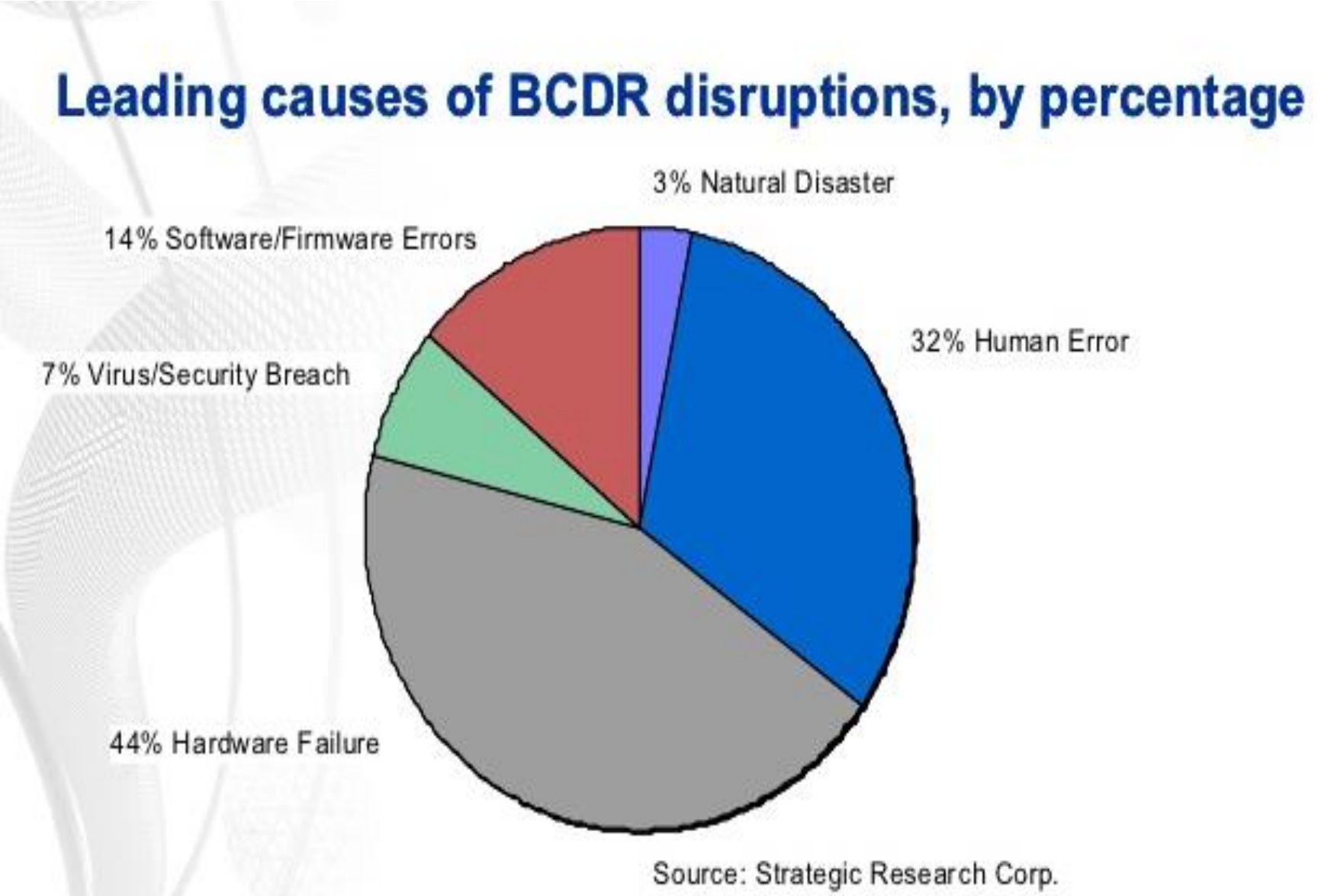
## *Unit II*

## *Disaster and waste Mangemenet*

# Disaster

A **disaster** is an occurrence disrupting the normal conditions of existence and causing a level of suffering that exceeds the capacity of adjustment of the affected community.

