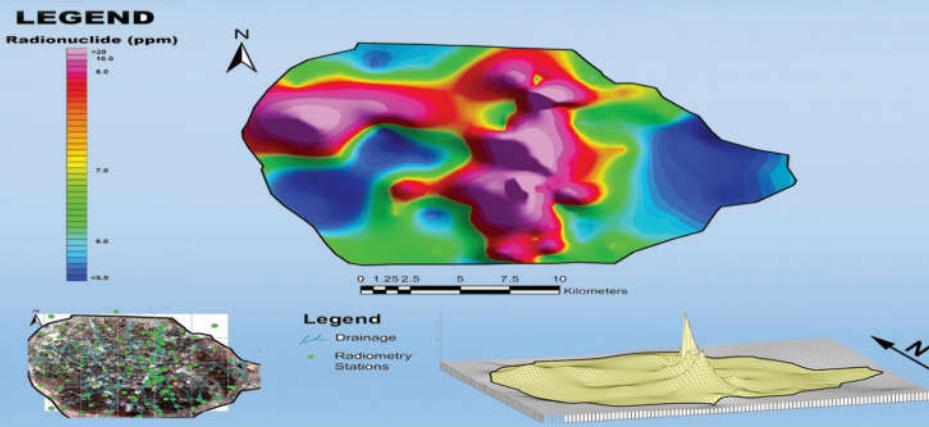


## Radioactive Materials and **the Environment**

Regardless of where we live in the world, we will be always exposed to the radiation from both natural and artificial resources. The most famous natural isotopes are U-238, U-235, Th-232, K-40 and their daughters which along with the other natural isotopes are detected not only in soil and minerals but also in water, air, living organisms, food and building materials. Artificial isotopes or in other words, the isotopes which are not occurred in the nature, are the human-made radioisotopes for nuclear technology and nuclear sciences applications in biology, energy, health, etc.

Depending on the selected processes, radioactive materials are concentrated in different conditions which could endanger the environment and the public health. Considering industrial and mineral development, long term effect of radioactive waste and their environmental impact need more attention and widespread management plan.



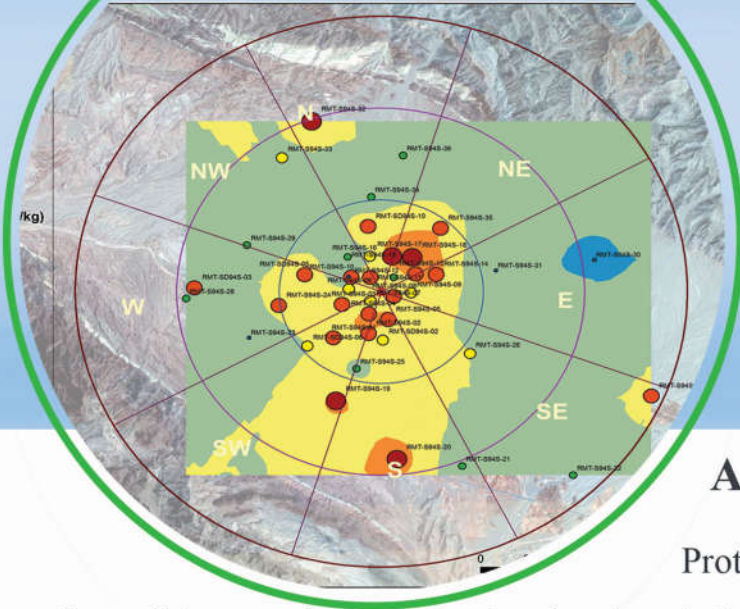
## Environmental services of our company

To assure the public about effective environmental protection and control during the performance of the different parts of the industry, it is necessary to regularly conduct monitoring and evaluation program and in-situ measurements in different periods before, during and after operation.

IRWA, in line with the outlook and objectives of the company, presents below services in the field of environmental activities:

- ✓ Carrying out environmental radio-monitoring in industries and environmental receptor media;
- ✓ Running dose and safety assessment calculations, pollution diffusion modeling of the facilities and surrounding area based on different scenarios of NORM management;
- ✓ Sampling different environmental media such as water, soil, air, plants and animals as well as required lab radiation measurements and analysis;
- ✓ Presenting consultancy services about management methods of wastes containing NORM;
- ✓ Site selection studies, basic environmental studies and contamination diffusion modeling for candidate disposal sites;
- ✓ Erosion rate measurement using different methods;





## About environmental monitoring

Protecting human and the environment against the radionuclides, requires a purposive developed planning. Relying on its organizational functions, technical expertise and available equipment, IRWA is offering a wide range of environmental services and initiatives. Based on the demands, performance of one or more of these following services would be presentable.



### Design of the radiomonitoring strategy and program

Radiomonitoring strategy and program must be contained sampling point, frequency, and protocol and special parameters that are subjected to assessment.



### Basic Studies in field of radionuclides monitoring

The variability of background radiation must be measured and documented prior to operating of a specific facility in order to provide the data to assess baseline ecological conditions and human health risks. Background measurement of RNs in environmental media such as foodstuff, vegetation, air, water and soil and sediments is done by active and passive methods.



### Environmental modeling and assessment

In case of radionuclide release to the environment the situation is modeled using especial scenarios and software. Sensitivity and statistical analysis are applied to make the results valid and reliable.



### Sampling, sample preparation and measurement

Proper sample collection and preparation ensure the most accurate laboratory results. The collected samples must be representative to provide reliable results that are accurately reflected the real situation of the study area.

