PRESENTATION ON FLOOD

Subject: Disaster Management
Subject Code: 2150003
Class :   Mech-A (5th Sem.)

Guided by: Prof. Paresh Patel

GROUP MEMBERS:

1. Koshti Shubham   (130240119043)

2. Makwana Maulik   (130240119047)

1. Mehta Hitechhu   (130240119054)

2. Moghariya Ghanshyam   (130240119060)

TOPICS:

- Introduction to FLOOD

- Hazardous by FLOOD

- Disaster Management for FLOOD in India

- Future directions & STRATEGIES

INTRODUCTION

A flood is usually caused by rain, heavy thunderstorms, and thawing of snow.

Its considered to be a temporary condition of two or more acres of dry land either:

- Overflowed with inland or tidal waters

- Rapid or runoff of surface waters

- Mudflows

HOW DOES FLOODING START AND END?

The shore or land by or surrounding a body of water erodes and this erosion causes waves currents that result in a flood.

Flood disasters have been increased because of the expansion of settlements and growth in floodplains.

Floods could be slow or fast but usually occur over a matter of days.

After the water eventually goes down or dries up. On coastal floods, low tides and high tides makes a change in heights.

WHY DOES IT OCCUR??

A flood is too much water in the wrong place.

Sometimes a flood occurs from :

- Sewer (drain) backup

- Collapse of land along the shore of a lake or another body of water. This results in waves or currents during a flood

HAZARDOUS BY FLOOD

- ## Effects on the Environment:

  It also makes a mess of the environment. The soil becomes poor because the oxygen is limited due to so much water. The pH in soil decreases, rate decomposition of organic matter in flooded soil tends only to be half that unflooded soil

Trees are effected as well. It effects the height, age, vigor, roots, and species.

During the growing season flooding is very harmful especially to woody plants compared a flood in a dormant season.

Floods could carry chemicals from agricultural fields, sewage,etc. and can't handle large bodies of water.

Crops die because they can't survive because of the conditions.

DEATHS DURING FLOODS

Floods often result in death, especially along river banks and low-lying areas.