# Cause of disaster



# Focusing on the Wrong Causes of Business Continuity & Disaster Recovery

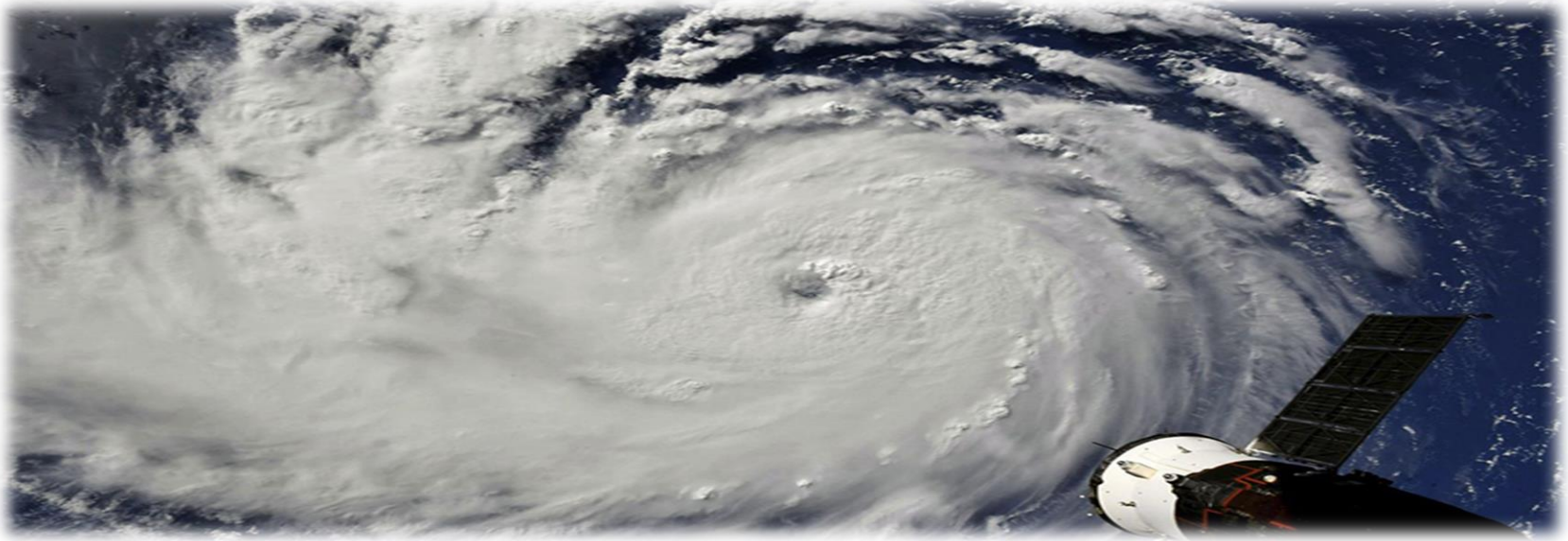
When the Strategic Research Corporation started analyzing the leading causes of BCDR incidents, they found that 44% are caused by hardware failures. Things such as servers, disk drives, switches and other core infrastructure type components. 32%, that's right, 32% are caused by human error.

It has nothing to do with the technology but the operators, the people using the equipment. A lot of times it's a mistake in the configuration setting or issuing the wrong command on a production system. It happens more frequently (as you might expect) right after new hardware or new systems have been installed.

Next on the list are software and firmware errors. These failures often relate to operating system errors, things like driver incompatibilities and the introduction of new applications to servers.

7% are due to virus or security type breaches. As you know in today's world malicious attacks do happen. You need a solid security plan to make sure that you deal with these things, but keep in mind although this is on the rise and it's very important to deal with, we are now at 7% of all causes of BCDR incidents.

The last on the list, just 3%, have been found to be caused by natural disasters.




NATURAL DISASTER
STORM
TORNADO
MELTING OF GLACIERS
ENVIRONMENTAL POLLUTION
TSUNAMI
VOLCANO
METEORITE
FLOOD

- **Types of disaster**

## Natural disaster

Geophysical
- (e.g. Earthquakes, Landslides, Tsunamis and Volcanic Activity)

Hydrological
- (e.g. Avalanches and Floods)

Climatological
- (e.g. Extreme Temperatures, Drought and Wildfires)

Meteorological
- (e.g. Cyclones and Storms/Wave Surges)

Biological
- (e.g. Disease Epidemics and Insect/Animal Plagues)

