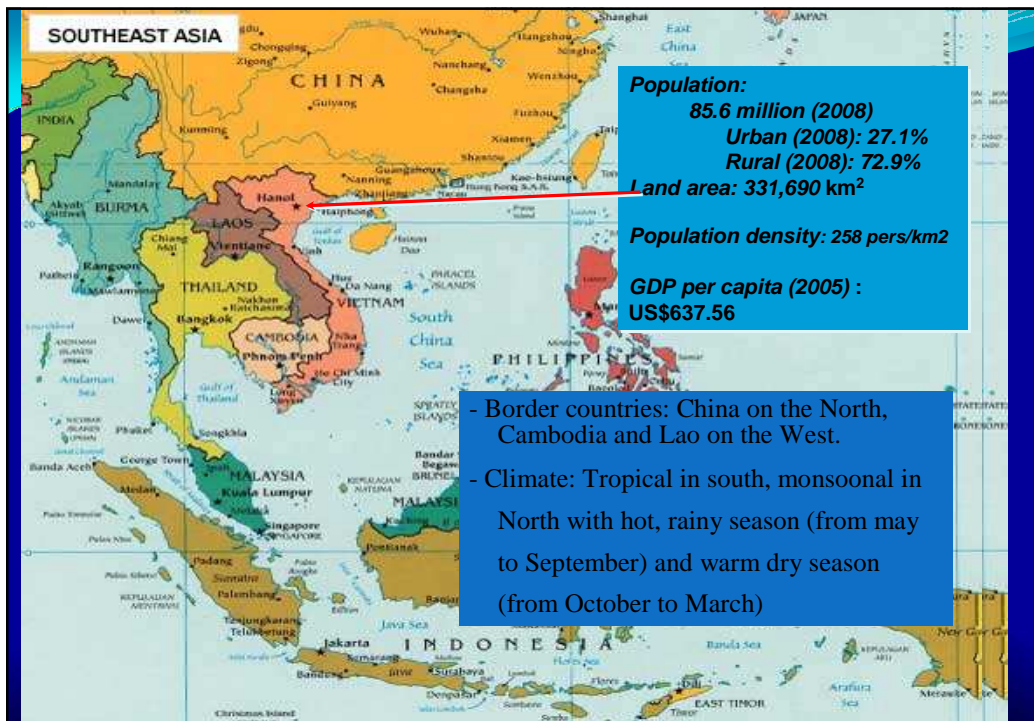


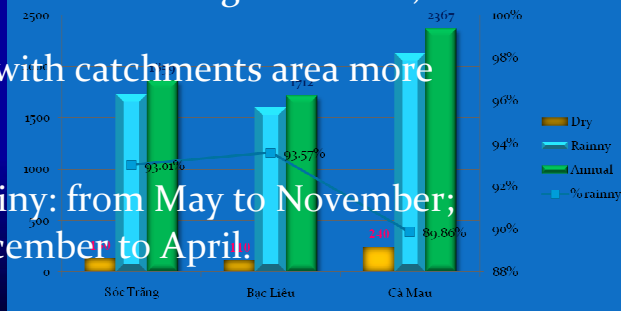
Integrated Flood Management for Sustainable Development

