



CLIMATE CHANGE AND DISASTERS *SOUTH ASIAN PERSPECTIVE*



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OUT LINE

- AN OVERVIEW OF CLIMATE CHANGE IN SOUTH ASIA
- CLIMATE CHANGE- MAJOR DRIVER OF NATURAL DISASTERS
- MANAGING THE DISASTER RISKS
- ADAPTATION STRATEGIES AS TOOLS OF DISASTER MANAGEMENT



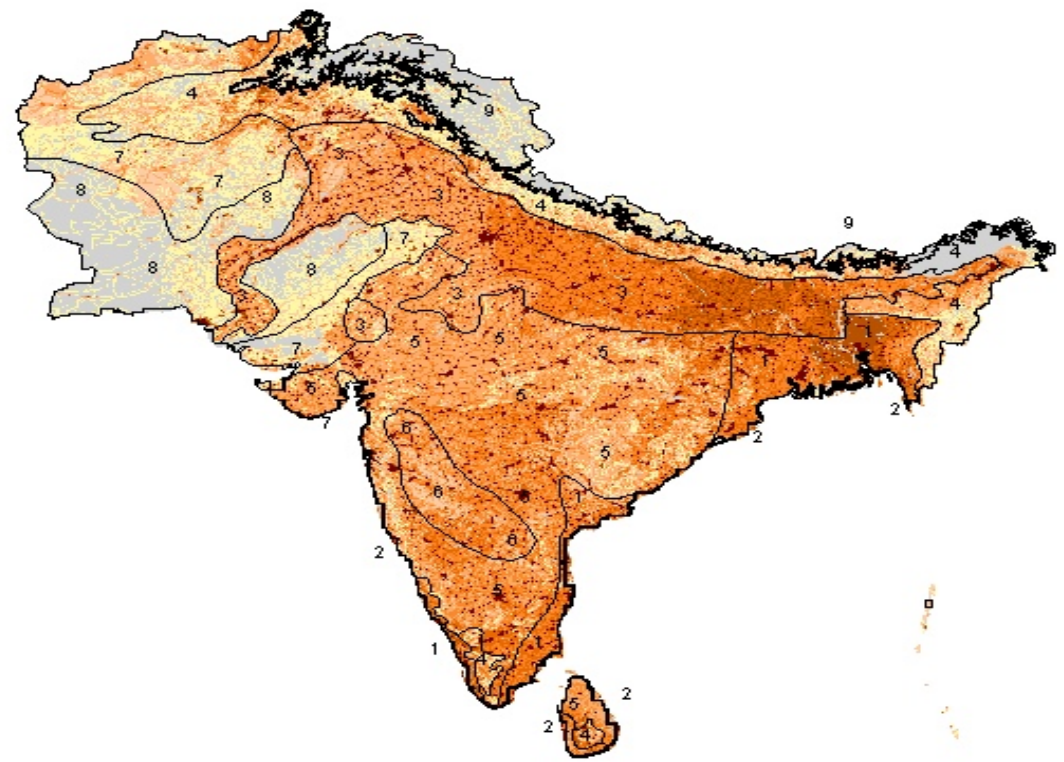
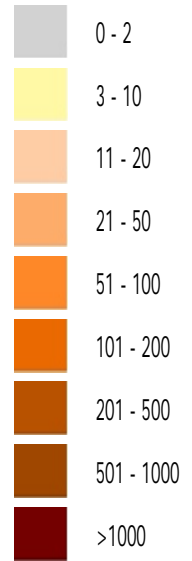
SOUTH ASIA REGION: CONTEXT

- 26% OF WORLD POPULATION
- SOCIO ECONOMIC DEPENDENCE ON NATURAL RESOURCES:
 - WATER, CROPLAND, FORESTS, GRASSLAND, FISHERIES
- NATURAL RESOURCES ALREADY UNDER STRESS, DUE TO:
 - POVERTY
 - HIGH POPULATION PRESSURES
 - POOR INSTITUTIONS
 - INFRASTRUCTURE CONSTRAINTS
- RESILIENCE TO CLIMATE RISKS IS POOR IN MOST SECTORS