## Man Made Disasters

Environmental Degradation

Pollution

Accidents

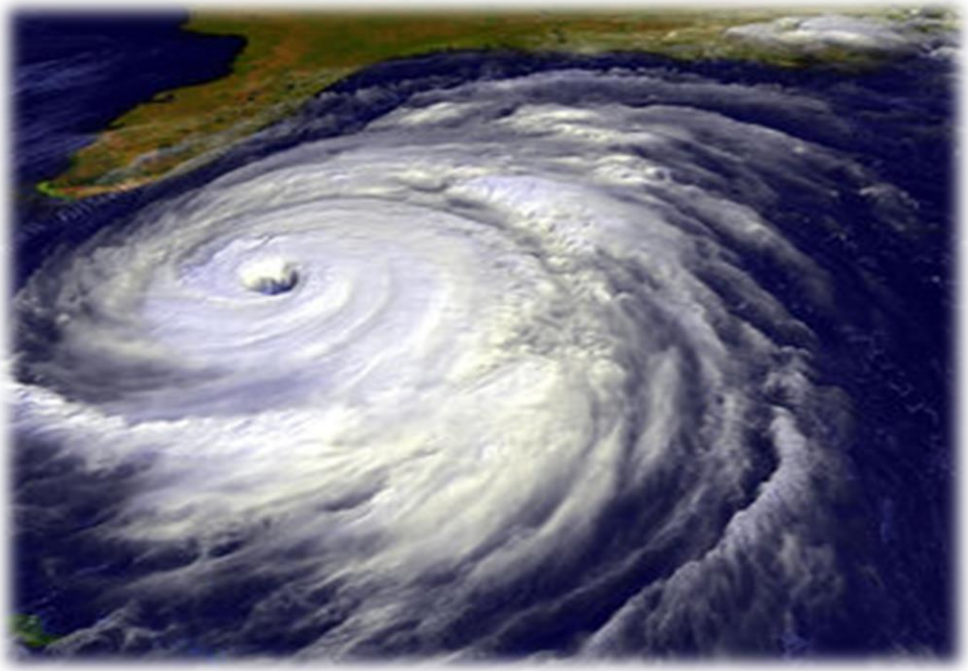
(e.g. Industrial, Technological and Transport usually involving the production, use or transport of hazardous materials)

# Cyclone

**Cyclones** can be the most intense storms on Earth.

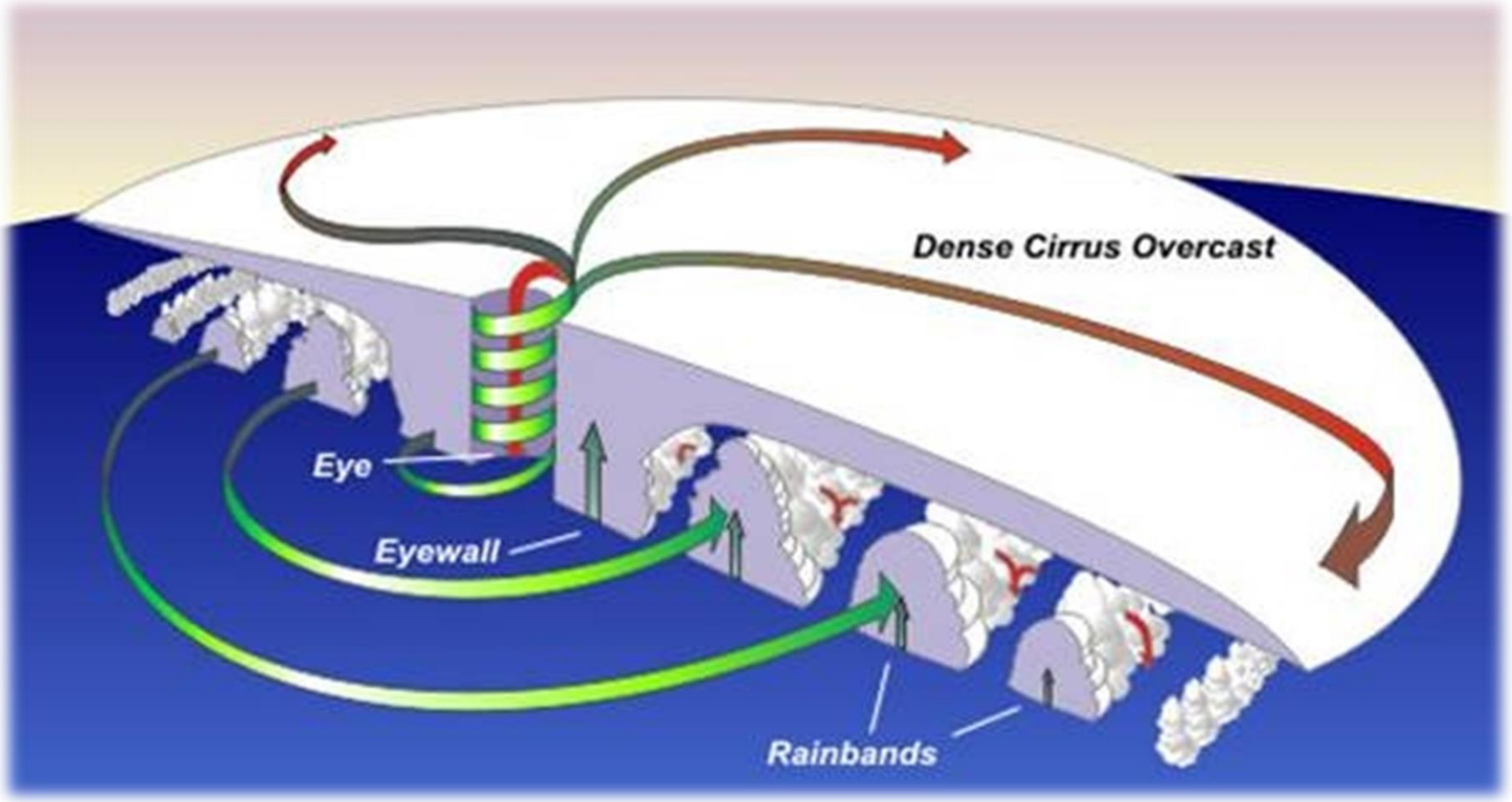
A **cyclone** is a system of winds rotating counterclockwise in the Northern Hemisphere around a low pressure center. The swirling air rises and cools, creating clouds and precipitatio