Ha Noi, 05-08 Apr 2011



Water Resources in Vietnam

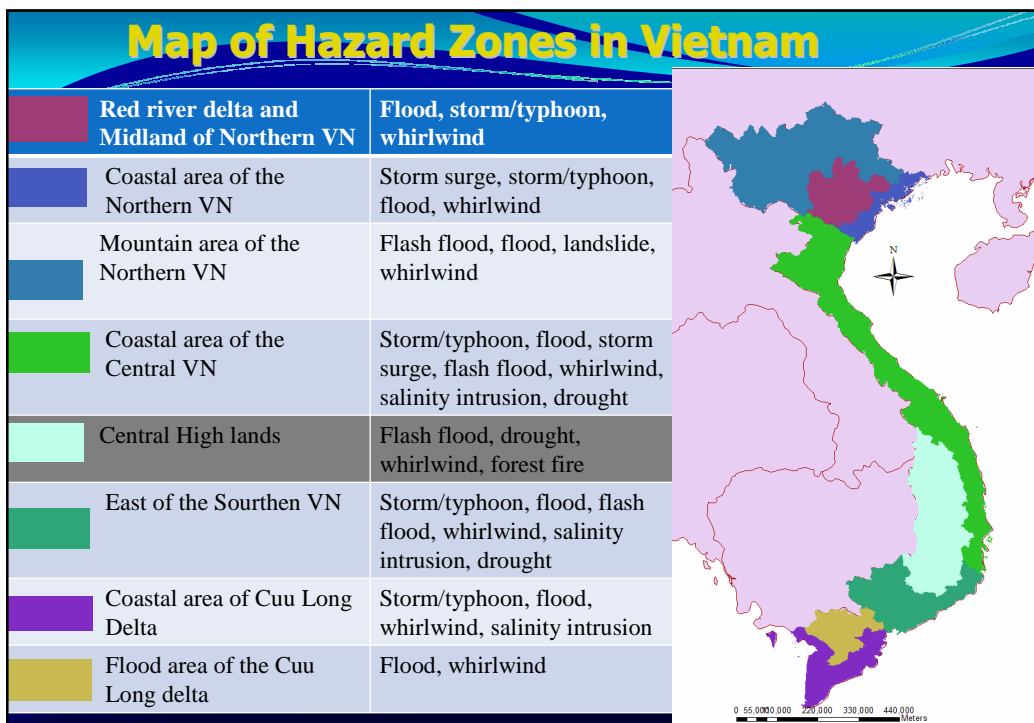
- Average annual rainfall: 1,400 -2,400 mm
- Total annual water volume: 830-840 km³ (> 60% from neighbor countries)
- River systems: 2360 rivers with length > 10 Km,
- 14 main river basins with catchments area more than 10,000 Sq. Km.
- Two seasons: Wet/rainy: from May to November;
dry season: from December to April.