POPULATION PATTERNS IN SOUTH ASIA

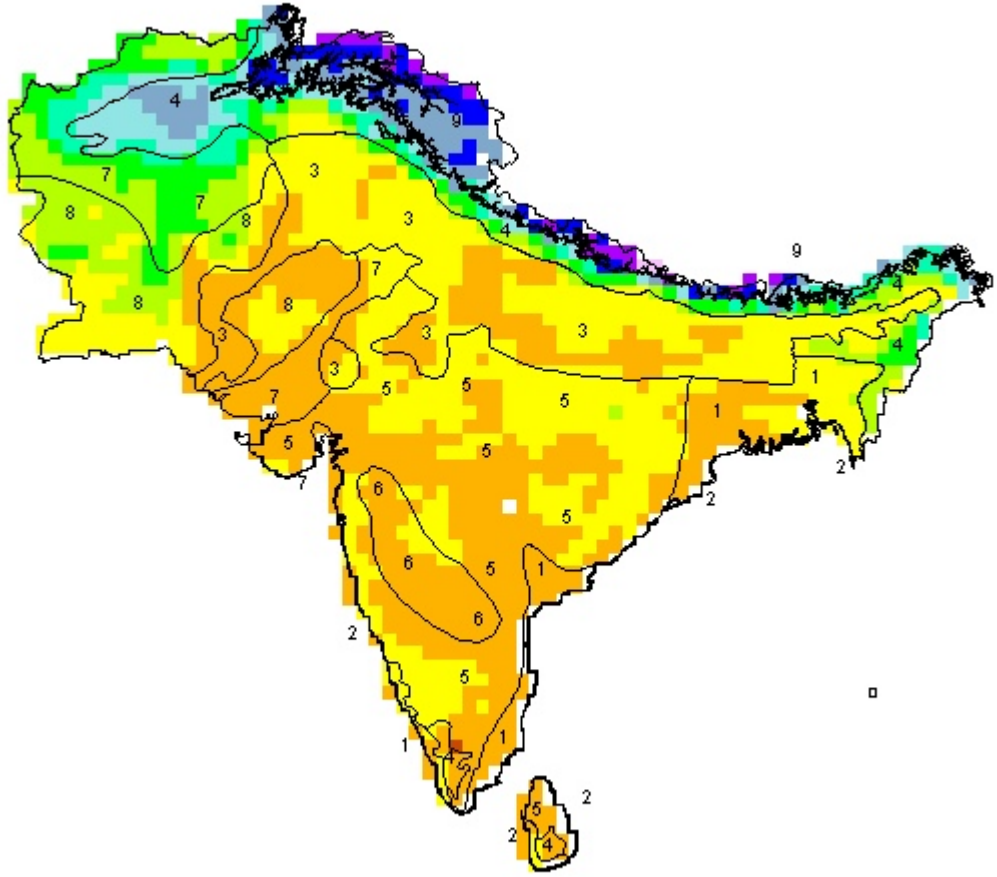
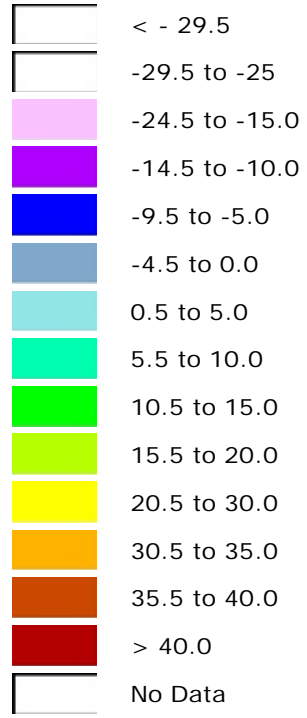
Population (People per Sq Km)





TEMPERATURE PATTERNS IN SOUTH ASIA

Temperature (Ave Annual °C)

