

#IRPA14 Lessons from Chernobyl and Fukushima

On 26 April 1986, the world was rocked by the horror of the nuclear accident at the Chernobyl in what is now Ukraine. Three decades later, the first two speakers on the second day of the 14th International Congress of the International Radiation Protection Association (IRPA14) cast their minds back to the catastrophe. They looked at the fallout of that accident on the human population, and what has been learnt from the event.

The human factor

What's known from Chernobyl is that 134 onsite people were diagnosed with acute radiation syndrome (ARS) shortly afterwards – 28 of whom would die over the next few weeks, explained Richard Wakeford, professor in epidemiology at the University of Manchester and editor-in-chief of the *Journal of Radiological Protection*.



Checkpoint to Chernobyl exclusion zone. Credit: [Nick Rush-Cooper](#)

A further 600,000 'liquidators' or clean-up workers would later also be exposed to radiation.

Since then, of course, there have been tens of thousands of cases of thyroid cancer, related to the exposure to radioactive iodine. Young children exposed at the time – and are now young adults – have been particularly hard hit, pointed out Wakeford.

There have been other problems, such as a high number of cases of cataracts among the liquidators.

Emotional fallout

Even more problematic, however, may be the psychosocial trauma suffered by those evacuated and among liquidators, said Wakeford. “These are big problems – after thyroid cancer, possibly the greatest health problem from Chernobyl.”

To evacuate or not to evacuate?

Rolf Michel, professor of radiation protection at the University of Hannover, Germany, was among those trying to work out the levels of radiation people had been exposed to at the time of the accident. He and his team have been conducting long-running studies in the fallout regions.

One issue coming out of the discussion was on evacuations – whether, in fact, it would have been better to simply advise residents to stay in their homes and take protective measures (like not drink the milk, likely one of the leading causes of the thyroid cancer) rather than evacuate them. The former may have been the better option, suggested Michel.

Better preparedness after Fukushima

This echoes a presentation by Dr Makoto Akashi of the National Institute of Radiological Sciences (NIRS) in Japan, who spoke on lessons from the Fukushima Daiichi accident in March 2011.

Much had gone wrong then, said Akashi, as people – including health workers – had not been prepared for such an incident. This had led to many psychological and social problems, he noted. “Most of them were caused by, probably, lack of knowledge of radiation and its effects.”

The country is much better prepared now, said Akashi. Japan has since then run a number of outreach activities, including training programmes for medical personnel and first responders.

Sharing knowledge and experiences

This was underscored by Yukiya Amano, Director General of the International Atomic Energy Agency (IAEA), in his keynote address on the opening day of the congress.

Both Chernobyl and Fukushima had caused “immense suffering”, noted Amano, but had prompted a wealth of precautionary measures. Chief among these is that countries now share knowledge and experiences. Important legal instruments were adopted, such as – spurred on by Chernobyl – the 1994 Convention on Nuclear Safety.

His visits to nuclear power plants across the world have confirmed that things have improved dramatically over the past few years, said Amano.

“I can say that nuclear power plants are much safer now than before the Fukushima Daiichi accident,” he noted. “[Chernobyl and Fukushima] have led to significant improvements in global nuclear safety.”

The congress brings together close on 900 delegates from 72 countries at the Cape Town International Conference Centre (CTICC) from 9 to 13 May.