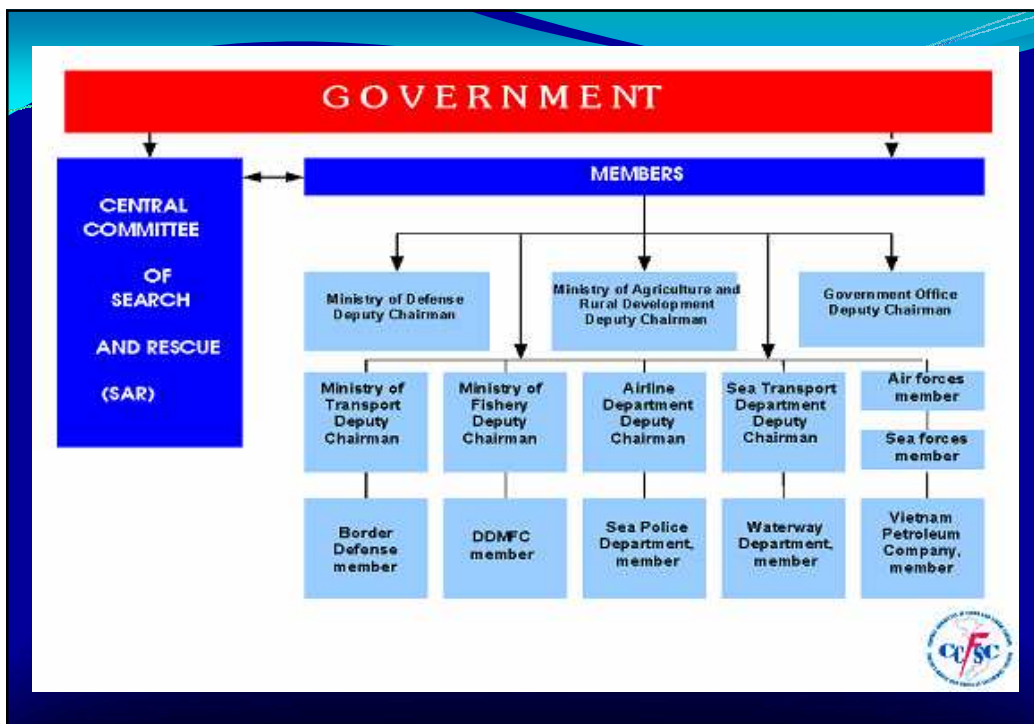


Institutional tasks, and key functions for the water sector in Vietnam

| Agencies | Key functions |
|---|---|
| National Water Resources Council (NWRC) | <ul style="list-style-type: none"> - Advising the government on important decisions regarding water sectors - Organizing discussion among specialists, scientists for recommendations on national water resources - Solving conflicts between ministries, provinces |
| Ministry of Natural Resources and Environment (MONRE) | <ul style="list-style-type: none"> - Directing, guiding and organizing the implementation of legal documents and policies on water resources - Appraising master plans on exploitation and use of water - Deciding on the classification and listing of water sources - Prevention of degradation and depletion of water resources - Building, managing and exploiting a network for monitoring and measuring water resources (surface water, ground water and meteorology) - Water quality monitoring and pollution control - Guiding and examining the grant and withdrawal of licenses on water resources - Proposing to the Prime Minister international cooperation in water sector - Standing member of the National Water Resources Council and the Vietnam Mekong River Commission |

| Agencies | Key functions |
|--|--|
| Ministry of Agriculture and Rural Development (MARD) | <ul style="list-style-type: none"> - Guiding the implementation of strategies on hydraulic structures for irrigation, flood control and salinity intrusion prevention - Guiding the implementation of strategies on prevention and mitigation of natural disasters (including flood and storm control) - Developing policies and strategies for agriculture, forestry, aquaculture, fishery and salt productions - Protection and exploitation of aquatic resources - Responsible for rural water supply and sanitation |
| Ministry of Industry and Trade | <ul style="list-style-type: none"> - Construction, operation and management of hydro-power facilities - Planning industrial water use |
| Ministry of Health | <ul style="list-style-type: none"> - Water standards for drinking and domestic use |
| Ministry of Construction | <ul style="list-style-type: none"> - Spatial planning and construction of urban water supply, sanitation and drainage facilities |
| Ministry of Transport | <ul style="list-style-type: none"> - Planning, construction and management of waterway transport systems - Monitoring hydrographical, hydrological, and hydraulic data along delta branches - Management of marine works and ports |
| Ministry of Science and Technology | <ul style="list-style-type: none"> - Setting of technology standards - Conducting research and environmental management through the EIA process |
| Ministry of Finance | <ul style="list-style-type: none"> - Allocation of state budgets - Development of policies on taxes and fees for water resources |
| Ministry of Planning and Investment | <ul style="list-style-type: none"> - Allocation of planning and investments - Coordination of international relations |





03 BƯỚC AN TOÀN LŨ HỘ GIA ĐÌNH

TRƯỚC LŨ - PHÒNG NGŨA

Theo dõi dự báo thời tiết. Chuẩn bị nhà cửa.

- Theo dõi dự báo thời tiết. Chuẩn bị nhà cửa.
- Có kế hoạch an toàn cho người già và trẻ nhỏ.
- Dự trữ thực phẩm, nước sạch, thuốc, dụng cụ y tế.
- Nắm địa chỉ liên lạc khẩn. Có phương tiện an toàn.

TRONG LŨ - ỨNG PHÓ

Giữ trẻ đến điểm giữ trẻ mưa lũ.

- Theo dõi dự báo thời tiết. Di tản khẩn cấp.
- Mặc áo phao khi đi xuống ghe hoặc bè lạt.
- Không cho phép trẻ bơi lội trong nước lũ.
- Giữ trẻ đến điểm giữ trẻ mưa lũ.

SAU LŨ - PHỤC HỒI

Vệ sinh môi trường.

- Vệ sinh môi trường.
- Sửa chữa nhà hư hại.
- Hỗ trợ hàng xóm bị lũ ảnh hưởng.
- Tham gia kiểm kê thiệt hại và cứu trợ.

CHỈ HUY TẠI CHỖ

Thực hiện các lưu người dân lưu trú tại trường phòng chống lũ bão - làm sạch cửa ngõ.

Nhận đơn cung cấp quần áo, thuốc, thực phẩm, quà thiên tai.

LŨC LƯỢNG TẠI CHỖ

Quản lý bãi rác tạm thời, di dời rác từ cửa ngõ ở những nơi xảy ra lũ lụt.

Quản lý nhà tạm trú của dân địa phương sinh sống.