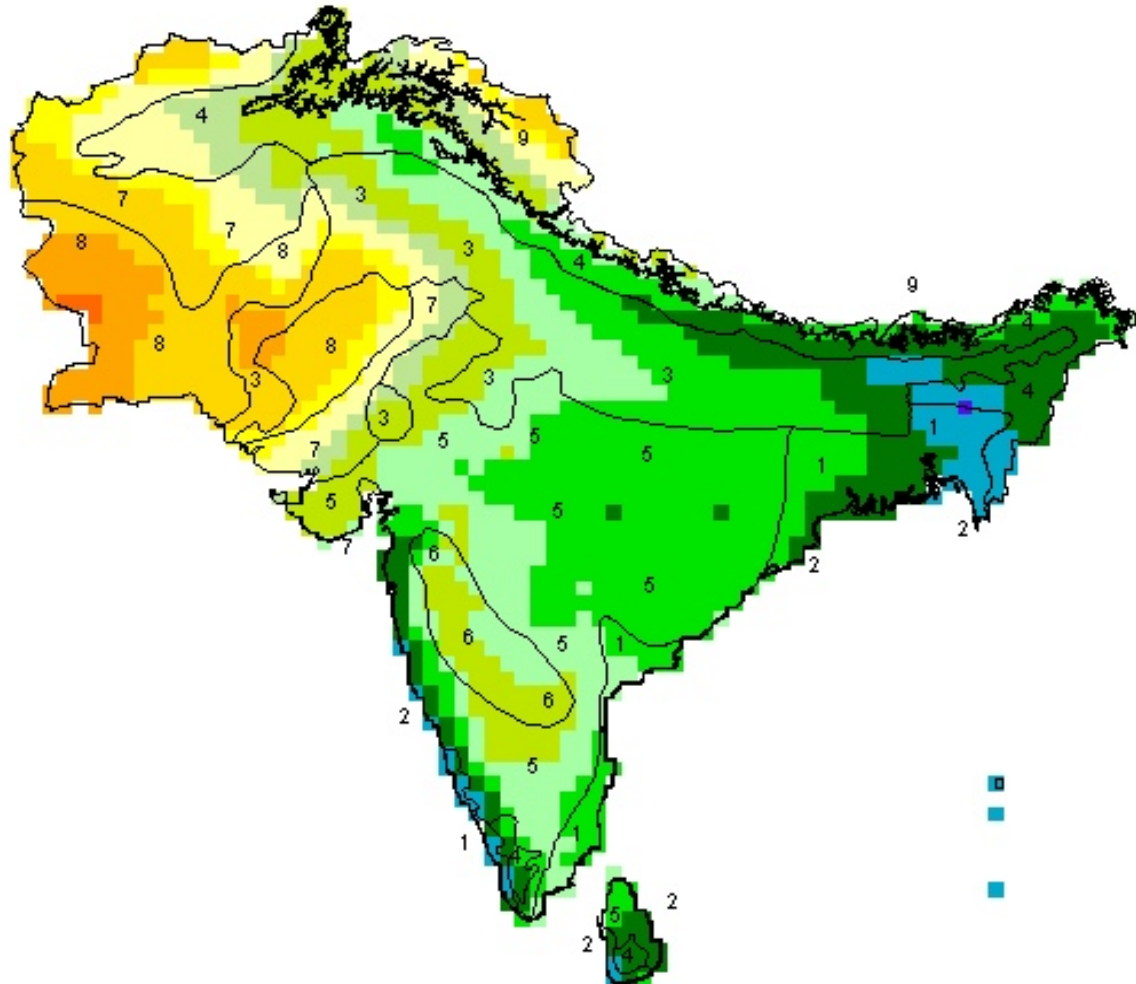
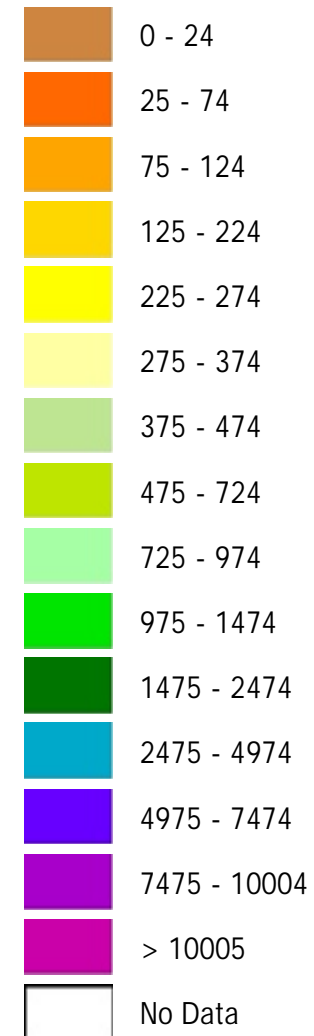


