, while these are still at an early stage in others. Whatever the strategy chosen, transport will be necessary, either to a temporary storage facility or to a final repository.

Communicating transport of back-end residues, reprocessed or not, is of key importance to the public acceptance of routes to storage facilities and repositories.

In addition, the recent increase in decommissioning leading to transport of contaminated steam generators and other large objects has in a few instances raised unnecessary concern amongst a percentage of the public. While the storage and/or recycling of these pieces of equipment should be seen as a responsible management of the civil nuclear legacy, these specific transports may have been perceived in some instances as a cause of worry. Again, planned communication to stakeholders is a key in the acceptance of these low radiation level albeit very visible transports.

On the other side, what is interesting is the rise in the number of environmentalists who have changed their mind about nuclear. Once very opposed to nuclear, they now are strong promoters of an energy mix which includes nuclear. They came to the conclusion that with the rising needs for energy, nuclear provides a stable source, while risks are monitored carefully. Strangely to some, this turnover of opinion has happened in some instances in the aftermath of Fukushima. You may remember the infamous article in British newspaper "The Guardian", published 10 days after the accident at Daiichi, in which activist Georges Monbiot stated "*As a result of the disaster at Fukushima, I am no longer nuclear-neutral. I now support the technology*." More recently, I have seen so much activity on Twitter relating to the new US movie "*Pandora's Promise*", which tells the story of several environmentalists and energy experts who have become strong advocates to nuclear energy, after having been fiercely anti. Their view is that the energy needs required around the world, while the climate changes need to be limited, can only be fulfilled if nuclear energy is considered.

What also cannot be ignored is the continuing growth of new media. New media include, of course, social media, such as Facebook and Twitter, but also new technological ways of communicating, such as apps. The Cisco® Visual Networking Index (VNI) Global Mobile Data Traffic Forecast Update for 2012 [2] provided several interesting technology facts and forecast including:

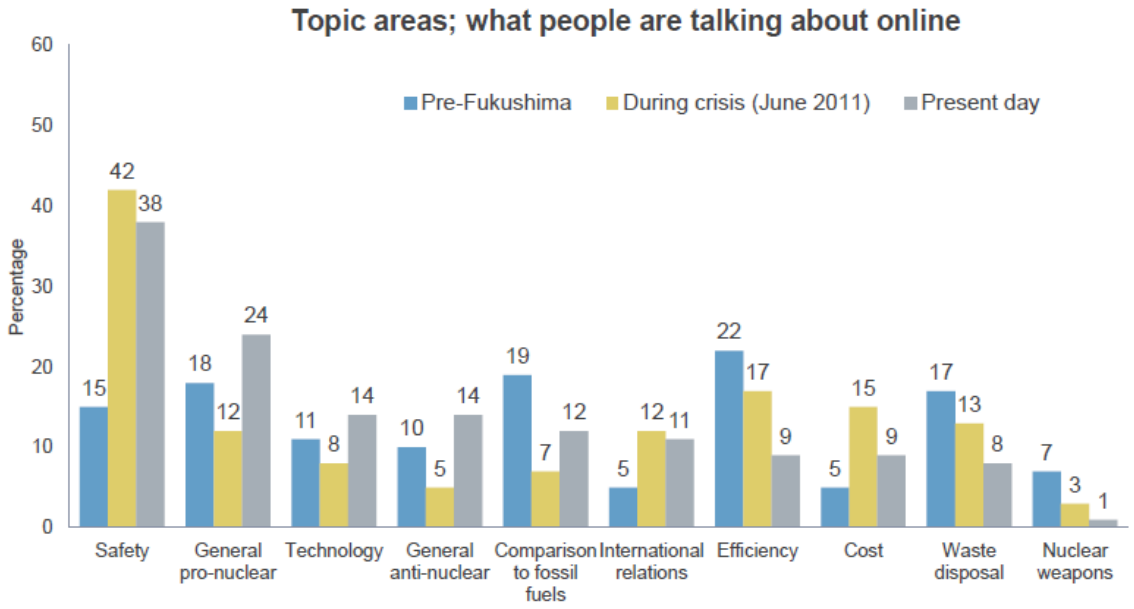
- "Global mobile data traffic grew 70 percent in 2012;
- Mobile video traffic exceeded 50 percent for the first time in 2012;
- By 2017, the Middle East and Africa will have the strongest mobile data traffic growth of any region at 77 %. This region will be followed by Asia Pacific at 76 % and Latin America at 67 %;
- By the end of 2013, the number of mobile-connected devices will exceed the number of people on earth, and by 2017 there will be nearly 1.4 mobile devices per capita."