3 STAGES OF HOUSEHOLD FLOOD SAFETY MEASURES

BEFORE FLOOD - PREPARENESS

Follow up weather forecasting. Strengthen houses.

- Follow up weather forecasting. Strengthen houses.
- Improve swimming capacity, especially for kids.
- Restore clean water, food, medicine, first aids tools.
- Prepare emergency contact list, safe transportation.

DURING FLOOD - RESPONSE

Send kids to emergency kindergarten.

- Send kids to emergency kindergarten.
- Wear life-vest while traveling by boat or swimming.
- Do not allow children to swim in flood.
- Follow up weather forecasting. Evacuate once requested.

AFTER FLOOD - RECOVERY

Clean up environment.

- Repair affected houses.
- Support neighbors affected by flood.
- Clean up environment.
- Participate in damage inventory and relief activity.

LŨ LỤT

Thâm họa và thiên tai

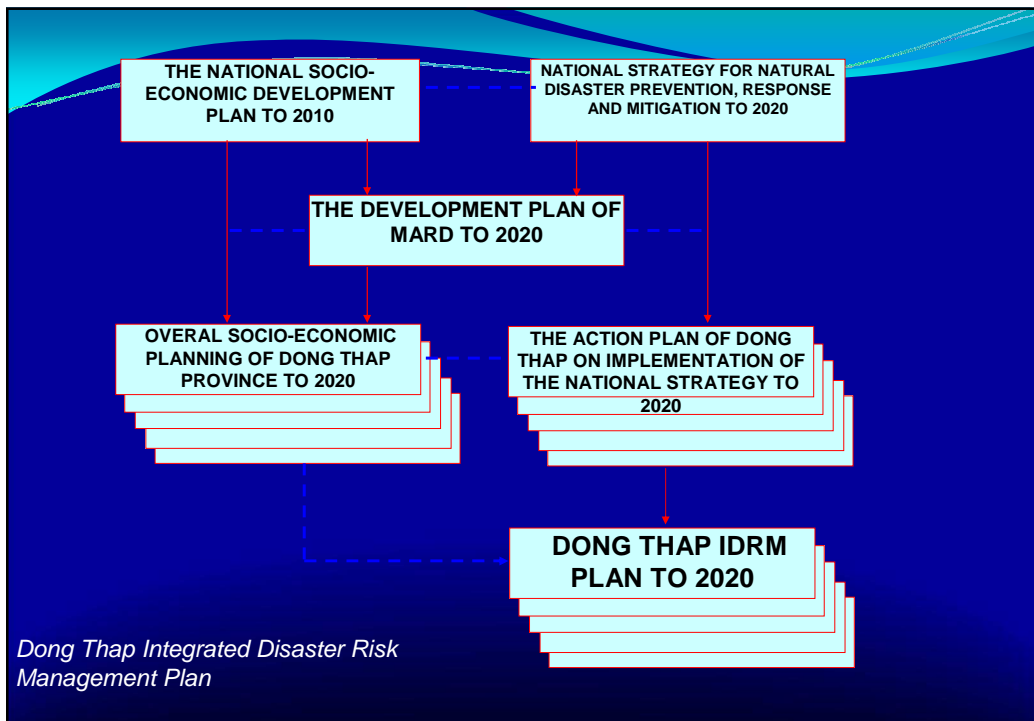
RELEVANT NATIONAL FRAMEWORKS FOR NATURAL DISASTER MANAGEMENT INCLUDING THE CLIMATE CHANGE IN VIETNAM