A **cyclone** is a general term for a weather system in which winds rotate inwardly to an area of low atmospheric pressure. For large weather systems, the circulation pattern is in a counterclockwise direction in the Northern Hemisphere and a clockwise direction in the Southern Hemisphere.



# How do cyclones form

Cyclones are among the most dangerous and most destructive natural disasters that can occur. They have been responsible for about 1.9 million deaths worldwide over the last two centuries, and it is estimated that 10,000 people are killed each year by these storms. Cyclones tend to do the most damage in coastal areas, where they have been known to alter the landscape and remove forest canopy.



# Strong Winds

The most prevalent and perhaps best understood effect of cyclones is strong wind. In fact, these strong winds tend to affect the other destructive agents of cyclones. Low-level winds will typically be stronger on the right side of a cyclone in the Northern Hemisphere, but the wind strength tends to be highly variable no matter where a cyclone hits. The strong winds of cyclones can cause damage over an area of 25 km in smaller systems and up to 500 km in larger systems. Winds have been known to destroy smaller buildings and knock out power for thousands of people.

# Tornadoes

Tornadoes do not normally occur in the same tropical regions that cyclones usually affect, rather tornadoes generally come from the storms in coastal regions and on islands. They may be far more common than people once believed. Cyclone-spawned tornadoes are often not reported in regions such as the Caribbean, but some damage patterns suggest that they occur frequently. Tornadoes can attain wind speeds of up to 480 kph and can stretch more than 3 km. Cyclone tornadoes tend to occur in the outer edge of the eyewall cloud, in the right-front quadrant of the storm system.

