

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

# **MODERN APPROACHES IN FLOOD DISASTER RISK MANAGEMENT**

**BY**

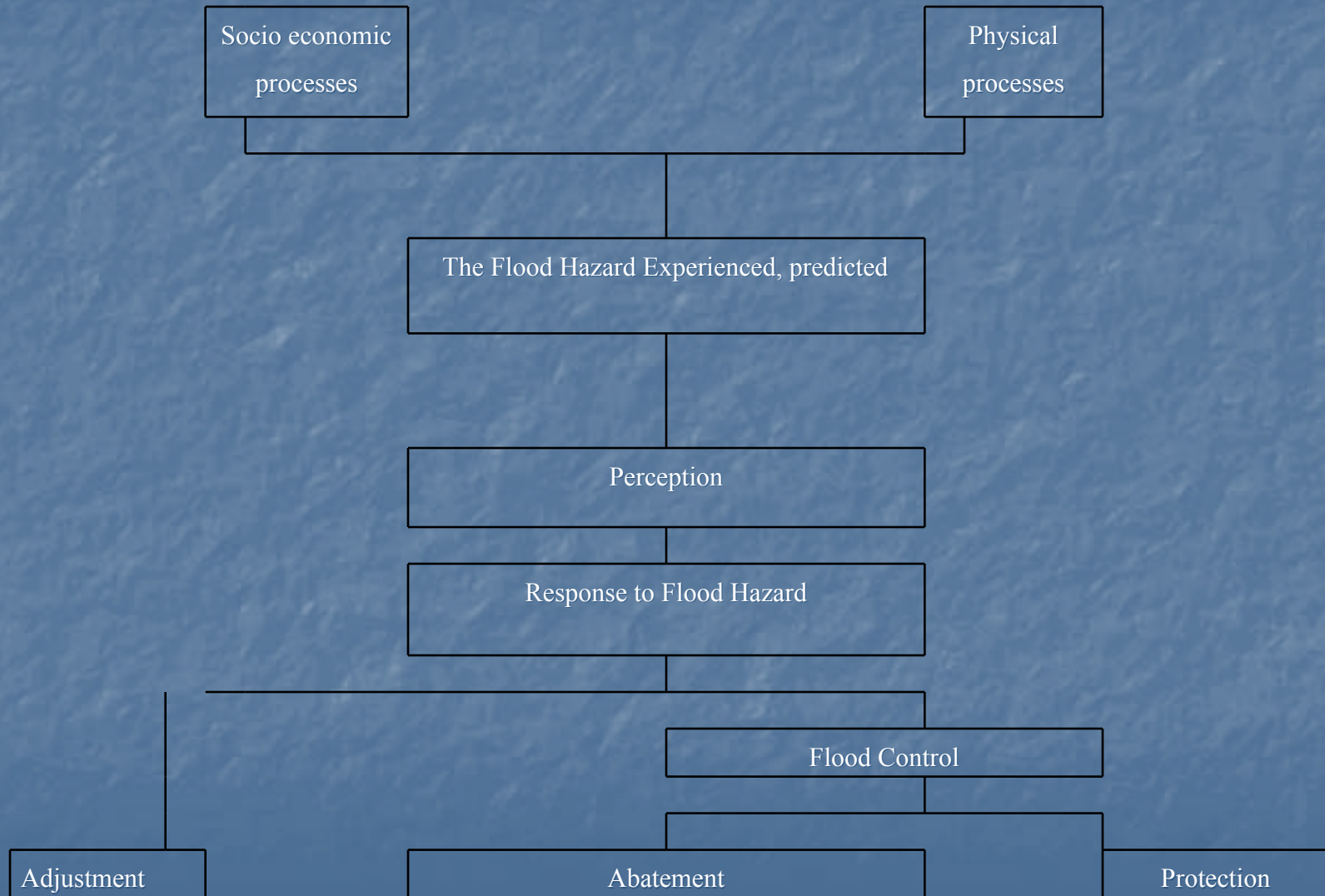
**ENGR. DR. QAZI TALLAT MAHMOOD**

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# INTRODUCTION

- Inundations due to floods have the potential to cause fatalities, displacement of people, and damage to the environment and thus severely compromise economic development.
- Flooding accounts for 40% of all the natural hazards worldwide and half of all the deaths caused by natural disasters.
- Floods are natural phenomena which cannot be prevented; nevertheless, some human activities contribute to an increase in the likelihood and adverse impacts of flood.
- Food risk, that may be defined as the product of probability of flood and associated damage, increases with economic development given that potential damage increases.
- Resistance strategies of flood risk management are mainly based on the construction of levees/spurs.

# The Main Elements of Man's Response to Flood Hazard



# HUMAN RESPONSE TO FLOOD HAZARD

- Flood Adjustment
- Flood Abatement
- Flood Protection

# **POSSIBLE ADJUSTMENT TO FLOOD HAZARD**

- **NO ADJUSTMENT**
- **EMERGENCY ACTION**
- **FLOOD PROOFING**
- **LAND-USE REGULATION**
- **FINANCIAL ADJUSTMENT**
- **CHOICE OF ADJUSTMENT**

# FLOOD ABATEMENT

- It is sometimes referred to as watershed (or catchment) management and constitutes an attractive scientific procedure in which the flood problem is approached from first principles and action is taken at the point upstream where the flood is generated rather than waiting to take action downstream at locations where that flood would represent a potential threat.

- Flood abatement thus subscribes to the basic maxim that 'prevention is better than cure'.
- However, the flood abatement approach is often hampered by a number of factors.