Floods kill more Americans than any other natural disaster each year. You may be surprised but only 6 inches of fast moving water can sweep a person off their feet and cars will float of move in only two feet of water.
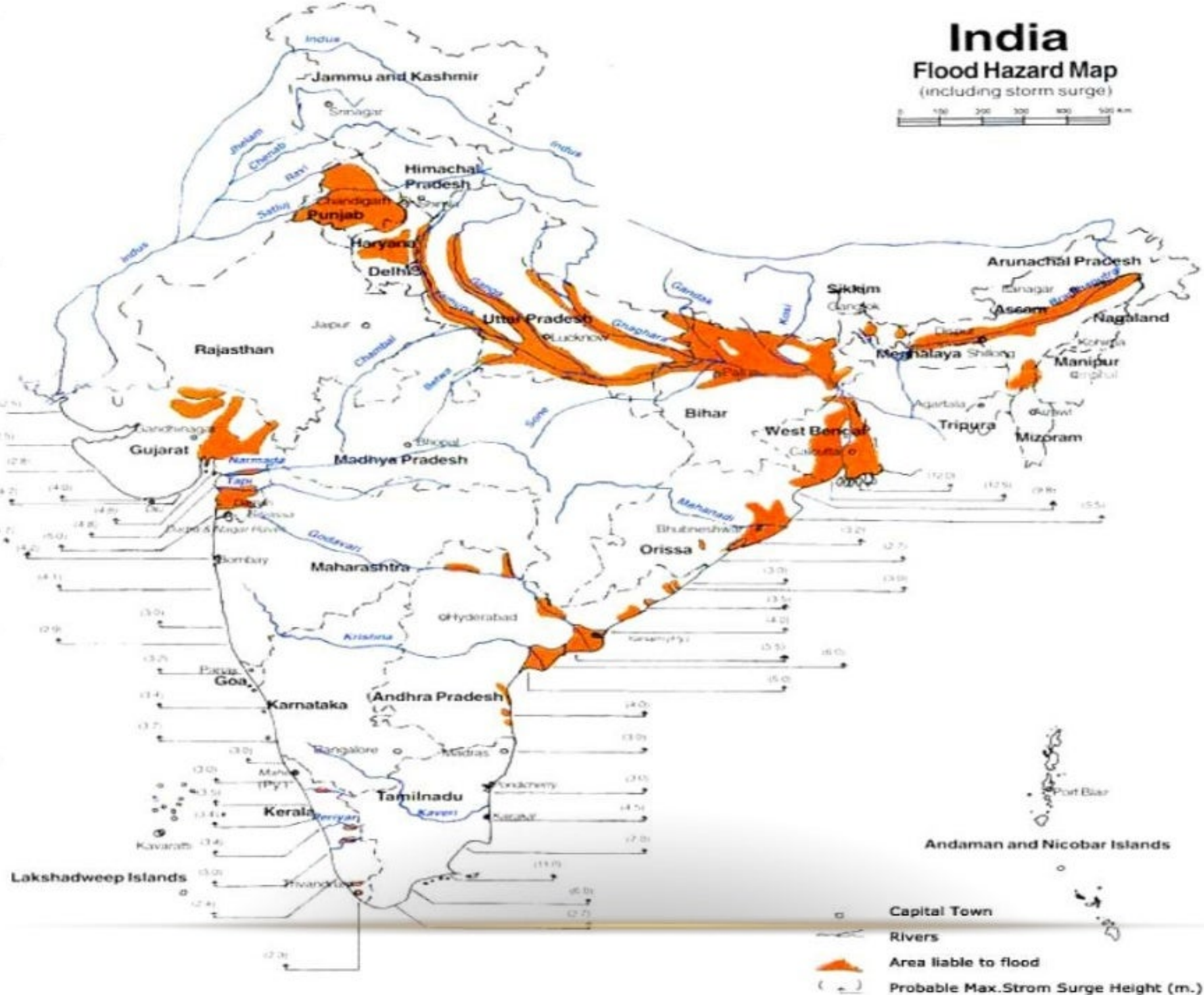
HERE ARE THE SOME PICTURES SHOWS HAZARDOUS:
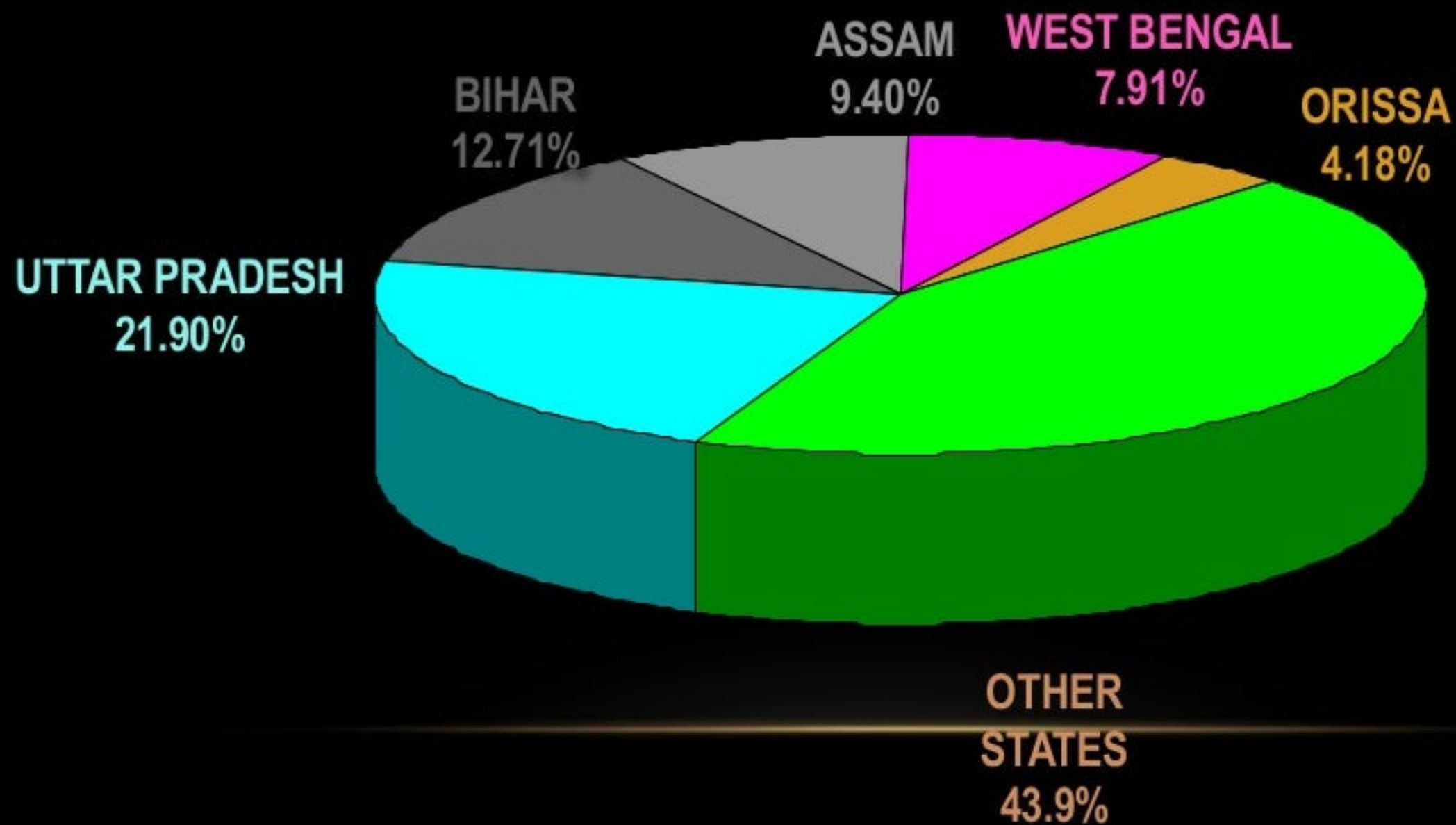
India
Flood Hazard Map
(including storm surge)

0   100   200   300   400   500 Km

Jammu and Kashmir

Indus

Srinagar

Jhelum

Chenab

Indus

Ravi

Himachal Pradesh

Satluj

Shimla

Chandigarh

Punjab

Haryana

Delhi

Jaipur

Rajasthan

Chambal

Yamuna

Uttar Pradesh

Lucknow

Ganga

Ghaghara

Kosi

Sikkim

Gangtok

Itanagar

Arunachal Pradesh

Brahmaputra

Aseam

Nagaland

Kohima

Betwa

Son

Bihar

Meghalaya

Shilong

Manipur

Imphal

Ghandhinagar

Narmada

Tapi

Gujarat

Diu

Daman

Madhya Pradesh

Bhopal

Agartala

Tripura

West Bengal

Calcutta

Mizoram

Aizwal

(2.5)

(2.8)

(4.2)

(4.3)

(4.5)

(4.7)

(5.0)

(4.1)

(3.0)

(2.9)

(3.2)

(1.4)

(3.7)

(3.0)

(3.0)

(3.5)

(3.6)

(3.4)

(3.0)

(2.4)

Dabhoi

Bhavnagar

Godavari

Bombay

Maharashtra

Goa

Panaji

Karnataka

Bangalore

Krishna

Hyderabad

Andhra Pradesh

Kakinada

Bhubneshwar

Orissa

Mahanadi

(3.2)

(2.7)

(3.0)

(3.5)

(4.0)

(5.5)

(5.0)

(6.0)

(12.0)

(12.5)

(9.8)

Madras

(4.0)

(3.0)

Pondicherry

(2.5)

Tamilnadu

Kaveri

Karaikal

(4.5)

(7.0)

Mahe

Kerala

Periyar

Kavaratti

(11.0)

Thiruvananthapuram

(6.0)

(2.7)

(2.3)

Lakshadweep Islands

Port Blair

Andaman and Nicobar Islands

Capital Town

Rivers

Area liable to flood

(___) Probable Max. Strom Surge Height (m.)