PRECIPITATION PATTERNS IN SOUTH ASIA

Farming Systems

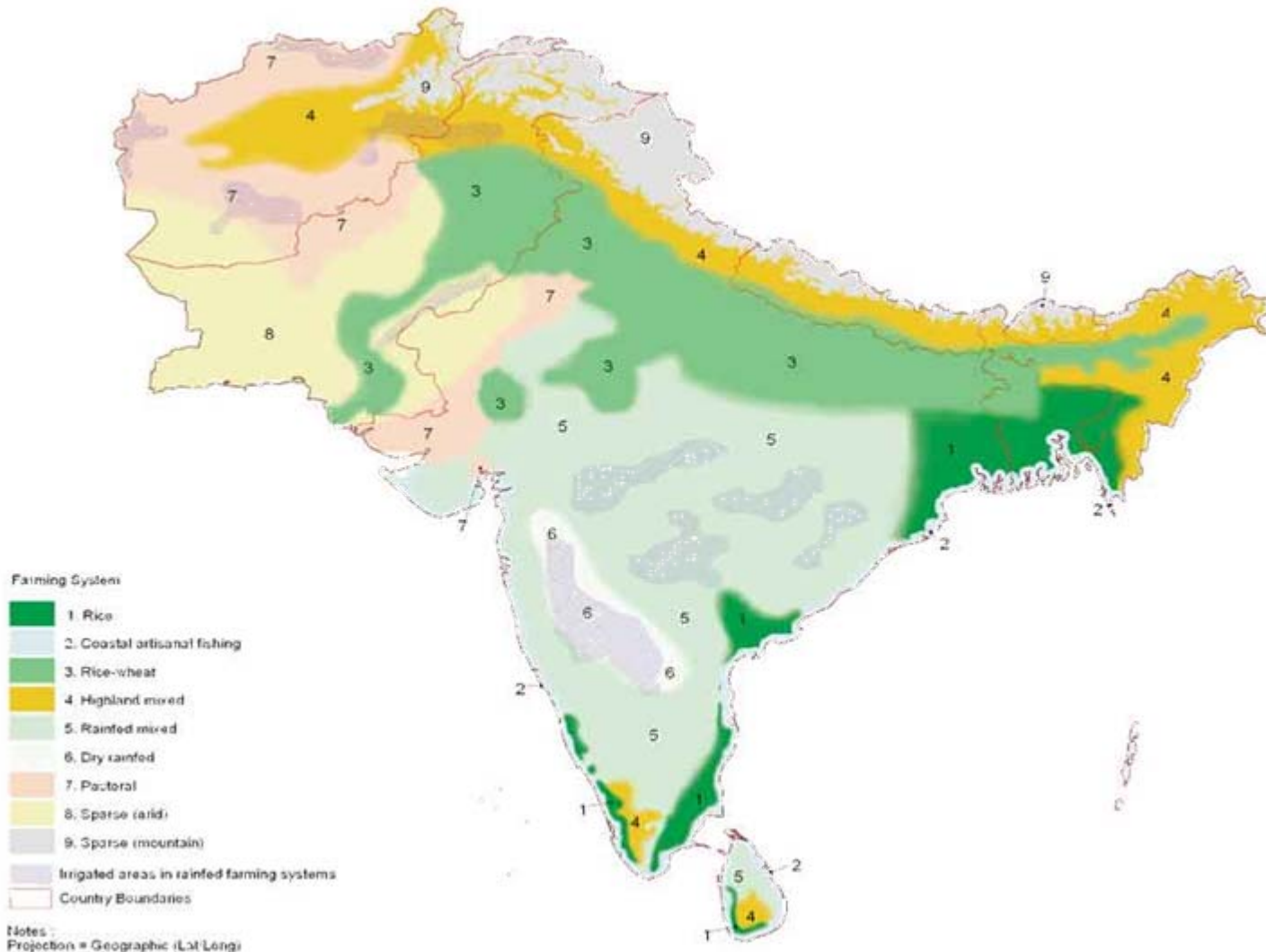


Precipitation Ave mm/year





FARMING PATTERNS IN SOUTH ASIA





CLIMATE CHANGE -THE MAJOR DRIVER OF NATURAL DISASTERS

- CLIMATE CHANGE IS RESULTING IN INCREASED INTENSITY AND FREQUENCY OF HYDRO METEOROLOGICAL HAZARDS IN SOUTH ASIA
- INCREASING THE NUMBER OF VULNERABLE POPULATIONS ESPECIALLY OF MARGINALIZED GROUPS
- HAVING MAJOR IMPACTS ON THE ECONOMIC PERFORMANCE OF SOUTH ASIAN COUNTRIES AND ON THE LIVES AND LIVELIHOODS OF MILLIONS OF POOR PEOPLE

Contd...



CLIMATE CHANGE -THE MAJOR DRIVER OF NATURAL DISASTERS

- THE FREQUENCY OF HEAVY PRECIPITATION EVENTS HAS INCREASED OVER MOST LAND AREAS (RAINFALL IN MUMBAI (INDIA), 2005, MILLION PEOPLE LOST THEIR HOMES)
- CYCLONES HAVE INCREASED IN INTENSITY OVER THE PART 3 DECADES (CYCLONE YEMINE 2007 IN BALOCHISTAN PROVINCE RENDERED MILLIONS AFFECTED)
- INCREASED TEMPERATURES RESULTED IN ACCELERATED GLACIAL MELT IN THE HIMALAYAS AND RESULTANT FLOODING, INCREASE IN SEA LEVELS IN COASTAL DELTAS AND RESULTANT INUNDATION OF COASTAL AREAS
