

**Integrating Climate Change Risks into Water and Flood Management by Vulnerable Mountainous Communities in the Greater Caucasus Region**

**Deliverable 5 (2016): Community-based training**

REPORT TITLE - Deliverable 5 (2016): Community-based training

PROJECT - Integrating Climate Change Risks into Water and Flood Management by Vulnerable Mountainous Communities in the Greater Caucasus Region

Deliverable 5 (2016): Community-based training			Date
Prepared by	Juan Fernandez	Signature	30/07/2016
Checked by		Signature	
Approved by		Signature	

1. Introduction .....	4
2. Background .....	4
Community based Flood Early Warning System .....	4
Local Situation .....	7
Communities .....	7
3. Community Participation.....	7
4. Training Justification and Scope .....	10
5. Training Plan.....	10
Appendix A – Presentation.....	11
Appendix B - Leaflet .....	12

## 1. Introduction

The aim of this document is to describe the training plan for communities required in order to ensure the proper implementation, operation and maintenance of the Community-Based Flood Early Warning System (CBFEWS) in the communities in the study area.

## 2. Background

The Project document states the need to set up a CBFEWS in order to reduce the flooding risk in the project study area. There is no mention of a full flood forecasting early warning system in the project document. Based on preliminary assessments, it should be noted that the implementation of a pure CBFEWS does not seem to be appropriate, as previously stated in the Terms of Reference for a Flood Forecasting and Early Warning System (deliverable 5 - 2013). A brief description of CBFEWS can be found below, enumerating the main advantages of such a system.

### **Community based Flood Early Warning System**

A community based flood early warning system (CBFEWS) is a locally based operational flood forecasting and warning activities of a community that aids them in mitigating the effects of flooding in their area. This is usually a relatively cheap, easy to sustain system enhanced by the direct and active participation of the community and its leaders. The ultimate goal of the system is to protect life and property by achieving and maintaining a high-level of community preparedness through timely flood information and warnings. This system is more important and efficient in areas prone to floods.

The most important characteristic of a CBFEWS is community participation and empowerment. It empowers the people of the community to protect, prepare themselves and make them resilient against the disastrous effects of floods. The community is in the best position to undertake preparedness measures against floods.

The presence of a full flood forecasting (operational) framework for an early warning system alone sometimes is not enough to effectively minimise or prevent the damages from flooding. Early warning systems are sometimes neglected by the people, especially if they are not involved or fully aware of all the implications. One of the main challenges in early warning

systems is implementing and sustaining it. The idea of incorporating the active involvement of the people in the community with an early warning system aims to increase the effectiveness of such systems. Learning by actual participation and taking a part in the system enable people to understand more the value of these systems not only for themselves but for the whole community that will be affected, and make them become more responsible in performing their tasks in implementing and sustaining the system.

The following basic elements and features of a CBFEWS are:

- People's participation - community members are the main actors and propellers; they also directly share in the benefits of disaster risk reduction and development.
- priority for the most vulnerable groups, families, and people in the community
- risk reduction measures are community-specific and are identified after an analysis of the community's disaster risk
- existing capacities and coping mechanisms are recognized
- the aim is to reduce vulnerabilities by strengthening capacities; the goal is building disaster resilient communities
- links disaster risk reduction with development
- outsiders have supporting and facilitating role

There are some key factors that should influence the decision to implement a CBFEWS:

- Frequency of flooding
- Community's interest and awareness
- Possible lead time
- Cost-benefit of the implementation versus flood damages

If a community is not interested in a CBFEWS, the success of the scheme may be compromised. Maintenance and sustainability aspects have to be considered, and therefore a community has to be fully involved in the implementation of a CBFEWS in order to ensure its success. This interest can be related to the number of flood events this particular community has suffered in recent years. Therefore, a successful CBFEWS is characterised by a:

- watershed approach
- community participation
- community counterpart
- sense of ownership

Early warning systems have four different components, namely:

1. Risk Knowledge: risk assessment exercise provide essential information in order to set priorities for mitigation and prevention strategies and designing early warning systems.
2. Monitoring and forecasting: systems with monitoring and forecasting capabilities provide timely estimates of the potential risk faced by communities.
3. Dissemination: communication systems are needed for delivering warning messages to the potentially affected locations. Messages need to be reliable, synthetic and simple to be understood by authorities and the public.
4. Response: coordination, good governance and appropriate action plans are key points in effective early warning. Likewise, public awareness and education are critical aspects of disaster mitigation.