National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020

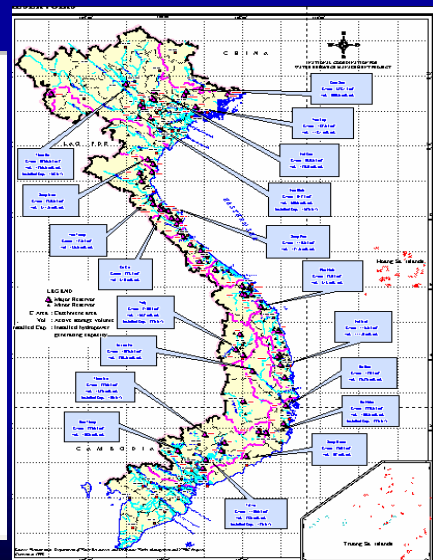
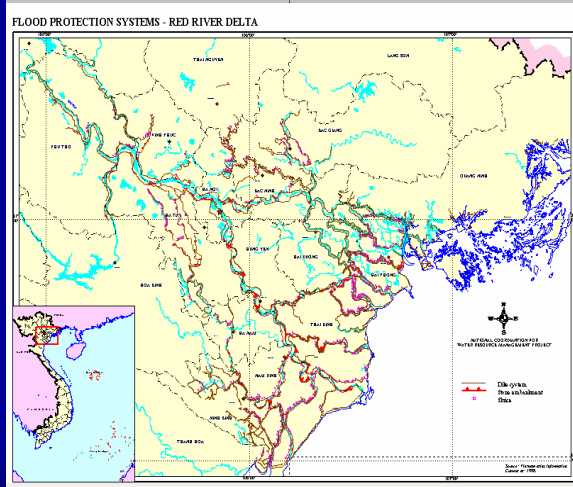
National Target Program on Climate Change Mitigation and Adaptation (NTP)

Community-Based Disaster Risk Management (CBDRM)

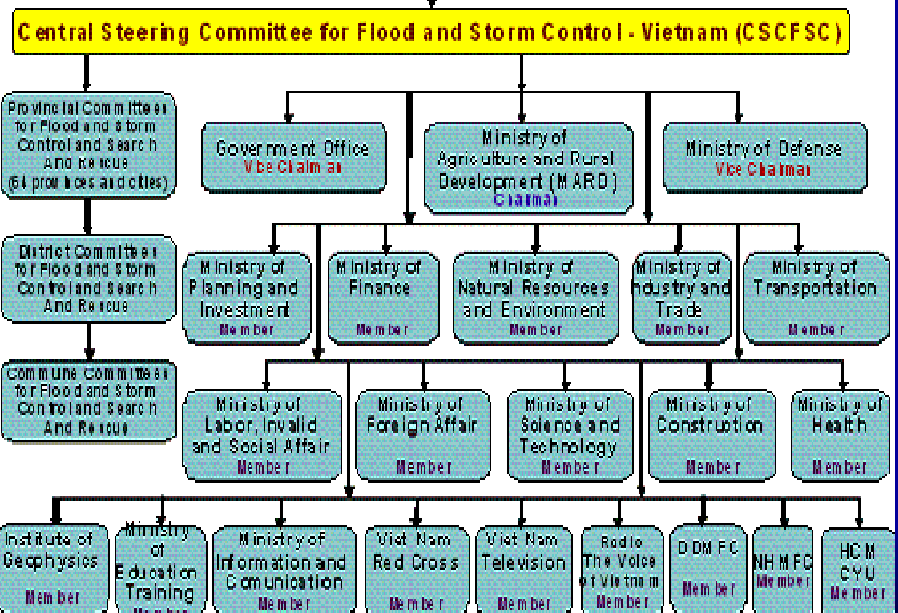
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Flood Management



GOVERNMENT



| Timeframe | Activity |
|--------------------|---|
| January – February | <ul style="list-style-type: none"> CCFSC organizes National Meetings (one for northern and central regions, and other for Southern region) on reviewing the previous year plan and providing orientations for coming year Ministerial and provincial CFSC organize the sub-national meetings on the same subject for their ministry/province |
| Feb – April | <ul style="list-style-type: none"> Preparation of the Province, District and Commune FSC plan |
| May – June | <ul style="list-style-type: none"> Preparation of the Ministerial and provincial FSC plans Sub-national meetings for the approval of the ministerial, provincial and lower levels FSC plans National meetings on presentation of the emergency and evacuation plans for protection of the flood defence system (for 18 national-dyke-system provinces of the northern region – once for each province) |
| April - June | <ul style="list-style-type: none"> Publishment of Directives on the natural disasters prevention, response and search and rescue (Prime Minister for national level, Minister for ministry level and Province Chairman for provincial level) |
| June – September | <ul style="list-style-type: none"> Drill Exercises conducted at different levels (National, ministerial, provincial, district and commune) |

1,30 m

BẢNG THÔNG TIN VỀ LŨ LỤT

Năm 2009

Xã Đào Hữu Cảnh, Châu Phú, An Giang

Dân số : ?????