- CHANGING PATTERNS OF MONSOON RAINS ARE HAVING DISASTROUS IMPACTS ON ECONOMIES OF SOUTH ASIA

Contd...

FLOODS





CLIMATE CHANGE -THE MAJOR DRIVER OF NATURAL DISASTERS

- DROUGHTS CAUSED BY EL NIÑO EFFECT AND CHANGING WEATHER PATTERNS IS A SERIOUS AND INCREASINGLY REGULAR OCCURRENCE
- INCREASED TEMPERATURES IN THE HIMALAYA REGION RESULTED INTO GLOFS
- DUE TO CLIMATE CHANGE CROP YIELDS COULD DECREASE UPTO 30 % BY MID 21ST CENTURY
- IRRIGATION DEMAND FOR AGRICULTURE IN ARID SEMI ARID REGIONS EXPECTED TO INCREASE BY 10 % FOR TEMPERATURE INCREASE OF 1 DEGREE CELSIUS WITH SERIOUS IMPLICATIONS FOR FOOD SECURITY

GLOF



DROUGHT



LAND SLIDES

NEELUM RIVER



FOREST FIRES



John McColgan



REGIONAL COOPERATION – THE DRIVERS

- SHARED VULNERABILITY
- DEPTH OF VULNERABILITY
- INDUCED VULNERABILITY (CLIMATE CHANGE / VARIABILITY)
- PLATFORM FOR REGIONAL COOPERATION
- COLLECTIVE WISDOM AND POLITICAL WILL
- INSTITUTIONAL MECHANISM