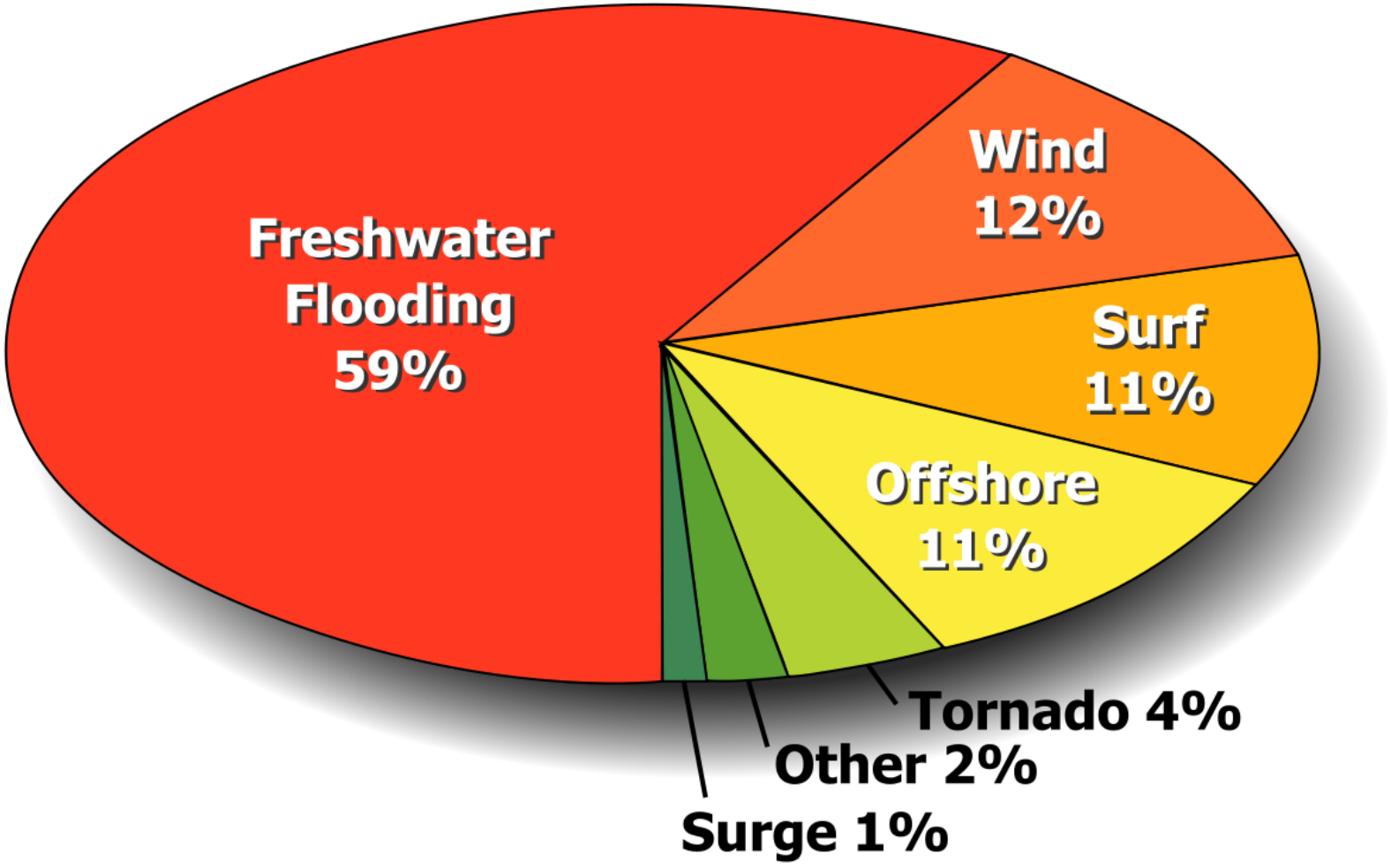
# Rainfall and Flooding

The thunderstorms produced in a cyclone system produce intense rainfall -- causing massive flooding, mudslides and landslides. This flooding tends to be more severe and destructive inland due to poor preparedness. Although this rainfall can be very destructive and cost millions of dollars in damage, rain in smaller cyclone systems can actually be beneficial when it provides much needed rainfall to drier areas.

# Storm Surges

A storm surge is an abnormal rise in water that occurs during a cyclone. Potentially disastrous surges occur in coastal areas with low-lying terrain that enables inundation. The storm surge is typically the most damaging effect of cyclones, historically resulting in 90 percent of tropical cyclone deaths. When combined with strong winds, storm surges can produce massive waves that can cause inland flooding and destruction.

## Leading Causes of Tropical Cyclone Deaths in the U.S. 1970-1999




Source: Edward Rappaport—Chief, Technical Support Branch, Tropical Prediction Center

