BRIEFLY INFORMATION ON THE CUU LONG RBO

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Address: 271/3 An Duong Vuong Street, 5th District, Ho Chi Minh City, Vietnam
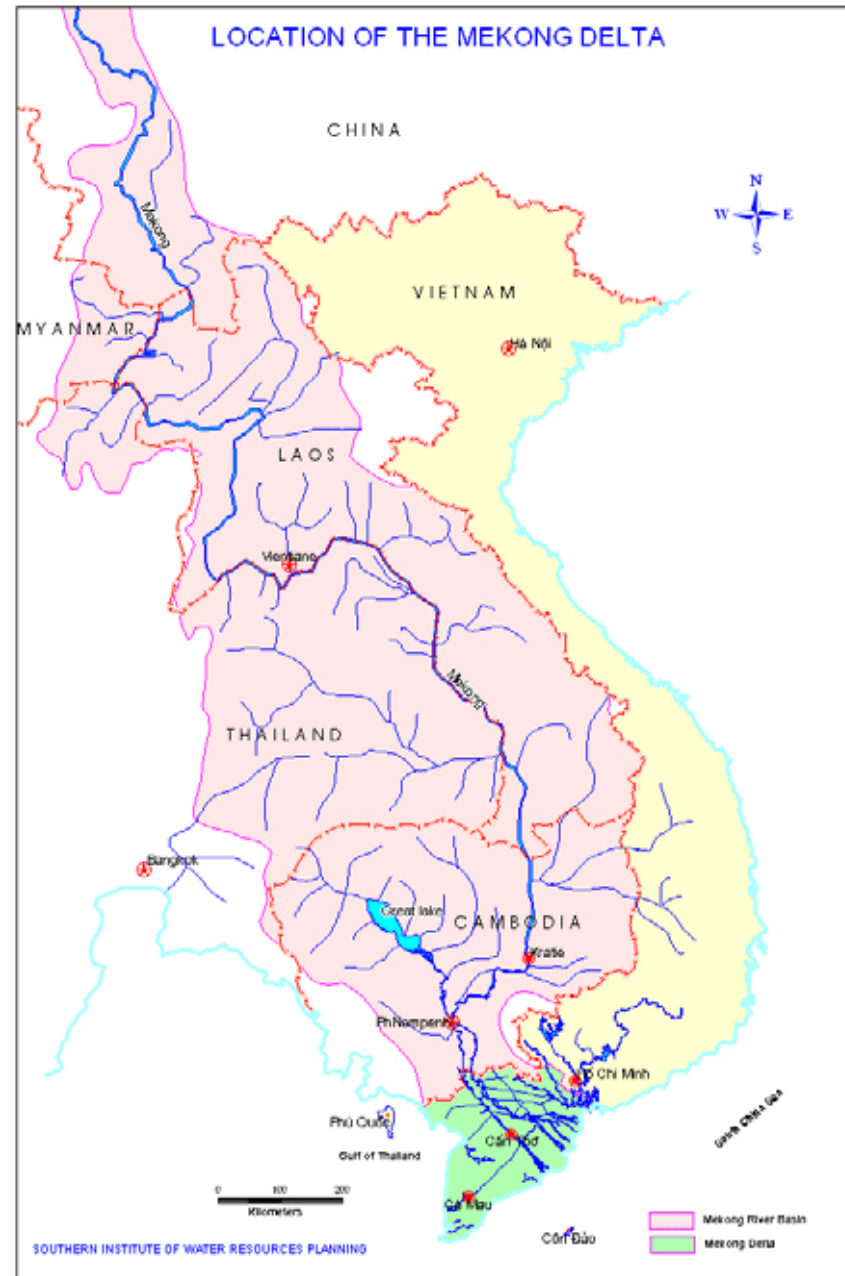Tel: (84-8) 8 350 850   Fax: (84-8) 8 351 721
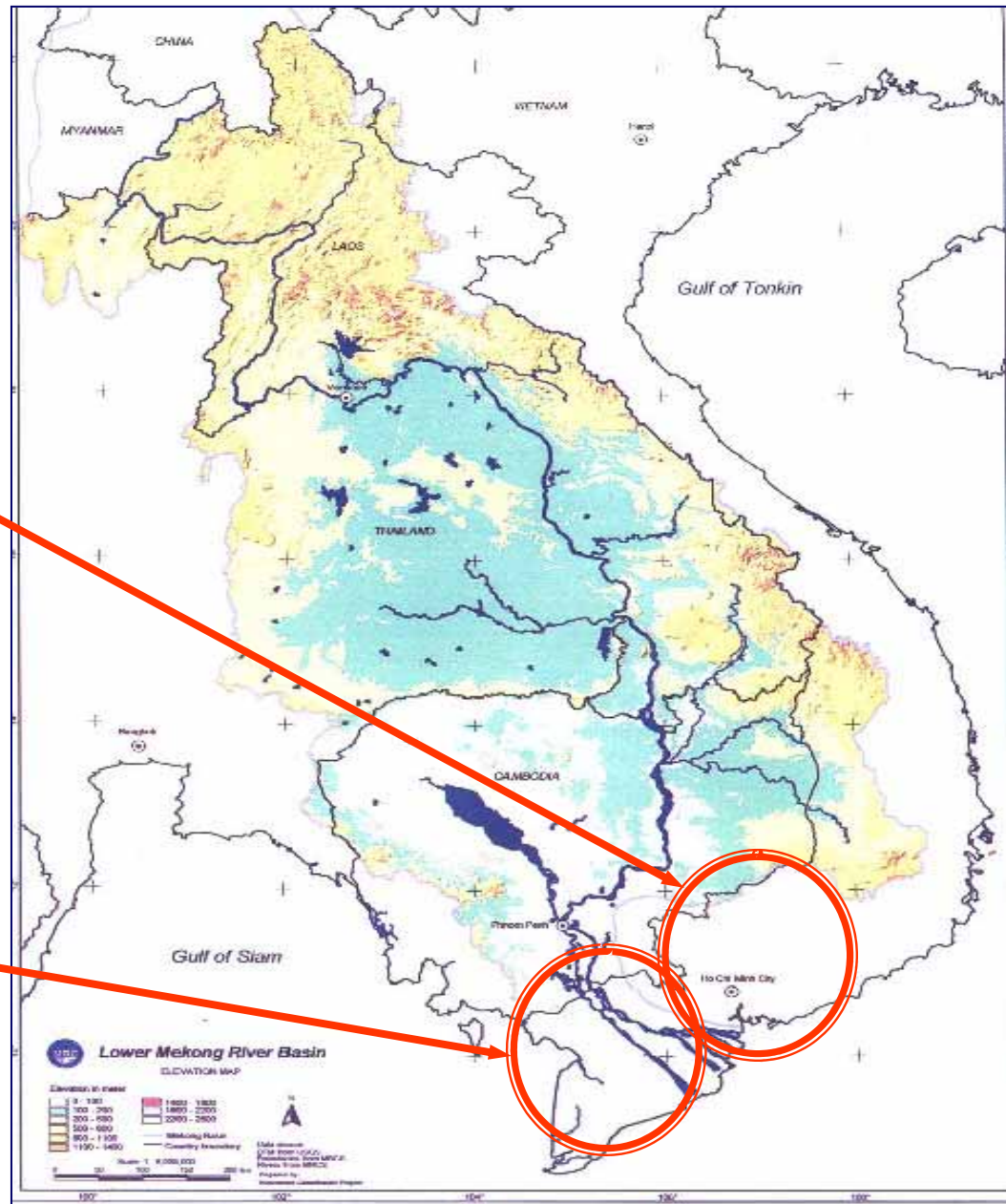Email: siwarp@hcm.fpt.vn   Website : www.siwrp.org.vn

