

Cambodia Country Report
for
Third Annual Mekong Flood Forum



National Flood Management
and Mitigation



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Introduction (1/2)

- Flood in the Mekong river basin is a recurrent event.
- Low to Medium flood is beneficial to living conditions in the region.
- Big/Serious flood has caused damages to lives and property (1961,1966, 1996, 2001- Big floods and 2000-Severe flood).



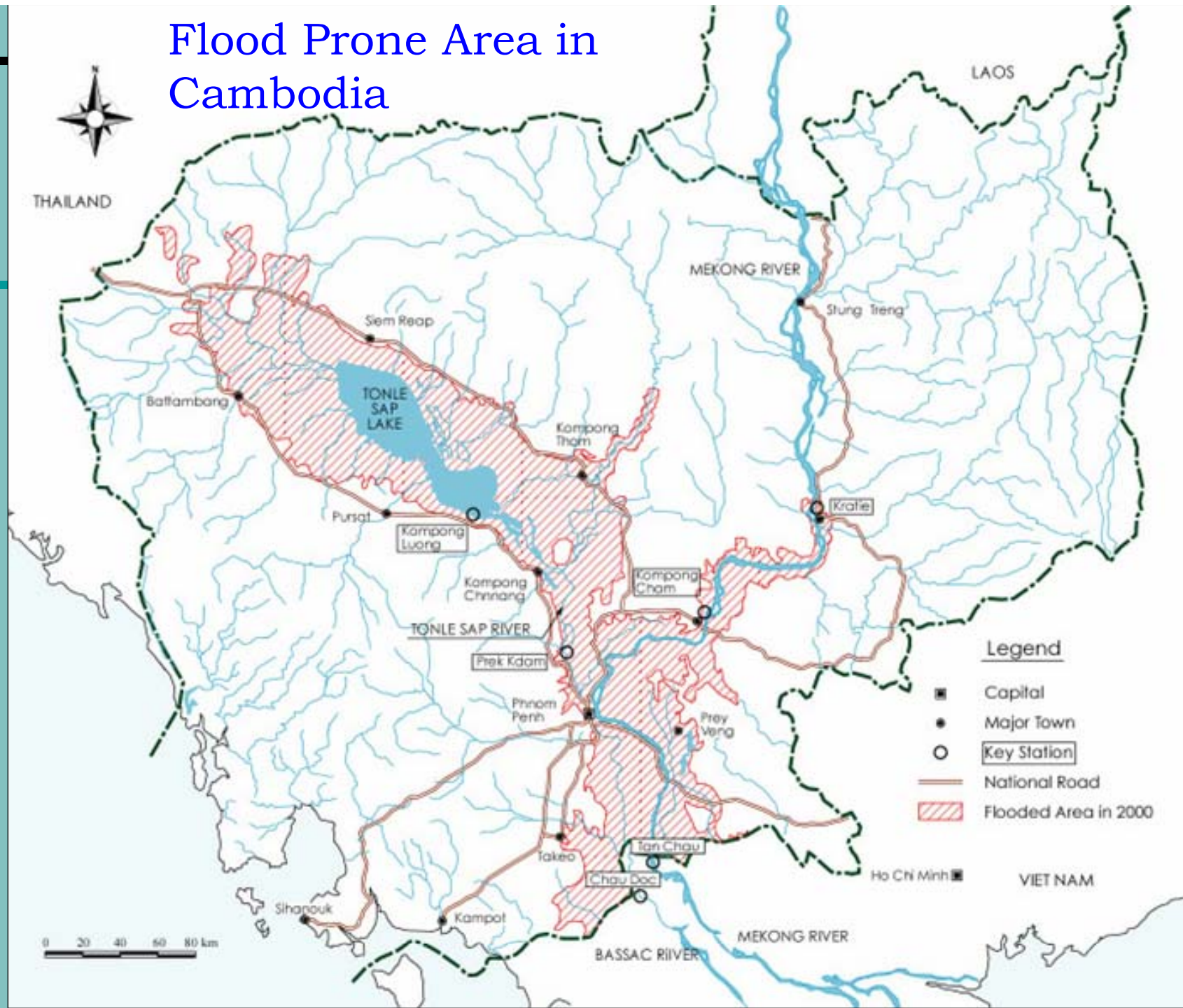
Introduction (2/2)

- With increasing population, more foods and infrastructures are needed.
- More and more people are obliged to live in a flood risk area.
- Other natural disaster:
 - Drought (last two years: 2003-drought, and 2004-serious drought;
 - Tsunami in South East Asia; etc.
- People need to be made aware at all time.
- MRC and Donors and National efforts, Cambodia has experience numerous constraints in its long way and difficult tasks ahead to achieve the MDG.