**Be Prepared**

**Watches and Warnings**

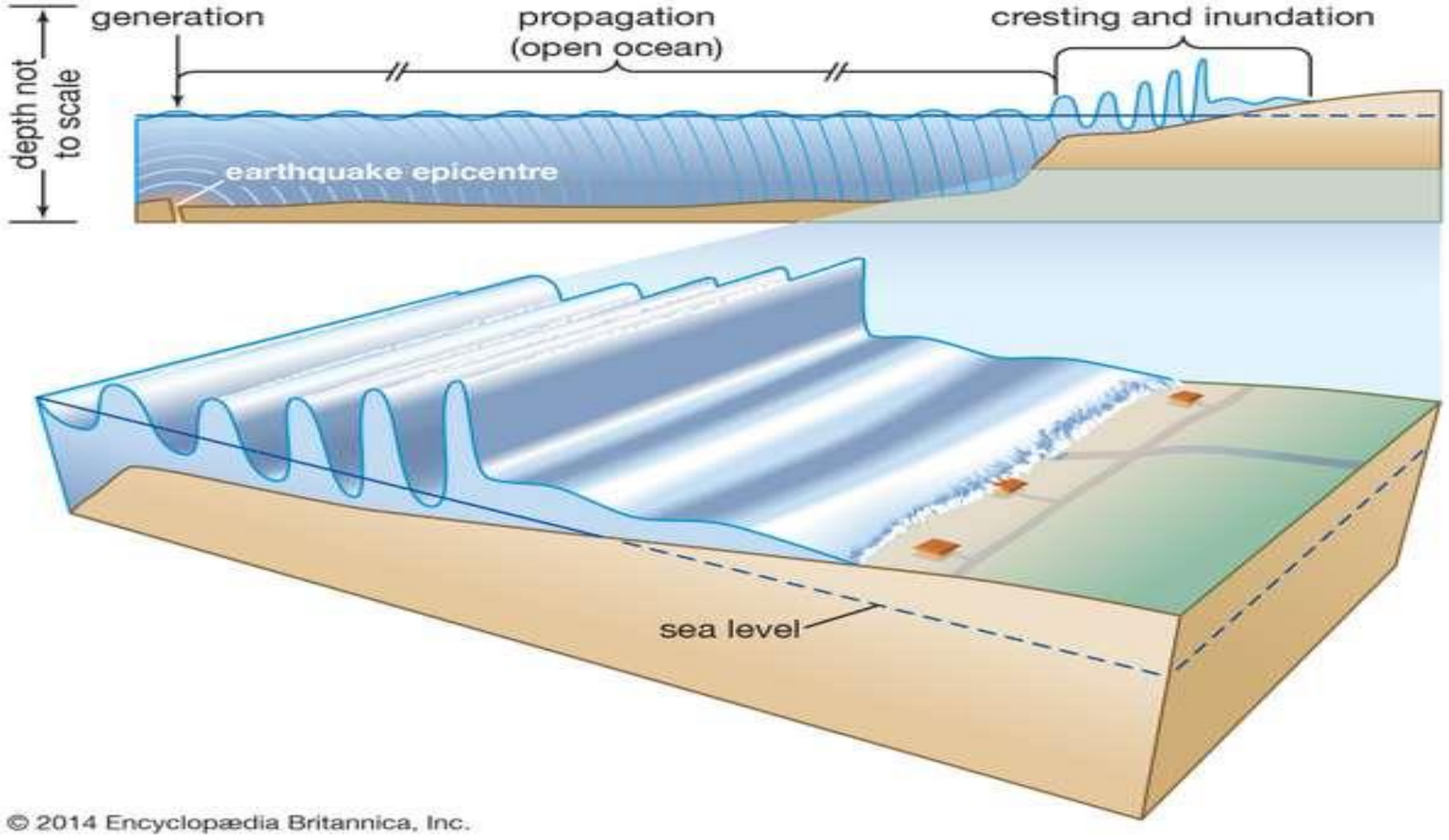
**During the Storm**



# Tsunamis

**Tsunami** also called **seismic sea wave** or **tidal wave**, catastrophic ocean wave, usually caused by a submarine earthquake, an underwater or coastal landslide, or a volcanic eruption. The term *tidal wave* is frequently used for such a wave, but it is a misnomer, for the wave has no connection with the tides.

