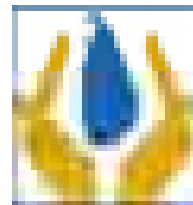


Community Based Approach on

# Public Awareness and Capacity Building in flood Risk Management



*J.M.A.R.Jayrathne  
Deputy Director Emergency Operation  
Disaster Management Center  
Sri Lanka*

# Why Awareness Generation?

Create understanding amongst a set of people through building their

**a. knowledge,**

**b. attitude and**

**c. skills**

for vulnerability reduction and preparedness.



# **Why Awareness Generation?**

**The least expensive and the most important  
disaster mitigation tool is....**

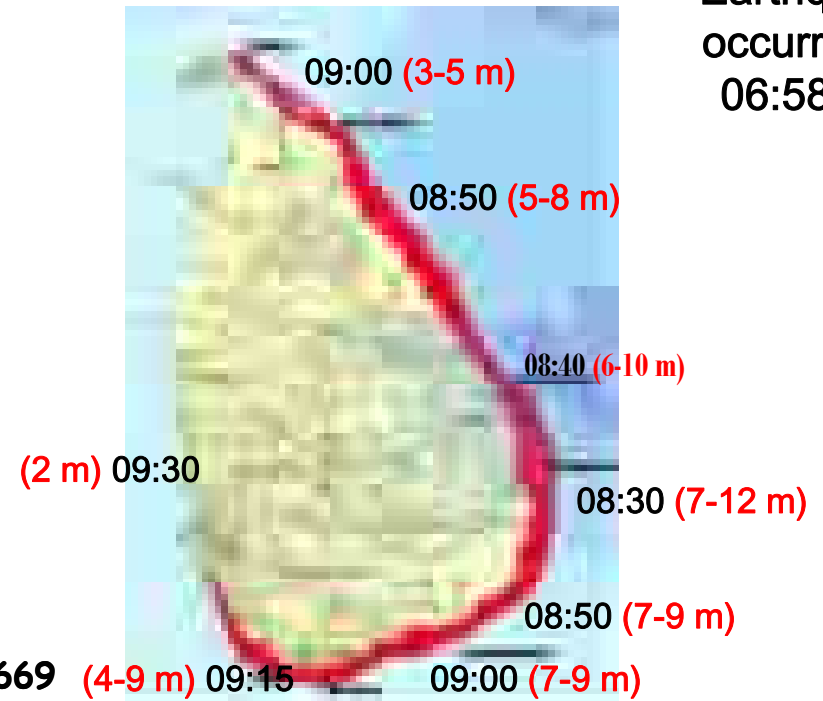
**AWARENESS**

# Why people die due to disasters?

- Lack of awareness and capacity
- Careless
- Normalcy bias

## Indian Ocean Tsunami of 26-12-2004

Note:  
Earthquake  
occurred at  
06:58 am



Number dead - 30, 959

Number missing - 5, 644

Number displaced - 500, 669

Time of arrival of first wave and estimated max. wave height

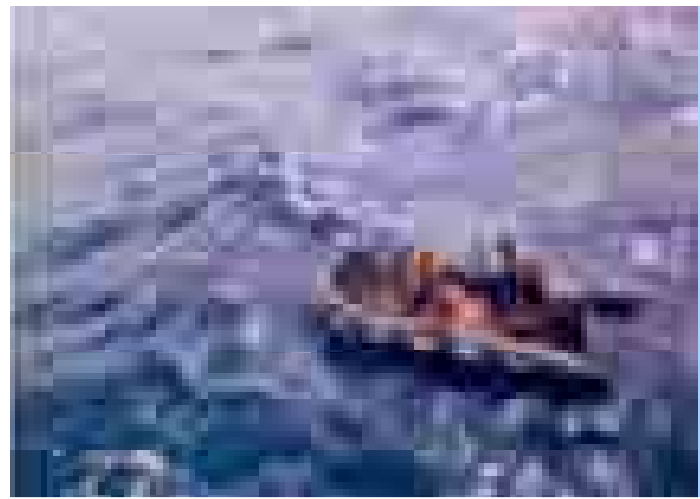
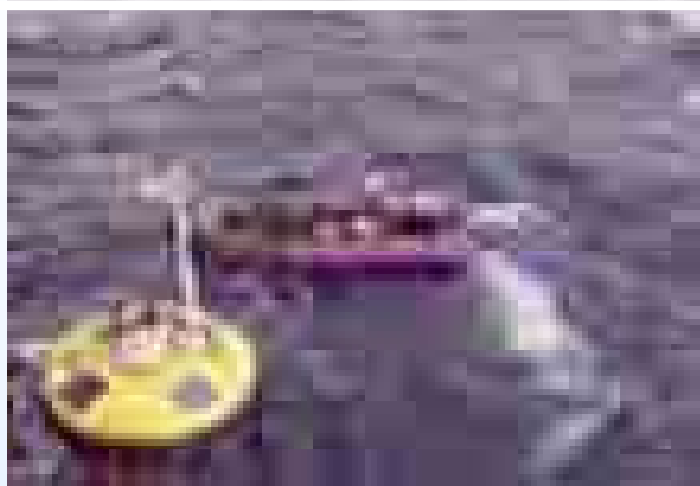
# Disaster signs

- Floods
- Landslides
- Tsunami
- Cyclones, High winds
- Lightning

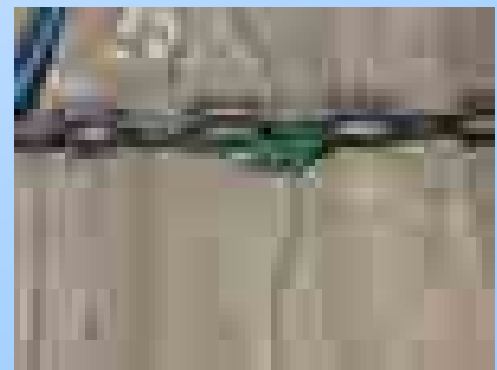
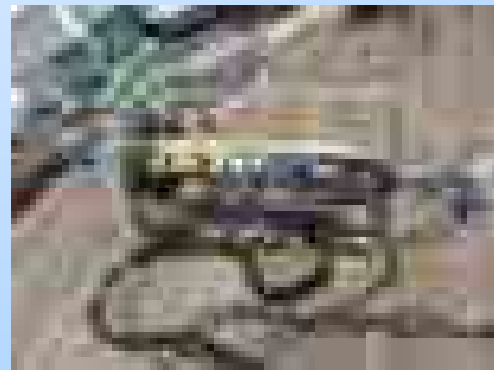
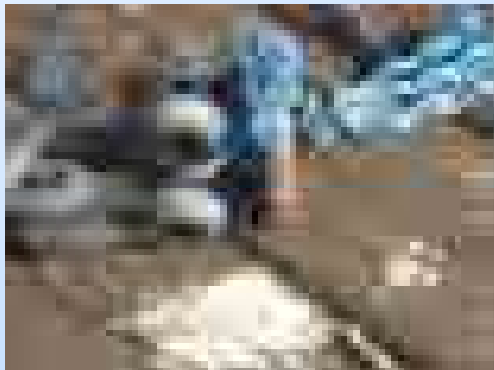
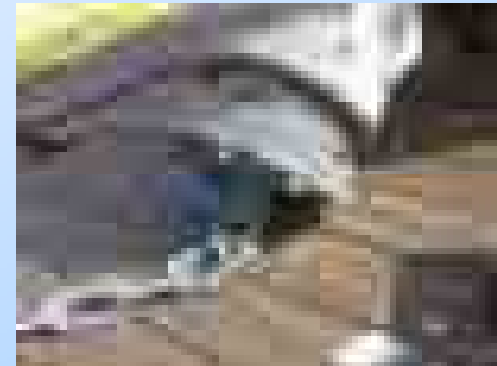
Preparedness / prevention / Mitigation method or techniques

# Receiving Technical Information from Various Countries





27 March 2011





# Develop SMART Objectives

- **Specific** (what and who)
- **Measurable** (something you can see, hear or expressed with an action verb)
- **Attainable** (where)
- **Realistic** (achievable)
- **Time bound** (when)

# Follow the 5 WH Principles

- **What**
- **Why**
- **When**
- **Where**
- **Who**
- **How**

# What

- Keeping the target group informed
- Sensitization
- Enhance their information level

# Why

- Active involvement
- Effective Communication
- Peoples Participation
- Reach out the real target
- Target oriented approach

# When

- Normal Time
- Pre Disaster ( After receiving Warning)
- During Disaster
- Post Disaster

# Where

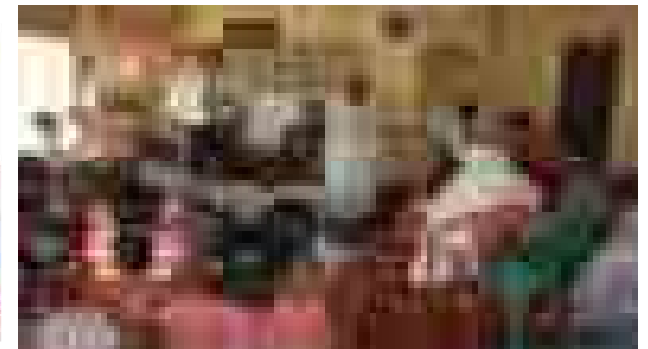
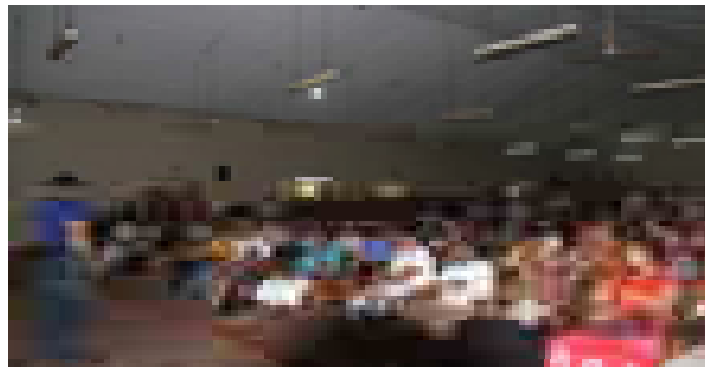
- City
- Ward
- Neighborhood
- schools

# Who

- Govt. Functionaries
- Privet sector
- NGOs
- CBOs
- Communities
- Volunteers
- Children
- Adults



## Knowledge and Awareness Creation sessions on Disasters



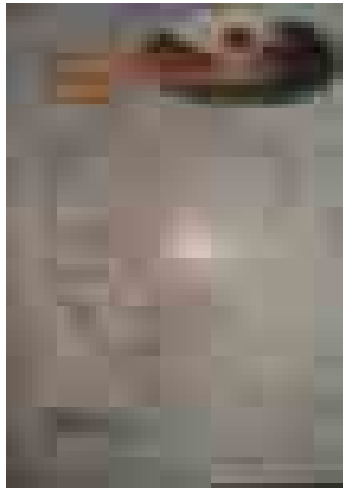


# How

- Leaflets
- Wall paintings, Hoarding & Banner
- Rally
- Electronic & Print media
- Local festivals
- Cultural Programs
- Jingles
- Meetings
- Workshops & Seminars
- Manuals & Documents
- Mock Drills



**Awareness and Education on Disasters**



## **Disaster Education ,Public Awareness and Capacity Building Methods**

- (1)Public awareness campaigns and events
- (2)Various disaster related publications
- (3)Disaster management plans
- (4)Distribution of pamphlets and brochures
- (5)Annual reports of DM institutions
- (6)Newsletters on various hazards
- (7)Simulations and drills
- (8)Disaster parks
- (9)Disaster museums
- (10) Training courses
- (11)Workshops
- (12)Seminars & conferences
- (13)Exhibitions
- (14)Symposium
- (15)Mobile SMS and Alerts
- (16)Paints on DRR
- (17)Social media, websites,
- (18)Cartons & comics
- (19)Cultural arts
- (20)Appealing graphics

Cont.....