MANAGING THE RISKS



PRIORITIZATION OF RISK REDUCTION AS NATIONAL POLICY

- NATIONAL POLICY AND LEGAL FRAMEWORK FOR DISASTER RISK REDUCTION EXISTS WITH DECENTRALIZED RESPONSIBILITIES AND CAPACITIES AT ALL LEVELS
- PROVISION OF DEDICATED AND ADEQUATE RESOURCES TO IMPLEMENT DISASTER RISK REDUCTION ACTIVITIES AT ALL ADMINISTRATIVE LEVELS
- COMMUNITY PARTICIPATION AND DECENTRALIZATION ARE ENSURED THROUGH THE DELEGATION OF AUTHORITY AND RESOURCES TO LOCAL LEVELS
- A NATIONAL MULTI SECTORAL PLATFORM FOR DISASTER RISK REDUCTION IS FUNCTIONING



NATIONAL RISK ASSESSMENT AND HAZARD MAPPING

- NATIONAL AND LOCAL RISK ASSESSMENTS BASED ON HAZARD DATA AND VULNERABILITY INFORMATION ARE AVAILABLE AND INCLUDE RISK ASSESSMENTS FOR KEY SECTORS
- HAZARDS MAPS ARE DEVELOPED
- SYSTEMS ARE IN PLACE TO MONITOR, ARCHIVE AND DISSEMINATE DATA ON KEY HAZARDS AND VULNERABILITIES
- NATIONAL AND LOCAL RISK ASSESSMENTS TAKE ACCOUNT OF REGIONAL/ TRANS BOUNDARY RISKS, WITH A VIEW TO REGIONAL COOPERATION ON RISK REDUCTION IN SOUTH ASIA



EFFECTIVE EARLY WARNING SYSTEMS

- CAPACITY BUILDING IN FOUR KEY ELEMENTS OF EWS:
 - RISK KNOWLEDGE
 - MONITORING AND WARNING SERVICES
 - DISSEMINATION IN COMMUNICATION
 - RESPONSE CAPABILITIES
- DEVELOPMENT OF REGIONAL EARLY WARNING SYSTEM WITH ENHANCED INTERSTATE FLOW OF INFORMATION ON DISASTER RISKS



APPLICATION OF TECHNOLOGY, INNOVATION AND EDUCATION

- RELEVANT INFORMATION ON DISASTERS IS AVAILABLE AND ACCESSIBLE AT ALL LEVELS, TO ALL STAKEHOLDERS (THROUGH NETWORKS, DEVELOPMENT OF INFORMATION SHARING SYSTEMS ETC)
- SCHOOL CURRICULA, EDUCATION MATERIAL AND RELEVANT TRAININGS INCLUDE DISASTER RISK REDUCTION AND RECOVERY CONCEPTS AND PRACTICES
- RESEARCH METHODS AND TOOLS FOR MULTI-RISK ASSESSMENTS AND COST BENEFIT ANALYSIS ARE DEVELOPED AND STRENGTHENED
- COUNTRYWIDE PUBLIC AWARENESS STRATEGY EXISTS TO STIMULATE A CULTURE OF DISASTER RESILIENCE, WITH OUTREACH TO URBAN AND RURAL COMMUNITIES



REDUCE THE UNDERLYING RISK FACTORS

- MAINSTREAMING OF DRR INTO DEVELOPMENT POLICIES AND PROJECTS
- ECONOMIC AND PRODUCTIVE SECTORAL POLICIES AND PLANS HAVE BEEN IMPLEMENTED TO REDUCE THE VULNERABILITY OF ECONOMIC ACTIVITIES
- PLANNING AND MANAGEMENT OF HUMAN SETTLEMENTS INCORPORATE DISASTER RISK REDUCTION ELEMENTS, INCLUDING ENFORCEMENT OF BUILDING CODES
- DISASTER RISK REDUCTION MEASURES ARE INTEGRATED INTO POST DISASTER RECOVERY AND REHABILITATION PROCESS
- PROCEDURES ARE IN PLACE TO ASSESS THE DISASTER RISK IMPACTS OF MAJOR DEVELOPMENT PROJECTS, ESPECIALLY INFRASTRUCTURE WITH SPECIAL REFERENCE TO ENVIRONMENT