Flood and Drought (1/4)

- The Mekong river basin is under the influence of the monsoon regime which is characterized by great spatial and temporal variability in rainfall distribution, some part-flooded another part-long dry spell or drought.
- Cambodia is one of the countries in the LMRB most prone to natural disasters, primarily drought and floods.
- Many parts of the country are also subject to **flash flood** such the the Prek Thnot, Pursat, Sekong, Sesan, etc.

Flood Prone Area in Cambodia





Flood and Drought (2/4)

- In addition to natural flood events, flood mitigation measures upstream such as protection dikes, drainage from protected areas (irrigation scheme, cities, towns) evacuation of flood water from reservoirs etc. add more risks to flood conditions downstream.
- Major natural disasters facing Cambodia are namely **floods and droughts**.
- People in the country - especially the poor who are living in the low-lying areas - are the most vulnerable to the natural disasters.

Flood and Drought (3/4)

- Loss as a result of floods in Cambodia:
 - 2000: US\$ 157 million and 362 people
 - 2001: US\$ 30 million and 62 people
 - 2002: over US\$ 12 million and 29 people
- With drought in 2003 and severe drought in 2004, the people in the Mekong River Basin and donor communities are required to take into consideration also in managing the drought.



Flood and Drought (4/4)

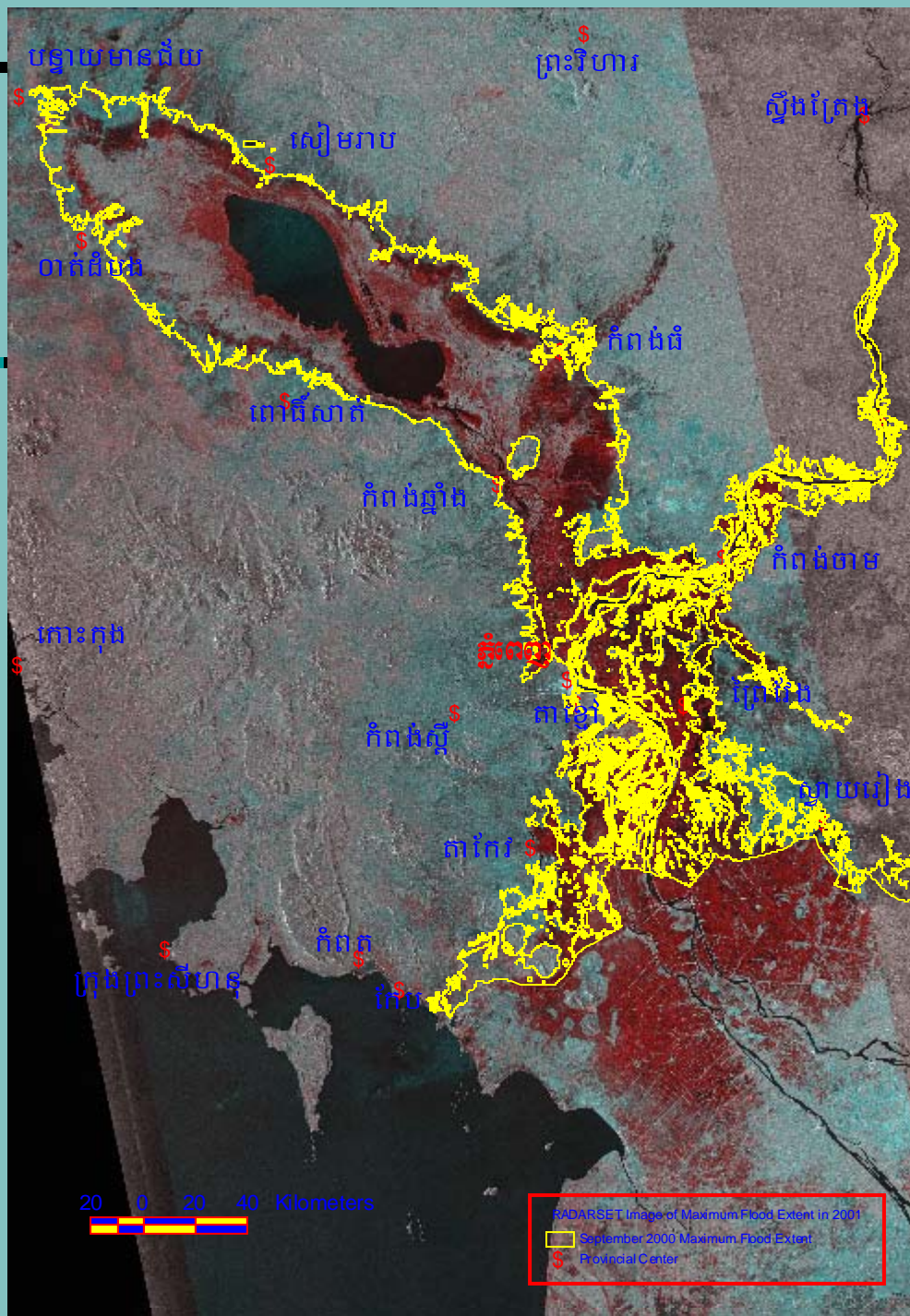
- For generations Cambodian people have adjusted their lives to seasonally high river flows and flooding, to take advantage of the benefits they provide to agriculture and fishing.
- Non-structural flood mitigation consists principally of flood forecasting along the mainstream Mekong River, in cooperation with the Mekong River Commission, and structural measures consists of managing a flood dyke that protects Phnom Penh City and a network of colmatage canals.