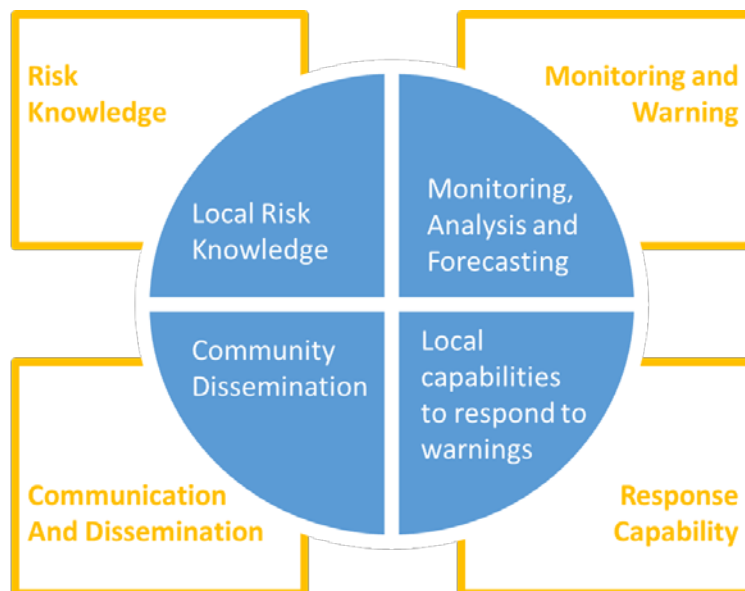


Figure 1 - EWS components

The proposed design for the CBEWS will be described per component as above. Also, it should be noted that due to the difference in size and type of communities to participate in this scheme, not all approaches will necessarily be the same. This will be thoroughly outlined in the descriptive design per component.

## Local Situation

The local situation of the communities regarding floods and flash-floods was thoroughly described in the ToR for a Flood Forecasting EWS (deliverable 5 – 2013). The main output from the assessment of the local situation was that due to the short lead-time available for any community in the study area, all the flood events to occur in the area could be considered as flash-floods (a lead time less than 6 hours). This fact compromises the community involvement for the monitoring, warning and forecasting component.

## Communities

There is no up-to-date formal flood catalogue, and therefore it is challenging to define the communities that should benefit from this scheme. Local experts are gathering information from local authorities regarding which communities would benefit further from the implementation of a CBF EWS.

## 3. Community Participation

The need of community training is justified in order to ensure people participation. As previously noted, people participation will be key to the sustainability of the system. In

The true essence of a community-based early warning system is community empowerment. It empowers the people of the community to protect, prepare themselves and make them resilient against the disastrous effects of disasters. The community is in the best position to undertake preparedness measures against disasters. Communities are at the frontline of disasters. It is evident that top-down approaches to disaster risk management, ignoring the local capacities and resources, fail to address the specific local needs of vulnerable communities. In order to address that, community-based disaster management emerged as an alternative approach, including community-based early warning schemes.

The community participation in various activities for disaster management, and especially regarding Community Based Early Warning Systems, can be organised effectively keeping through three principles, that is, community's needs, effectiveness and efficiency, and practicable implementation.

Community participation has to match community's needs for

- vulnerability reduction
- sustainability in activities for infrequent events
- establishing public-private partnerships, NGOs

Community participation keeps their effectiveness and efficiency by:

- synergy effects for limited financial and human resources
- best-mixed methods with community experience and technological knowledge
- connection between individual requirements and government preparedness

Community participation seeks practicability for implementation

- disaster management in each stages (preparedness, response, recovery)
- capacity-building and coordination through dialogue and participation
- opportunities for 'real' activities, trainings and drills

In order to ensure community participation, the following strategy is recommended. Strategic approach in organising community participation in the implementation and operation of early warning systems needs to address three perspectives; participatory process, resources maximisation, and motivation.

### **Participatory process**

Participatory process has been recognised as an essential element of community-based risk management that builds a culture of safety and ensures sustainable development. It addresses specific local needs of vulnerable communities to realise the full potential of local resources and capacities and actively engages them in disaster risk management. Community based activities should be organized strategically based on necessary actions for each target group, that is, policymakers, disaster managers, trainers and community workers. No matter how well sophisticated assessment has been done by experts only, it does not work without actions by local people. Community members are involved in the decision-making and implementation of risk management activities. There are smaller casualties in local community where community activities are indigenous and active than in urban areas where community becomes weak and inactive during a disaster. It cannot be ignored that people have survived disasters and crises through their own efforts. Different communities have their own perceptions regarding vulnerability and capacity depending on the condition of their locality and experiences acquired through past disasters, so there are factors that could not measure and determined due to variable characteristics and conditions of the community. In this sense, community



people's participation is indispensable in each step of activities toward disasters; identification, analysis, preparation, response, monitoring and evaluation.