DISASTER MANAGEMENT IN INDIA

GEOGRAPHICAL	328	
FLOOD PRONE	40	12%
PROTECTABLE	32	80%
PROTECTED	16.4	45%
FLOOD AFFECTED		

- AVERAGE 7.7
- MAXIMUM 17.5 (1978)
- MINIMUM 1.5 (1965)

FLOOD PRONE AREA - 40 M.Ha.

FLOOD DAMAGE IN INDIA DURING 1953-2000
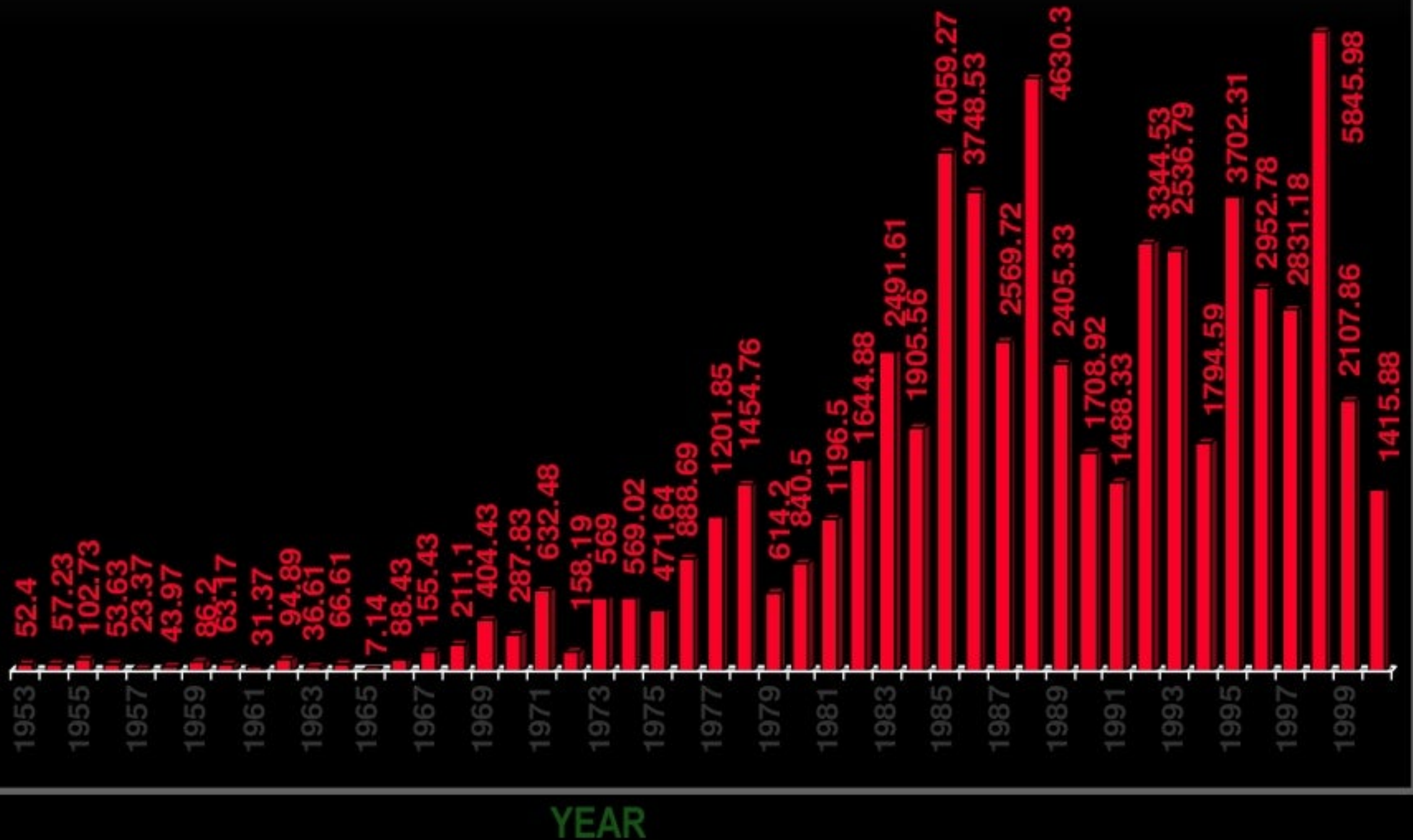
INCREASED VULNERABILITY

CAUSES

➢ INDISCRIMINATE ENCROACHMENT

➢ INCREASING ECONOMIC AND DEVELOPMENTAL ACTIVITIES IN FLOOD PLAINS

➢ LACK OF REGULATIONS

➢ INADEQUATE DRAINAGE SYSTEM

➢ INADEQUATE MAINTENANCE

➢ LACK OF DISASTER PREPAREDNESS

FLOOD MANAGEMENT

APPROACH

- FLOODS CAN NOT BE ABSOLUTELY CONTROLLED

- FLOODS CAN ONLY BE MANAGED TO REDUCE FLOOD LOSSES

FLOOD MANAGEMENT

STRATEGIES

- MODIFY THE FLOODS

- MODIFY THE SUSCEPTIBILITY TO FLOOD DAMAGE

- MODIFY THE LOSS BURDEN

- BEAR THE LOSS

FLOOD MANAGEMENT ORGANISATIONS:

- STATE FLOOD CONTROL DEPARTMENTS

- CENTRAL WATER COMMISSION

- GANGA FLOOD CONTROL COMMISSION

- BRAHMAPUTRA BOARD

- MHA - NDM DIVISION

FLOOD MANAGEMENT MEASURES

- STRUCTURAL MEASURES : PHYSICAL WORKS FOR MODIFYING FLOOD MAGNITUDE

  (TO KEEP FLOODS AWAY FROM PEOPLE)