Flood (1/3)

- Flood water in Cambodia comes mainly from the upper and middle reaches of the Mekong mainly from the middle reach.
- Flood plain region is highly productive in terms of agricultural potential but deep flood water allows only a single cropping per year.

Flood (2/3)

- For Cambodia, the flooding in 2000, 2001 and 2002 devastated portions of the country, washing away bridges and villages while killing hundreds of people, mainly children.
- Effect to national development-poverty alleviation.

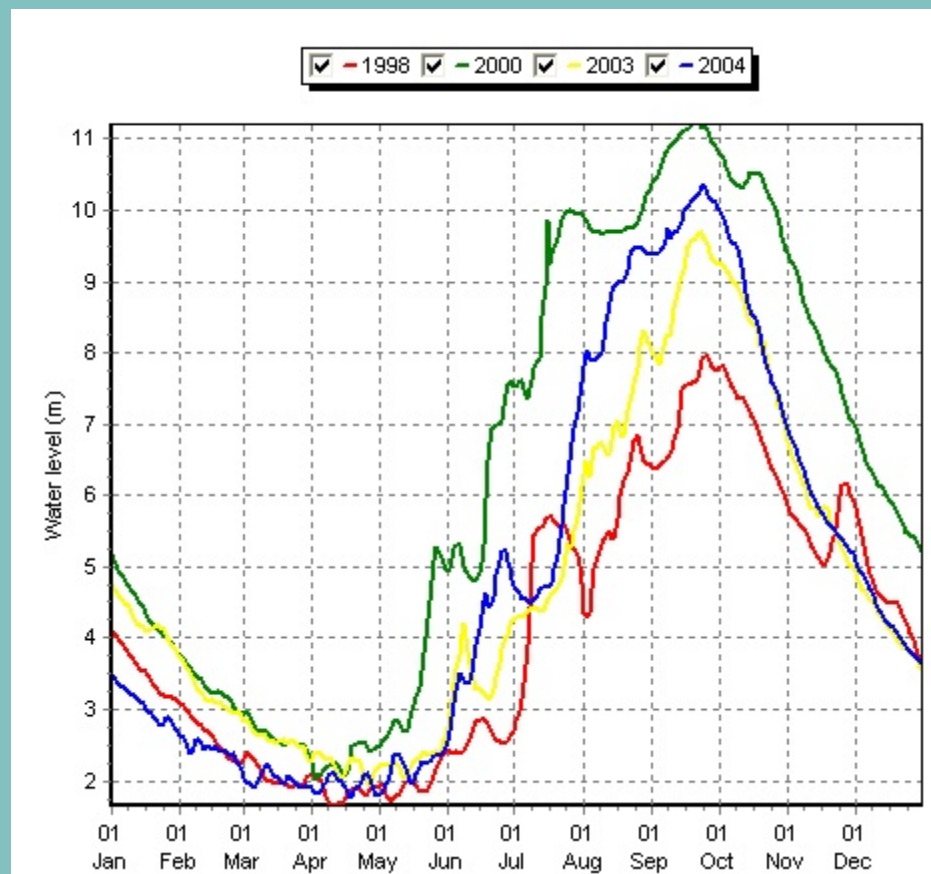


Flood (3/3)

- In 2003 and 2004, the flood has reached only limited part of the flood plain, the dry season of 2003/04 and 2004/05 were the driest so that most permanent lakes in the deepest part of the flood plain were completely dried out.
- The most recent hydrological driest year was in 1998, but it appears that the most driest year in terms of rainfall shortage (meteorological droughts) was during 2003 and 2004.