21. Rehearsal of various hazards
22. Quiz competition
23. On site visit etc.
24. Games & Sports
25. Town watching and field visit
26. Voluntary organization
27. TV Programs
28. Radio Programs
29. Drama
30. Story telling
31. Art & Music
32. Play and learn
33. Museum
34. Building blocks
35. Learning centers
36. Research

37. Curriculum
38. DIG-disaster Imagination Game
39. Banners
40. Memorial walks
41. Streamers/flags, standees,  
leaflets, stickers,
42. Videos & Audios
43. Mapping
44. Sign boards
45. Mobile Training Vehicle
46. Disaster pouch (Bag).
47. Presentations.
48. TOT

**Risk**

HAZARD

$$\text{Risk} = (\text{Vulnerability} + \text{Exposure}) / \text{Capacity}$$

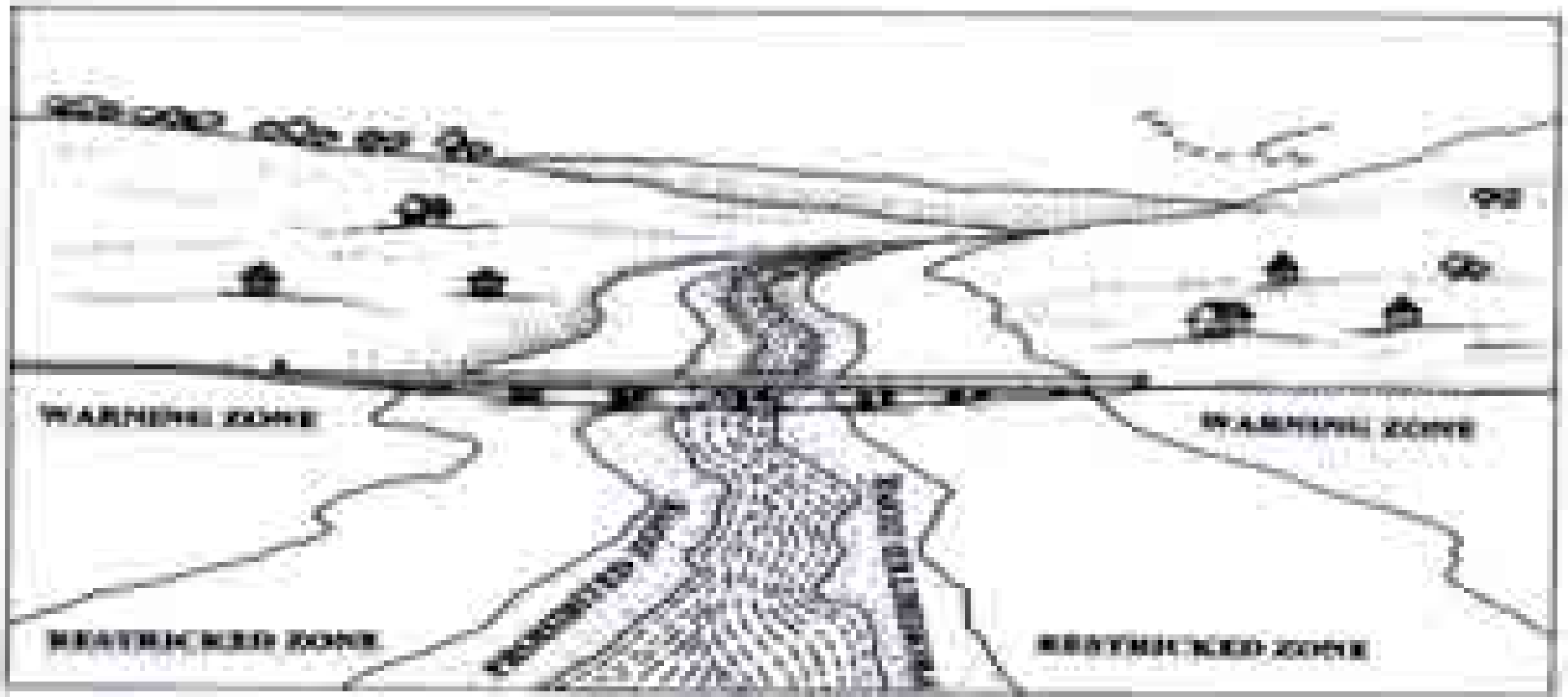
EXPOSURE



Potential for Disaster (RISK)

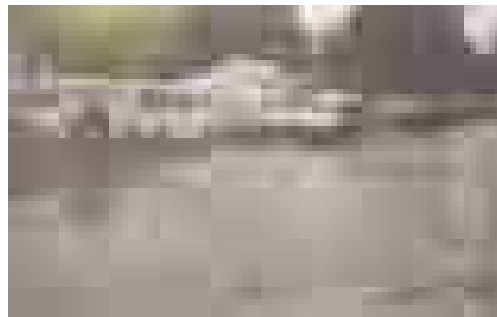
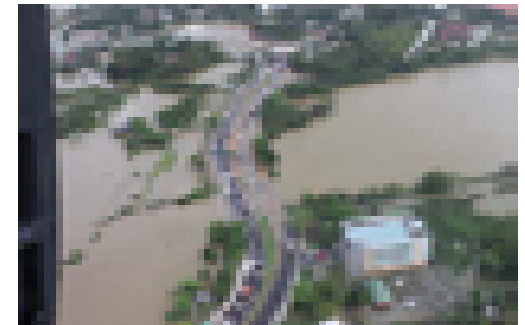
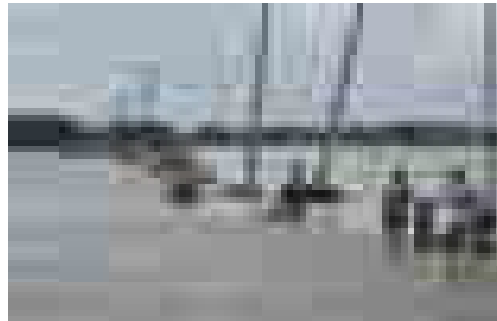
VULNERABILITY

## Categorization of Flood Risk



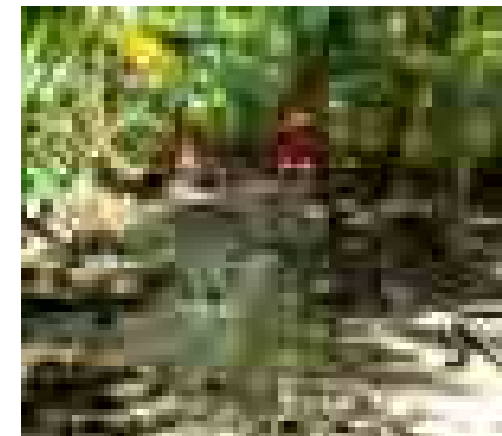
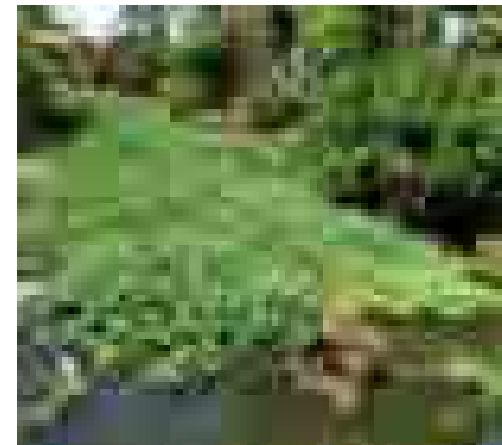
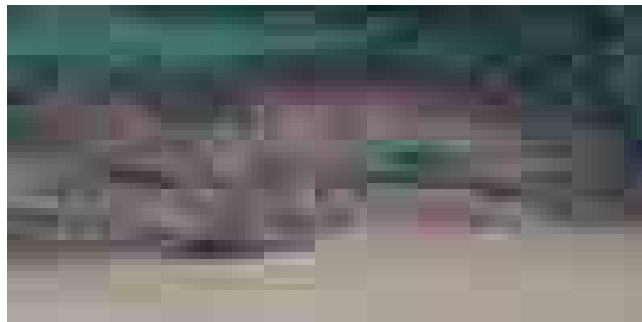
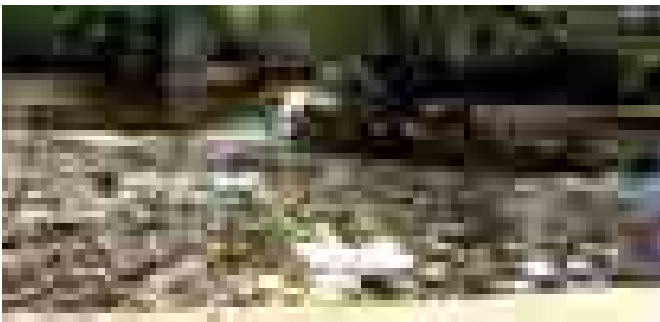
# Various Types of Floods

- Floods occurred at down stream river basin due to heavy rainfall in upper watershed
- Floods occurred at river basin due to heavy rainfall with in the locality
- Inundation of local flat area due to heavy intensity rainfall
- Dam breach/ unprecedented Sluice gates opening
- High tide ,Strom surge
- Glacier lake out breach

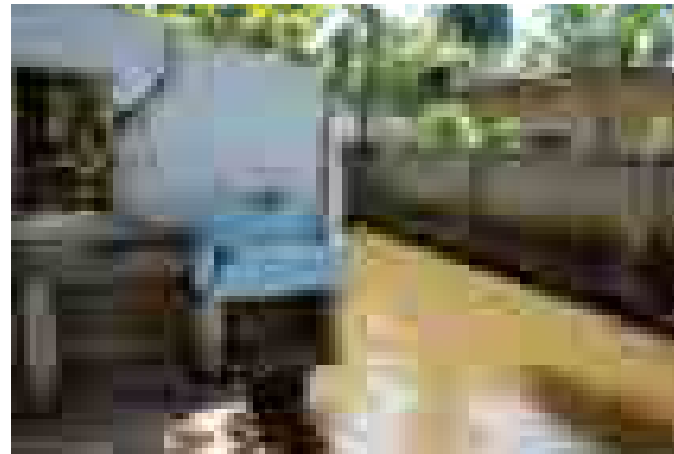
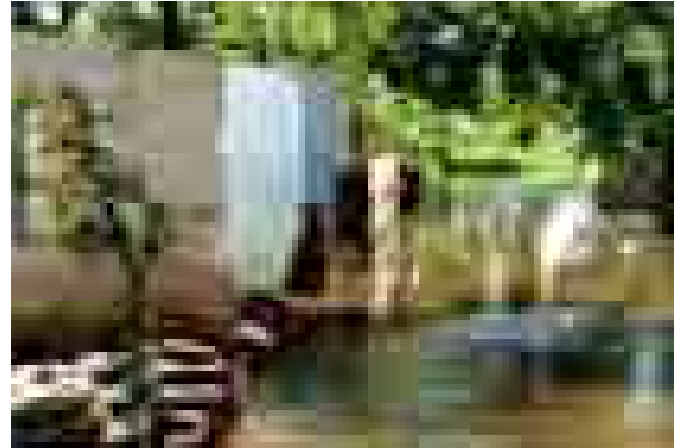


# Flooding as a result of:

1. Unauthorized filling of canals and construction of unauthorized buildings
2. Blocking of waterways as a result of improper waste disposal methods
3. Poor long term maintenance of canals resulting in siltation and growth of water hyacinth
4. Filling of retention areas
5. Poor land use planning and development of unauthorized settlements



