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Stranger than Fiction: Misconceptions Surrounding Radioactive Materials Transport

presentation paper

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**Dedicated to the
safe, efficient
and reliable
transport of radioactive
materials**

For nearly 50 years the international community, through the International Atomic Energy Agency (IAEA), has supported the objective of enlarging the contribution of atomic energy to peace, health and prosperity throughout the world. Not everybody, however, shares this objective.

I propose to say a few words about misconceptions that are harboured either by those opposed outright to the nuclear industry, and to the transport of radioactive materials and also, in some cases by people actually in the nuclear industry. The misconceptions that surround the nuclear industry and the transport of radioactive materials sometimes seem stranger than fiction: it is almost as if the facts get in the way.

Misconception No. 1 **Wind, wave and solar power are the way of the future**

Of course renewable resources such as these have an increasing part to play in the energy mix. But we must be realistic, none of them offers reasonable prospects, for the foreseeable future, of providing significant base-load power on its own. You would need a great many wind mills indeed to match the generating capacity of one nuclear power plant unit. According to British Royal Society Vice President, Professor David Wallace, while he would be delighted if renewable energy could make up for the nuclear shortfall in Britain in coming years, something like 20,000 wind turbines would be required – they would form a line shoulder to shoulder right across the length of Britain. And so, if we accept that nuclear power will continue to have an important part to play, then it follows that nuclear transport equally will remain essential. The first misconception then is that windmills and solar panels on their own will supplant the nuclear power plant.

Misconception No. 2 **The facts speak for themselves**

One day I was stopped on the street near my office in London by a young person with a clipboard. I agreed to submit myself to her questions.

“Did I favour clean air,” she asked. That was an easy one – “of course,” I replied, “doesn’t everyone?” Next question, “did I support sustainable development?” Another easy one, “unquestionably,” I answered. “Was I opposed to nuclear power?” she asked. This time I hesitated. “Before I answer that question,” I asked, “would the next question be whether I was also opposed to coal, oil or gas power?” “No,” she replied, “only nuclear power.” “Well,” I said, “you’ve introduced a negative into your line of questioning and before I can answer, I’d like to know more about this anti-nuclear power thing”. “To tell you the truth”, she admitted, “I don’t really know much about nuclear; but, I can assure you that my group is anti-nuclear, and for one pound a week or four pounds a month, you too can join our organisation.”

Now, I don’t criticise that young person for her championing of cleaner air and a better environment. In fact, I salute her. If the idealism of the young were to fall victim to the cynicism of old age, there would be scant hope for the future. After all, as Anton Chekhov told us “man is what he believes”. What I am critical of, however, is the espousal of positions by those who, by their own admission know very little about them, and really aren’t bothered to find out more. After all, the value of an idea has nothing whatsoever to do with the sincerity with which it is held/

Learning the wrong lessons can lead to adopting the wrong responses.

The second misconception, one harboured by some in the industry, is that the dissemination of more knowledge, more facts, will allay public concerns. If only it were so simple.

In the last 15 years or so, scientists have been told they must also be communicators. The new word became “transparency”. No longer is it enough that the science should be right, it should be intelligible to all. I don’t know how highly scientists are esteemed today; a recent British Broadcasting Corporation list of the 100 greatest Britons of all time includes 16 military heroes, 14 monarchs, 10 politicians and, out of the 100, only 13 inventors. By far the largest single category was in the arts and sports. Up there with Brunel and Darwin and Faraday are David Beckham, John Lennon and Cliff Richard – 13 inventors out of the 100 greatest Britons in history.

It would be wrong to assume, however, that the public at large is scientifically illiterate. A British survey some years ago when it asked the abstract, “what does it mean to study something scientifically?” found that only 11% of respondents gave an answer that involved the idea of experimentation, while just 3% mentioned testing hypotheses. But, given a choice of techniques for evaluating the effectiveness of a new drug; that is, when presented with essentially the same question expressed as a concrete example, more than half chose the answer that involved using experiments to test hypotheses.

It would be difficult to over-estimate the importance of public and political attitudes to nuclear transport, and the potential of these attitudes, if not heeded and not responded to sensitively and convincingly, to make life very much more difficult for those committed to the safe, efficient and reliable transport of nuclear materials. It is not sufficient that the nuclear transport industry is conducted safely, and that it knows that it is so conducted; it is necessary that that message be conveyed to far wider, and often very diffuse, audiences.

The public’s approach to information processing is complex and diffuse. Public attitudes are made up of much more than facts, they tend to be a complicated mix of beliefs and feelings as well. And attitudes can be very hard to change, even when confronted by compelling new evidence. The public’s attention span to sometimes seemingly complex technical issues can be short. Matters that seem to raise complicated values or issues run the risk of being distilled down to absolutes, to black and white, or to good and bad.