### **Resources maximization**

In most cases, local people have been aware of disaster events and had their own way of coping with them. Such knowledge inherent in the community area forms an important existing resource. The community based disaster mitigation strategies should adopt, build upon and strengthen this local knowledge and promote its integrated use.

### **Motivation for initiating community participation**

For a community-based scheme to be operationally sound, the following two questions to the target community should first be answered:

1. Is the community interested, enthusiastic and willing to put-up a system?
2. Do they have the adequate community resources and are they willing to put-up the necessary funds to operate, maintain, and sustain a system?

The background idea about these questions is basically to promote a sense of ownership of the system on the part of the community. A negative answer to any of foregoing questions, particularly the first one, can be a good reason not to pursue such a program in the community. However, should the community agree on having such a system, then it is best to pursue and adopt a community resolution or an ordinance, within the structure of its local government system, that will pertain to the setting-up and institutionalization of such a program. This will likely prepare the community in setting aside a certain budget for the set-up, operation, maintenance and sustainability of the system.

In many vulnerable communities, experience shows that disaster issues are not always on high priority compared to daily survival issues such as livelihood, lack of water and sanitation facilities, law and order, etc. This makes the community passive against disaster risks as they are seen as remote occurrence. This makes the communities more vulnerable and sometimes more exposed to disasters. To avoid such vulnerability, motivations for initiating community participation, such as socio-economic incentives and systematic training are indispensable. Better understanding begets higher aspirations among people, which is essential for motivation and sustainable ownership of the activities. Regular messages make community aware of the risks and enhance their interest and motivation.

## 4. Training Justification and Scope

The implementation of the CBEWS at the community level will require the community to understand how the system work and how to maintain and operate it. Thus, as described thoroughly in previous deliverables, a Community Emergency Plan for each community is being depicted. The main focus of the training would be on how to implement the CEP. One of the key components of the CEP would be on how to respond during a flood, how to prepare and how to react after a flood. Therefore, the training will focus also on the before, during and after a flood event.

## 5. Training Plan

The training will be undertaken primarily by the staff of the Regional Centre of the Ministry of Emergency Situations (MOES). Also, it should be noted that the consultant has already had (and will have) meetings with representatives of the different communities, informing and training them about the implementation of the system.

During the training by the Regional MOES Centre, community members will deal with all the different aspects depicted above. Special attention will be paid to the use of the CBEWS equipment acquired within the framework of this project.

In order to facilitate the training of community members on how to react before, during and after a flood the consultant has prepared training materials, a presentation and also a leaflet to be distributed among community members during the training sessions. This material can be found in the Appendix A (Presentation) and Appendix B (Leaflet).

## Appendix A – Presentation

# Community Flood Emergency Plan

# Community Flood Emergency Plan

The following should be included in a community flood emergency plan

- Introduction
- Area of operation and flood history – risk assessment
- Roles and responsibilities
- Flood warning stages and action-plan
- Information management and the media
- Additional information

# Introduction

The Introduction of the Flood Emergency Plan will ensure a better understanding of what the plan is about and how its aims are to be achieved through the document.

Suggested Content of this Section:

- Purpose
- Intended usage
- Background
- Structure of the plan.

# Area of operation and flood history – risk assessment

## Area of Operation

This section describes the geographical areas that area covered by the plan. It is intended to give the reader an understanding of the expected areas that will be affected by any possible flooding.

### Suggested Content of this Section:

- Name of area and community(ies) in which it lies;
- Maps;
- Subject Area (in km<sup>2</sup>);
- Population and estimate of the population affected by flooding;
- Rivers passing through the area and those which cause flooding;
- Details of roads;
- Locations of important buildings, including operations centre for flood response

# Area of operation and flood history – risk assessment

## Flood History – Risk assessment

This section describes the history of flood events in the area. It is intended to give the reader an understanding of the expected extents and severity of any possible flooding based on an explanation of past events.

