Radioactive Pollution

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Definition

Radioactive pollution occurs when uranium, radium, strontium, cesium, tritium or some other Radioactive elements enter the earth's atmosphere and reach earth surface after nuclear tests or with certain kind of industrial waste.   (Science direct)

Causes

- **Nuclear accidents at power plants**
- **Use of nuclear weapons**
- **Use of radioisotope**
- **Mining activities**
- **Spillage of radioactive materials**
- **Nuclear waste disposal**
- **Nuclear weapon production**
- **Nuclear tests**
- **Radiation therapy**

Nuclear accidents at power plants

Some nuclear accidents that occurred at nuclear power plants in various parts of the world are as follows :

- Fukushima Japan March 11, 2011

- Chernobyl, Ukraine, Former Soviet Union April 26, 1986

- Middletown Pennsylvania, USA, March 28, 1978

- Enrico Fermi unit 1, French Town, charter township, Michigan, USA October 5, 1966

Use of nuclear weapons

United States dropped two nuclear bombs over the Japenese cities of Hiroshima and Nagasaki on 6th and 9th of August 1945. 129000 to 226000 people lost their lives.
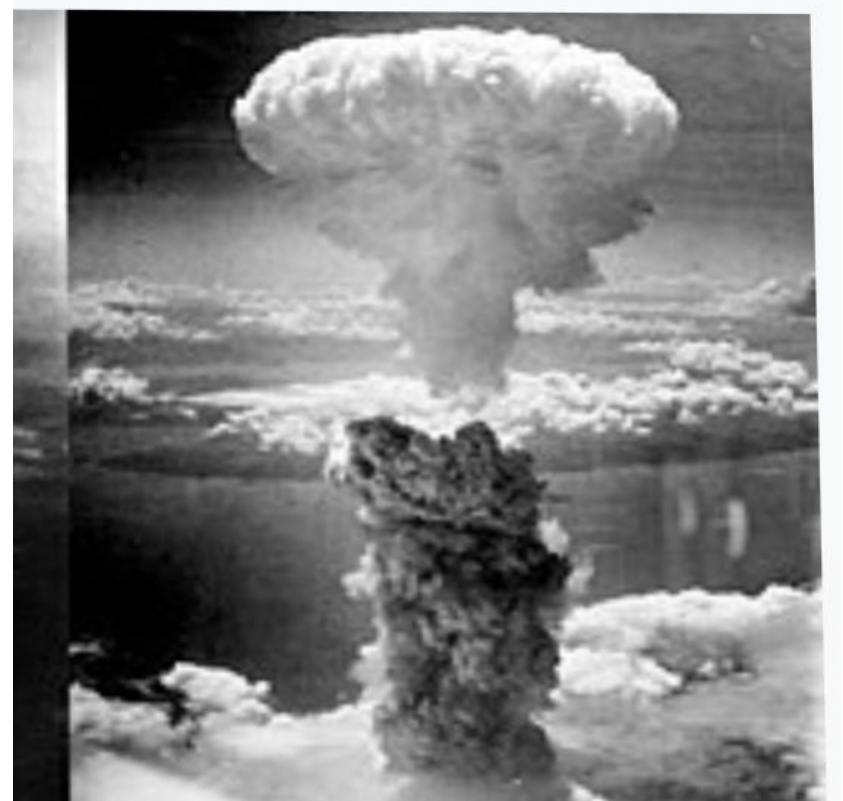
Use of radioisotopes

- **Cobalt-60** used in cancer treatment

- **Iodine-131** used in treatment of hyperthyroidism

- **Carbon-14** used to detect ulcer causing bacteria *Heliobacter pylori*

- **Carbon-14 and Oxygen-18 have been used to trace the various metabolic pathways of Photosynthesis**.

Mining activities and radioactive spillage during transport

Uranium mining is quite dangerous and miners often develop lung cancer and other lung related diseases.

Careless transportation of radioactive materials sometimes lead to spillage of radionuclide in the environment.

Nuclear waste disposal

Disposal of nuclear waste is big challenge.
 Although most of the time the waste is
well sealed inside huge drums of
steel and concrete and buried
deep inside ground and oceans
 but fears are still there as to
what sort of damage would be
caused to animal and plant life
if radiations start leaking from
 these buried waste.

Nuclear weapon production and nuclear tests

- There are many nuclear weapon states in the world.
- U.S.,Russia, China, France, India, Pakistan etc. Nuclear weapons are being produced by many countries and stockpiled.
- Nuclear tests are also conducted by these countries.
- Both underground and under sea Nuclear tests are conducted.
- The radioactive isotopes such as **C 14, Cs 137, Sr 90, I 131** released get stored in the atmosphere and marine environment. Exposure to these radioactive isotopes poses a great risk to human health
- In Nevada nuclear testing site of United States, it was observed that there was an increased incidence of **thyroid cancer** due to Exposure to **Iodine 131.**

Radiation therapy

In various types of cancer, radiation therapy is advised for patients. During the treatment, risk of radiations damaging other vital organs of the body are always there. Though the discharged patient doesn't poses any health risk for persons coming in contact.

Effects of radioactive pollution

Can cause diseases in human beings such as:

Leukaemia, anaemia, haemorrhage, cardiovascular problems etc.

It could cause irreversible damage to tissues and organs resulting in permanent diseases and deaths.

Improper disposal of radioactive wastes can result in poor fertility of soil. It would contaminate the soil and ocean environment. In oceans it could harmfully affect marine aquatic life.

Regulations and Control

- **LTBT** (limited test ban treaty) 1963 : banning Nuclear tests in all global environments except underground.

- **CTBT** (Comprehensive test ban treaty) 1968 : banning Nuclear arming of all States except five existing Nuclear power states.

- **NPT** (Nuclear nonproliferation treaty) 1996 : UN adopted this treaty stopping all types of nuclear tests. It prevents the spread of nuclear weapons and also endeavours to promote cooperation in peaceful uses of nuclear energy and to further the goal of nuclear disarmament.

THANKS
Stay home

Wear mask

wash hands

Maintain social distancing