- NON-STRUCTURAL MEASURES : PLANNED ACTIVITY TO MODIFY SUSCEPTIBILITY TO FLOOD DAMAGE

 (TO KEEP PEOPLE AWAY FROM FLOODS)

FLOOD MANAGEMENT

STRUCTURAL MEASURES

- DAMS & RESERVOIRS

- EMBANKMENT

- CHANNEL IMPROVEMENT

- RIVER DIVERSION
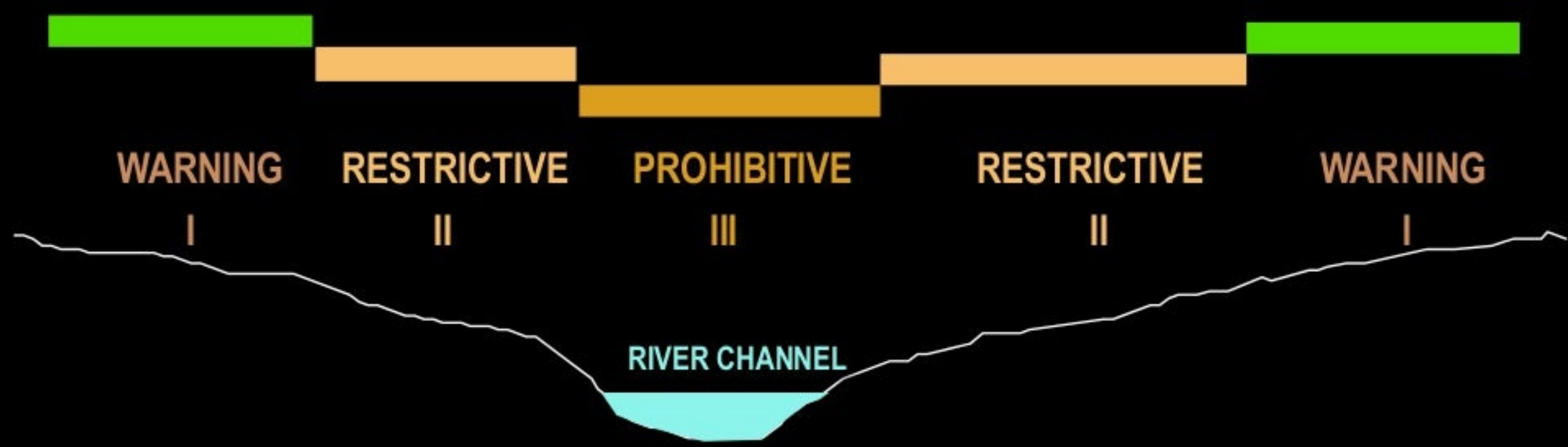
- INTER BASIN TRANSFER