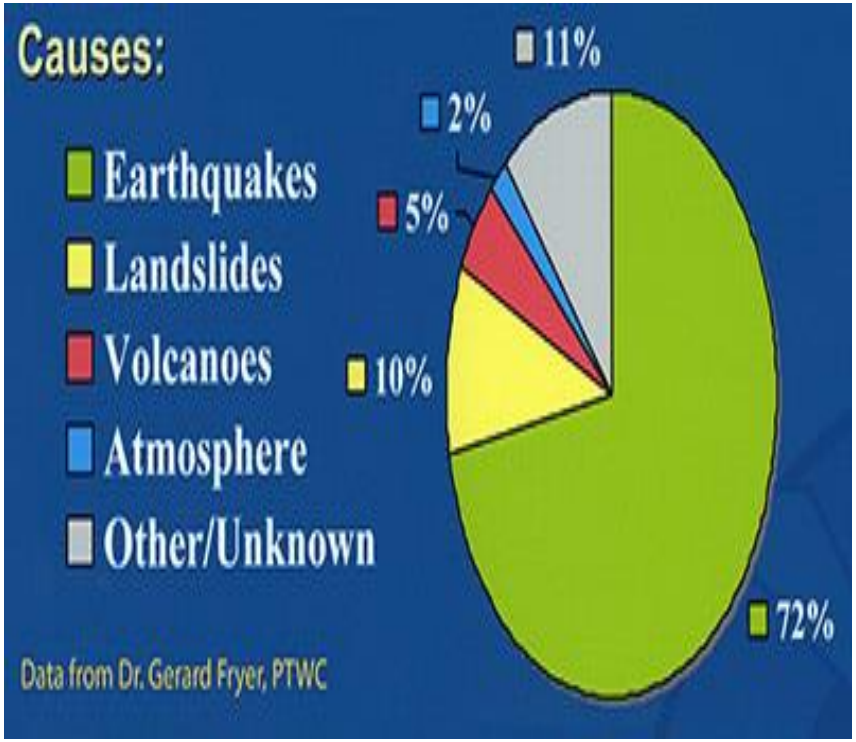
# Origin And Development

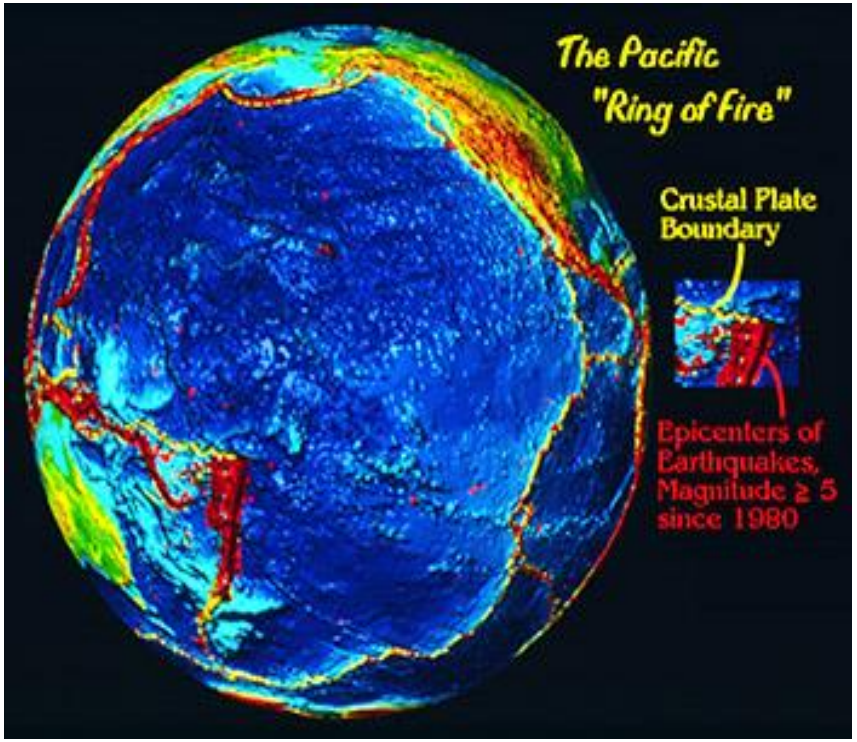


One of the most destructive tsunamis in antiquity took place in the eastern Mediterranean Sea on July 21, 365 CE. A fault slip in the subduction zone beneath the island of Crete produced an earthquake with an estimated magnitude of 8.0–8.5, which was powerful enough to raise parts of the western third of the island up to 10 metres (33 feet). The earthquake spawned a tsunami that claimed tens of thousands of lives and caused widespread damage throughout the Mediterranean, from islands in the Aegean Sea westward to the coast of present-day Spain. Tsunami waves pushed ships over harbour walls and onto the roofs of houses in Alexandria, Egypt, while also ruining nearby croplands by inundating them with salt water.

# What Causes a Tsunami?

Tsunamis are caused by violent seafloor movement associated with earthquakes, landslides, lava entering the sea, seamount collapse, or meteorite impact. The most common cause is earthquakes. See the percentages on the right for the geological events that cause tsunamis. Note that 72% of tsunamis are generated by earthquakes. A disturbance that displaces a large water mass from its equilibrium position can cause a tsunami.