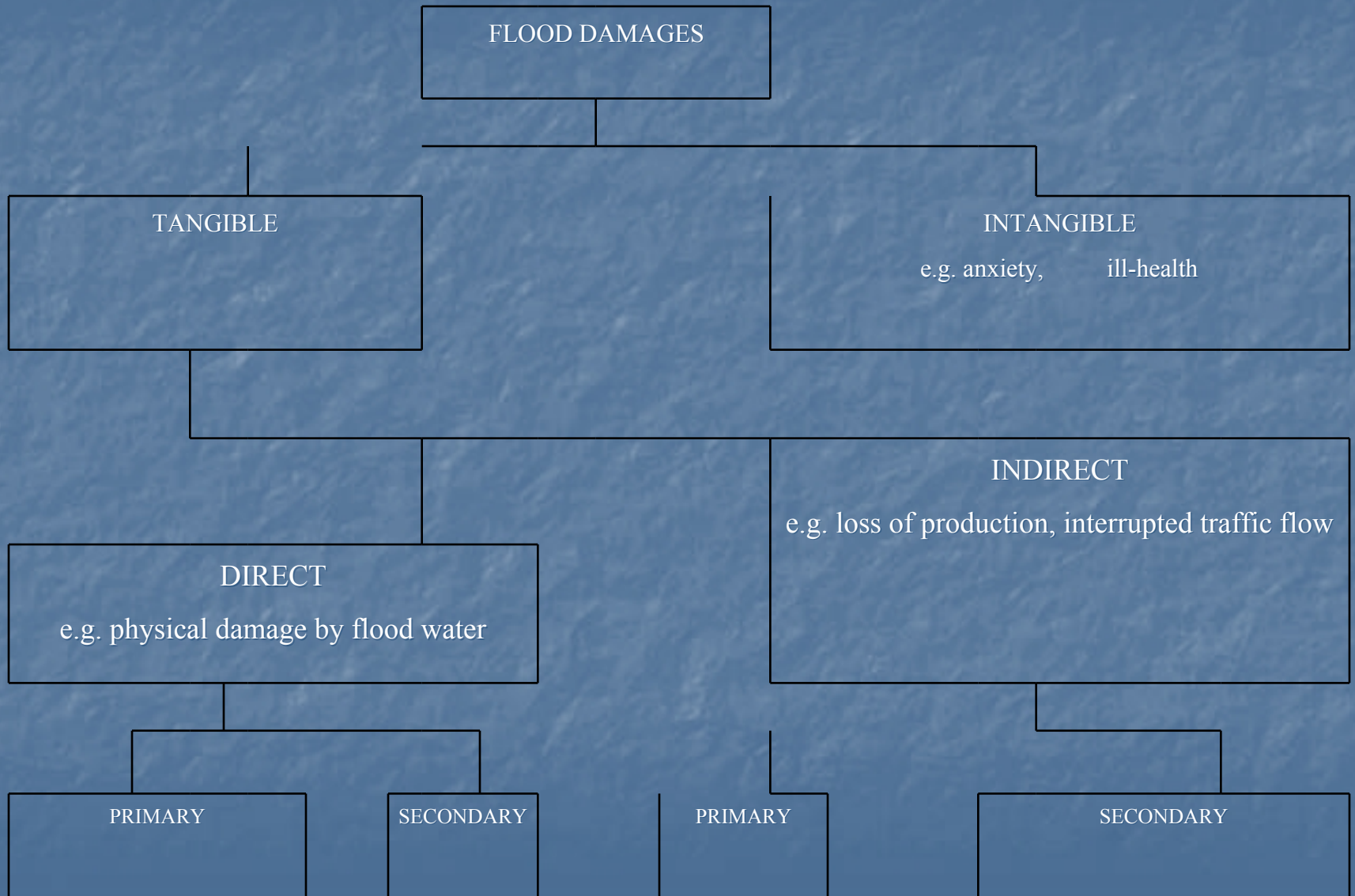
# FLOOD PROTECTION

- The construction of embankments (sometimes referred to as dikes or levees) and floodwalls to confine the floodwaters.
- The improvement of river channels to enlarge their discharge capacity, for example, by straightening, widening or deepening.
- The construction of bypass and diversion channels to carry some of the excess floodwater away from the area to be protected.
- The construction of reservoirs for the temporary storage of floodwater.

# FLOOD DAMAGE ASSESSMENT

- Physical damage to buildings and their contents, bridges, roads, railways, etc.
- Agricultural crops losses.
- Loss of income due to interruption of business.
- Cost of flood fighting, and the evacuation, care and rehabilitation of flood victims.

# Schematic Breakdown of Flood Damages



# FUTURE PROSPECTS IN FLOOD DISASTER RISK MANAGEMENT

- Floods have been presented as a global phenomenon affecting both rich and poor, the prepared and unprepared. They are a complex, interdisciplinary problem-for some aspects satisfactory solutions have already been advanced, but for others no likely answers are as yet forthcoming.
- Man's attempts to control rivers have often had little or no success. In fact, many times his efforts have aggravated the situation.
- The greatest natural disasters come as a result of ignorance or, even worse, half-knowledge.

- Both long and short data runs tend to be characterized by the variable quality of the data. There is considerable scope for improving the form in which data are collected and presented.
- There is need for the compilation of clear and useful information on floods and flood hazards
- Procedures which permit an accurate continuous accounting of catchment wetness, expressed perhaps in terms of soil moisture deficit or by direct satellite observations of soil moisture status , are likely to play a major role in improved forecasting.

- Flood forecasting will also benefit from direct satellite observations of the areal extent of upstream flooding and its change with time.
- One of the most pressing task in flood management is to sharpen the perception of the flood hazard and the range of possible responses among those most at risk. From repeated experiences it is obvious that more than the mere presentation of facts is required to mobilize the communities for effective flood disaster risk management.
- While floods may be natural occurrences, the flood hazard is largely man-made and as long as man chooses to live in flood-prone areas disasters are bound to happen.

- Modern skills include a knowledge of flood-forming processes, an understanding of probability theory, an acquaintance with economic analysis, an insight into the social behavior of man and an awareness of the realities and constraints of the political processes on regional basis.
- It must be borne in mind that protection from floods is only a relative matter, and that eventually nature demands its toll from those who occupy flood plains.

Thanks