

(c) the steps taken by Government to protect people and to have tested equipments in the plants?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH) : (a) Yes, Sir. There are apprehensions in some sections of the public about safety of the nuclear power plants and loss of traditional means of livelihood like fishing and agriculture. These are being addressed through ongoing public outreach programmes by the Department of Atomic Energy (DAE) and the Nuclear Power Corporation of India Limited (NPCIL).

(b) No, Sir. However, such opinions have been expressed in the press by some individuals, without any scientific basis.

(c) Safety is accorded utmost attention in all phases of nuclear power plants from siting, design, construction, commissioning and operation. The reactors are provided with multi-layer safety provisions and series of physical barriers to prevent the release of radioactivity beyond acceptable limits and thereby protect the personnel, public, and environment. The safety of the nuclear power reactors to be set up in the country is extensively reviewed at every stage by the Atomic Energy Regulatory Board (AERB), and the reactors are set up and operated strictly in accordance with its stage-wise clearances. The safety standards set by AERB are in line with international standards.

Use of Radiation Technology for fruits and vegetables

2722. SHRI RAM KUMAR KASHYAP : Will the PRIME MINISTER be pleased to state:

(a) whether Government is thinking about using nuclear radiation technology developed by Bhabha Atomic Research Centre (BARC) for increasing the shelf life of fruits and vegetables, especially that of onions and potatoes, if so, the details thereof;

(b) the details of radiation plants established by Government so far together with the details of the fruits and vegetables whose shelf life have been increased; and

(c) whether Government has conducted tests to ascertain that the technology approved by the Atomic Energy Regulatory Commission is safe and there are no safety issues whatsoever, the details thereof?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH) : (a) Yes, Sir. Government of India has cleared several commodities under the Atomic Energy (Radiation Processing of Food & Allied Products) Rules 2012

in Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011 for preservation through irradiation.

(b) A major facility in the Government sector catering to irradiation of fresh horticultural produce is the KRUSHAK facility at Lasalgaon, Nashik District, Maharashtra State, India. The facility has been used for irradiating mangoes for export to USA since 2007. Radiation processing plant at Vashi, Navi Mumbai, under the Department of Atomic Energy, has been processing spices and dry ingredients for microbial decontamination since the year 2000. The Plant processed approximately 30,000 tonnes of these products fetching revenue of US \$ 2.0 million. Private participation in this field is gradually increasing and so far 12 plants have also been set up in the private sector for the processing of food and allied products.

(c) The energy involved in irradiation is not strong enough to cause changes at the atomic level, and since the food is never in contact with a radioactive source, the food cannot become radioactive. Several extensive reviews of toxicological data by regulatory and health organisations, have determined that food irradiated at doses below 10 kGy (Kilo-Grey) is safe. In fact food is safer after being irradiated because the process destroys harmful bacteria that may be present. Numerous published research studies have tried to identify problems resulting from eating irradiated foods but failed to disclose any health risks. Several of these studies were long term, multi-generation feeding studies, involving several species of test animals. A joint study group of Food and Agriculture Organisation (FAO)/International Atomic Energy Agency (IAEA)/World Health Organisation (WHO) in 1997 evaluated data on wholesomeness of food irradiated with doses above 10 kGy and recommended that food irradiated with any dose to achieve technical objectives is safe and nutritionally adequate. No upper limit, therefore, needs to be imposed as long as food is irradiated based on prevailing good manufacturing practices.

Among the legislations that govern food irradiation in the country, The Atomic Energy (Control of Irradiation of Food) Rules 1991, the primary legislation that regulates food irradiation was amended and the notification issued in June 2012. An amended draft notification relating to the Prevention of Food Adulteration Act (Fifth Amendment) rules, 1994 was also issued by the Ministry of Health and Family Welfare. A generic class-based approval has been approved for increasing the product range for radiation processing. It will provide year long availability of feedstock for irradiation plants and improve their economic viability.