

INDONESIA

Food irradiation

In February 2014, a landslide swept away a remote Indonesian village in West Java, displacing more than 2 000 villagers. At the time, Indonesia's National Nuclear Energy Agency was participating in a Joint FAO/IAEA Division project that was using food irradiation to develop safe hospital food and emergency rations. When the project staff members learned of the landslide, they decided to use the technique to package safe rations for distribution at the emergency shelter. The staff was determined to give the shelter residents more than just the calories and nutrients they needed: the goal was to give them food that would make them feel good.



Irradiation: a matter of food safety

Emergency rations with a connection to home

What began in the 1970s as a method to provide quality food for space missions and was adapted as a method to ensure safe food for hospital patients with weakened immune systems has now expanded to yet another level: providing nutritious food rations in emergency situations when people are displaced and unable to return to their homes. The method employed here for all three of these groups is food irradiation.

Astronauts require food that has a long shelf life, is guaranteed not to make them ill and has a strong flavour because space is known to dull the sense of taste. For patients fighting diseases and dealing with weakened immune systems, the food must be very safe to eat, but it is also important that the food has a 'home-cooked' quality, which makes it more appealing for people dealing with long-term illnesses or chemotherapy as they often lose their appetites. For emergency rations, the food must be able to endure transportation and be stored at ambient temperatures as there is no refrigeration in difficult situations, such as in temporary evacuation centres.

Adding good taste to safe food

Originally, efforts to provide food to hospitals and emergency centres focused mainly on the safety and

nutrition aspects. The role of the irradiation was to eliminate the risk of microbes that could cause infection or illness and to add to its durability. However, an international project on irradiated food launched by the Joint FAO/IAEA Division and involving institutes and hospitals in 16 countries promises to take food irradiation to a new level by addressing what they call the 'feel-good' factor. The aim is to make food that tastes good, can be fresh or cooked and will not cause illnesses even after shelf storage. The idea is that though people are in hospitals or temporary shelters, it does not mean that they cannot have the food they are used to, made the way that they like it.

Creating recipes for emergency rations

In trying times, food becomes particularly important, not only as a source of nourishment but also as a source of solace. The 2014 Indonesian landslide not only took away the villagers' homes and livelihoods, it also took away everything that was recognizable in their lives. Months after the landslide, 200 people still lived in a shelter far from home with nowhere else to go. Thus, to bring some pleasure into their lives, when they opened their food packets they found local foods, such as randang beef and tofu-based products. The recipes for the rations were developed by the Joint Division working together with Indonesia's National Nuclear Energy Agency (BATAN).

The process for making these meals is that once the dishes are prepared, they are sealed in pouches and



irradiated. This eliminates any micro-organisms that could spoil the food, enabling it to be transported to the distant refugee or emergency centres and stored at room temperature for a long time. Irradiation leaves no residues and does not affect taste or texture. The idea of packaging rations of familiar foods has also been adopted by China which put together an emergency ration pack that contained spicy sausage and noodles. When a Korean astronaut went into space, she took irradiated food packets that contained her national dish – kimchi. With irradiation, it is also possible to ensure that salads, fresh fruits and vegetables, and even ice cream are safe. The level of food safety is high enough for the foods to be enjoyed by hospital patients who would otherwise be on very severely restricted diets.

This particular use of irradiation accounts for only a fraction of the thousands of tonnes of food irradiated every year. In most cases, irradiation is a tool to ensure food safety but also to facilitate global food trade. However, as has been seen in space ships, hospitals and evacuation shelters, when the irradiated packets are delivered filled with home-cooked tastes, there is immediate positive feedback as the astronauts, the patients and the refugees can taste their connection to something familiar: home.

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