### Suggested Content of this Section:

- Explain how regularly flooding occurs in the area;
- Describe the worst event in recent times;
- How quickly do the flood waters rise and recede;
- What are the most commonly affected areas and frequency of flooding in those areas;
- What roads are closed off during flooding;
- What depths have been recorded at referenced locations;
- Refer to historical and predictive flood maps in Appendix B (Maps);



# Roles and Responsibilities

This section will be used as a quick reference guide for each organisation outlining their roles and responsibilities.

Suggested Content of this Section:

The roles and responsibilities shall be defined by reference to the protocol document;

- Organisations involved
- Roles of the local co-ordination group
- Roles of Ministry of Emergency Situations
- Roles of Voluntary agencies
- Roles of other organisations involved

# Flood Warning Stages and Action Plan

## Flood Warning System

This section introduces the different discrete stages of flooding as per the flood warning system. It explains that there will be a graduated flood response effort based on the different flood levels expected. It will also give a brief overview of the main features of the flood warning system.

### Suggested Content of this Section:

- Give a brief description of the flood warning mechanism available to the local authority, its location who operates it and on what gauges/methods it is based.

# Flood Warning Stages and Action Plan

## Action Plan

This section utilises the division of the response effort into different discrete stages of flooding to describe the actions to be carried out by all of the responding agencies. It gives the corresponding response actions of each agency for each level of flooding, and is effectively a quick reference guide.

## Suggested Content of this Section

- Required actions
- Insert the agreed trigger levels for each stage of the response
- Describe the areas that will be affected for that trigger level
- Describe the actions for each level and who will perform that action;

# Information Management and the Media

This section will detail how the information on the flood emergency is to be disseminated to operational units, members of the public and media representatives, what specific information is to be passed on, detour routes, when the flood is expected etc.

Suggested Content of this Section:

- Describe the methods of communication – sirens, mobile phone, land line telephone, UHF two-way radio, email, websites, news reports etc
- Define who will be the person responsible for contacts (a single point of contact should be used) ;
- Describe the communication arrangements;
- Describe the types of information to be disseminated;
- Give details of where the public may obtain the relevant information;
- Detail how door to door information may be disseminated.

# Additional Information

- List of Contacts
- Maps
- Field Equipment, Facility Resource List, and Main Buildings
- Sandbag/Flood-proofing Policy and Procedures
- Evacuation & Vulnerability Registers
- Incident Report Form & Flood Records
- Traffic Management

# Additional Information (cont)

- Recovery & Clean-up Operations
- Flood Forecasting & Warning - System Details
- Safety, Health and Welfare considerations
- Training and Testing of the Flood Plan
- Flood Emergency Plan Distribution List
- List of Definitions
- Public Information
- Details of Instructions for Temporary Flood Defences

# Individual Flood Preparedness

# Individual Flood Preparedness

## **Basic Safety Tips**

- Turn Around, Don't Drown!
- Avoid walking or driving through flood waters.
- Just 15cm of moving water can knock you down, and 60cm of water can sweep your vehicle away.
- If there is a chance of flash flooding, move immediately to higher ground.
- If floodwaters rise around your car but the water is not moving, abandon the car and move to higher ground. Do not leave the car and enter moving water.



# Flood Watch = “Be Prepared”

Conditions are right for flooding to occur in your area

## **Steps to Take**

- Turn on your TV/radio. You may receive the latest weather updates and emergency instructions.
- Seek assistance from local authorities
- Know where to go. You may need to reach higher ground quickly and on foot.
- Build or restock your emergency preparedness kit. Include a flashlight, batteries, cash, and first aid supplies.

# Flood Watch = “Be Prepared”

## **Prepare Your Home**

- Bring in outdoor furniture and move important indoor items to the highest possible floor. This will help protect them from flood damage.
- Disconnect electrical appliances and do not touch electrical equipment if you are wet or standing in water. You could be electrocuted.
- If instructed, turn off your gas and electricity at the main switch or valve. This helps prevent fires and explosions.

# Flood Warning = "Take Action!"

Flooding is either happening or will happen shortly.

## **Steps to Take**

- Move immediately to higher ground or stay on high ground.
- Evacuate if directed.
- Avoid walking or driving through flood waters. Turn Around, Don't Drown! Just 15cm of moving water can knock you down and 60cm of water can sweep your vehicle away.