DISASTER PREPAREDNESS

- DEVELOPMENT OF THE NATIONAL DISASTER RESPONSE PLAN WITH STANDARD OPERATING PROCEDURES FOR INVOLVEMENT OF ALL DEPARTMENTS AND MINISTRIES AND OTHER STAKEHOLDERS
- ESTABLISHMENT/STRENGTHENING OF THE EMERGENCY OPERATIONS CENTRES AT THE NATIONAL AND LOCAL LEVELS
- DEVELOPMENT OF A DISASTER INFORMATION ARCHITECTURE FOR POST DISASTER RELIEF AND RESPONSE MANAGEMENT
- CONTINGENCY PLANNING FOR KEY HYDRO-METEOROLOGICAL HAZARDS; E.G. FLOODS, WINTER, DROUGHT, CYCLONES
- PRE-POSITIONING OF RELIEF ITEMS AND EQUIPMENT AT STRATEGIC LOCATIONS
- ENHANCED CAPACITIES IN SEARCH AND RESCUE AND SPECIALIZED RESPONSE



ADAPTATION STRATEGIES AS TOOLS OF DRR

- MACRO STRATEGY: RAPID DEVELOPMENT
 - INCREASE INCOME LEVELS, EDUCATION, TECHNICAL SKILLS, IMPROVE FOOD SUPPLY, DISASTER PREPAREDNESS AND MANAGEMENT
 - ENHANCE HUMAN CAPITAL AND REDUCE VULNERABILITY
- MICRO STRATEGY: MANAGEMENT OF SENSITIVE SECTORS
 - INSTITUTIONAL DEVELOPMENT/REFORM TO PROMOTE ADAPTATION
 - MODIFICATIONS TO CLIMATE - SENSITIVE INFRASTRUCTURES AND OTHER LONG-TERM DECISIONS
 - NEED TO CONSIDER SYSTEM VULNERABILITY CHARACTERISTICS (COPING RANGES, THRESHOLDS, RESILIENCE): THESE ARE HIGHLY LOCATION-SPECIFIC