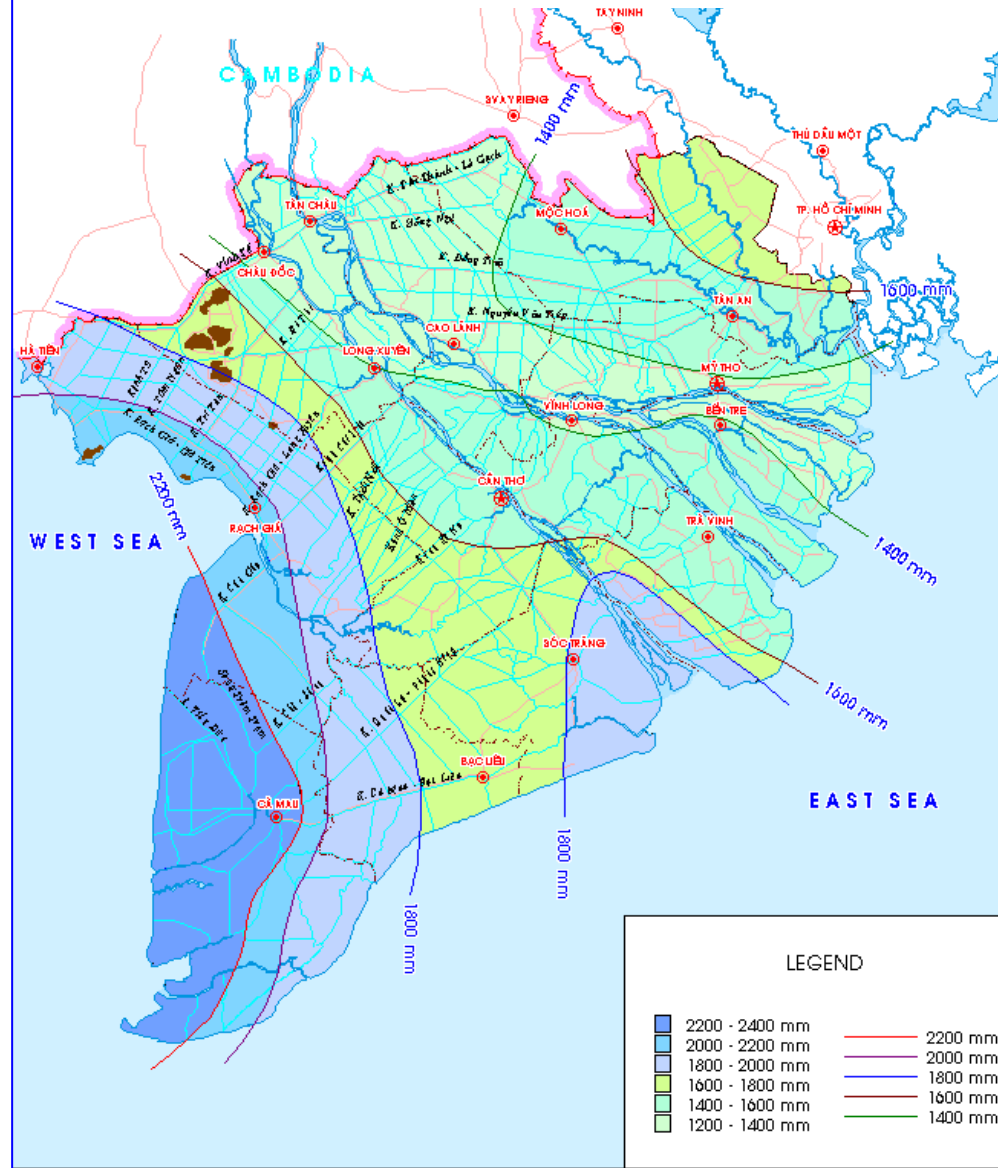LOCATION OF THE MEKONG DELTA

MEKONG RIVER

- **Run through 6 countries;**

- **Length: 4,200 km;**