# After a flood

- Return home only when authorities say it is safe.
- Be aware of areas where floodwaters have receded and watch out for debris. Floodwaters often erode roads and walkways.
- Do not attempt to drive through areas that are still flooded.
- Avoid standing water as it may be electrically charged from underground or downed power lines.
- Photograph damage to your property

# When it is not flooding: Make a flood plan

- Know your flood risk.
- Make a flood emergency plan.
- Build or restock your emergency preparedness kit, including a flashlight, batteries, cash, and first aid supplies.
- Familiarise yourself with local emergency plans. Know where to go and how to get there should you need to get to higher ground, the highest level of a building, or to evacuate.
- Stay tuned to your phone alerts, TV, or radio for weather updates, emergency instructions, or evacuation orders.

# Emergency Communication Plan

## Why Make a Plan

Your family may not be together if a disaster strikes, so it is important to think about the following situations and plan just in case. Consider the following questions when making a plan:

- How will my family/household get emergency alerts and warnings?
- How will my family/household get to safe locations for relevant emergencies?
- How will my family/household get in touch if cell phone, internet, or landline doesn't work?
- How will I let loved ones know I am safe?
- How will family/household get to a meeting place after the emergency?

# Emergency Communication Plan

Here are a few easy steps to start your emergency communication plan:

- **Understand how to receive emergency alerts and warnings.** Make sure all household members are able to get alerts about an emergency from local officials.
- **Discuss family/household plans for disasters that may affect your area and plan where to go.** Plan together in advance so that everyone in the household understands where to go during a different type of disaster.
- **Collect information.** Create a paper copy of the contact information for your family that includes:
  - phone
  - medical facilities, doctors, service providers
  - school

# Emergency Communication Plan

- **Identify information and pick an emergency meeting place.** Things to consider:
  - Decide on safe, familiar places where your family can go for protection or to reunite.
  - Make sure these locations are accessible for household members with disabilities or access and functional needs.
  - Examples of meeting places:
    - **In your neighbourhood:** the end of the driveway, or at a neighbour's house.
    - **Outside of your neighbourhood:** library, community center, place of worship, or family friend's home.
    - **Outside of your town:** home of a relative or family friend. Make sure everyone knows the address of the meeting place and discuss ways you would get there.



# Emergency Preparedness Kit

A basic emergency supply kit could include the following recommended items:

- Water, four litres of water per person per day for at least three days, for drinking and sanitation
- Food, at least a three-day supply of non-perishable food
- Flashlight and extra batteries
- First aid kit
- Whistle to signal for help

# Emergency Preparedness Kit

- Dust mask to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place
- Wet wipe, garbage bags and plastic ties for personal sanitation
- Wrench or pliers to turn off utilities
- Manual can opener for food
- Local maps
- Mobile phone with chargers

# Post-Event Recommendations

# Post-Event Recommendations

Clean up work of any kind is hazardous, but flood conditions make it even more so. Following the procedures listed below will help to keep you safe and healthy while cleaning up after natural disasters that involve flooding.

- Use a wooden stick or pole to check flooded areas for pits, holes, and protruding objects before entering
- Be sure that a first-aid kit is available. Establish a plan for contacting medical personnel in the event of an emergency.
- Report any obvious hazards
- Wash your hands often during the day
- Conduct a preliminary worksite inspection to verify stability before entering a flooded or formerly flooded building or before operating vehicles over roadways or surfaces.

# Post-Event Recommendations

- Do NOT touch downed power lines or any object or water that is in contact with such lines.
- Treat all power lines as energized until you are certain that the lines have been de-energized.
- Be aware that de-energized power lines may become energized by a secondary power source such as a portable backup generator.
- If damage to an electrical system is suspected turn off the electrical system in the building and follow procedures before beginning work

# Post-Event Recommendations

- Floodwater: Floodwater often contains infectious organisms, including intestinal bacteria such as E. coli, Salmonella, and Shigella; Hepatitis A Virus; and agents of typhoid, paratyphoid and tetanus
- Consider all water unsafe until local authorities announce that the public water supply is safe
- Do not use contaminated water to wash and prepare food, brush your teeth, wash dishes or make ice.
- Keep an adequate supply of safe water available for washing and potable water for drinking

# Post-Event Recommendations

In general:

- Turn off electricity
- Turn off gas
- Make sure water is safe
- Make sure food is safe
- Stay healthy
- Use generators safely
- Use chainsaws safely
- Use electricity safely in wet areas
- Take care of yourself and your family