- ANTI EROSION WORKS

NON STRUCTURAL MEASURES

- FLOOD FORECASTING & WARNING

- FLOOD PLAIN ZONING

- FLOOD FIGHTING

- FLOOD PROOFING

- FLOOD INSURANCE

- RELIEF & REHABILITATION

FLOOD PLAIN ZONING

WARNING — I
RESTRICTIVE — II
PROHIBITIVE — III
RESTRICTIVE — II
WARNING — I

RIVER CHANNEL
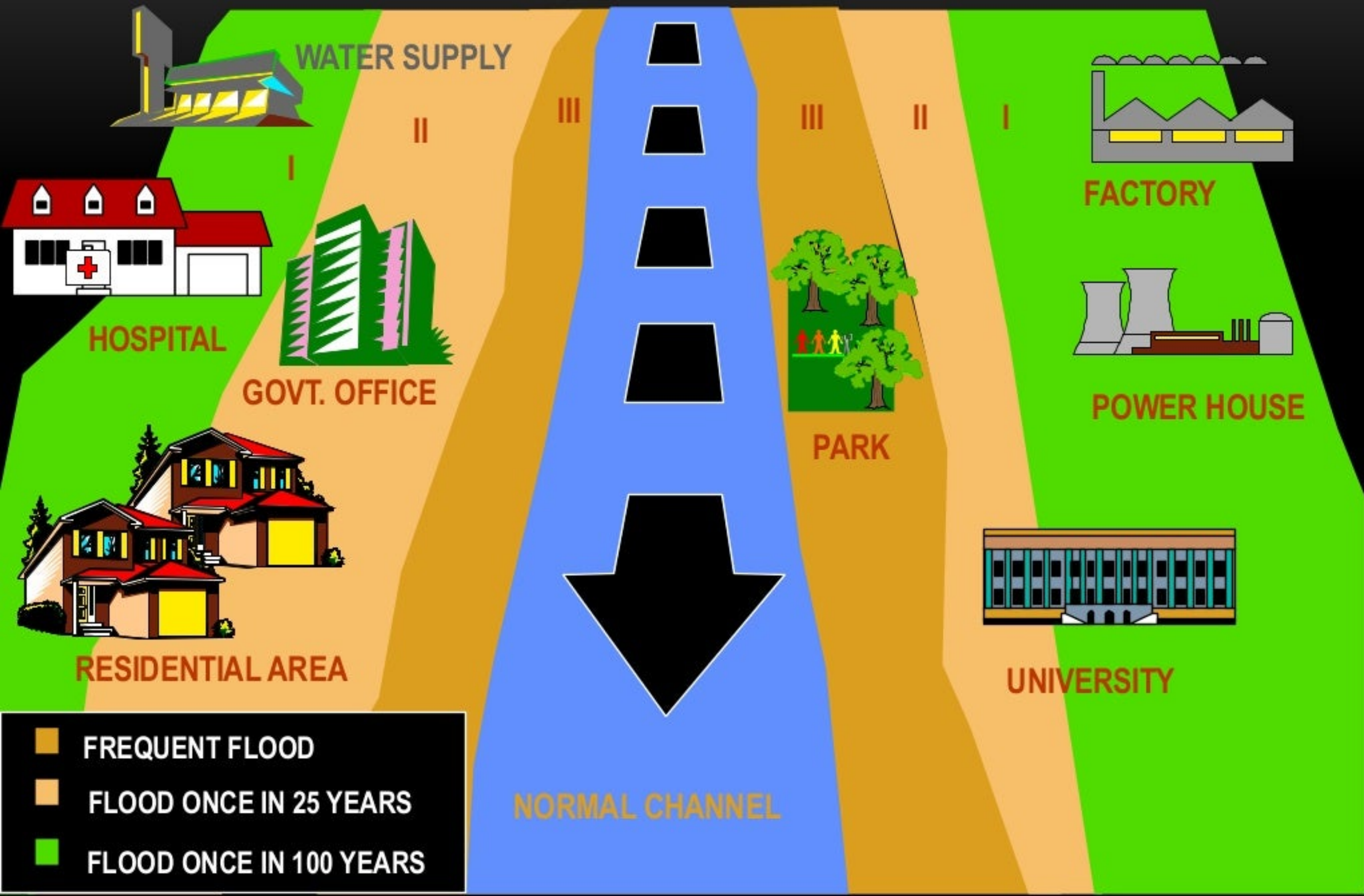
INDIA

FLOOD FORECASTING
BEGINNING

- STARTED BY   CENTRAL WATER COMMISSION

- YEAR   1958

- RIVER   YAMUNA

- FORECASTING STATION DELHI RAILWAY BRIDGE

FLOOD FORECASTING AND WARNING STEPS

- **DATA COLLECTION**

- **DATA TRANSMISSION**

- **DATA ANALYSIS & FORECAST FORMULATION**

- **DISSEMINATION OF FORECAST**

FLOOD FORECASTING

DATA COLLECTION

- HYDROLOGICAL

    RIVER WATER LEVEL

    RIVER DISCHARGE

- HYDROMETEOROLGICAL

    RAINFALL

    OTHER RECIPITATION

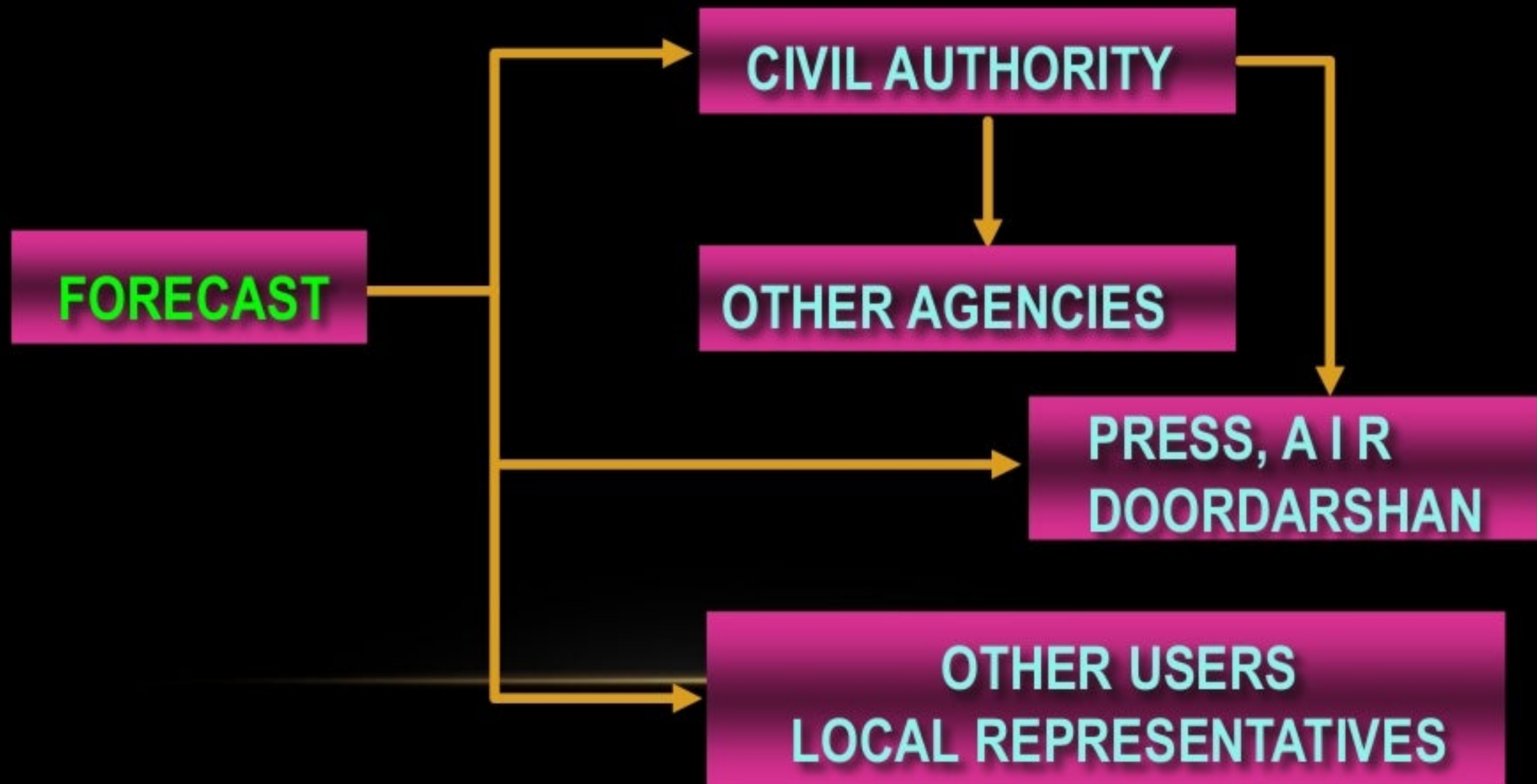   eg. SNOW, HAIL ETC.

