

# Flood Forecasting & Early Warning Systems

## WHAT ARE THE KEY COMPONENTS?



DATA

### DATA SOURCES:



Hydrology



Meteorology



Topography



Social & Structural



FORECAST

### ELEMENTS:



Data



**Human Resources**  
Meteorologists  
Water & Environment Experts



**Infrastructure**  
Operation center in a safe location  
Computers  
Computing capability



COMMUNICATION

### KEY CONSIDERATIONS FOR DATA TRANSMISSION CHANNELS:



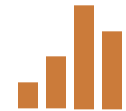
Available facilities in the country/region



Operating requirements



Amount of information to be transmitted



Economics and cost of system

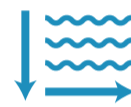


NOTIFICATION

### COMPONENTS OF AN EFFECTIVE FLOOD WARNING:



A single authoritative voice



What floodwater depth and velocity is expected



When the flood will occur and reach certain heights



Other factors which may affect safety



Which areas may be inundated



DECISION SUPPORT

### POTENTIAL USERS



High level government decision makers



Civil Contingency & Emergency Services



Public & Private Infrastructure Managers



Staff from other Government departments



COORDINATION

### FLOOD WARNINGS HELP REDUCE THE RISK OF DEATH, INJURY AND LOSS OF PROPERTY BY:



Allowing operational teams, emergency personnel and organizations to plan



Warning about likely impact on dwellings, roads and defence structures



Alerting the public about flood timing and location so they can prepare



Enabling preparation for evacuation and emergency procedures



ACTIONS

### POSSIBLE RESPONSE TO WARNINGS:



Rural flood plain populations move livestock and property to higher areas or to purpose-built flood refuges



Urban areas organize road closures and diversions, temporary flood barriers and possible evacuation



REVIEW

### ASSESS THE WARNING SYSTEM AFTER FLOOD EVENTS TO IDENTIFY POTENTIAL IMPROVEMENTS:



Warning delivery



Receipt



Action performance



WORLD METEOROLOGICAL ORGANIZATION

ASSOCIATED PROGRAMME ON FLOOD MANAGEMENT



Global Water Partnership