

**Growing Nuclear Applications for Sustainable
Development of Asian Countries**

Japan's Country Report on Nuclear Application- Challenges

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Major Areas of Nuclear Applications in Japan

Sustainable

- Industry
- Agriculture

Patient friendly

- Medicine

Industrial Applications

Application in industries: Radiation processing, NDT, Nucleonic control systems, Semiconductor production by neutron doping:

Research/development: by private industries and JAEA

Challenges:

- Enhancing collaboration of JAEA and industry to transfer radiation processing applications ; **EB coating for saving energy**
- **Heavy Ion beam application in industry**
- Application of research reactor; Mo-99 production (n-gamma),



Enhancement of Technology Transfer to Industrial Sector

- **Government (JST)** provides funds of few hundreds million Japanese yen to private firms for pilot scale test of new technologies developed by government research institutes including JAEA. The funds should be paid back if the technology is commercially used.
- **JAEA** offers funds of JY 5 million to encourage private firms to use radiation technologies for commercial application

Agricultural Application

- **Mutation breeding**
- **Food irradiation**
- **SIT (Sterile Insect Technique)**
- **PGP (Plant Growth Promoter)**

R/D: Governmental institutes;

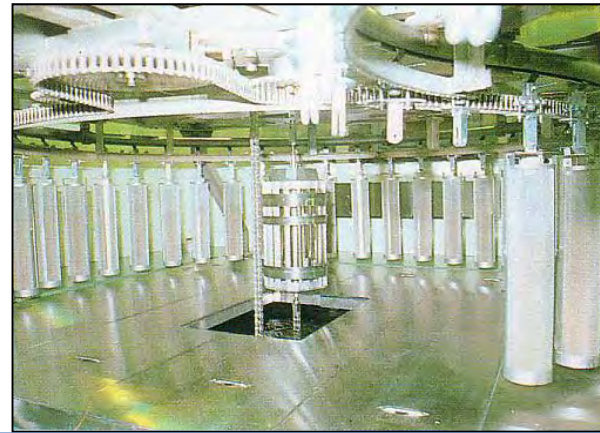
Application by farmers and private firms

Challenges:

- **MB: Strengthening R/D and enhancing extension to farmers;**
- **MB for sustainable agriculture; Heavy ion beam MB should be increased**



- **Food irradiation:** Improving public acceptance and enhancing application for varieties of foods
- **SIT (Sterile Insect Technique):** Application to insect pests in addition to melon flies in Okinawa;
Transfer of the success technology of Okinawa to international community



Radiation of puppet for SIT

- **Plant growth promoter, PGP (Elicitor):**
Increasing field tests for varieties of plant, and enhancing extension to farmers

Medical Applications

- Radiotherapy of Cancer:

Success story of heavy particle beam therapy

Challenges;

- Increasing number of therapists and medical physicists in order to treat increased number of patients (25%)
- Reducing cost of heavy particle accelerator (US \$ 80-110 million)



Thank you for your attention !