The smallest incident involving the transport of radioactive materials, no matter the lack of any real or potential radiological consequences, has the potential to play to people’s fears. There is no question that accurate information plays a powerful part in allowing greater public understanding. “Understanding”, though, does not necessarily equate with “appreciation”. The responsibility is ours to ensure that the industry presentation of the facts takes as its starting point, a sensitive appreciation of just where the layperson is coming from. Nikolai Gogol told us that “it is no use to blame the looking glass if your face is awry”. The scientist must be prepared to answer sometimes awkward questions of public concern. Science must be situated in its political and social context. Ultimately it is an issue of trust; how far can the public trust science to provide reliable, objective and unbiased knowledge.

Misconception No. 3 **Transport is the weak link**

It has been said that transport is a weak link in the public debate of issues surrounding the fuel cycle. It is the transport link that carries radioactive materials out from behind the factory perimeter fence and into the community, on to the highways and the railways. I would argue that transport should be perceived as a strong link. First of all, as everyone in this room knows, it is an absolutely essential link; stop transport and the fuel cycle will grind to a halt. Transport of radioactive materials is a safe link; one with an outstanding safety record.

The main reasons for this outstanding safety record are well-founded transport safety regulations, and the professionalism of the industry. Transport is not a weak link in the fuel cycle; it is both an essential and a safe link. Perhaps it would be more accurate to say that it is the debate surrounding the transport of radioactive materials that is the potential weak link. This need not be the case. The regulators and the regulated both have a powerful message to convey of necessary and safe transport.

Misconception No. 4 **It's all about transport**

I heard somebody say recently that transport was the final battleground for the nuclear industry. I have no doubt that there are many who have sincerely-held concerns about the transport of radioactive materials. Sometimes this concern derives from a lack of information, or understanding, about the reasons for and the nature of the transport and how safe it really is. There are others, I contend, fewer in number, who have a wider agenda when they voice their concerns about transport. I refer to those who are opposed outright to nuclear energy production, who seek to use their claims against transport as a kind of Trojan Horse from which to wage a wider assault against the whole nuclear industry. Their arguments may be couched in scientific terms, but they are not necessarily good science. However, by cleverly packaging their ideology in such terms they confront the public with different conclusions, creating the appearance of scientists disagreeing in public. How then can the public decide between conflicting but apparently scientific claims? The answer must lie in good science, reliable knowledge – empirically based and rigorously proven. To quote the great Russian Nobel prize winner, Ivan Pavlov; “perfect as the wing of a bird may be, it will never enable the bird to fly if unsupported by the air”. Facts are the air of science. Without them a man of science can never rise. However, the scientist as communicator should not fall victim to Pavlov’s concept of the conditioned reflex. Importantly, the scientist must engender trust; but, trust as we know must be earned. And, a good starting point is by listening and by communicating – a genuine two-way communication.

Misconception No. 5 **Transport is a domestic issue**

The debate surrounding major transport issues can never be a wholly “made in Russia” or “made in the United States” debate; what happens in one region has an immediate impact in the public

debate in the other regions. This applies to the whole range of nuclear issues. Pictures of demonstrators on the railway tracks in Europe, of protestors in the water around ships carrying radioactive materials between Europe and Japan, are broadcast the world over. The policies and procedures for the nuclear industry developed in one country or region, and the public attitudes to them, inevitably influence perceptions elsewhere.

Dispelling the misconceptions

It is no easy thing to dispel misconceptions. One potentially powerful way of so doing, however, is by example; in particular, by the normalisation of transport operations, establishing them as routine, will demonstrate that they are safe and that in face of their undertaking, the sky in fact will not have fallen.

Second, the sincerity of most peoples’ concerns should be respected. People deserve to have access to the facts, but more, to have those facts presented in ways that are intelligible, in ways that take account of the wider context, and in ways that are meaningful to them by being seen to respond to their uncertainties.

In those instances where people’s lack of information, or misinformation, on transport is exploited to serve a broader agenda by those opposed to the nuclear power industry, then the ulterior motive should be exposed for what it is. Essential transport operations should not be held hostage to those with other axes to grind. I am told this is an old Russian proverb: “make yourself into a sheep and you’ll meet a wolf nearby”.

I can’t stress too much the value of providing the important wider context for transport operations; the essential role of transport in keeping the fuel cycle going in the interest of safe, clean energy, and the fact that such operations are routine in many parts of the world, with an outstanding safety record. And of course, to register that transport is subject to a stringent safety regulatory regime.

There is a clear determination on the part of the nuclear transport industry and the key international organisations to dialogue, and through the World Nuclear Transport Institute, industry has a dedicated means for taking part in this dialogue. The very fact that companies are able and prepared to collaborate in this way in itself sends a powerful message of industry’s commitment to safe transport. The industry, through the World Nuclear Transport Institute, values greatly the opportunities made available to it within the International Atomic Energy Agency, international modal organisations, and by national competent authorities, to dialogue in the common interest of safe, efficient and reliable transport.

There is a powerful message to be told here – radioactive materials transport plays a vital role in bringing the peaceful uses of the atom to the benefit of society. So important is the message that it deserves to be told with clarity, with consistency, with objectivity and, above all, in a way that is seen to be understanding of, and responsive to, the public’s interests and concerns.



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