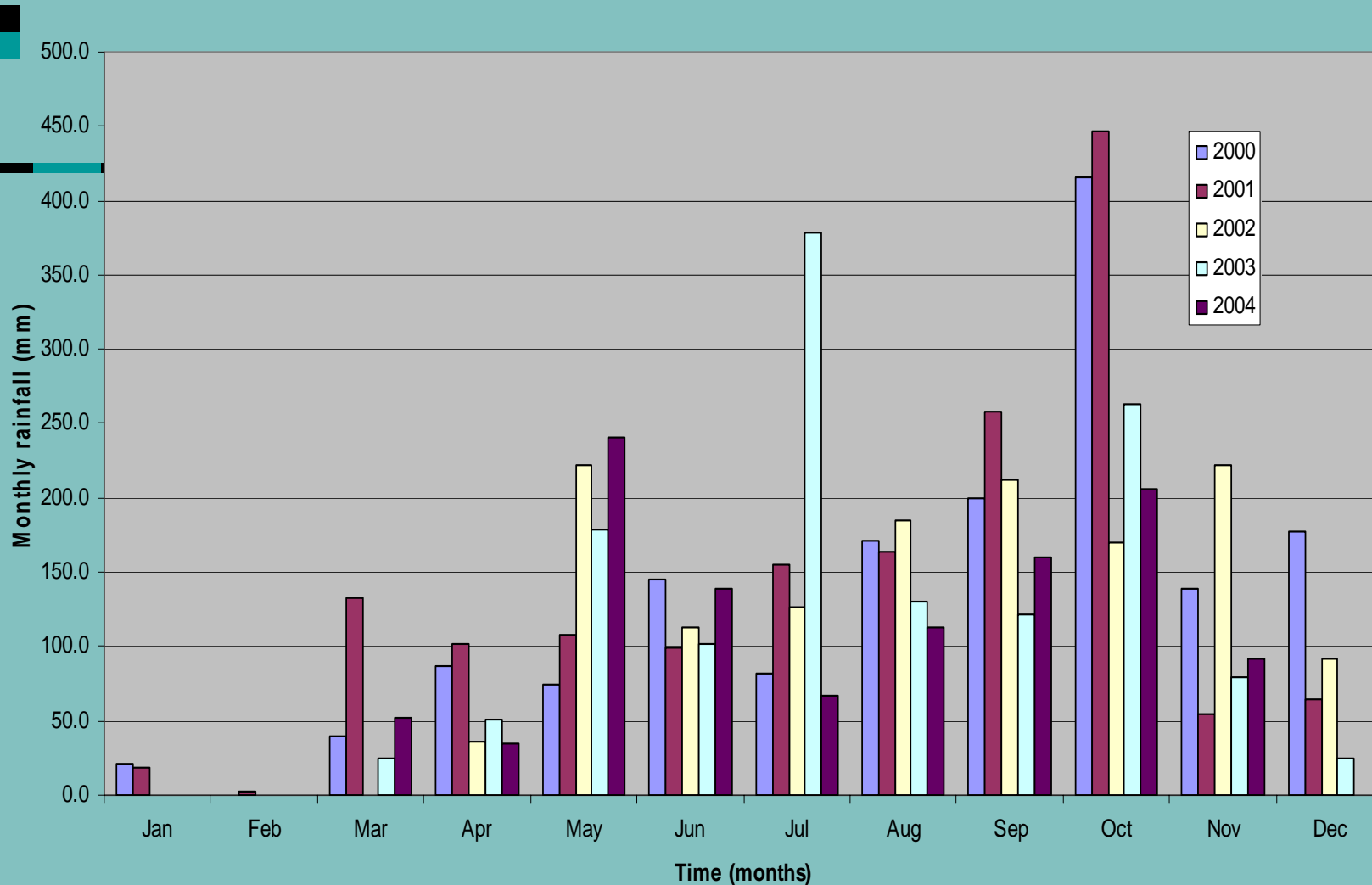
Mean daily WL at Mekong-Chroui Changvar



Drought (1/2)

- Rainfall distribution with time in Cambodia is characterised by a two peaks normally the first one in June and the second one in around September with a period of dry spell in between.
- Droughts in 2003 and 2004 were the longest in last 21 years.
- In 2004 is an exceptional dry year.
- Impact to several districts of 14 provinces, especially in Kampong Speu, Prey Veng, Takeo and Kandal-very little rainfall.

Mean Monthly Rainfall at Takeo



The total annual of rainfall in 2004 was the lowest follows by 1998.

