



Japan nuclear concerns

Bahrain Risk assessment

Report 1

31/3/2011

Introduction

When certain atoms disintegrate, they release a type of energy called ionizing radiation. This energy can travel as either electromagnetic waves (i.e. gamma or X-rays) or as particles (i.e. alpha, beta or neutrons). The atoms that emit radiation are called radionuclide; e.g., radioactive iodine, caesium, and plutonium. Ionizing radiation is an essential tool for diagnosis and treatment in medicine that must be used with rigorous attention to safety.

Human beings are exposed to natural radiation (also known as background radiation) on a daily basis. Natural radiation comes from space (i.e. cosmic rays) as well as from naturally-occurring radioactive materials found in the soil, water and air. Radon gas is a naturally-occurring gas that is the main source of natural radiation.

People can also be exposed to radiation from man-made sources. Today, the most common man-made sources of ionizing radiation are X-ray machines and other medical devices. In some parts of the world, levels of exposure to natural radiation differ due to local geology. People in some areas can be exposed to more than 200 times the global average.

Ionizing radiation may result from sources outside or inside of the body (i.e. external irradiation or internal contamination). External irradiation is produced when a person is exposed to external sources (i.e. X-rays) or when radioactive material (i.e. dust, liquid, or aerosols) becomes attached to skin or clothes. Internal contamination may result from breathing in or swallowing radioactive material or through contamination of wounds.

In the event a nuclear power plant does not function properly, individuals, land, and structures in the vicinity of the plant could be



exposed to a mixture of radioactive products generated inside the reactor, also known as “nuclear fission products”. The main radionuclides representing health risk are radioactive caesium and radioactive iodine. Members of the public may be exposed directly to radionuclide, either in the air or if food and water become contaminated by these materials.

If the dose of radiation exceeds a certain threshold level, it can produce acute effects, including skin redness, hair loss, radiation burns, and acute radiation syndrome (ARS). In a nuclear power plant accident, the general population is not likely to be exposed to doses high enough to cause such effects. Rescuers, first responders, and nuclear power plant workers are more likely to be exposed to doses of radiation high enough to cause acute effects.

Exposure to high doses of radiation can increase the risk of cancer. Radioactive iodine can be released during nuclear emergencies. If radioactive iodine is breathed in or swallowed, it will concentrate in the thyroid gland and increase the risk of thyroid cancer. Among persons exposed to radioactive iodine, the risk of thyroid cancer can be lowered by taking potassium iodide pills, which helps prevent the uptake of the radioactive iodine. The risk of thyroid cancer following radiation exposure is higher in children and young adults.

Hazard identification and risk assessment

A Search was done for the Short run and the long run hazards of nuclear radiation in Japan with its two categories.

This was followed by approaching the concerned IHR committee members to investigate the procedures done in relation with the International organizations. This was done through:

1. Search in the internet for nuclear hazards in Japan and its risk to Bahrain
2. Contact Dr. Jaffer Mattar A radiation Consultant at the Ministry of Health, for preparing a Health risk assessment and submitting a preliminary report on 29.3.2011.



3. Mr. Salah Ramadan, the IHR member from the custom services at the Ministry of Interior to prepare a report about the procedures done at the points of entry in relation to Japan crisis.(no reply)
4. Mr. Jaffer Ahmed Salman, the IHR member at the General Directorate of Environment and Welfare Protection was contacted for conducting and providing the IHR Committee with the environmental health risk assessment and the WHO-GCC committee recommendations. The response came reassuring that no radiation hazards was there on the environment in Bahrain as well as the other gulf countries as there was a liaison with them (report attached)
5. An Enquiry was send to the IHR contact point at EMRO requesting WHO recommendations for Japan nuclear concerns.(attached)
6. Mr.Adel Najat,the acting head of the Maritime Health and Safety in Bahrain and the member of the IHR committee was contacted to provide the IHR committee with the recommendations of the International Maritime Organization and the response was reassuring (attached).
7. Ministry of Commerce was requested through its representative in the IHR committee to put its recommendations according to the International Organizations. The response came that they checked with the concerned directorates regarding the procedures taken by the Ministry of Commerce about the radiation in Japan and they will reply within couple of days because it is still not approved by the minster Dr. Hassan Fakhroo.
8. MRs Manal Al Sairafi, the head of Food Control Section at the Public Health Directorate was contacted to provide the IHR committee with the guidelines and the procedures done at the points of entry to insure food safety. The food Control Section did not receive instructions or notification from the Ministry of Industry and Commerce but they started to use the radiation meters (**victoreen 190 survey meter**) which are available in the three ports ,in order to monitor imported Japanese food products. Unfortunately, there are two companies that import food items from Japan namely International Co through Air cargo and Asian Co through Shaikh Khalifa Bin Salman Port, they both import fish.



victoreen 190 survey meter 190

The Ministry of Health has taken advance steps in this regard through instructing various ports within The Kingdom to put the radiation meters in practice and keep records of such items as full data such as the name of the food items, the consignee, the country of origin, the quantity of food items in terms of the total weight and numbers wherever applicable, the inspector's name and date and day, shift, results of checking and number of sample inspected.

Two consignments via the Air Cargo Health office on 22/03/2011 and 23/03/2011 were receive, all of them were found to be free from radioactive properties. If food items were found to be contaminated with radioactive materials, the proper procedure in place is to report the whole lot to the country of origin instead of disposing of them in the Kingdom of Bahrain's land and the importer has to pay the cost for this.

Conclusion

By reviewing the data at the WHO site as well as the other concerned parties we can summarize the recommendations until this point as follow:

- According to the reports from the concerned parties, Japan's nuclear emergency presents no danger to Bahrain.
- Dispersal of radiation was expected over time and there is no risk to human health outside the affected area at this time, based on scientific information now available.
- Location of Bahrain is so far from the risk area in Japan, hence no chance of radiation to reach Bahrain by air or water.
- Safety of drinking water in Bahrain.



- At this time, WHO is not advising general restrictions on travel to Japan. However, travelers should avoid travel to the area's most affected by the earthquake and tsunami because of disruptions to essential services, such as transport and electric power. The ongoing disaster relief activities, including the nuclear power plant emergency response and control activities, will make travel difficult and could consume resources needed by relief worker and residents. Moreover, as indicated by the Japanese authorities, travel within the evacuation and exclusion zones surrounding the Fukushima Daiichi nuclear power plant is currently prohibited.

In general, travelers who do not have essential reasons to travel should give careful consideration to deferring travel to any areas where there has been considerable disruption to the normal infrastructure and where authorities are responding to urgent humanitarian needs.

Travelers should be aware of the risk of further earthquakes across Japan. Moreover, there may be areas of power, fuel, food and water shortages. Travelers in Japan should monitor local media, follow the advice and instructions issued by local authorities, and register their travel and location details with their respective embassy or consulate. Travelers returning from Japan who have come from the 20 km evacuation zone surrounding the Fukushima Daiichi nuclear power plant and who have undergone proper screening and decontamination procedures, and travelers from all other areas, do not pose a radioactive health risk to others and do not require screening.

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