- **Catchments area:**

   795,000 km2

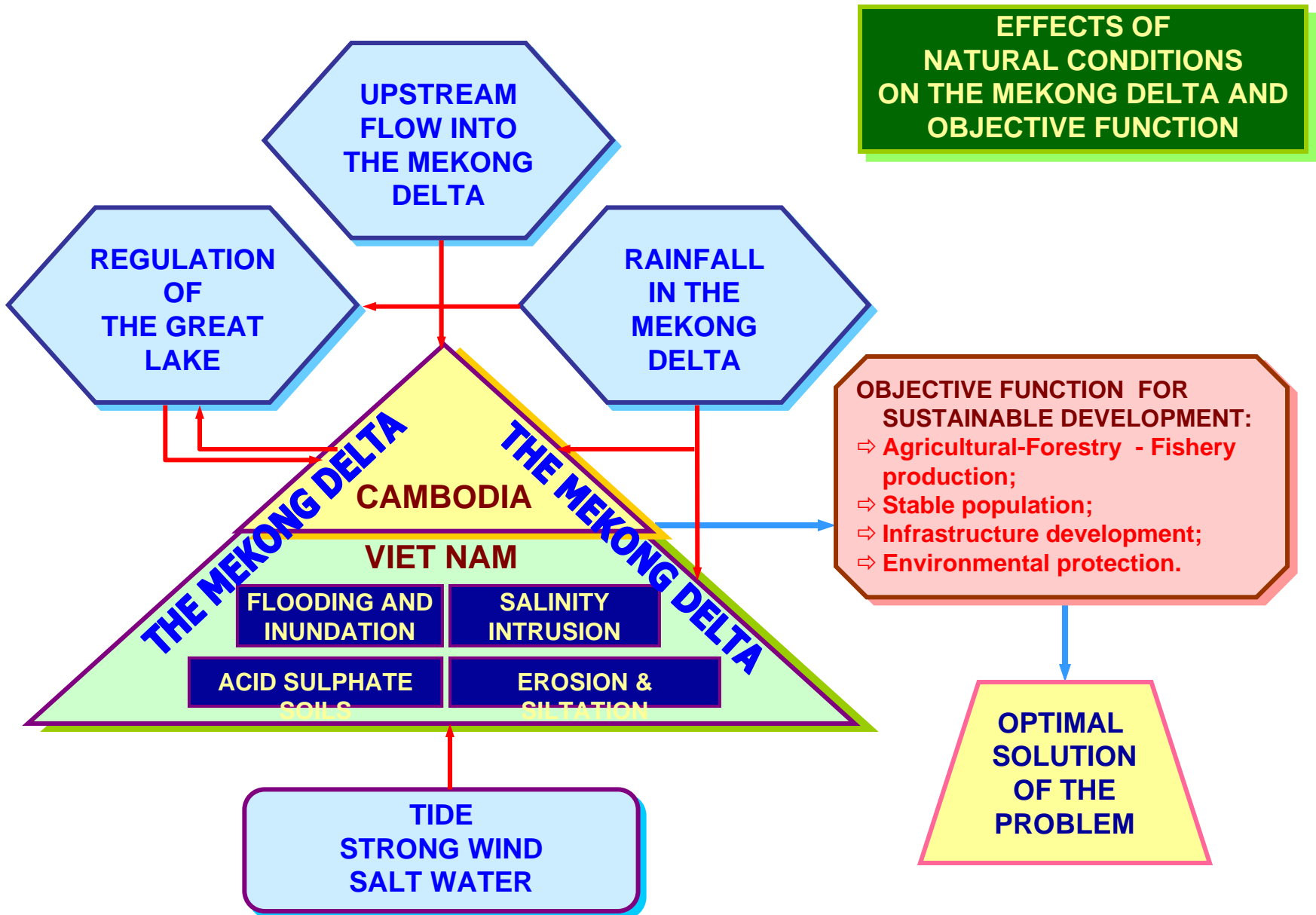- **Vietnamese area:**

   39,000 km2 (5%)