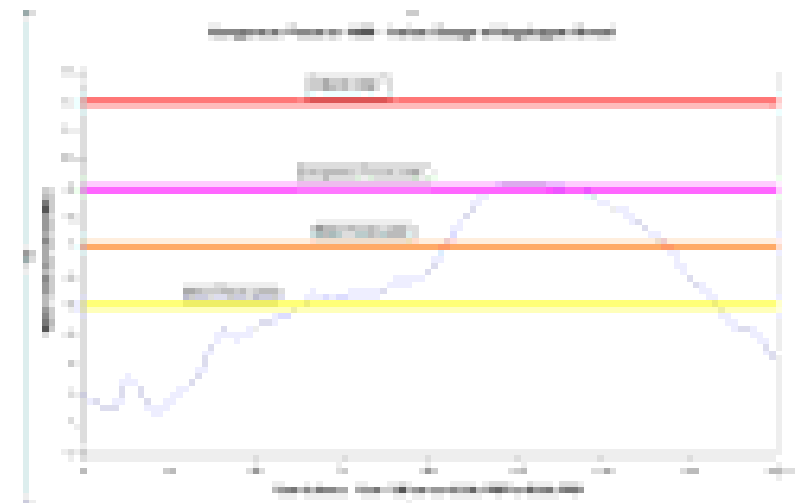




Unauthorized Construction

# Type of Flood Levels

- Following flood levels are established for each River Gauge Stations
  - Minor Flood Level (Warning is issued)
  - Major Flood Level (Prior warning issued)
  - Dangerous Flood Level
  - Critical Flood Level

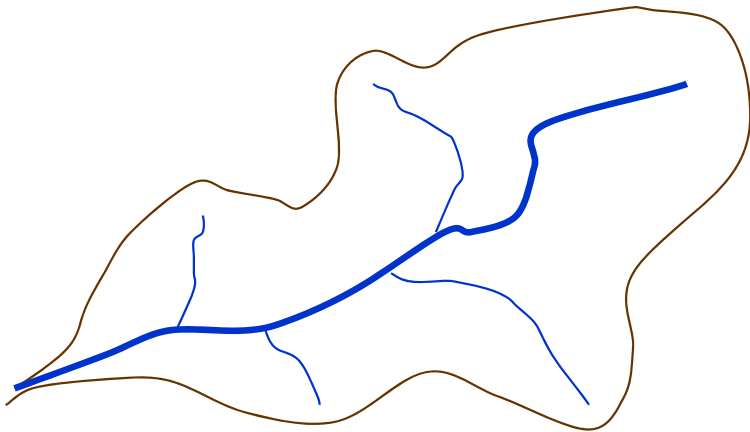


# How Floods are Generate?

By Rainfall fallen over the watershed

WATERSHED is the area where the runoff created by each drop of rainfall fallen to the surface, flows toward the down stream point of concerned

- Total Watershed Area = A

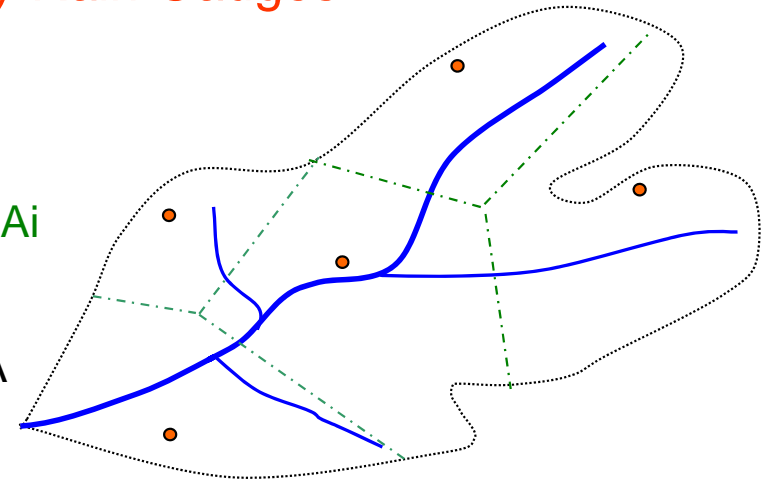


Many Rain Gauges

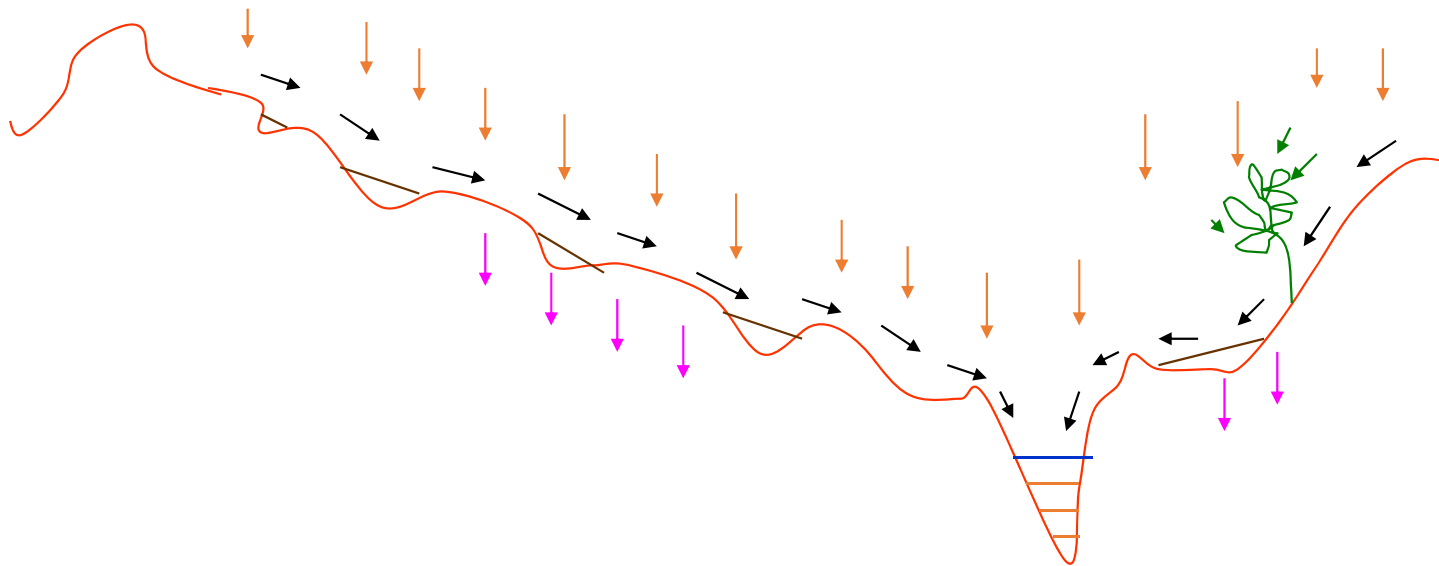
Rainfall  $P_i$

Area of Cell  $A_i$

Total Area = A



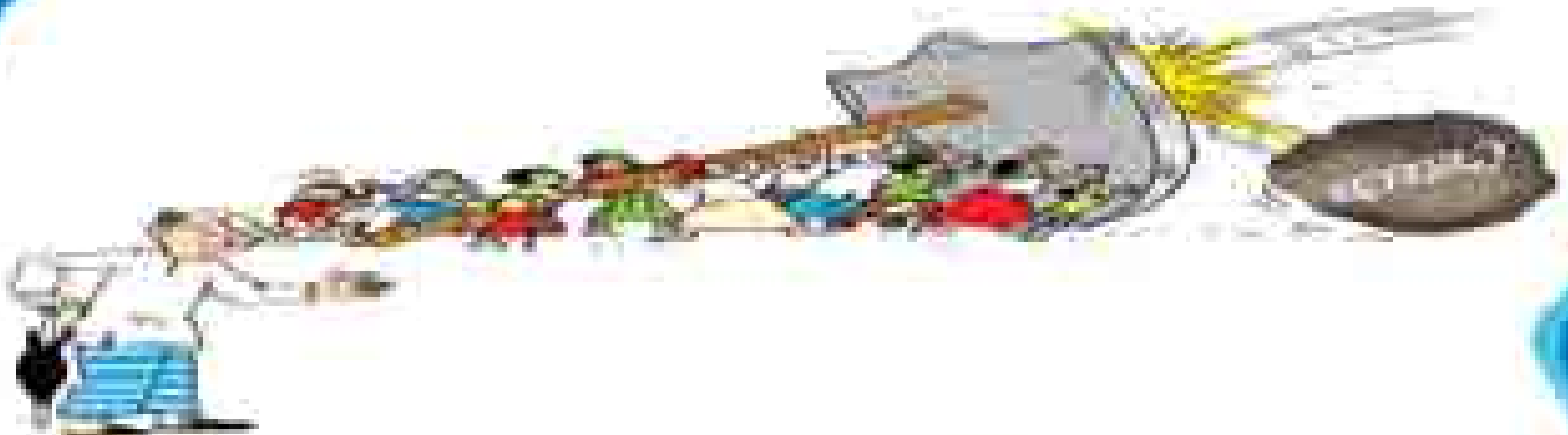
**Rainfall = Interception + Infiltration + Detention +  
Runoff**



# **Community Preparedness for flood**

# **Community Based Disaster Risk Management (CBDRM)**

**Towards Disaster Resilient  
Community**



## Community Based DRM

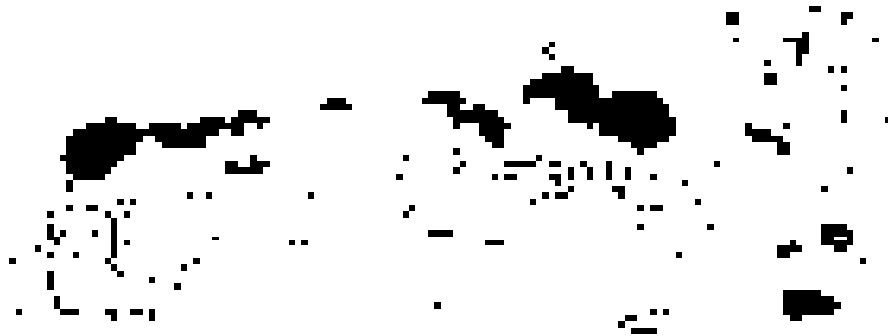
- A process of disaster risk management in which at risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities.





## - 07 Steps of CBDRM Process

1. Select Community
2. Rapport Building
3. Participatory Assessment
4. Participatory DRM Planning
5. **Building and Training Community DRM Organization.**
6. Community Managed Implementation.
7. Participatory Monitoring and Evaluation.



## **CBDRM helps....**

- Encourages maximum co-operation and high participation
- Leads to action on the part of community members
- Moves away from dependency on outside resources/experts to the use of community resources/expertise
- It is a way of working to obtain a goal
- It is a way of working with (rather than for) people
- It is self-determined
- It is based on local leadership and initiative
- Attempts to maximize citizen control of decision making
- It is network based
- Focuses on strengths and capacities
- It is human resource intensive
- It is sustainable

# Community Based Approach

**Encourages Capacity Building rather than Service Delivery**

<b>Service Delivery</b>	<b>Capacity Building Facilitators</b>
Reactive	Proactive
Needs driven	Core-problem driven
Minimum participation	High participation
Top down approach	Bottom up approach
One approach	Constantly reinventing approach
Creates dependency	Power shifts to community
Static	Adaptive as situation changes
Low training needs	High training needs

# Participatory Rapid Appraisal

- **Participatory Rapid Appraisal (PRA)** is a set of approaches, behaviors and methods for enabling people to do their own appraisal, analysis and planning, take their own actions, and do their own visuals, such as diagrams and maps.
- Also called, Participatory Learning and Action (PLA).