All these elements play an important role in the way our industry communicates the safe transport of radioactive materials, in both routine operations and in crisis time.

3. Communicating routine transport

There are many elements to the transportation of radioactive materials which should all be taken into account in order to establish target audiences and in turn, effective communication plans. Transport is the only nuclear activity in the public domain. It is often international and involves several means of transport. Transport routes may fluctuate depending on a broad range of operational factors. However, this should not been seen as an impossible task and communicating the safe transport of radioactive materials can be achieved efficiently.

The market research company Ipsos-Mori of the United Kingdom studied the mention of several key words for three periods: pre-Fukushima (11 February – 10 March 2011), during crisis (01-30 June 2011), "Present Day" (01-29 September 2012) as shown in the graph below [3]:



This above chart shows that an important topic of online discussion about nuclear remains safety. It is therefore important that our communication continues to address it. Of course, as shown on the graph, safety is much more discussed just after the accident of Fukushima than before, when compared to other topics.

To address this topic, the World Nuclear Transport Institute (WNTI) publishes a wide range of fact sheets and information papers aimed at presenting the safe transport of radioactive materials. These publications are available in several languages to address local needs for information. The WNTI website presents a broad range of information also supporting the message that, for transport, safety is vested primarily in the package.

It is also important to consider developing a stakeholder engagement plan in order to best communicate with them. A stakeholder "is a person, group, organisation, member or system who affects or can be affected by an organisation's actions", according to Wikipedia [4]. While it is not always easy to achieve, mapping stakeholders is a key to a successful communication plan.

Managing stakeholders is a thorough process, which requires several steps to be completed before communication can be achieved. These include:

- the identification of stakeholders: list or map of interested parties;
- analysis of stakeholders: analysis of needs, concerns, authority, relationships and interfaces to stakeholders;
- stakeholder matrix: positioning of stakeholders based on their influence and impact;
- stakeholder engagement: includes the opportunity to discuss the issue and allows to understand each other;
- communication of information.

Stakeholders for our transport will probably include regulatory, political, media, non-governmental organisations, pressure groups, industry insiders, industry outsiders, local communities, scientific and academic communities.

One of our members, Canada's Nuclear Waste Management Organization (NWMO) has integrated the identification of preferred transport modes and potential routes as part of the site selection process for the used nuclear fuel repository [5]. The "Safe Transport Exhibit" article in Canadian paper *The Algoma News* notes "*NWMO is committed to engage and exchange input from all*

communities potentially affected by future transportation decisions and their questions or concerns addressed in the process", using a trailer to visit communities involved in the repository site selection process, displaying the "Used Fuel Transportation Package".

As more and more contaminated pieces of equipment being decommissioned will have to be transported, our communication may have to be adapted to address the specific needs of this type of large very visible transport. In some countries, these transports, fully regulated and of low level contamination, have been happening without raising any particular attention, while in other countries, there has been a request for more information. For that purpose, the WNTI is issuing a new fact sheet which will explains how these transports are carried and regulated.

It is important to monitor news and online activity on our radioactive material transport, to understand what is of interest to the public. It is interesting to note that, almost every day, there is at least an article or a blog talking about radioactive material transport. It may be industry business news, but it can also be a discussion about a specific transport operation taking place. A large number of tools are available to search and report on a daily basis (or more often) what is being said about key words, such as "nuclear transport". It has been noted that some articles go in loop, being repeated from one media to the other. This is especially true when the information is provided by a renowned press agency such as AFP, Reuters or Bloomberg. Once published by these agencies, an article can be reproduced on a large number of online information providers around the globe. It is therefore important to ensure that the information at the source is accurate and remains factual, as it will be the source of a large diffusion on the web.

Also, communication during routine transport operations is a key to supporting the communication in the unfortunate event of an accident. As stressed in the IAEA Report on the International Experts Meeting: Enhancing Transparency and Communication Effectiveness in the Event of a Nuclear or Radiological Emergency [6]: "effective and transparent communications during a nuclear or radiological emergency result from continuous engagement with the public and media prior to an emergency, as well as from a well prepared process during an emergency."

Therefore, maintaining a regular link to journalists from inside our industry and outside our industry is a very important aspect of a good media relation. This is not always easy, as our transports are international, which mean sometimes there are cultural differences and language barriers to contend with. Also, journalists have themselves been threatened in their activity by the development of the web, turning anyone with a camera and web access into field reporters. Other issues faced by journalists include stretching resources over a broader range of subjects, the balance between speed and accuracy, and competition with free services.

4. Crisis communication

According to Wikipedia [7], crisis communication can be "designed to protect and defend an individual, company, or organisation facing a public challenge to its reputation." However, in the case of this paper, the definition of crisis communication will be limited to the communication required during and after the unfortunate event of an accident.