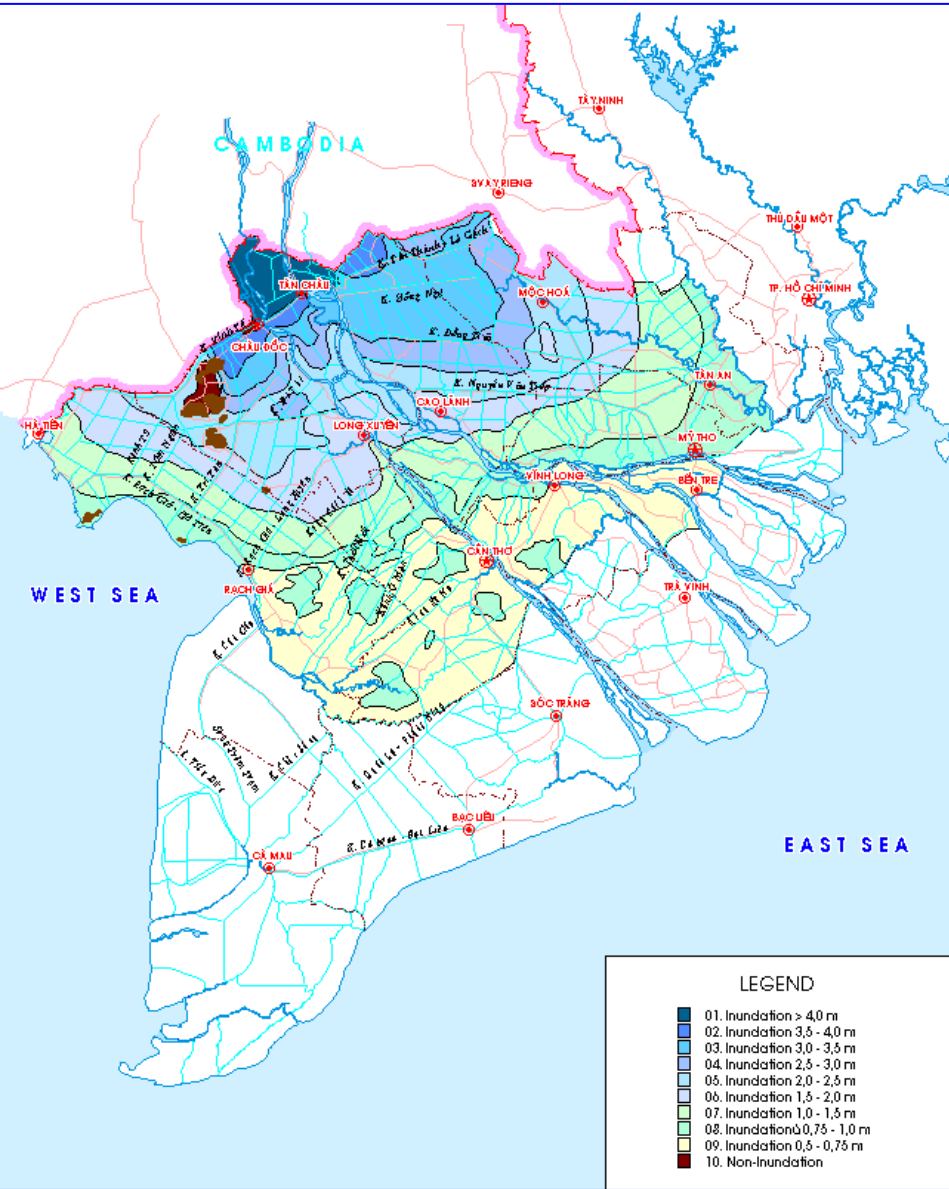Yearly Rainfall Isoline in Cuulong Delta

NATURAL CONDITIONS

○ **Common elevation:**

   0.3 – 2.0 m

○ **Average temperature:**

   26 – 27^0 c

○ **Annual rainfall:**

   1200–2400 mm/year

○ **Rainy season:**

   May to November with   rainfall > 90%

○ **Dry season:**

   November to April with   rainfall < 10%

SOUTHERN INSTITUTE FOR WATER RESOURCES PLANNING

EFFECTS OF NATURAL CONDITIONS ON THE MEKONG DELTA AND OBJECTIVE FUNCTION

UPSTREAM FLOW INTO THE MEKONG DELTA

REGULATION OF THE GREAT LAKE

RAINFALL IN THE MEKONG DELTA

THE MEKONG DELTA

CAMBODIA

VIET NAM

| FLOODING AND INUNDATION | SALINITY INTRUSION |
| ACID SULPHATE SOILS | EROSION & SILTATION |

TIDE STRONG WIND SALT WATER

OBJECTIVE FUNCTION FOR SUSTAINABLE DEVELOPMENT:
⇨ **Agricultural-Forestry - Fishery production;**
⇨ **Stable population;**
⇨ **Infrastructure development;**
⇨ **Environmental protection.**

OPTIMAL SOLUTION OF THE PROBLEM

1. Flood management and protection
2. Water pollution
3. Safe domestic water
4. Dry season water availability
5. Erosion
6. Aquaculture management
7. Chemical and pesticide management
8. Management of protected species
9. Management of ecologically important areas
10. Management of shrimp farming
11. Management of acid sulfate soils
12. Management of saline intrusion
13. Implementation of by-laws and regulations
14. Expansion of fruit growing.

Flood Inundation Depth in 2000

LEGEND

01. Inundation > 4,0 m
02. Inundation 3,5 - 4,0 m
03. Inundation 3,0 - 3,5 m
04. Inundation 2,5 - 3,0 m
05. Inundation 2,0 - 2,5 m
06. Inundation 1,5 - 2,0 m
07. Inundation 1,0 - 1,5 m