# Effects of Tsunami

## Destruction

## Death

## Environmental impacts

## Disease

## Cost

## Psychological effects

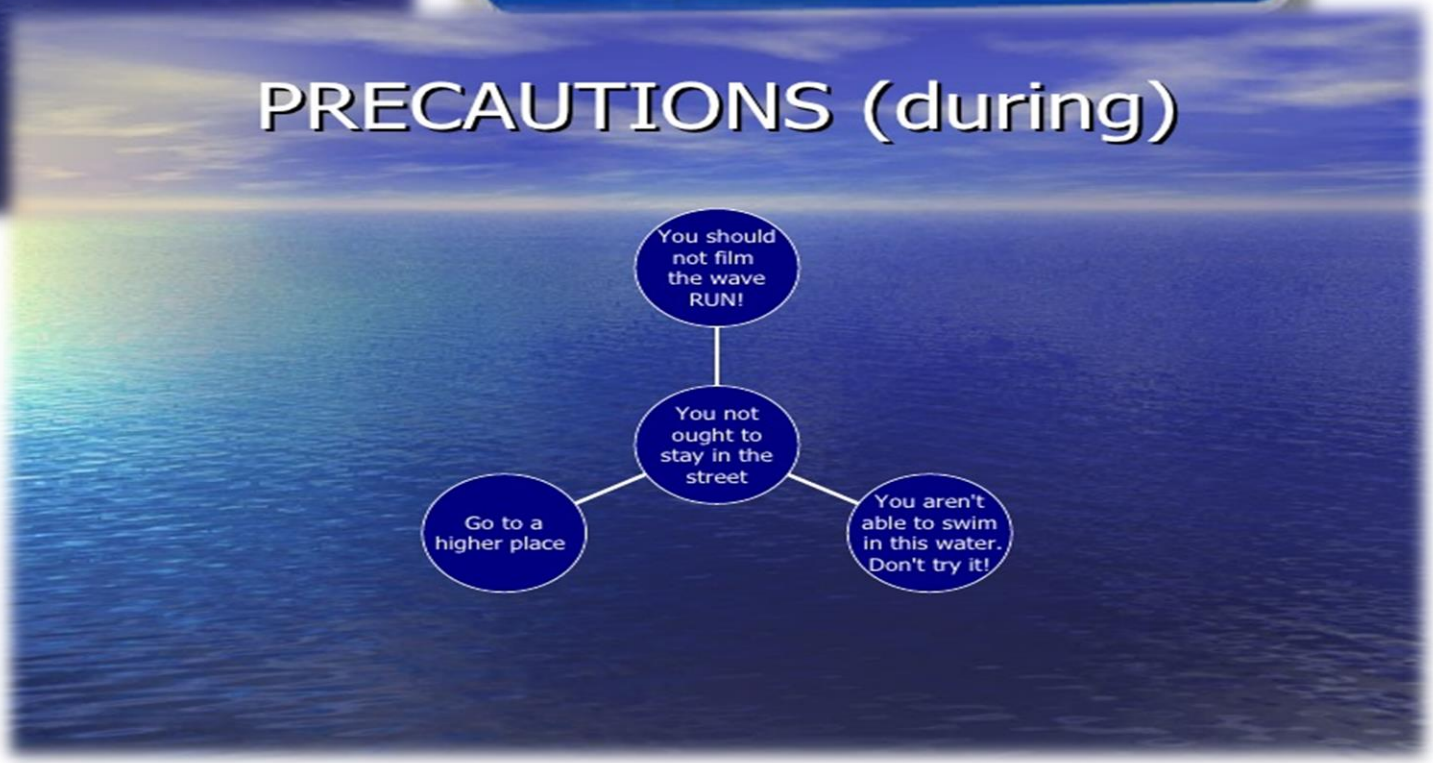
# How to prepare

list yourself as safe and well

common-sense A guidelines

Stay clear





# Disaster Management

Disaster Management is a strategic planning and procedure that is administered and employed to protect critical infrastructures (also known as "critical assets") from severe damages when natural or human made calamities and catastrophic even occur.

## What is disaster management?

We act before, during and after disasters strike, often providing assistance in some of the world's most hostile environments.

Our disaster management activities seek to:

- Save lives and reduce human suffering
- Protect and restore livelihoods
- Reduce the risks faced by communities affected by disaster and conflict.

*Emergency Management
- Mitigation
- Preparedness
- Response
- Recovery

*International Organizations
*Early Warning
*Disaster Risk Reduction


# Roles and Responsibilities

Disaster Management in Queensland

Disaster Management Structures =

1. Disaster management groups
2. Coordination centers
3. Disaster management plans
4. Functional lead agencies
5. Hazard specific primary agencies
6. Specific-purpose committees

Disaster Management Process

Directions about Functions

# What is Waste?

A natural part of the life cycle, waste occurs when any organism returns substances to the environment. Living things take in raw materials and excrete wastes that are recycled by other living organisms. However, humans produce an additional flow of material residues that would overload the capacity of natural recycling processes, so these wastes must be managed in order to reduce their effect on our aesthetics, health, or the environment.

# Forms of waste

Inventory
Transportation
Waiting
Defects
Over-production
Over-processing
Motion
Intellect

**WHY ARE THE FORMS OF WASTE IMPORTANT?**

more done with less

# Classification of waste


PAPER
GLASS
ORGANIC
PLASTIC

# Effects of waste

# Soil Contamination

## Water Contamination

## Extreme Weather Caused By Climate Change

**Air Contamination**

increased urban and global temperatures
impact the air quality

**Harm Towards Animal and Marine Life**

suffocates marine life such as coral and fish
Can kill animals

# Human Damage

Children and those who live near such facilities

Waste disposal workers

Employees whose workplaces manufacture or come into contact with waste materials

## Waste management

Waste management is the collection, transport, processing, recycling and/or disposal of waste materials produced by human activity. Waste management reduces the effect of waste on the environment, health, and so on.

## What is a Waste Management Plan?

A waste management plan is a plan of how waste will be removed from your property or premises.


# Disposal methods


## Landfill

Landfill involves burying the waste to get rid of it.

## Incineration

Incineration involves the combustion of waste materials.

# Recycling methods

Avoidance and reduction methods
Source Reduction and Reuse
Recycling and Composting
Energy Recovery
Treatment and Disposal

## Benefits of recycling include:

Preventing the emission of many greenhouse gases and water pollutants
Saving energy
Supplying valuable raw materials to industry
Creating jobs
Stimulating the development of greener technologies
Conserving resources for our children's future
Reducing the need for new landfills and combustors.

# Importance of Waste Management in Your Home

*Protect the environment
*Good for your safety
*You could make money