The transport of radioactive materials has been carried out safely for over five decades. This outstanding achievement has been acclaimed, but it cannot be taken for granted. Preparing for the eventuality of an accident is an obligation. Without the experience, the only way to prepare is to develop a theoretical approach and practice through regular exercises. The theoretical approach can be based using benchmarking events which have happened more recently. These events can be taken from the nuclear industry, but also in the transport of other dangerous goods. Concerning the

communication of transport during a crisis, the accident of Fukushima procures an important series of lessons learnt for which some can be transferred to the activity of transport.

The IAEA Member States have worked on several aspects of crisis communication and updated guidance, following the experience gathered during Fukushima. A new training document was issued in 2012: Training for Radiation Emergency Preparedness and Response, Communication with the Public in a Nuclear or Radiological Emergency – Training Materials [8]. The International Experts Meeting: Enhancing Transparency and Communication Effectiveness in the Event of a Nuclear or Radiological Emergency [6] identified a key element of an efficient communication during a crisis: "The audience is well informed and articulate; communication by anyone anywhere can become communication everywhere, often within minutes of publication, if the content is sufficiently interesting or relevant. Under these circumstances, the primary challenge for communicators is to obtain, in a timely manner, sufficient technical information and to accurately translate it into messages that are easily understood by the general public in order to ensure that the media and the public acquire the information they need."

But what information does the public need? According to Abel J. González, Vice-Chair of the International Commission on Radiological Protection (ICRP), Member of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and Member of the Commission of Safety Standards of the IAEA, "public communication of radiological protection policy after an accident is still an unsolved problem" [9]. Radiological protection is a complex technical subject, and uses jargon and units which do not carry information easily transferable to the general public: "Quantities and units used in radiation protection appear to be confusing and have jeopardized clear communication." [ibid. 9] More work needs to be carried out in order to ensure a concerted way of presenting radiological protection issues during a potential transport accident. This work is not necessarily specific to transport and could be carried jointly with communicators for other radioactive materials applications.

Also, the INES scale has been the subject of confusion during the Daiichi accident, as various safety agencies around the world would grade the event at different levels. As a matter of fact, the INES scale is not easy to apply to a transport event, since the criterion does not transfer without leaving room for interpretation. Therefore without the need to change the scale completely, there is a need to ensure it is used the same way by everyone.

One of the conclusions of the International Experts Meeting: Enhancing Transparency and Communication Effectiveness in the Event of a Nuclear or Radiological Emergency [6], stated that a "nuclear emergency involves not only radiological effects but also the sociological, psychological and economic effects on the lives of affected populations." After an accident, the public will be looking for answers to a broader range of questions on how the accident is affecting them. These points can usually be prepared in general terms in advance to present a quick and reassuring answer to the public's anxiety.

The WNTI has an industry working group looking at Emergency Preparedness and Response for transport. This working group has discussed communication during an event on several occasions. A survey was conducted within our membership and concluded that the best preparation for an event is exercises. These exercises provide feedback both on the media used and on the content of the information provided.

Exercises are of great importance in preparing for the unfortunate event of an accident. To fully benefit the stakeholders, the exercise should be realistic, involving all engaged stakeholders (governmental agencies, competent authorities, industry representatives, media pressure

representation, emergency services, etc.). In addition to table top exercises, full scale exercises are most beneficial when no date, time and theme is known in detail by the stakeholders.

Communicating during a crisis should not be limited to communication specialists; it should involve allowing technical staffs, such as engineers who can describe the technical and scientific issues in plain English. This of course requires the routine identification and media training of these spokespersons.

5. Conclusion

In conclusion, the paper has investigated ways in which the environment for communicating the safe transport of radioactive materials has changed and how this is affecting routine and crisis communication for transport operations. The importance of a stakeholder engagement, a communication strategy plan with ongoing communication during routine transport and the use of new media has been stressed.

Communication of the safe transport of radioactive materials can always be completed and improved. Resource permitting, one target audience which would benefit from knowing more is the education world, both at secondary and upper levels. When study programmes are put together on nuclear energy, it is important that nuclear transport is addressed as nuclear workers should at least be aware of the main features of radioactive transport.

Also, could we imagine using art to improve our communication? Could casks or containers be painted artistically? The possibility of more exchange between the art world and the nuclear transport world could bring another dimension to our communication supporting a more emotional and personal approach to our industry. These are of course blue sky thinking, but with visual content being more and more common in communication, an appealing image can only reach out to a broader range of audience. Let us meet in Japan in three years' time to find out!

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