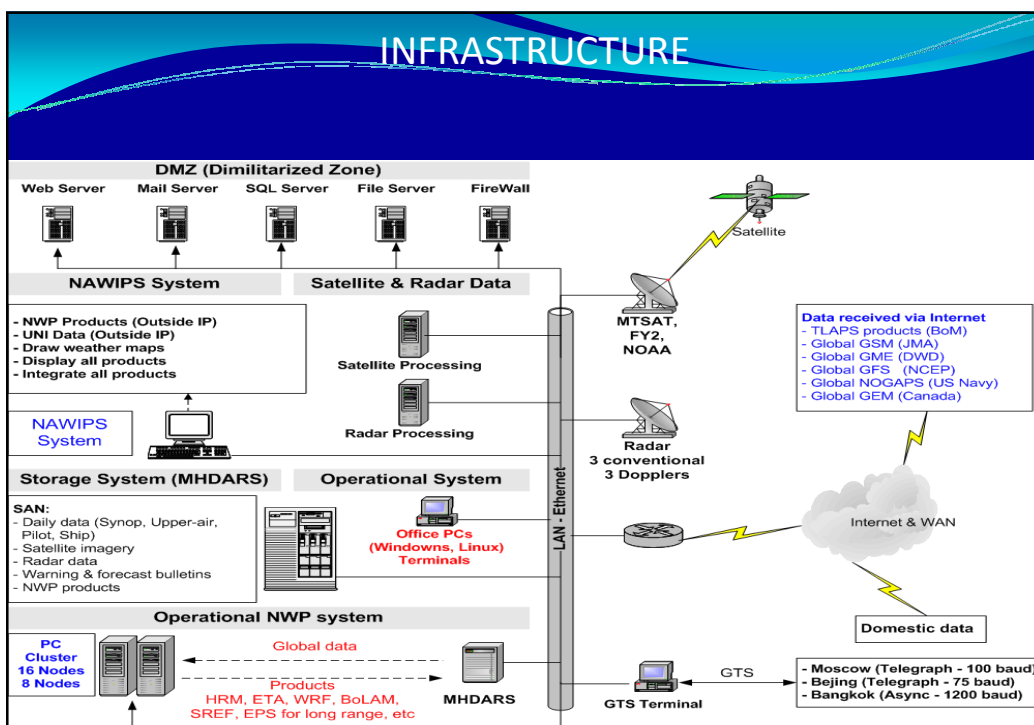
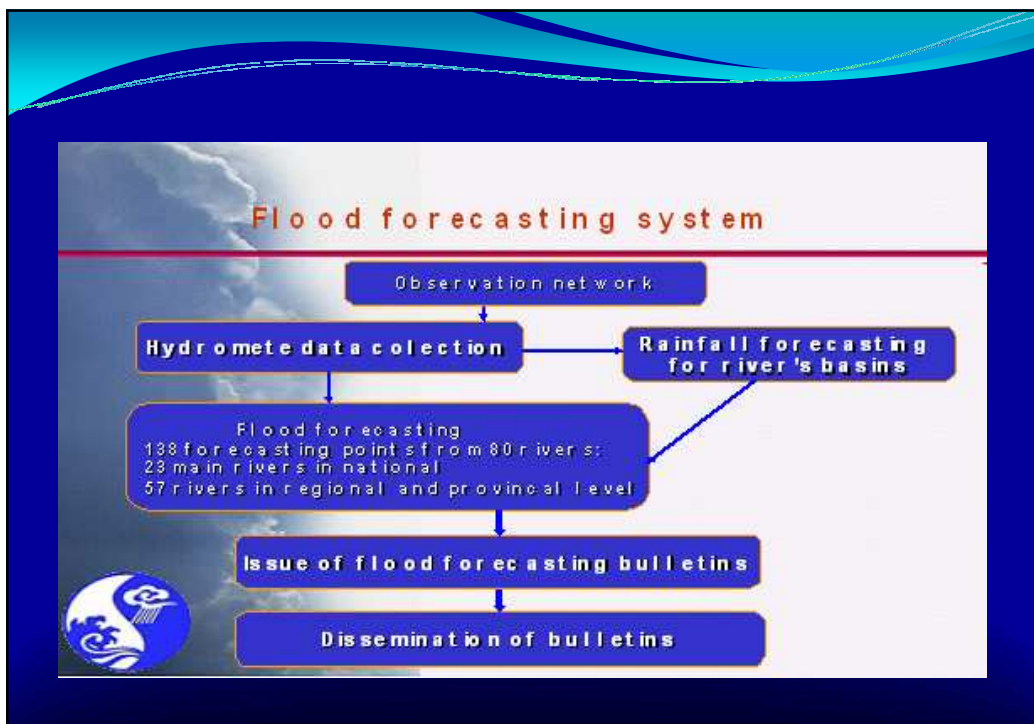
Diện tích : ?????