# General Cleanup

- Evaluate your house's foundation and structural soundness before entering
- Remove water from the basement slowly
- Get organized. Set priorities. Follow a three-step process for cleaning
  1. Remove mud
  2. Clean
  3. Disinfect
- Dry ceilings and walls
- Prevent mould growth



## Appendix B - Leaflet

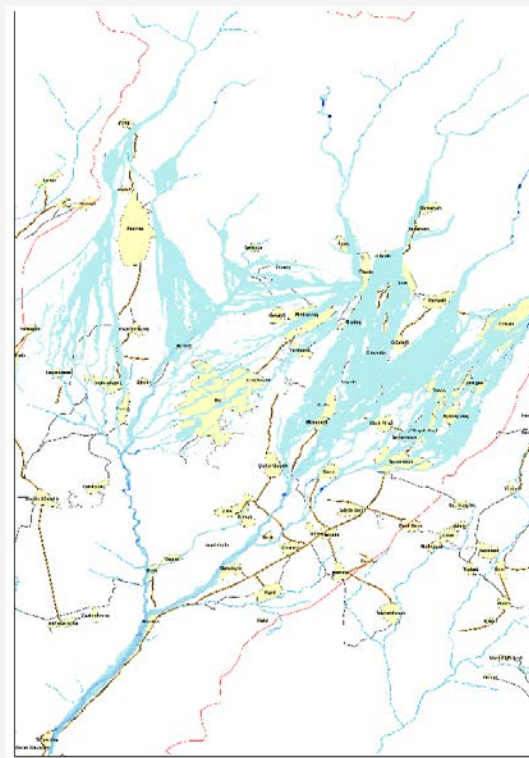
## Community-Based Flood Early Warning System

This system will aid your community in mitigating the effects of flooding.

The ultimate goal of this system is to protect life and property in your community thanks to the use of flood information and warnings from different sources.

The most important characteristic of this system is **your participation**. This system empowers the people of your community to protect, prepare yourselves and make you more resilient against the disastrous effects of floods.

Local Hazard maps will be distributed for all the communities



**BE AWARE OF THE AREAS AT RISK**

### MORE INFORMATION

*Please contact your regional MOES centre of your Community representatives for more information*

# Community-Based Flood Early Warning System



*Integrating Climate Change Risks into Water and Flood Management by Vulnerable Mountainous Communities in the Greater Caucasus Region*

## Personal flood plan

Start preparing today before a flood occurs:

- **Know who to contact and how – Keep Useful Contact Numbers**
- **Think about what you can move now**
- **Think about what you would want to move to safety during a flood**
- **Know how to turn off your gas, electricity and water mains supplies**
- **Prepare a flood kit of essential items and keep it handy**

## Know flood warning codes



### **Flood Alert – Be Aware (-48h)**

*Flooding is possible*

Follow Information



### **Flood Alert – Be Prepared (-24h)**

*Flooding is likely*

Prepare a flood kit

Follow Information



### **Flood Warning – Take Action**

*Flooding is expected*

Protect yourself, your family and help others. Move family, pets and valuables to a safe place.

Turn off gas, electricity and water supplies if safe to do so.

## During a Flood

### What to do to stay safe in a flood

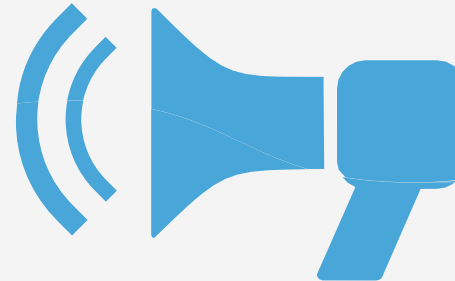
In the event of a flood focus on the safety of you and your family

- Cooperate with the emergency services if they tell you to evacuate during flooding.
- Be prepared to act quickly and get yourself to safety.
- Stay alert to localised flooding

### **Important! Flood water is dangerous**

- Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.
- Avoid walking or driving through it.
- Keep children and vulnerable people away from it.
- Wash your hands thoroughly if you touch it.

Listen to the advice of the emergency services



### protect what you can...

- Take items upstairs or to a safe place in your property
- If possible, move your outside belongings to higher ground
- Help stop water entering your home

### **...but evacuate when told**

Stay safe, always listen to the advice of the emergency services and evacuate when told to do so.

- Evacuation Routes will be signalled. Please be aware of your Evacuation Route.
- Evacuation Centres will be enabled when possible. Please be aware of the location of your Evacuation Centre