■ Drought in 2004, source from NCDM

Provinces	Effect to Agriculture	Number of District
1. Kampong Speu	90% (serious drought in last 2 years)	6
2. Takeo	35%	4
3. Prey Veng	45%	6
4. Kandal	35%	3
5. Kampong Cham	35%	5
6. Pursat	40%	4
7. Battambang	30%	3
8. Bantey Mean Chey	35%	3
9. Stung Treng	30%	4
10. Kampong Chhnang	37%	2
11. Kratie	25%	3
12. Kampong Thom	35%	3
13. Siem Reap	30%	2
14. Kampot	47%	3



Drought (2/2)

- 14 provinces were drought-stricken
- The most severely affected were Kampong Speu, Prey Veng, Takeo and Banteay Meanchey.
- Populations affected were 442,419 families, consisting of more than 2 million people. Total damages were estimated at over US\$ 21 million, particularly on rice plantation with 62,702 hectares damaged.

Flood Management (1/5)

- Traditionally Cambodian people live in high ground above flood level.
- Only Phnom Penh is protected by dikes.
- Using a dense network of canals connecting the main branches of the river to the flood plain called the “Colmatage canals”.
- Colmatage canals plays an important role in flood management in Cambodia:
 1. to reduce flood peak in the main channel;
 2. spreading sediments for soil fertility improvement; and
 3. conserve water for dry season cropping.

Flood Management (2/5)

- In Cambodia, the general policy for flood mitigation and protection is *to accelerate flood mitigation programme in areas where flooding and water logging have serious effects on the social and economic development of the area.*

Flood Management (3/5)

- *National Water Resources Policy in Cambodia related to the Mitigation of Water-related hazards:*
 - The measures for hazard mitigation; and
 - Data collection, forecasting and warning.



Flood Management (4/5)

- Flood forecasting and early warning:
 - MOWRAM make use of information and MRCS forecast on the Mekong mainstream to establish its own three days forecast based on empirical regression methods.
 - To get flood information to the directly affected people, there are a number of pilots projects under implementation namely the Provision of Flood Early Warning to Flood-Vulnerable Communities in the Lower Mekong Basin, Phase -1. Project financed by OFDA.
 - In early March 2005, the workshop on ISLAND Project was held in MOWRAM to set up the EWS into commune flood forecast by using information technology. The project has been supported by EU and Implemented by ISTED-France.
 - NGO's plays an important role in flood relief and rehabilitation as well as flood early warning at the village level using information from MRC and MOWRAM.



Flood Management (5/5)

■ Emergency Response:

- Appeal for help from **Prime Minister** of the Royal Government of Cambodia to assist the affected people by flood and drought.
- Rice donation from their Majesties the King and Queen to the affected people through National Committee for Disaster Management and the **Cambodia Red Cross**. Local generous individuals have also actively contributed their resources for natural disaster victims.
- **Visits to the affected areas** by high-ranking officers with air distribution.
- **Government stocks** being used as relief for emergency response in case of flood and drought.
- **Provincial, District and Commune Disaster Management Committees** in place responded in a timely manner to disaster-affected people by using stocks from the central government and from the **NCDM**. They also used their own stocks for distribution to help alleviate people's living condition.
- **NCDM coordinated with agencies concerned** to mobilize the resources for the disaster responses and recovery.

Photos of drought 2004







Lessons Learned

- Natural disasters are a severe constraint on socio-economic development.
- Annual floods have become an essential element in the life of people.
- Impact of activities upstream and downstream.
- Flood mitigation requires real-time or near real-time information on weather and river flow.
- The needs of flood risk map, inundation map, and other topographical map in Cambodia and also in MRB are required.



Recomendatios (1/2)

- Practical cooperation of knowledge and experience sharing in flood preparedness and emergency response among the riparian countries and other relevant agencies to the flood should be continuous and enhanced.
- Capacity building to the field staff is strongly needed.
- The technology must be supplemented with an effective communication system to reach remote villages, which are vulnerable communities to floods and droughts.
- Weather forecasts to ensure timely warning of natural occurrences such as typhoons, floods and drought should be further improved.



Recomendatios (2/2)

- Flood forecasting and early warning is the best way to minimize the flood damage. Flood forecasting and early warning must be accurate, concise, timely and reliable.
- Drought forecasting should be considered by MRC from now on, to assist the riparian countries in order to find appropriate ways to help farmers.
- There has been no analysis to determine whether drought forecasting is possible in Cambodia, or would provide a useful tool to farmers.
- MRC should allocate some budget for emergency relief to help the people affected by floods in Cambodia and in other riparian countries when floods occur.



■ Thank you very much for your
kind attention !