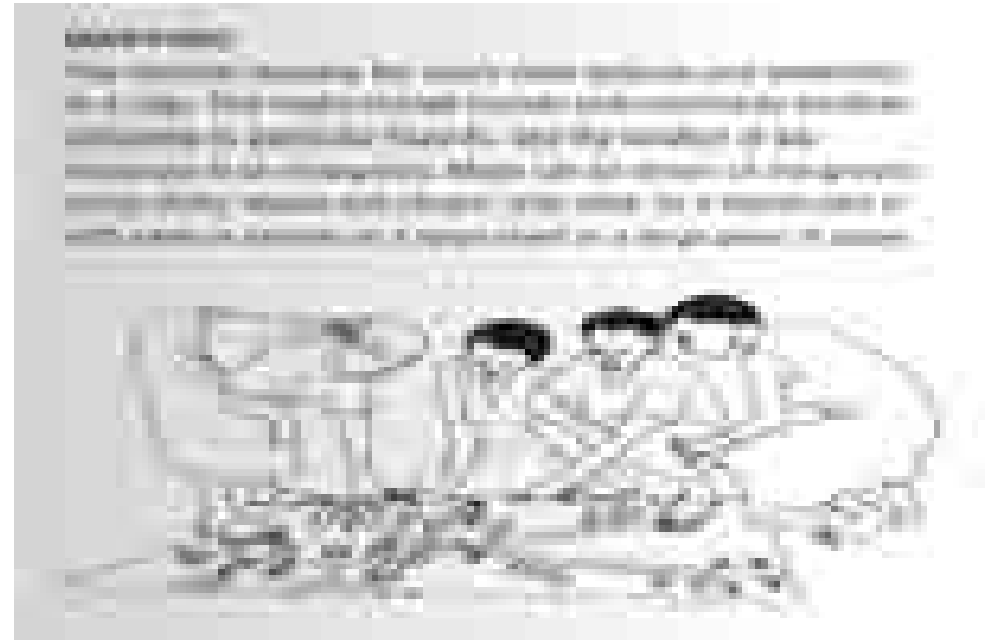
## Some PRA Tools

- Interviews
- Focused Group Discussion
- Observation /Survey
- Venn Diagram
- Timeline/Seasonality/Historical Transect
- Mapping Exercises
  - Social Mapping
  - Resource Mapping
  - Hazard Mapping
  - Vulnerability Mapping

# Some PRA Tools

## DIRECT OBSERVATION

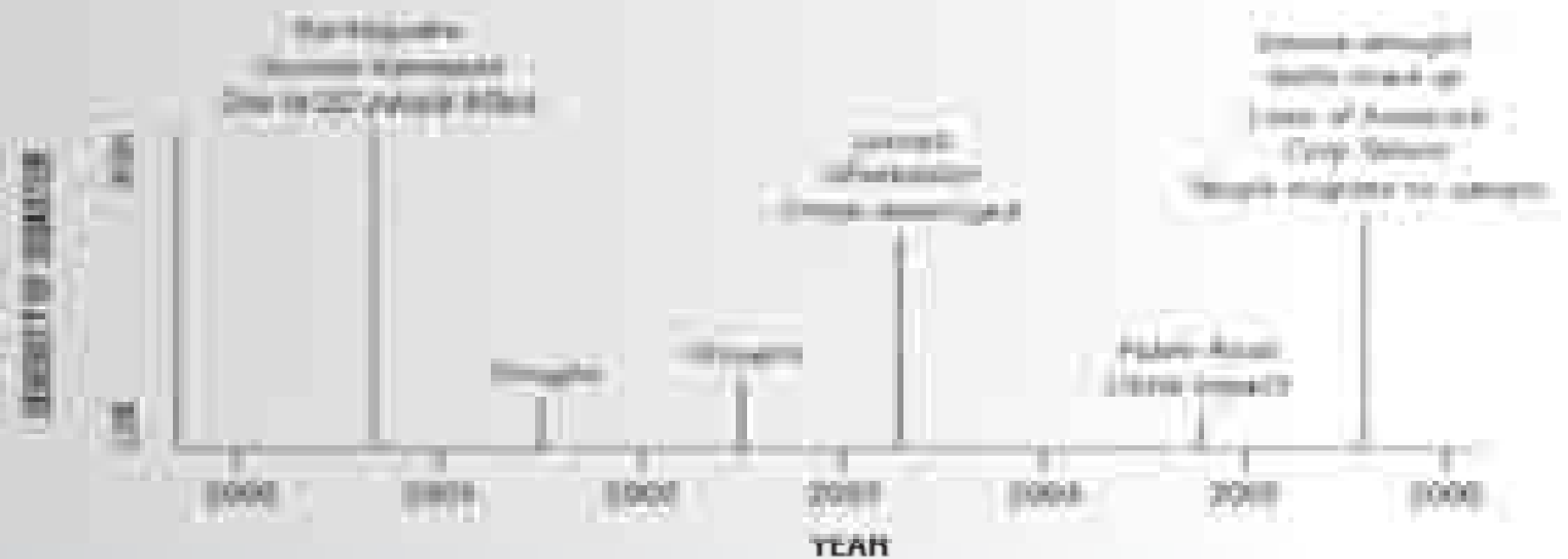
By observing people and relationships, objects, structures, events and processes we can start to develop a picture of community issues.



# Some PRA Tools

## TIMELINE

This is used to gather information about what happened in the past in order to understand the present situation.







# Some PRA Tools

## VENN DIAGRAM

This shows the key organisations and individuals in the local area and their relationships with each other.



Also called 'Roti/Chapati' diagram in South Asia

# Effective PRA facilitator should

- Listen attentively & say little.
- Have good presentation skills.
- Be clear about objectives, content & method
- Rapport building with the participation is a must
- Rehearsal before attempt
- Maintain eye contact
- Avoid artificial behavior
- Share life examples
- Create responsive environment
- Ensure active participation
- Do not hurry
- Be relevant
- Follow main Sequence
- Concentrate on the Issue

## Good PRA facilitator will

- Creates an atmosphere of friendliness and equality
- Stimulates Community members to reflect on their problems and needs
- Gives opportunities to all participants, encourages those who are not used to speak in group meetings.
- Listen, is patient and non-dominating, not biased or judgmental
- Is modest
- Helps people to analyze their situation and to plan activities together
- Deepens the analysis by raising relevant questions facilitating decision-making by mediating between different interests groups.

## Purpose of this activity

- To know the risks in community to prepare for future disasters



- To exchange knowledge with other stakeholders



- To make early warning and early evacuation plan

www.drr.gov.ph

What should know about?

# **Public Awareness and Capacity Building in flood Risk Management**

# Disaster Risk Management Cycle



# Importance of Knowing Risks in Your Community

## Flood-prone areas



## Threatened species habitat

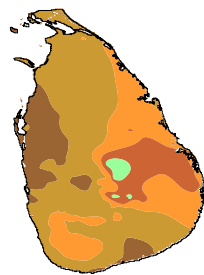


## Climate Change Impacts on the Environment

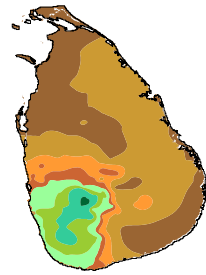


# Raining and Cyclone Pattern

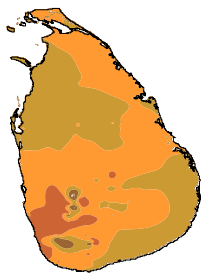
1. Northeast Monsoon Season – (December – February) **(Cyclone session)**
2. First Inter Monsoon Season – (March – April)
3. Southwest Monsoon Season – (May – September)
4. Second Inter Monsoon Season – (October – November) **(Cyclone session)**



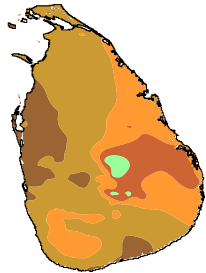
**First Inter-Monsoon (Mar-Apr)**  
268 mm/  
14%



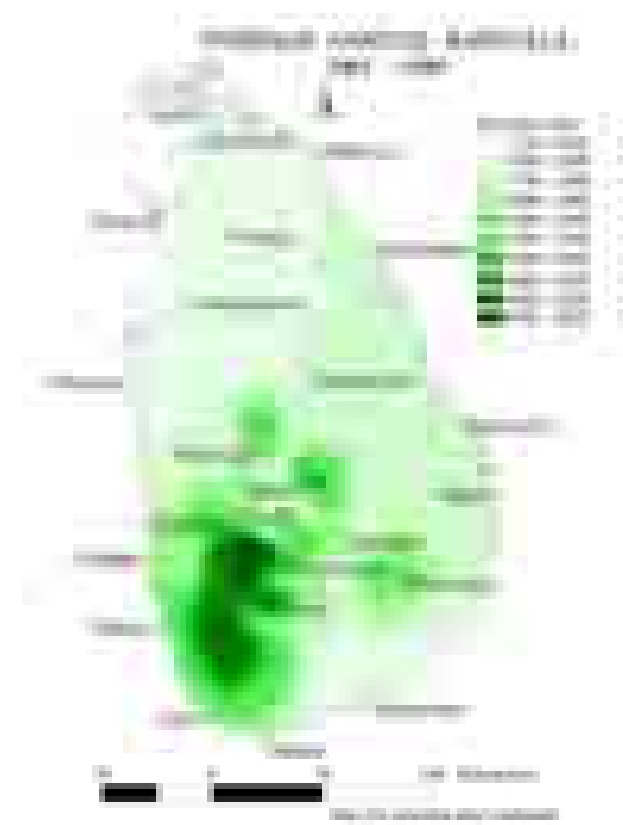
**South-West Monsoon (May-Sep)**  
556 mm  
30%