| | | |
|--|-------|------|
| Mức nước báo động trên sông Hậu tại Châu Đức (m) | Cấp 1 | 2,50 |
| | Cấp 2 | 3,00 |
| | Cấp 3 | 3,50 |

| Ngày Tháng | Mức nước sông Hậu tại Châu Đức (m) | Mức nước nội đồng tại xã (m) | Diện tích đất bị ngập (ha) |
|------------|------------------------------------|------------------------------|----------------------------|
| Hôm qua | 26 / 11 | 3,15 | 2,18 |
| Hôm nay | 27 / 11 | 3,25 | 2,16 |
| Ngày mai | 28 / 11 | 3,26 | |
| Ngày mốt | 29 / 11 | 3,28 | |

Dự án : Quản lý và giảm nhẹ thiên tai (MRC-FAMPP)
 Giai đoạn 2 : Quản lý đất đai
 Giai đoạn 2 - Tại Campuchia, Lào, Thái Lan, Việt Nam
 Tổ chức tài trợ : Chính phủ Đức
 Cơ quan thực hiện : Ủy ban sông Mê công Quốc tế
 Ủy ban Hợp tác và Phát triển
 Ủy ban sông Mê công Việt Nam
 Đơn vị hướng dẫn : Trung tâm Khoa học Nam Bộ

Dự án : MRC-Flood Management & Mitigation Programme (FAMPP)
 Component 2 (FAMPP) - CG Land Management
 Phase 2, Cambodia, Lao PDR, Thailand, Viet Nam
 Funded by : Germany
 Executed by : Mekong River Commission (MRC)
 German Technical Cooperation (GTZ)
 Viet Nam National Mekong Committee (VNMC)
 Southern Regional Hydro-Meteorological Center (SRHMC)

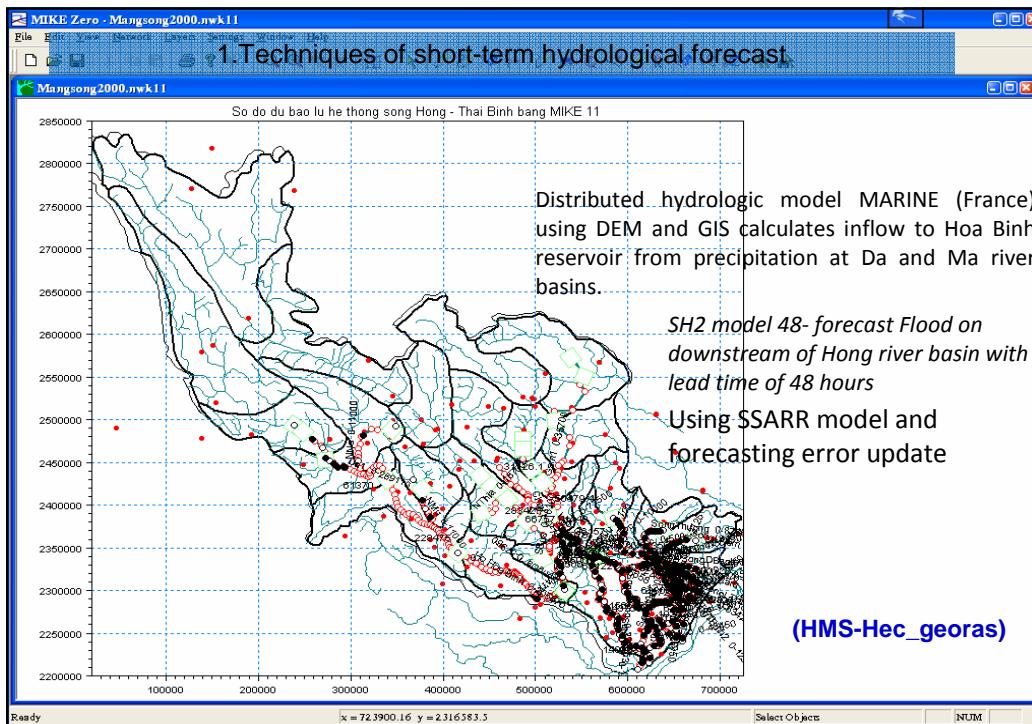


a. International:

