

**Commissioner of Industries
Hyderabad
Andhra Pradesh**

Project Title	Food Irradiation Unit
Project Description	<p>'Food Irradiation' is a process where food is exposed to high levels of radiation in order to disrupt the DNA of the bacteria to restrict its ability to reproduce, thus extending the shelf life of the food product. The process is only a method of preservation in which food continues to retain original shape, taste and quality. Food irradiation method has advantages over the other preservation techniques as it consumes less energy, is environmentally clean, reliable and does not involve the use of chemical additives.</p> <p>The basic objective of the project is to provide a state-of-the-art food irradiation facility in order to cater to the needs of agro-exporting units for reducing spoilage of fresh produce during its handling, storage and transportation to far places.</p> <p>The unit will be uniquely positioned to enhance the quality of various food items by reducing the impact of harmful bacteria, parasites and fungi. The increased opportunity to penetrate into new geographical markets which are far from the area of production or from the processing unit due to the long shelf life would drive the need for setting up such irradiation units in the State.</p>
Market Scenario	<p>Food irradiation is perhaps the most researched and well understood the process among all the preservation techniques. The technique can be extensively used for many processed Indian foods namely chapatti, paratha, pulav, khichdi, kheer, idli, upma, alu-cholay curry, mutton curry, juice powders of mango, pineapple, mandarin, water melon, ready-to-eat bars from cereals, etc.</p> <p>Apart from the processed food, the technology is very useful for the fresh produce as well. A project using this technology, especially for fresh fruits and vegetables, could mean significant benefits to the State, it being one of the leading producers of several fruits and vegetables.</p> <p>Today some 40 countries worldwide including India have approved the use of food irradiation of over 100 food items and about 30 of these are applying the technology on a limited commercial scale. While, South Africa has cleared more than 40 variants of food, it has been cleared by many developed countries like: Belgium, Denmark, France, Germany, United States, United Kingdom, the Netherlands, Italy, Russia, Canada, Japan, and many others. All these developments indicate that there is a huge market for irradiated foods in both the developed and the developing countries.</p>
Suggested Locations	<p>Visakapatnam, Guntur, Krishna, East & West godavari, Chitoor, etc.As there is no unit presently in the state, hence there is a good market potential.</p>
Technology	<p>The project will employ controlled irradiation technology using the Gamma rays emitted by radioisotopes such as Cobalt-60 and Caesium-137.</p> <p>The project must be carried out in consultation with Bhabha Atomic Research Center. This facility will provide a controlled application of the ionizing radiation such as gamma rays, electrons and X-rays for food preservation. In practice Gamma rays are commonly used. Radioisotopes such as Cobalt-60 and Caesium-137 emit these rays. Radiation processing of food is carried out inside an irradiation chamber shielded by 1.5-1.8 meter thick concrete walls. The shielded bunker has facilities for safe insertion of food products inside for irradiation and removal from radiation area after the process is completed. Pallets of food are moved into an irradiation chamber. Inside the chamber, a rack of radioactive byproduct is elevated from a pool of water, bombarding the food with irradiation. Subsequently, the irradiated food is moved to a storage pool or dry shield.</p> <p>The infrastructure required includes concrete shielded bunker, source storage pool or dry shield, source rack etc.</p>
Raw Material/ Intermediates	Radioisotopes such as Cobalt-60 and Caesium-137, food products.
Estimated Capacity	<p>The Irradiation capacity of the project will be 400,000 MTPA</p> <p>It is estimated that at least five such units could come up at the identified locations.</p>
Estimated Cost	INR 75 million (USD 1.66 million) per unit.