**Second Inter-Monsoon (Oct-Nov)**  
558 mm  
30%

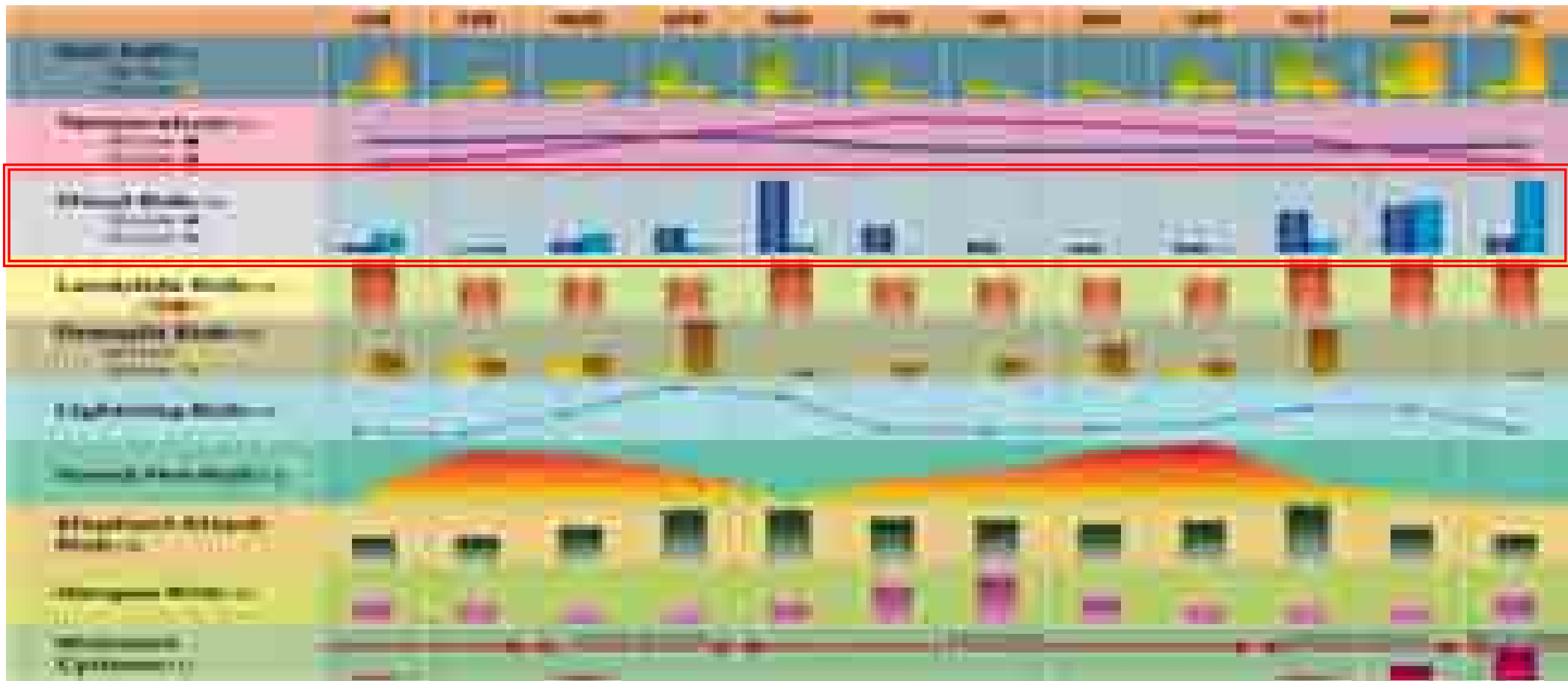


**North-East Monsoon (Dec-Feb)**  
479 mm  
26%





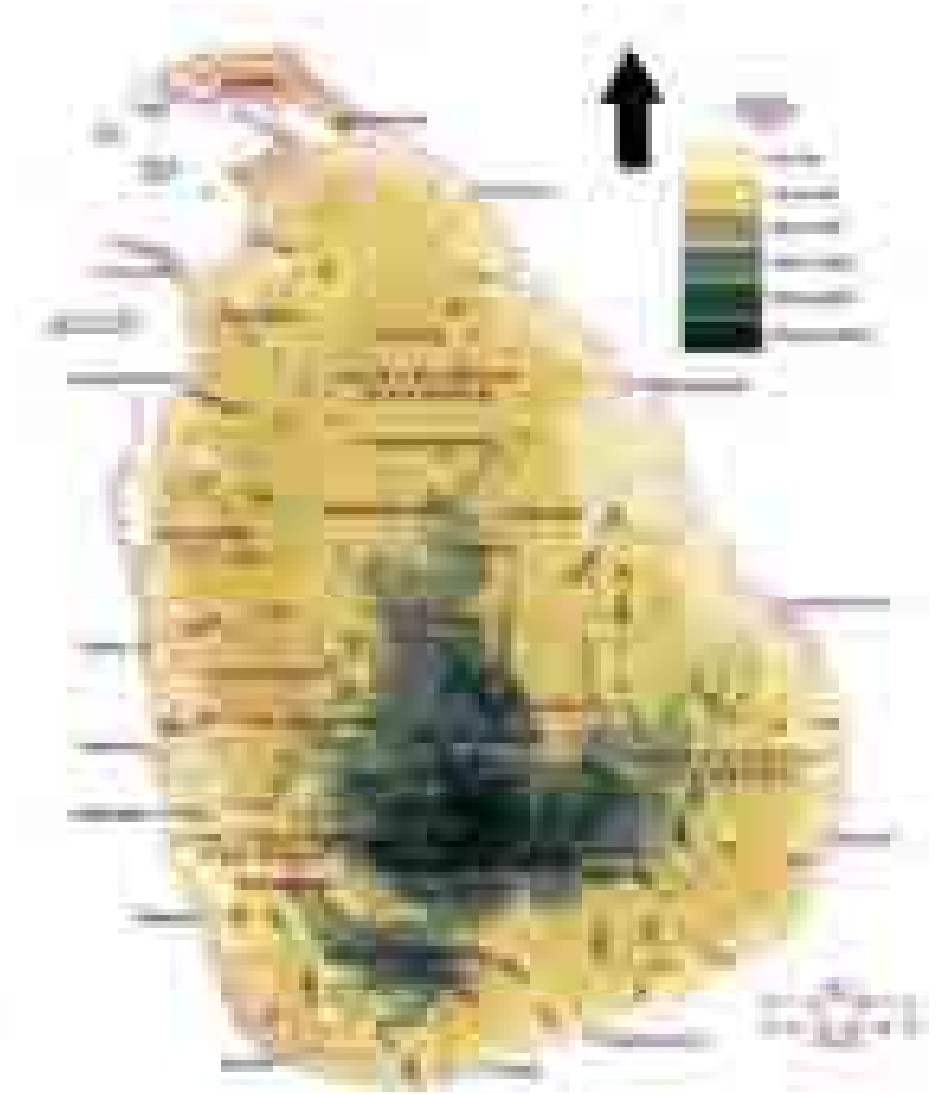
# Major Hazard prediction calendar in Sri Lanka