FLOOD FORECASTING

DATA TRANSMISSION

- WIRELESS
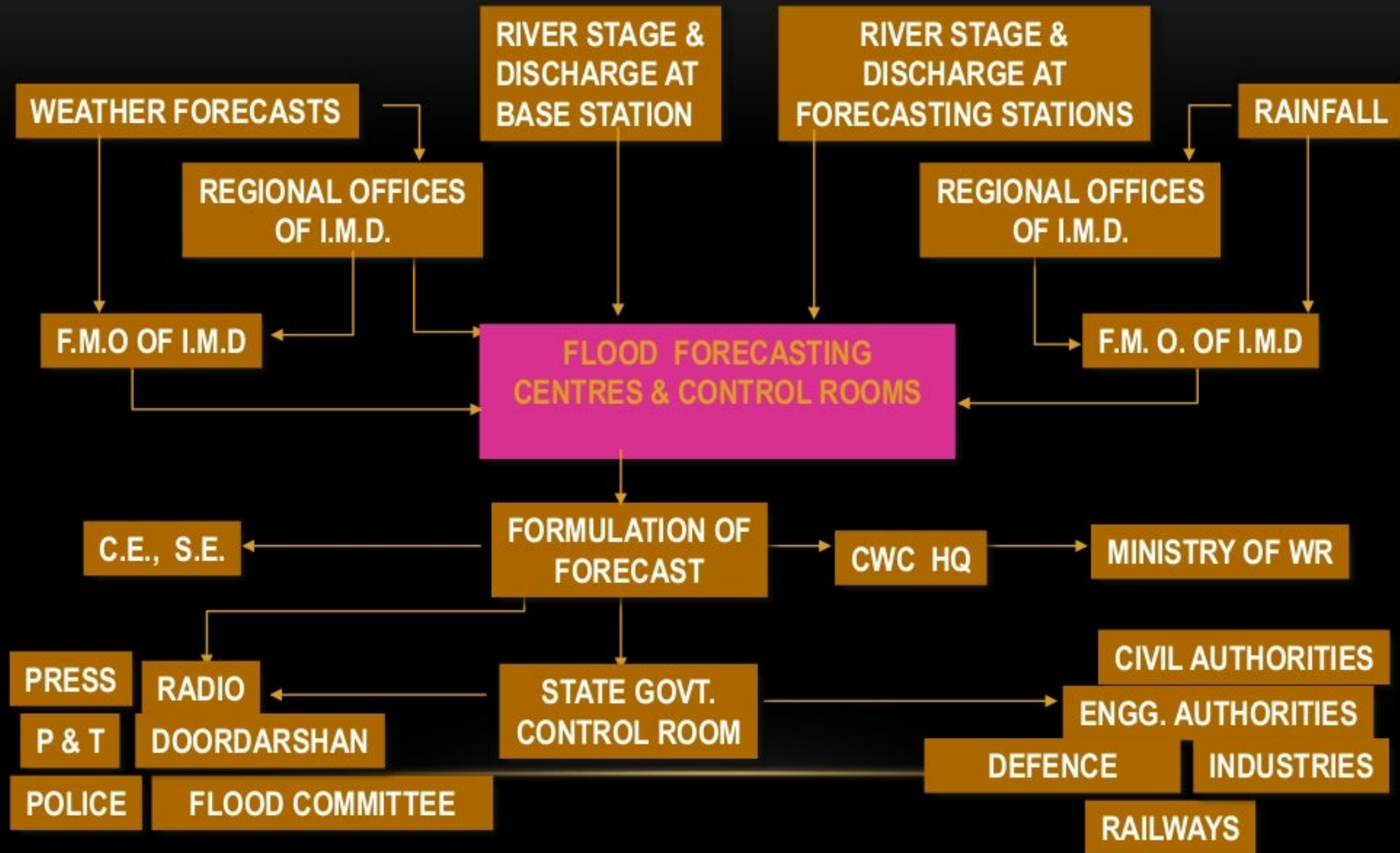
- TELEPHONE

- FAX

- **SATELLITE**

- **TELEGRAPH**

- **TELEX**

FLOOD FORECASTING

DISSEMINATION

```
                    ┌──────────────────────┐
              ┌────▶│   CIVIL AUTHORITY    │────┐
              │      └──────────────────────┘    │
              │                 │                 │
              │                 ▼                 │
┌──────────┐  │      ┌──────────────────────┐    │
│ FORECAST │──┤      │   OTHER AGENCIES     │    │
└──────────┘  │      └──────────────────────┘    │
              │                                   ▼
              │                    ┌──────────────────────┐
              ├───────────────────▶│   PRESS, A I R       │
              │                    │   DOORDARSHAN        │
              │                    └──────────────────────┘
              │
              │                    ┌──────────────────────┐
              └───────────────────▶│   OTHER USERS        │
                                   │ LOCAL REPRESENTATIVES│
                                   └──────────────────────┘
```

FLOOD FORECASTING AND WARNING
PRESENT SYSTEM - SCHEMATIC DIAGRAM

NEW DIRECTIONS FOR DISASTER MANAGEMENT IN INDIA

- The National Disaster Management Authority (NDMA) has been set up as the apex body for Disaster Management in India, with the Prime Minister as its Chairman.

- Disaster Management Authorities will be set up at the State and District Levels to be headed by the Chief Ministers and Collectors/Zilla Parishad Chairmen respectively.

