

## **Post-disaster environmental response (water, sanitation, food safety, waste management, disease control)**

- ✓ Environment and its ecosystems are affected by various natural and man-made disasters. The environmental management in disasters tries to protect ecosystems, **sustain development**, reduce disaster risk, and adapt to or decrease the impact of climate change.
- ✓ Environment directly impacts communities, human health, and quality of life.
- ✓ For example, following domestic war and drought in Liberia and Afghanistan, several environmental changes such as surface and groundwater resources depletion, pollution of water resources, deforestation, desertification, soil erosion, air pollution, and extinction of some animal species occurred in these 2 countries
- ✓ As a result of 2011 tsunami in Japan and subsequent nuclear reactor meltdown, nearby residents living in an area of 600 km<sup>2</sup> were forced to evacuate their homes and leave their cities. Water, soil, sea, and marine resources, surface and groundwater water resources and food were contaminated with radioactive materials
- ✓ Upon examining the residents of this area, internal and external radioactive contamination was observed, which can cause mutations and cancer in the future
- ✓ Due to these destructive incidents, the people's ability to provide necessary resources for living decreases and their lives are threatened.
- ✓ Consequently, human populations are forced to move and immigrate to save their lives.
- ✓ By taking effective measures, these negative and harmful effects can be reduced or eliminated. In the postdisaster response phase, appropriate actions must be taken to prevent harmful impacts of the disasters on the environment.
- ✓ Furthermore, in recovery phase, proper and timely measures must be taken to restore the affected community and the environment to its previous conditions. All these measures require proper planning and preparation prior to the occurrence of the disaster.

- ✓ Environmental management is a top priority in disasters. The purpose of environmental management is to protect ecosystems, sustain development, reduce disaster risk, and adapt to or reduce the impact of climate changes.

## **Waste Management**

Waste management or waste disposal are all the activities and actions required to manage waste from its inception to its final disposal. This includes amongst other things collection, transport, treatment and disposal of waste together with monitoring and regulation. It also encompasses the legal and regulatory framework that relates to waste management encompassing guidance on recycling.

Waste can take any form that is either solid, liquid, or gas and each have different methods of disposal and management. Waste management normally deals with all types of waste whether it was created in forms that are industrial, biological, household, and special cases where it may pose a threat to human health. It is produced due to human activity such as when factories extract and process raw materials. Waste management is intended to reduce adverse effects of waste on health, the environment or aesthetics.

Waste management practices are not uniform among countries (developed and developing nations); regions (urban and rural areas), and sectors (residential and industrial).

A large portion of waste management practices deal with municipal solid waste (MSW) which is waste that is created by household, industrial, and commercial activity

The waste hierarchy refers to the "3 Rs" reduce, reuse and recycle, which classify waste management strategies according to their desirability in terms of waste minimisation. The waste hierarchy remains the cornerstone of most waste minimization strategies. The aim of the waste hierarchy is to extract the maximum practical benefits from products and to generate the minimum amount of waste; see: resource recovery.

The waste hierarchy is represented as a pyramid because the basic premise is for policy to take action first and prevent the generation of waste. The next step or preferred action is to

reduce the generation of waste i.e. by re-use. The next is recycling which would include composting. Following this step is material recovery and waste-to-energy.

Energy can be recovered from processes i.e. landfill and combustion, at this level of the hierarchy. The final action is disposal, in landfills or through incineration without energy recovery. This last step is the final resort for waste which has not been prevented, diverted or recovered.

The waste hierarchy represents the progression of a product or material through the sequential stages of the pyramid of waste management. The hierarchy represents the latter parts of the life-cycle for each product.

Waste is not something that should be discarded or disposed of with no regard for future use. It can be a valuable resource if addressed correctly, through policy and practice. With rational and consistent waste management practices there is an opportunity to reap a range of benefits. Those benefits include

- Economic – Improving economic efficiency through the means of resource use, treatment and disposal and creating markets for recycles can lead to efficient practices in the production and consumption of products and materials resulting in valuable materials being recovered for reuse and the potential for new jobs and new business opportunities.
- Social – By reducing adverse impacts on health by proper waste management practices, the resulting consequences are more appealing settlements. Better social advantages can lead to new sources of employment and potentially lifting communities out of poverty especially in some of the developing poorer countries and cities
- Environmental – Reducing or eliminating adverse impacts on the environment through reducing, reusing and recycling, and minimizing resource extraction can provide improved air and water quality and help in the reduction of greenhouse gas emissions

- Inter-generational Equity – Following effective waste management practices can provide subsequent generations a more robust economy, a fairer and more inclusive society and a cleaner environment

### **Effecting the Post disaster**

Reduce – Floods (Construction lands)

Reuse – Waste – Sturdy Materials – Low cost – Effect

Recycle – Flood water – Sea - Dam/Reservoir - Ground water level/Crops

### **Environment Protection**

Water

Earth

Forest

Animals

Humans