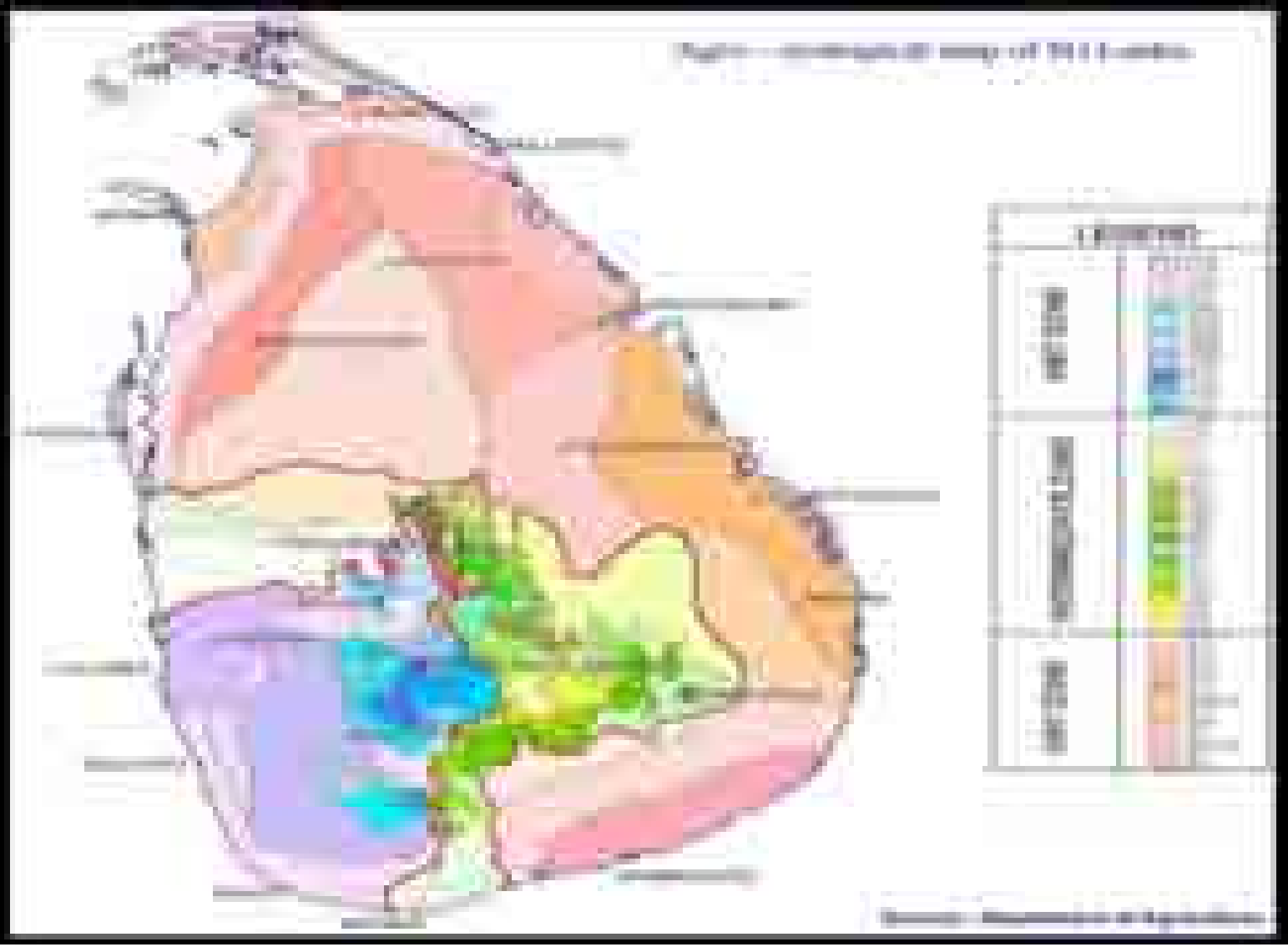




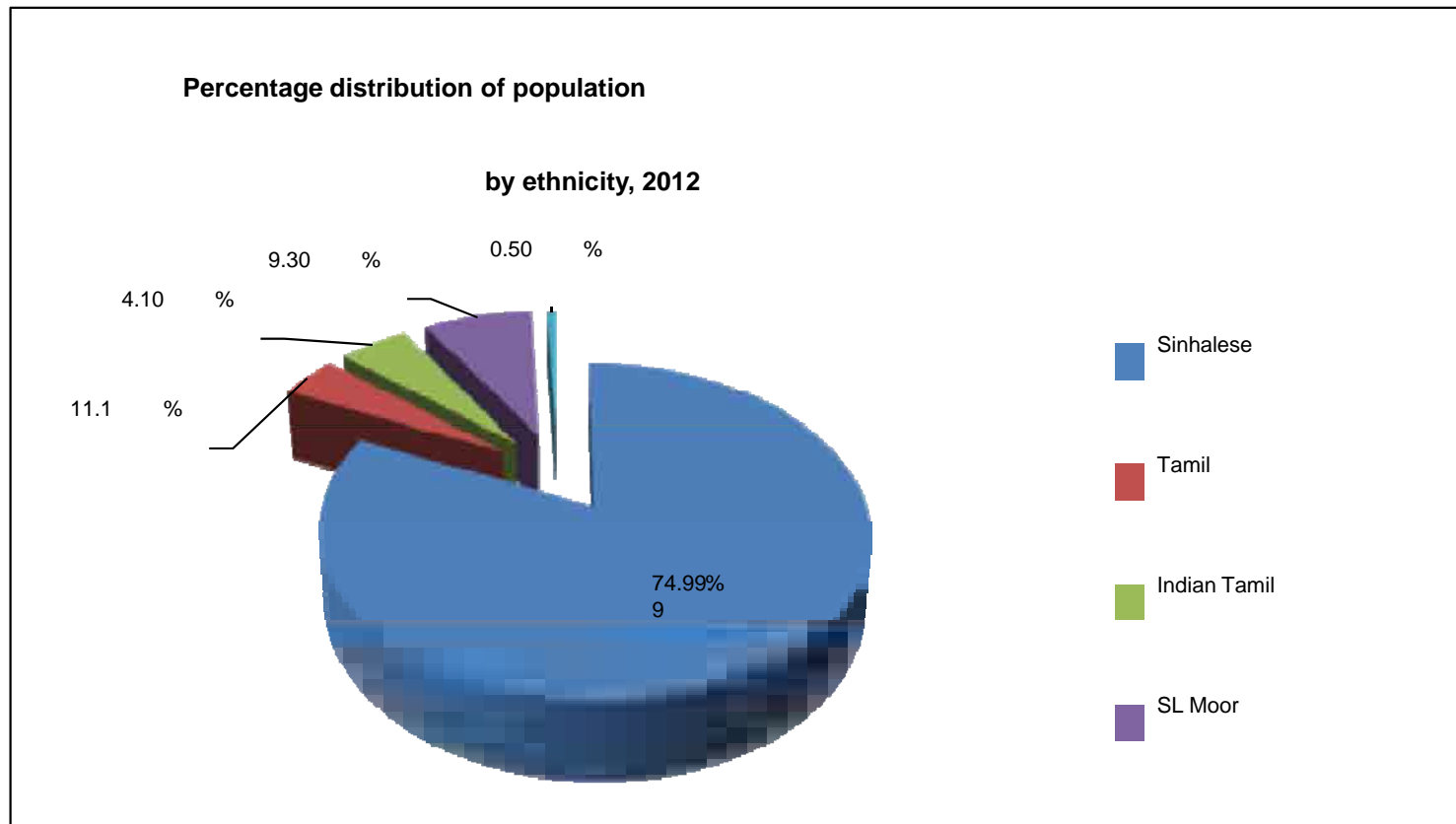
**River basing map of Sri Lanka**



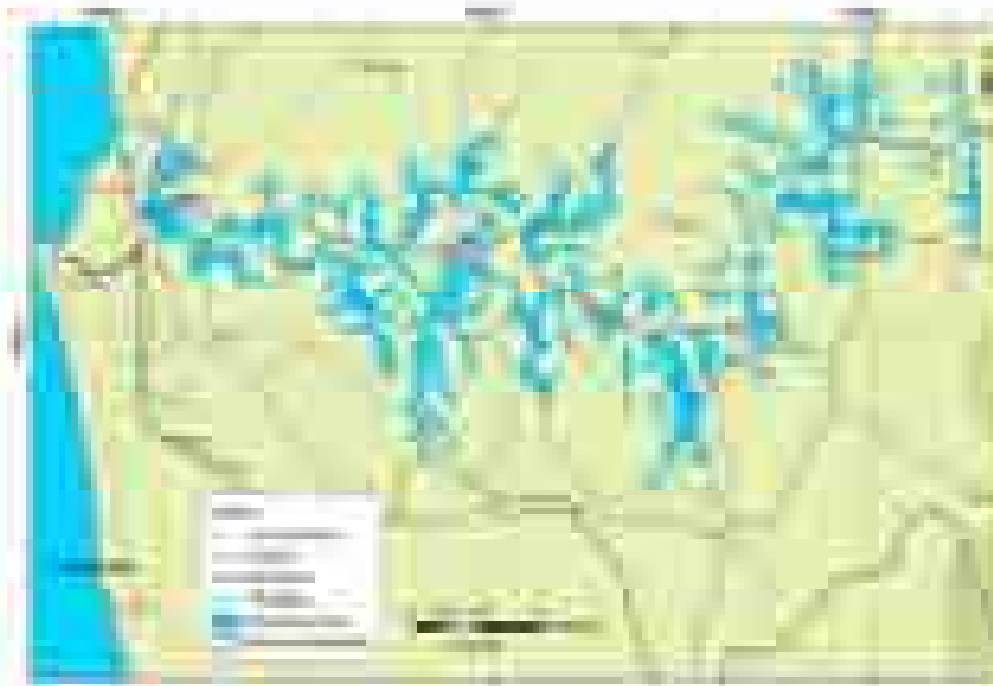
**Topographical map of Sri Lanka**



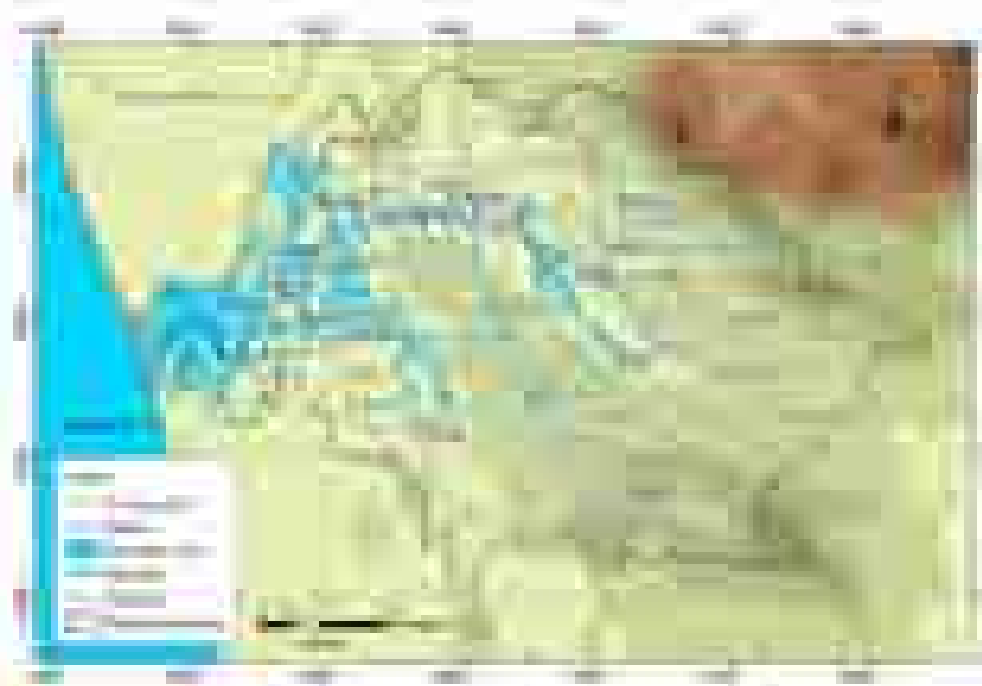
# Demography



# Flood Inundated Area in Kelani River Basin

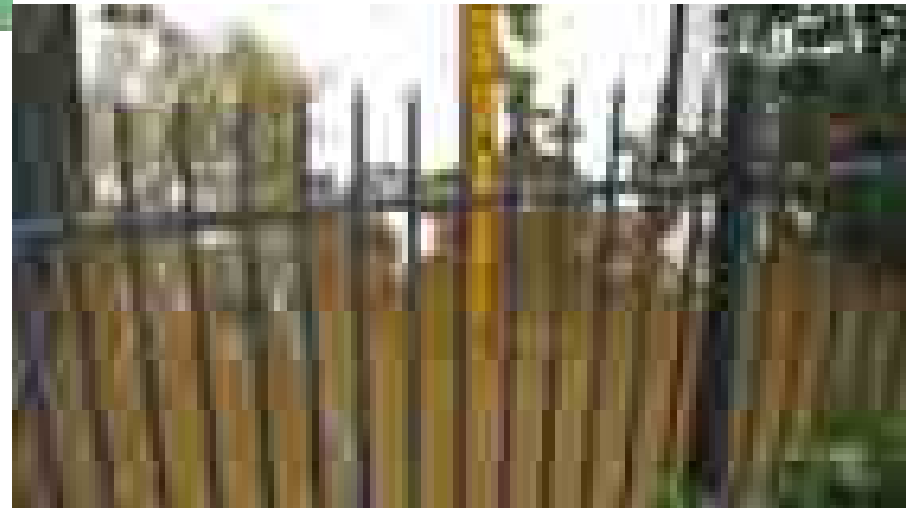


# Flood Inundated Area in Kalu River Basin





River Gauge Station



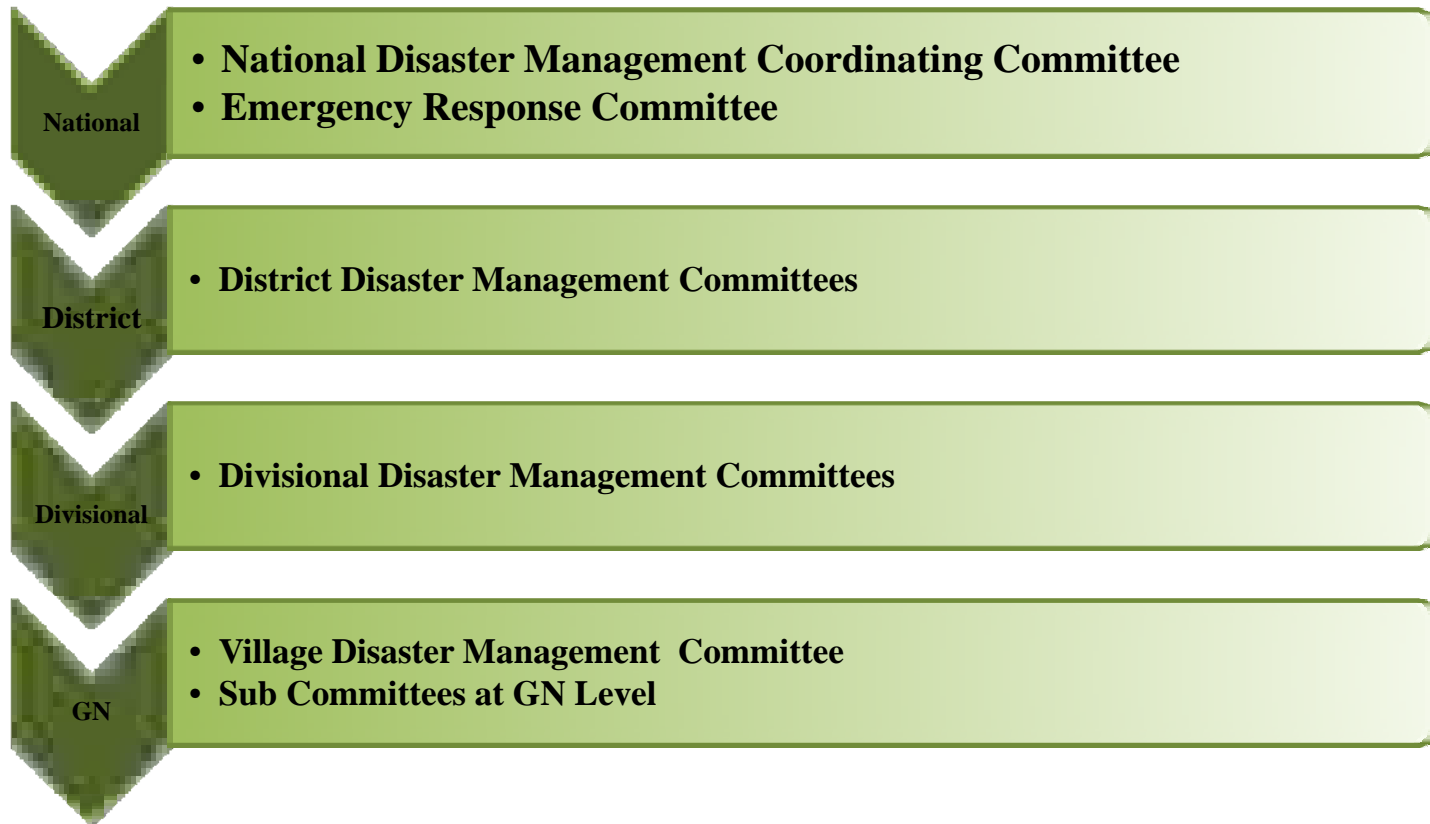


Bridge Gauge Station

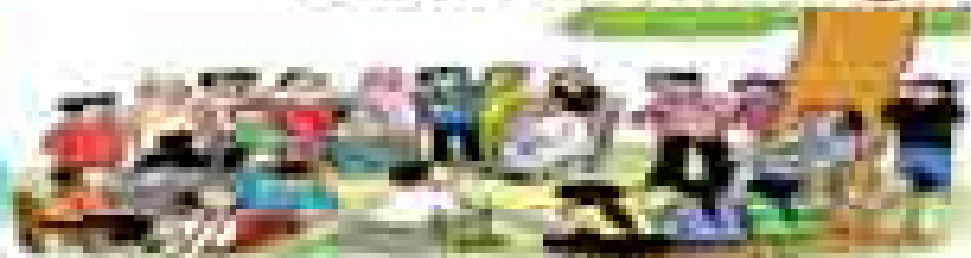


# Disaster Management Framework

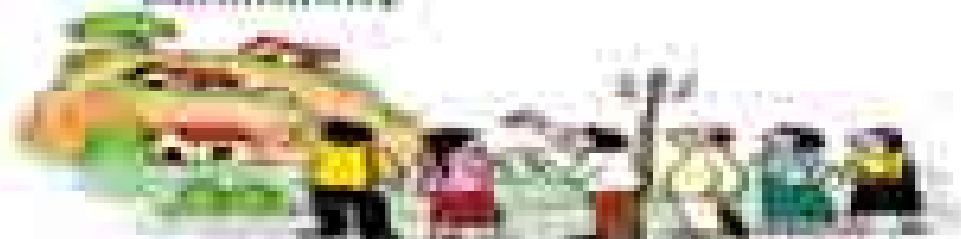
## National to Local Level



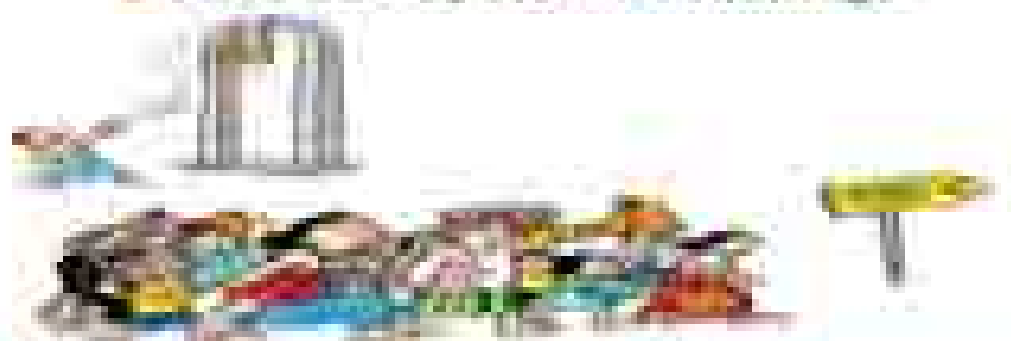
# Methods of Community Activities



1. Planning, organizing, and conducting community activities



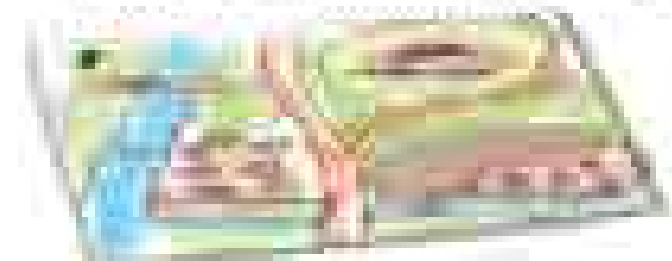
2. Tree-planting & Forest Maintenance



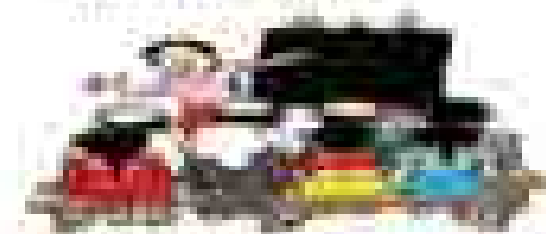
3. Organizing a Club



4. Inviting professionals to give lectures in community meetings



5. Holding a Community Meeting Regularly



6. Encouraging a Community Group to hold regular meetings. These meet on regular basis.

# Making A Community Hazard Map



Initial discussions for preparation of a Community Hazard Map



Field Survey



Draw a Community Hazard Map

## Tips for Making & Hazard Map



- Use different colors to show different types of hazards
- Use arrows to show the direction of hazards
- Use numbers to show the amount of hazards
- Use symbols to show the location of hazards
- Use a legend to explain the symbols and numbers



## Using Google Map



## Conduct an Evacuation Drill



- Check evacuation routes and places
- Check proposed early warning system



Through this evacuation drill, community will have the ability to face real disasters.