FLOOD MANAGEMENT SCOPE

- Use of Remote Sensing and GIS

- Research and Development

- Weather / Rainfall Forecasting

- FF Modelling

- Capacity Building

- International Cooperation

INDIA

FLOOD FORECASTING NETWORK

- COVERS MAJOR AND INTER STATE RIVER BASINS.
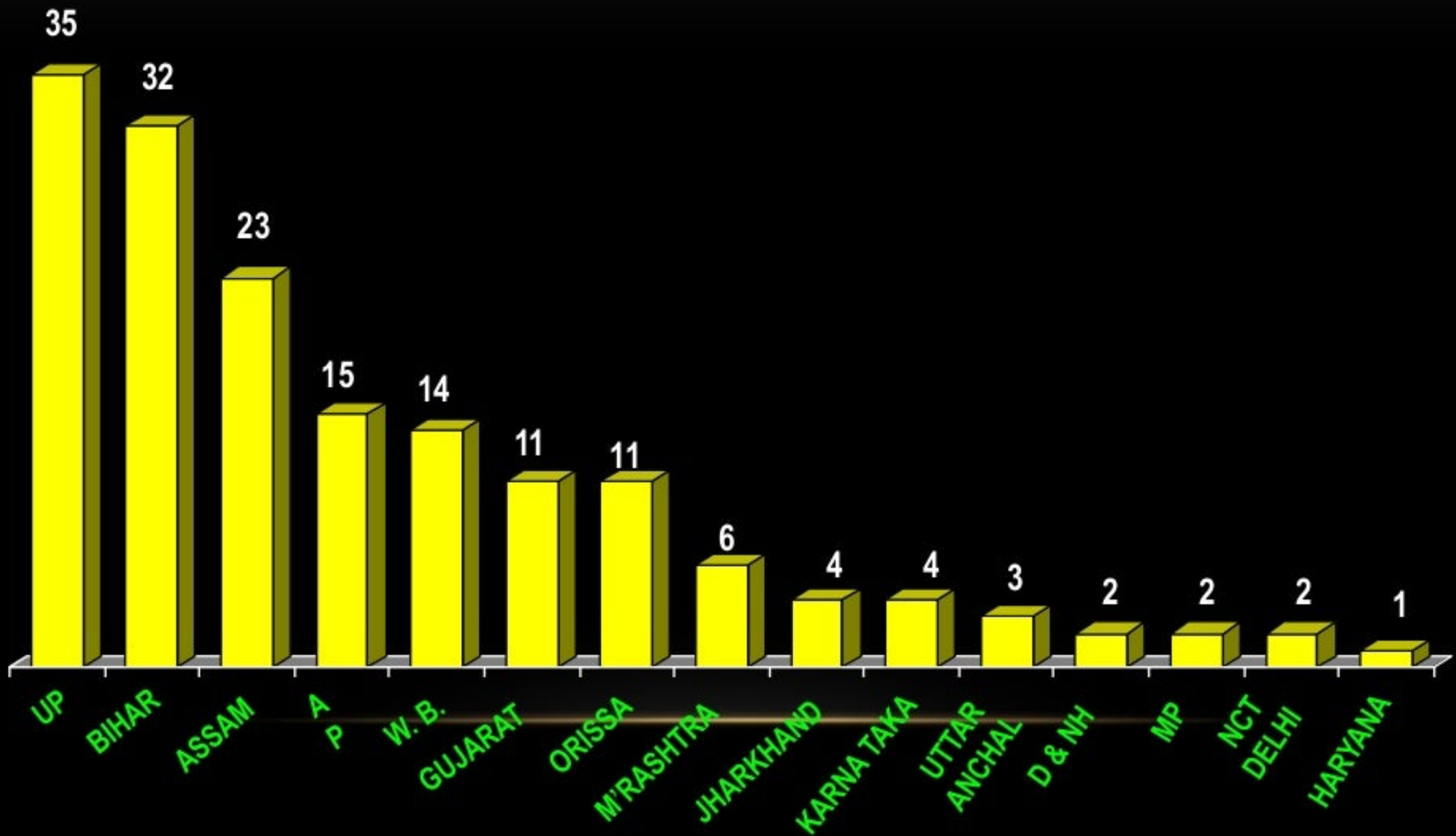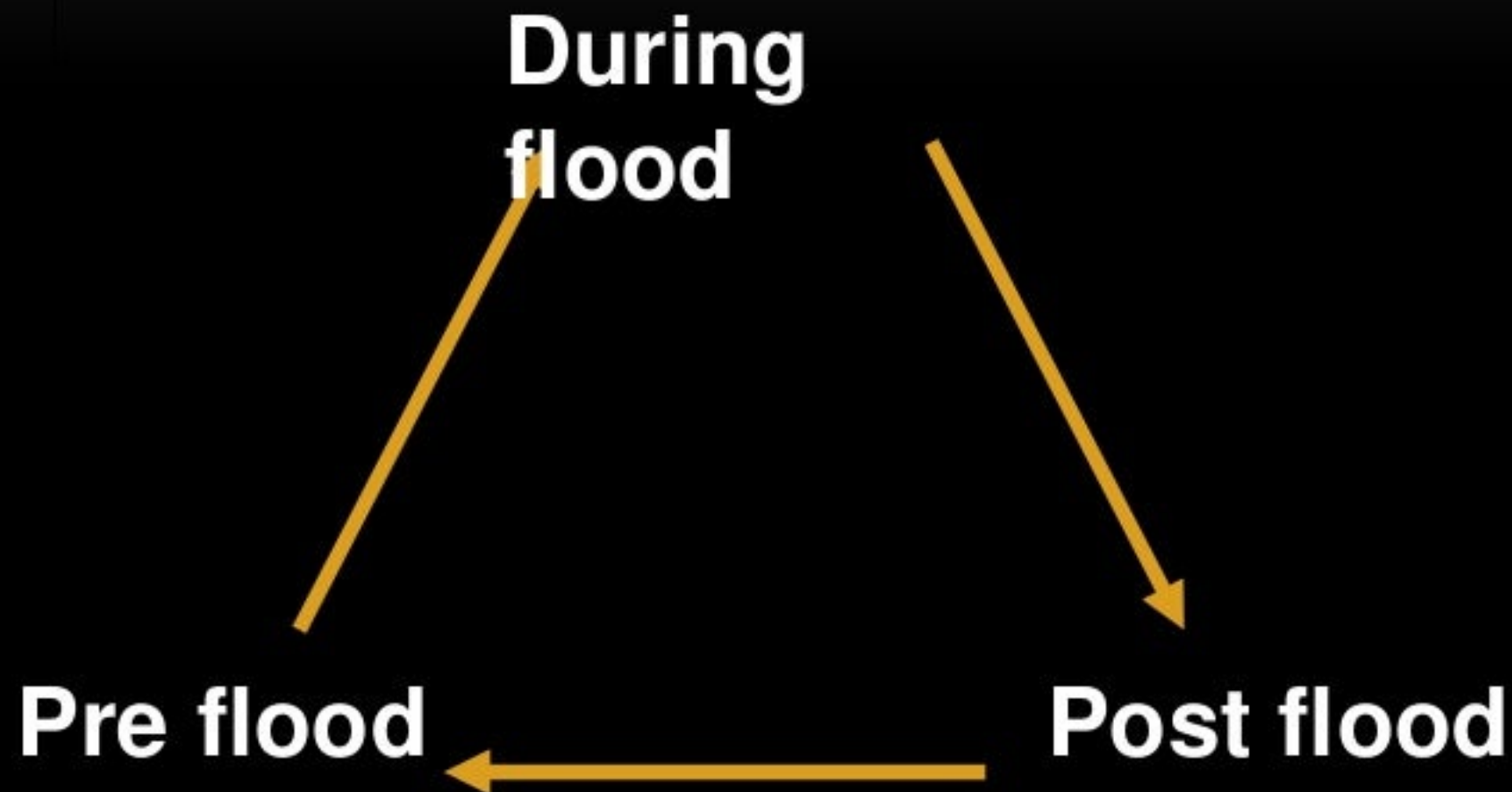
  166 STATIONS :- INFLOW 27 & STAGE 139

