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## Project Summary

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**Project Title:** **Radioactive Food and Environment Contamination**

1) **Project Summary:** See Appendix A

2) **Summary of Proposed Work for the Next Year:**

Radon measurements in homes of Abu Dhabi residents would be undertaken to assess the radon levels relative to other places. The seasonal variation in radon levels would be investigated to estimate its contribution in average yearly dose. Ra-226 is also proposed to be determined in drinking water resources of United Arab Emirates.

## APPENDIX A

### MONITORING OF RADIOACTIVITY AND ENVIRONMENT AT FECC, ABU DHABI MUNICIPALITY

The Food and Environment Control Centre of Abu Dhabi Municipality with the help of IAEA has established facilities for regular monitoring of food and environmental samples for radioactive contamination. The Centre is now capable of measuring gamma, beta as well as alpha activity in different types of samples. The main activities in the area of food monitoring are as follows:

- General monitoring of food gamma radionuclides in foodstuffs by high resolution gamma spectrometry;
- Determination of specific gamma radionuclides in foodstuffs by high resolution gamma spectrometry;
- Radiochemical determination of Sr-90 using liquid scintillation analyzer or by gas flow proportional counter;
- Measurement of gross alpha activity in drinking water.

Since more than 85 % of foodstuffs are imported into U.A.E. from different parts of the world, monitoring of food samples has proved very fruitful. A large number of food samples are now regularly checked for a possible radioactive contamination. Gamma ray spectrometers with Ge or NaI detectors and LB200 Becquerel monitors are being used for this purpose. Sr-90 determined by radiochemical separation of its daughter product Y-90 using TBP extraction method. The activity due to Y-90 is measured by liquid scintillation analyzer. Several thousand samples of a variety of foodstuffs have been tested in the radiation laboratory since the establishment of facilities at the FECC. The maximum numbers of samples were those of milk and milk products followed by fruits, vegetables and tea. Quite a significant number of these showed the presence of radiocaesium. A few of them were found to have quite high content of Cs-137 and Cs-134, for example, in 1992 one truckload of a food sample was found to have more than 800 Bq/kg of total radiocaesium and the ratio of Cs-137 to Cs-134 in this sample strongly indicated that the source of contamination was of Chernobyl accident origin. Drinking water resources are being screened for gross alpha activity and if the alpha activity is found to exceed 0.185 Bq/l, the water samples would be analysed for Ra-226.

Our activities on environmental radiation monitoring are given below:

- Early Warning Environmental Radiation Monitoring System (EWERMS) - continuous monitoring of gamma radiation dose rate in air at different stations throughout the country.
- Monitoring of particulate matter in ambient air.
- Measurement of fallout activity in soil.

Air radiation monitors (SAPOS 90M) stationed at four different places - namely, Abu Dhabi, Al Ain, Ras Al Khaimah and Silaa are presently functioning and are connected to a central computer in radiation laboratory at FECC. Average dose rates ranging from 5 to 9  $\mu\text{R/h}$  have been recorded at different stations. To keep further vigil on atmospheric radioactivity at our place we regularly monitor particulate matter in ambient air for gamma emitters. A high volume air sampler (STAPLEX) is used to collect particulate material on the filter. Cs-137 in soil as a result of fallout has also been measured at some places. The studies on soil will include assessment of naturally occurring radionuclides. Measurement of radon in homes is also proposed to be undertaken shortly.