# Let's Make an Action Plan



## Action Plan

Priority	Objective	Responsibility	Time

Continue the community preparedness for Disaster Management through Action Plan.

- Check again the evacuation place and route.
- Provide awareness and training.
- First Aid training.
- Organizing to monitor the village development activities.

# Sub Committees at village Level

Early Warning



Evacuation /S & R



Medical / Health & first aids



Camp Management

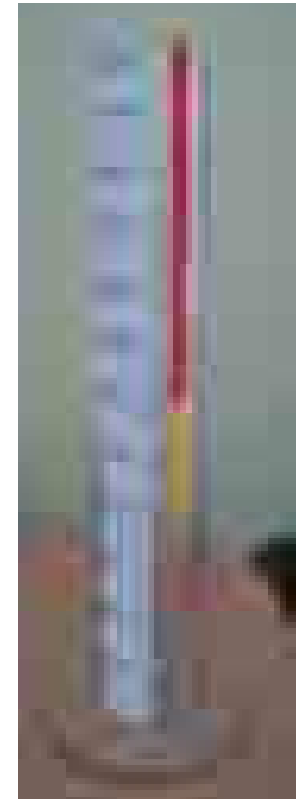
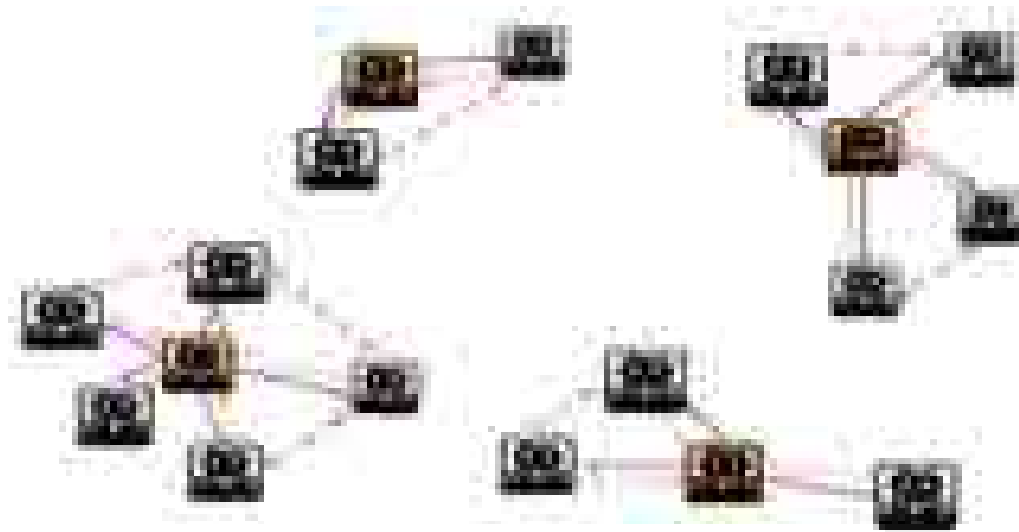


Village Security





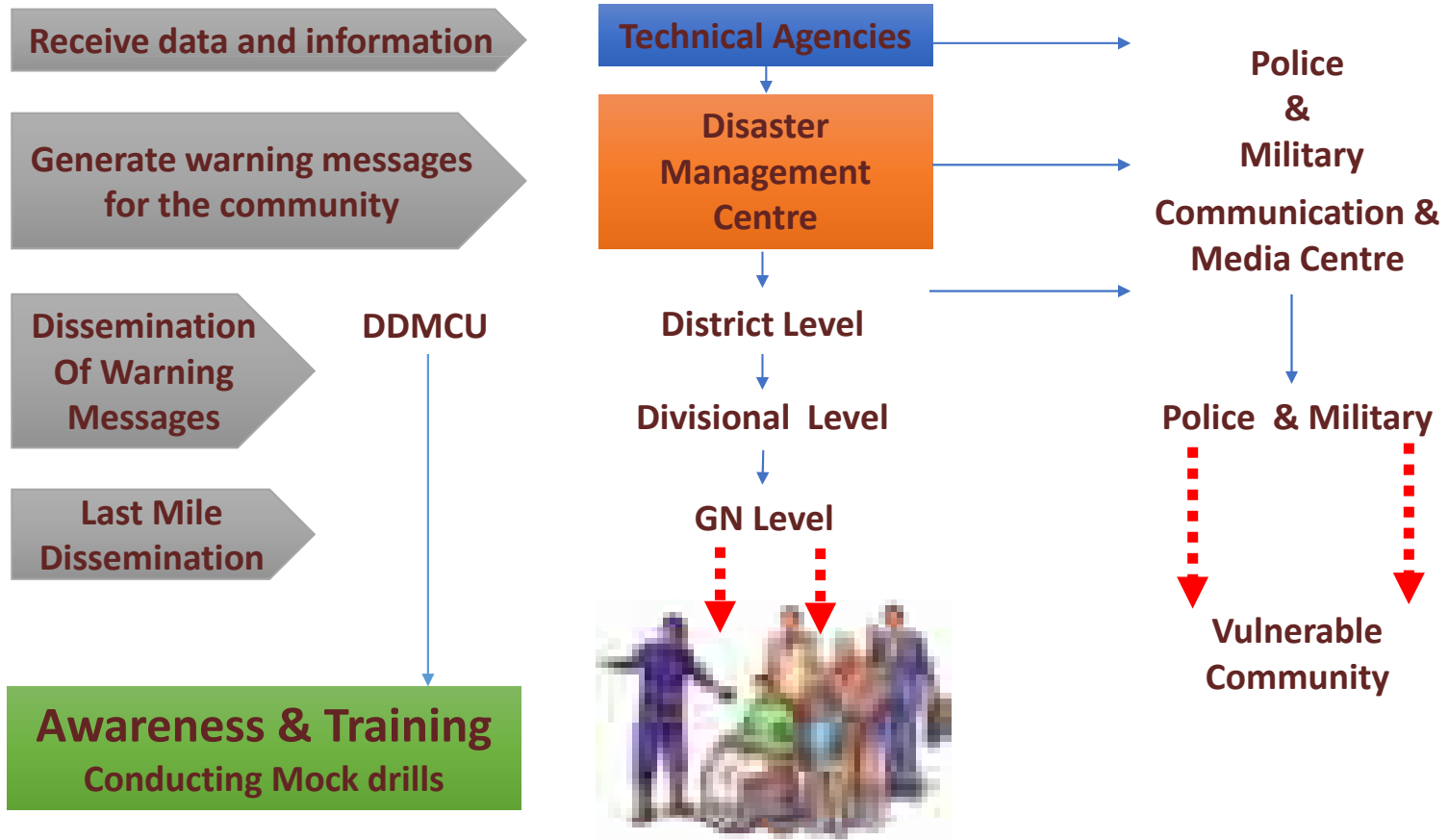
## Community Based Early Warning Sysytem with Simple Rain Gauge in vulnerable areas of the Community



- ❖ Information from Key House to neighboring house
- ❖ Checking with the Key House by neighboring house
- ❖ Information sharing paths between neighboring houses

# **Flood warning and evacuation**

# Early Warning Dissemination System



# Educate the community on Modes of communications

## ▪ National Level

- TV Stations
- Radio Station
- Early Warning Towers
- Police & Military Communication
- Cell Broadcast/ SMS
- Technical Devices
- Satellite & Radio Communication (HF & VHF)
- Telephones / CDMA/ GSM

Early Warning Unit

24 x 7 Emergency Operations Centre

117 Call center/119/1919 call centers

## ▪ Provincial / District Level

- Radio Communication
- Telephones / CDMA/ GSM

Emergency Operations Centre

Police & Military Communication

## ▪ Divisional level / Village Level

- Telephones / CDMA/ GSM
- Police Vehicles – Announcements
- PA Systems
- Sirens
- Temple and church bells
- Riders/ Push Bicycle & Motor Cycles/Messengers
- Visual (rain gauges/river gauges)