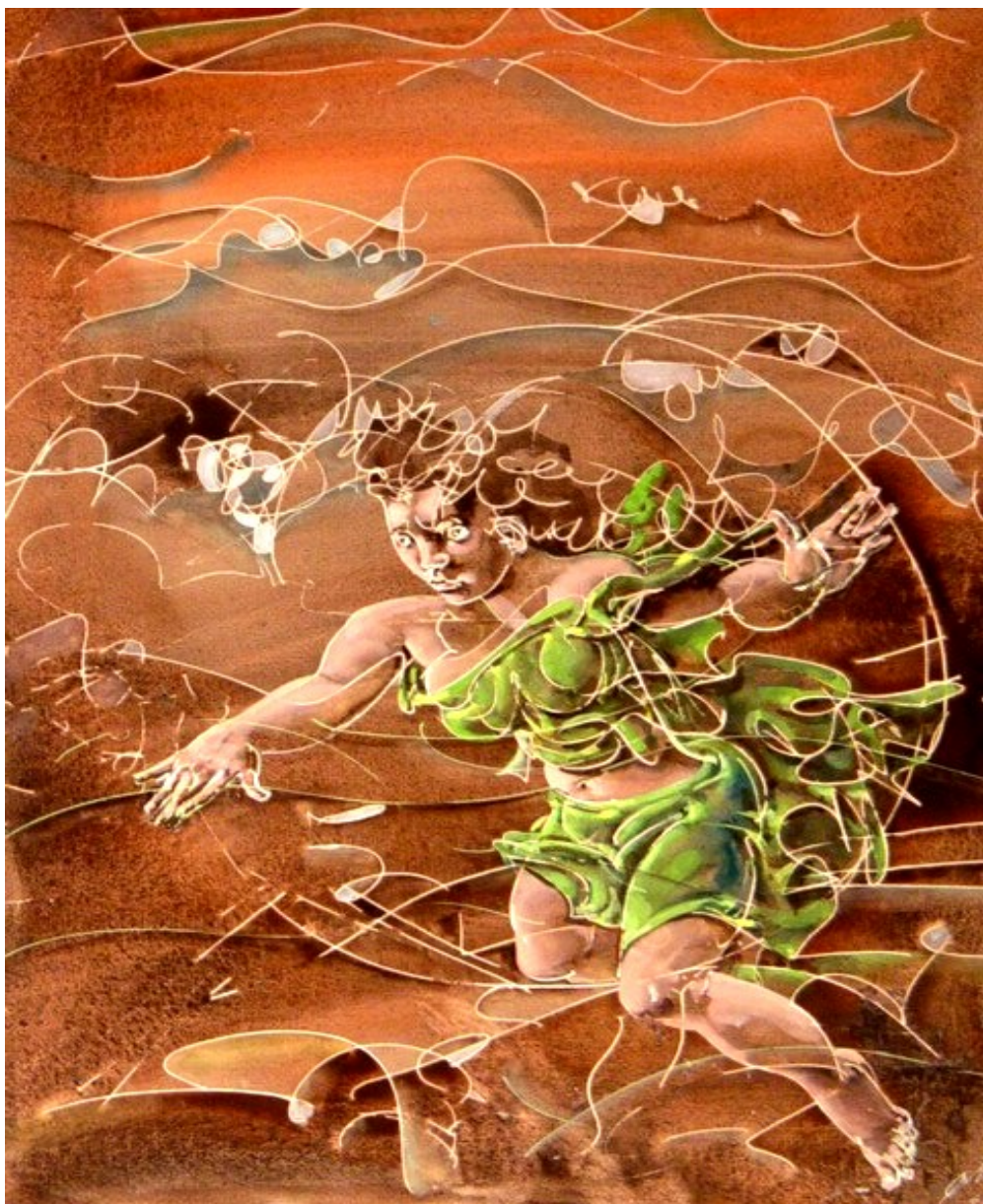
INTEGRATION OF DRR INTO CLIMATE CHANGE ADAPTATION STRATEGIES

- FORMULATION OF PROGRAMME GUIDELINES FOR INTEGRATION OF DRR IN CCA PROJECTS IN RESPECT OF FLOODS, CYCLONES, DROUGHTS AND GLOF
- TECHNOLOGY NEED ASSESSMENT - THOSE RELATED TO EW SYSTEM FOR CYCLONE,, FLOODS AND DROUGHT
- RESEARCH STUDY ON MICRO CREDIT, MICRO-INSURANCE AND CROP INSURANCE IN SELECTED CLIMATE RISK HOT SPOTS OF THE REGION
- TRAINING MODULES ON CLIMATE RISK ASSESSMENT
- CONDUCT REGIONAL TRAINING PROGRAMME FOR CAPACITY BUILDING ON CLIMATE RISK ASSESSMENT



POINTS TO BE REMEMBERED

- CLIMATE CHANGE AND ITS IMPACTS ON SOUTH ASIA ARE IMMINENT
- NEED TO LEARN TO LIVE WITH THE CHANGING REALITIES
- SHARED VULNERABILITIES WARRANTS REGIONAL COOPERATION
- DISASTER RISK MANAGEMENT NEED TO BE PRIORITIZED ACROSS THE REGION
- LEGAL AND INSTITUTIONAL ARRANGEMENTS FOR DRR AT THE NATIONAL AS WELL AS REGIONAL LEVEL NEED TO BE AUGMENTED
- REGIONAL CAPACITIES AND COOPERATION IN EARLY WARNING, SEARCH AND RESCUE AND DRR RESEARCH BE ENHANCED
- CLIMATE ADAPTATION STRATEGIES BE INTEGRATED INTO DRR STRATEGIES



**THANK
YOU**