Flooding

*View the **ODPM Flooding Brochure.***

What is flood?

A flood is an accumulation or an overflow of an expanse of water that covers or inundates land that is usually dry.

Types of flooding include:

Riverine flooding. This usually occurs when a river overflows its banks. It is usually due to the volume of water within a body of water, such as a river or lake, exceeding its capacity and overflowing its banks. It can also occur when the velocity of the river is so high that it flows right out of the river channel, usually at bends.

Coastal flooding**.** The sea can overflow or overtop flood defenses such as sea walls, perhaps due to a heavy storm (storm surge), a high tide, a tsunami or a combination thereof.

Flash flooding. This is a flood that rises and falls rapidly with little or no advance warning. Flash floods usually result from intense rainfall over a relatively small area.

Urban flooding This occurs as a result of land development. Permeable soil layers are being replaced by impermeable paved surfaces, through which water cannot infiltrate. This leads to greater runoff being generated, which can make rivers out of roadways and ponds out of car parks.

Causes of Flooding:

There are natural and anthropogenic (human-induced) causes of flooding.

Flooding can naturally be attributed to:

Prolonged rainfall. When rain falls for a prolonged period of time, the soil can become saturated. When water is unable to infiltrate into the saturated soil, it is forced to flow over the soil, thus increasing surface runoff. Rivers that are unable to accommodate excess rain water overflow their banks onto neighbouring flood plains.

Intense/Heavy rainfall. When rain falls heavily; the rain drops hit the ground with a force. This can cause the rain drops to bounce off the soil instead of infiltrating into the soil. The water from the rain is then forced to flow over the surface instead, thus increasing the surface runoff.

Relief refers to the difference in height between the highest point and the lowest point on land. When rain falls, the surface runoff can move very quickly from mountainous or hilly areas to low lying areas making these low lying areas more prone to flooding.

Human activities that degrade the environment often increases flooding. These activities include:

Deforestation. The lack of vegetation encourages water to flow over the surface rather than infiltrate into the soil thus increasing surface runoff.

Poor land use practices. Slash and burn agriculture, over-cultivation and over-grazing eventually cause the soil to become infertile and unable to sustain vegetative growth. Consequently, the lack of green cover encourages water to flow over the surface rather than infiltrate into the soil thus increasing surface runoff.

Urbanization leads to the replacement of permeable soil with that of an impervious layer of pitch and concrete, through which water cannot infiltrate. This results in increased surface runoff which leads to flash flooding.

Improper waste disposal. Oftentimes, garbage that is not properly disposed enters into drainage systems and clogs drains. This obstructs the free flow of the water that enters into these drains causing water to back up during rainfall flooding the surrounding area. A build up of garbage can also obstruct the natural flow of water in rivers and streams.

Quarrying is the clearing of land for the removal of aggregates (mainly sand and gravel) which is to be utilized in the construction industry. The action of quarrying leaves land bare and devoid of any trees and shrubs hence increasing surface runoff produced.

Vulnerabilities to flooding:

Vulnerability describes the characteristics and circumstances of a community that make it susceptible to the damaging effects of a hazard.

The following can make us more vulnerable to flooding:

Physical

1. Building homes on the river bank or on flood plains.
2. Constructing new housing settlements without improving the existing drainage system, thus overwhelming the drainage system.
3. The construction of residential or commercial buildings without taking into consideration the current and future flooding impacts can increase ones vulnerability.
4. Living close to the coast can make one vulnerable to storm surges and coastal flooding.
5. Lack of maintenance of drains and waterways.

Social

1. Lack of education on the causes and mitigation measures that one can use to reduce the effects of flooding.
2. Family Structure- Female headed households and households with a large number of dependencies are considered to be more vulnerable to the negative impacts of disasters.

Economic

1. Unemployment impairs the amount of monetary resources that one to reduce one's vulnerability to flooding.
2. Debt reduces ability to recover from flood damages
3. Living in coastal areas prone to coastal flooding because of livelihood, e.g., fishing.

Environmental

1. Deforestation or the removal of forest or vegetative cover from land would result in increased flooding and would increase an area's vulnerability.
2. Pollution and the indiscriminate dumping of garbage into drains and waterways would increase flooding events.
3. Forest fires/bush fires leave the land barren and devoid of vegetation, which increases surface runoff and increases one's vulnerability to flooding.

How to reduce flooding and flood damages:

Public education initiatives would increase the population's awareness of the hazard and what they can do to mitigate against it. Such initiatives would make people better aware of the risks that they face, especially those that live in high risk areas.

Create proper land use and pollution **policies** and enforce these policies. Policies that would encourage sustainable development should be created since this would reduce the amount of deforestation that takes place as well as illegal quarrying.

Relocate individuals who live in high risk areas. Sometimes public education is too late and the best option to protect the lives of some individuals is to relocate them to safer areas.

Dredge rivers and waterways regularly to remove the excess build up of silt and soil sediments.

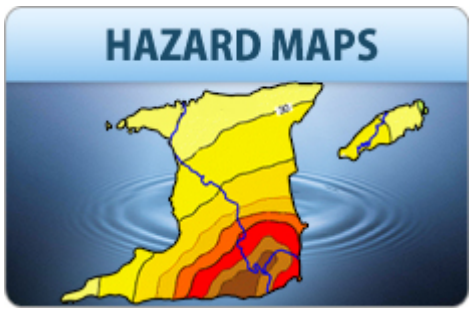
Build proper **drainage systems**. Ensure that there is proper drainage or expand on existing drainage systems whenever there's new settlements or structures being constructed.

Further Reading:

FEMA : Flood

CDEMA :Flood Preparedness

OEPL: What to do in case of a flood event



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