MANAGEMENT ACTIVITIES

During flood

Pre flood

Post flood
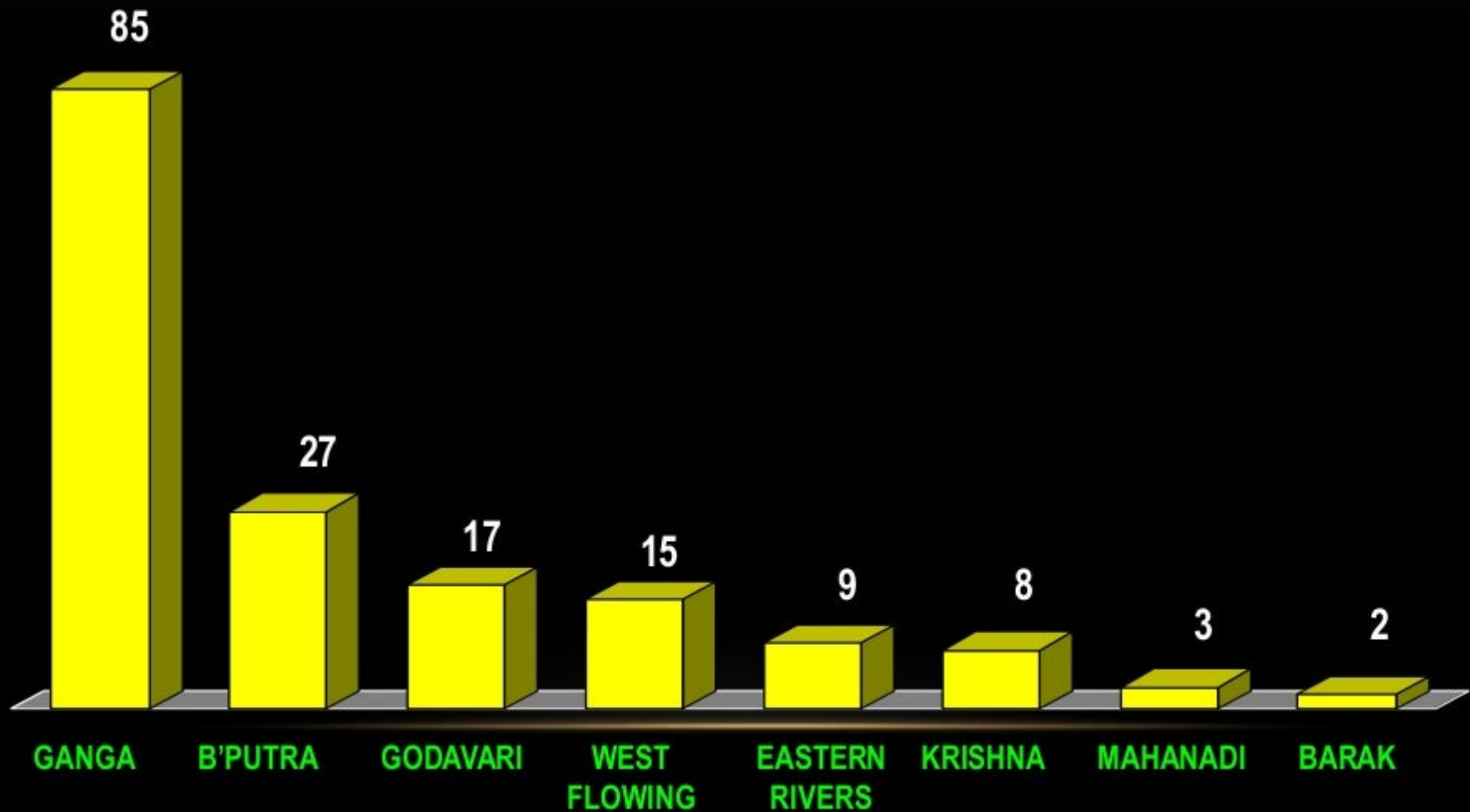
FUTURE STRATEGIES:

- Focused Approach

- Basin Wise Action Plan

- Flood Plain Zoning

- Role of Central Government

- Funding of Planned Flood Management Works

- Adequacy of Flood Cushion in Reservoirs

CONTINUE….

- Encourage and consolidate knowledge networks

- Mobilise and train disaster volunteers for more effective preparedness, mitigation and response (NSS, NCC, Scouts and Guides, NYK, Civil Defence, Home guards)

- Increased capacity building leads to faster vulnerability reduction.

- Learn from best practices in disaster preparedness, mitigation and disaster response

Thank you...