Early Warning Sub Committees/Teams

NGOs and CBOs

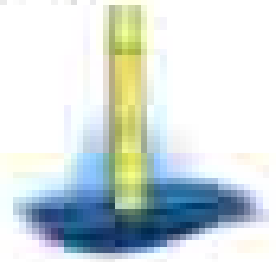
Vulaters

# How to Get Disaster Information?

## Community level



Radio tower

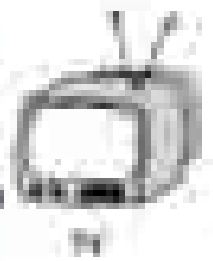


Wave buoy

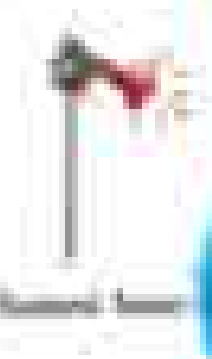
## National level



Radio



TV

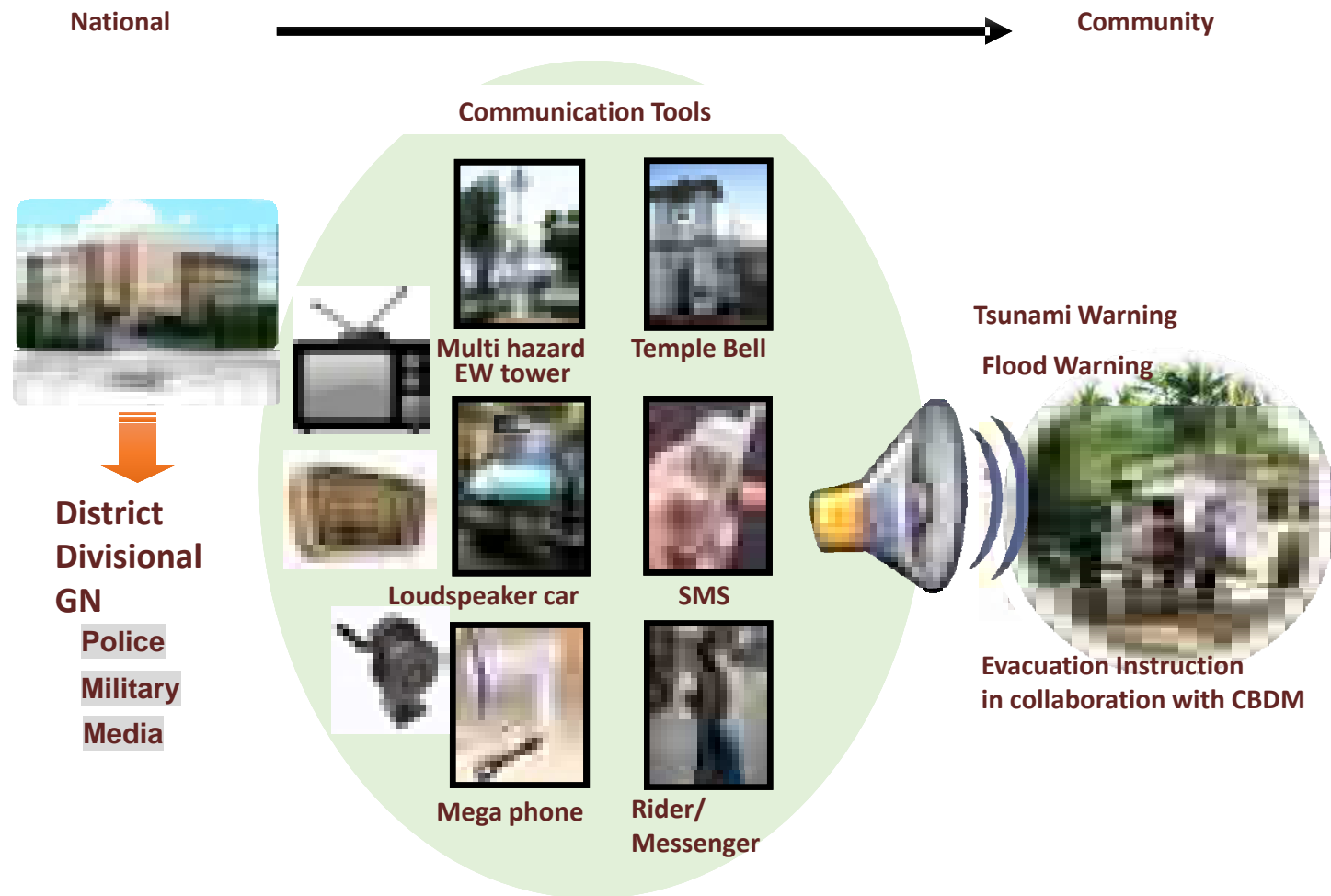


Megaphone

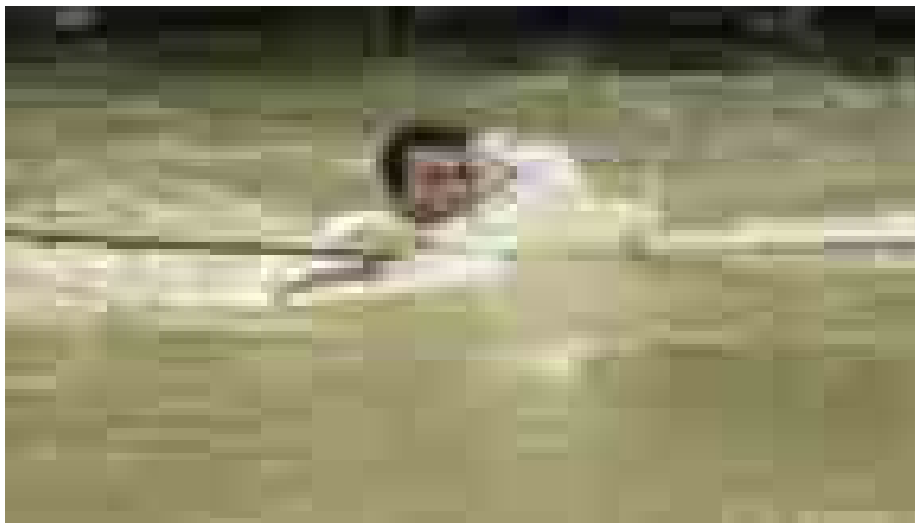
# How to Disseminate Information to the Community?



# “Last Mile” Dissemination



**Emergency response on flood.**





## Response to Damp Breach



# Camp Management



# Reduce Flood Disasters

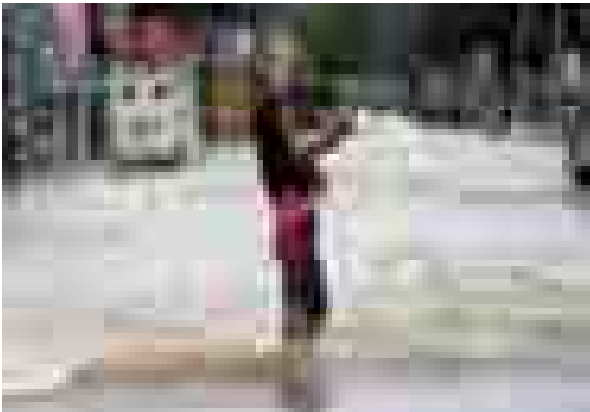
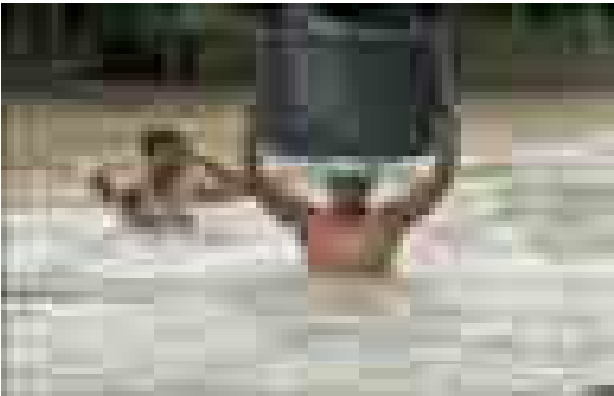
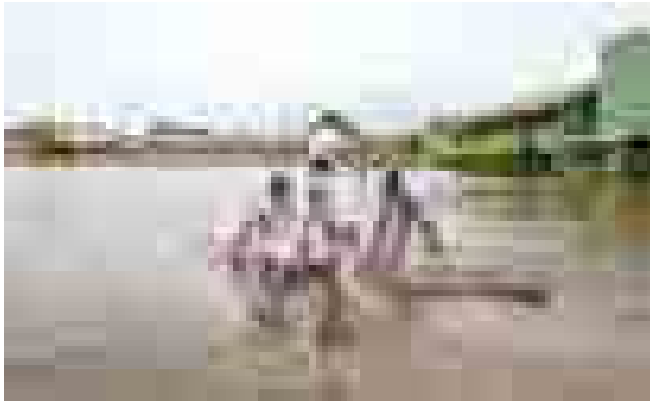
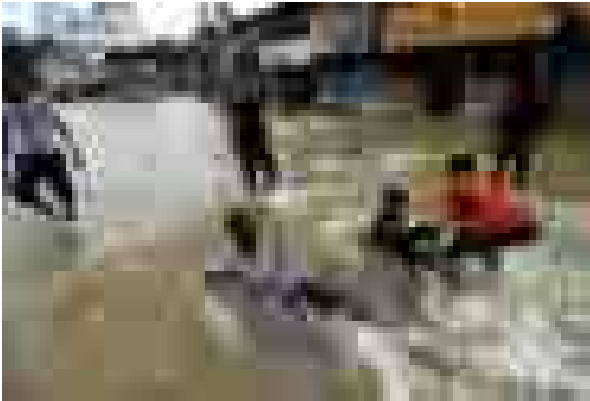
- Maintain detention basins
- Maintain Forest cover
- Avoid blocking stream paths & river sections
- Protect Flood bunds & flood protection structures
- Proper maintenance of drainage paths leading to the streams



# How to face Flood Disaster

- Be vigilant during bad weather periods
- Be ready to evacuate with the first warning
- Send vulnerable people to safe houses sick, elders, infants, disabled.. Etc..
- Keep valuable property safe, out of the reach of water
- When evacuation is proclaimed, move away from the premises immediately with valuable documents, cash & valuables, essential medicines, minimum linen, infant food items, torch, pocket radio, mobile telephone (Take your Disaster pouch)etc..
- Listen to radio for further warnings
- Walk out of the way of water (better not to use vehicles)
- Move in teams, not alone
- Never try to cross water
- Very Important .... **Help to each other..**

**Don't do When flood**



# Avoid Flood Disaster

- Not to live or build houses in flood plains
- Not to live or build houses very close to , Streams & Rivers
- Not to block flood water drainage systems
- Let water flows where it flows

# Disaster Insurance



## Coverage

Covers lives and properties, specifically all households and small business establishments (any business of which annual turnover does not exceed LKR 10 M) covered up to 2.5 million rupees each in respect of damages(per event) caused to their property and contents due to Cyclones, Storm, Tempest, Flood, Land slide, Hurricane, Earthquake, Tsunami and any other similar natural perils, excluding Drought.

All Fishermen registered under Department of Fisheries will be covered to the value of Rs.1 Million each.

## Limitations

- Death compensation other than fisherman death - Rs.100,000.00
- Property damage (House and SME) - Max Rs.2.5 Mn
- Fisherman death - Rs.1,000,000.00 (1 Mn)

## Quick Tips for Awareness and capacity building

- Share the *right information* clearly.
- *Seeks attention* of the target audience.
- Message should be *short, sweet* and *simple*
- Each message should also give a *message of benefit* so that the people are enthusiastic/ eager to know more about it.
- The *consistency* and the *sequencing* of the messages play a very important role for effective communication of the message.
- *Pre-test your material* with a sample audience.
- Message must be linked with *support and resources* so target audiences can act in the manner which is being recommended.

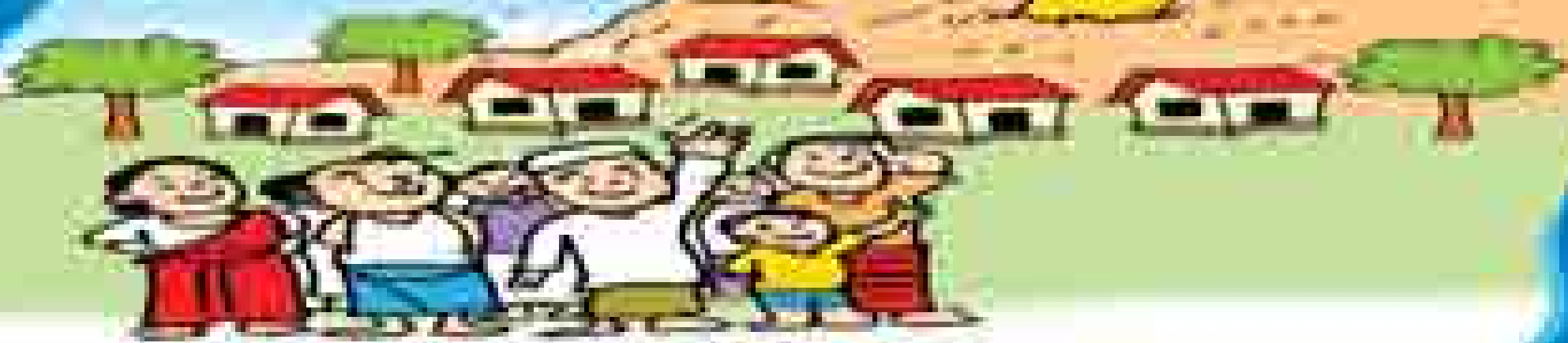


# Any Other ways to Response to Flood Disaster

- Use of common sense
- Identify the flood signs given by Environment.
- Animal behaviours ..... Frog , Ants ,swallow , termites
- Aware about traditional practices.
- Hydrological system in the country



By proper  
awareness  
and vigilance...



Let's mitigate disaster risk and  
let's save our village and the  
country.



## **RECOMMENDATION**



**Improve your**

**“Ability to judge the disasters”**