- 400 surface synoptic stations : 00, 06, 12, 18 UTC
- 250 upper-air stations: 00, 12 UTC
- Global Products: GEM (Canada), GFS (NCEP), GME (Germany), GSM (Japan), NOGAPS (US Navy), TXLAPS (Australia), UM (UKMO)
- Remote sensing Products: MTSAT, AMV, QuikScat, ASCAT, TRMM, METOP (SST), ...

b. National:

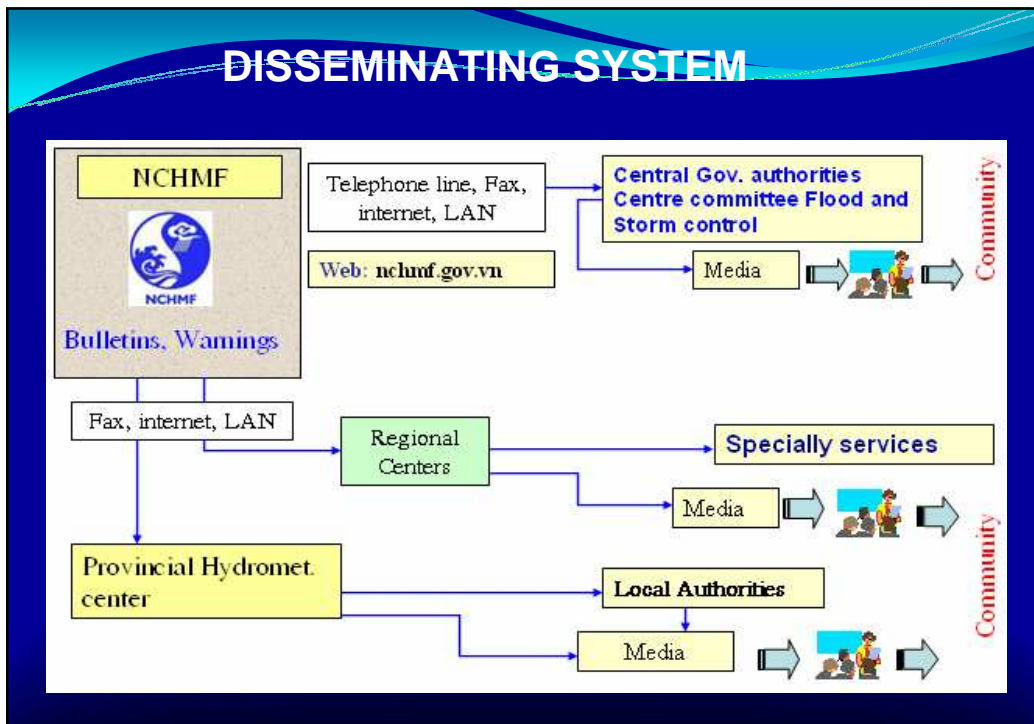
- 172 surface synoptic stations: 4-8 obs/day
- 232 hydrological stations
- 5 pilot stations: 2 obs/day
- ~ 400 rainfall measurement spots
- 7 upper-air stations: 2 obs/day
- 6 weather radars : 24h/day
- Ground receiving satellite stations: MTSAT, NOAA, FY-2



Forecast products

- Short-range weather forecasting
- Tropical cyclone and North east monsoons invasion forecasting
- Hydrological forecasting
- Marine Hydro-meteorological forecasting
- Medium and long range hydro-meteorological forecasting (10 days, monthly and seasonal)

DISSEMINATING SYSTEM



CHALLENGES

- Station network (surface, upper, radars, ...) not dense enough and not automatically
- Lack of data assimilation and data quality control
- Limitation of computing resources
- Data resources to run regional climate model
- Human resources

