



# FLOODING

## Prevent and limit the flood risk exposure

Natural events are common and mostly unpredictable. They can vary in intensity and frequency and are expected to become worse due to supply-chain globalization & growing urbanization.



### A wide range of causes

- › an accumulation of rainy periods within a certain area, or eventually one valley collecting water from various secondary valleys or the conjunction of high winds and high tides. Bridges restricting water evacuation is an aggravating factor, the presence of dams sometimes requiring the release of water for safety reasons
- › ground water table which may also rise
- › flash floods may be due to heavy rainfall in a short period of time. Drainage system may not handle the large amount of water due to their limited design capacity.

## Identify your exposition

- Identify the site exposure hazard by contacting the public authorities, who have often performed a flood exposure study (return period from 1/100 to 1/500 years)
- Obtain information about the weather forecast from the official agencies on a regular basis
- Monitor predicted flood levels and time frame. The management should be aware of the time needed to implement emergency procedures

## Precautions

### Preventive actions

- Keep a sufficient quantity of empty bags available
- Brick-up openings at low elevations below flood levels
- Install sliding plates and guides in front of door openings
- Build mechanical protection such as brick walls or movable flood barriers
- Back-up the IT system outside the site
- Identify equipment that need special anchoring (gas or liquid filled tanks, etc)
- Secure all outside storage and equipment that cannot be moved to another location
- Move critical equipment to upper floors
- For new constructions, install all electrical equipment above flood levels



## Just before the event – alert stage

- › Shutoff gas, electricity, and flammable liquid piping
- › Build dykes by filling sandbags
- › Relocate high value items to a safer place, most critical machinery to operation, electronics (computers, dies, patterns, testing equipment, etc.), and vehicles needed after the flood
- › Prepare a recovery plan (production carried out by sister plants, so that your customers can be supplied)
- › Prepare the pumps for use
- › Foresee means of access by boat for the employees
- › Check roof, floor, yard drains, culverts, and all drainage channels to ensure that they are free of debris
- › If direct gravity drainage to nearby water body and floor drains inside the building, check the condition of the checkvalves or isolation valves to prevent sewer back-up.
- › Check all fire protections systems are in service

## During the event

- › If not too dangerous try to reopen blocked drainage culverts
- › Extract water with mobile pumps

## After the event

- › List and take pictures of the damage
- › Contact :
  - suppliers in order to obtain mobile electrical generators, compressors, engines, etc
  - companies for mop-up operations
  - your risk manager