08. Inundation 0,75 - 1,0 m
09. Inundation 0,5 - 0,75 m
10. Non-Inundation

FLOODING AND INUNDATION

- **Area:**
  1.2-1.9 million ha
- **Depth:**
  0.5-4.0 m
- **Duration:**
  3-5 months
- **Recent high floods:**
  1996, 2000, 2001, 2002

LIST OF DAMAGES IN THE HIGH FLOOD YEARS OF THE MEKONG RIVER DELTA

Items	Unit	1991	1994	1995	1996	2000	2001	2002
Dead people	Person	158	407	199	217	448	412	170
Damaged houses	Family	197,477	505,906	28,240	78,859	905,283	17,108	5,209
Evacuated families	Family	15,600	20,125	11,431	38,735	50,956	27,826	6,670
Relief families	Family			59,262	175,441	253,107	193,161	
Decreased rice productivity area	Ha	88,837	202,189	62,399	107,707	111,907	33,036	15,777
- complete loss	Ha	171,898	26,868	11,101	43,249	33,594	8,955	365
Decreased Upland crop productivity area	Ha				50	4,613	4,925	1,049
- complete loss	Ha				17,466			
Submerged fruit area	Ha				76,396	63,560	32,785	32,142
Submerged fish ponds	Pond			16,336	69,505			
Submerged fishery farms	Ha					14,053	13,494	2,446
Dead cattles	Animal			242	18,965	22,600	490,741	
Submerged classes	Room				11,093	13,712	6,274	3,223
Students were off school	Pupil			217,412	905,302	103,270	266,231	243,855
Submerged medical stations	Station			156	509	385	105	51
Submerged canals	m^3			5,512,226	443,100			
Damaged bridges & sluices	Piece			2,722	24,478	2,595	1,684	519
Submerged highway and provincial street	Km						380	120
Submerged district and commune Streets	Km						4,662	3,934
Submerged Treasures and public areas	piece			372	2,411	1,036	675	534
Total damage	Billion VND	2,217	2284	700	2,181	4,597	1,456	457
	Million USD	138.56	142.75	43.75	136.31	287.31	91.00	28.56
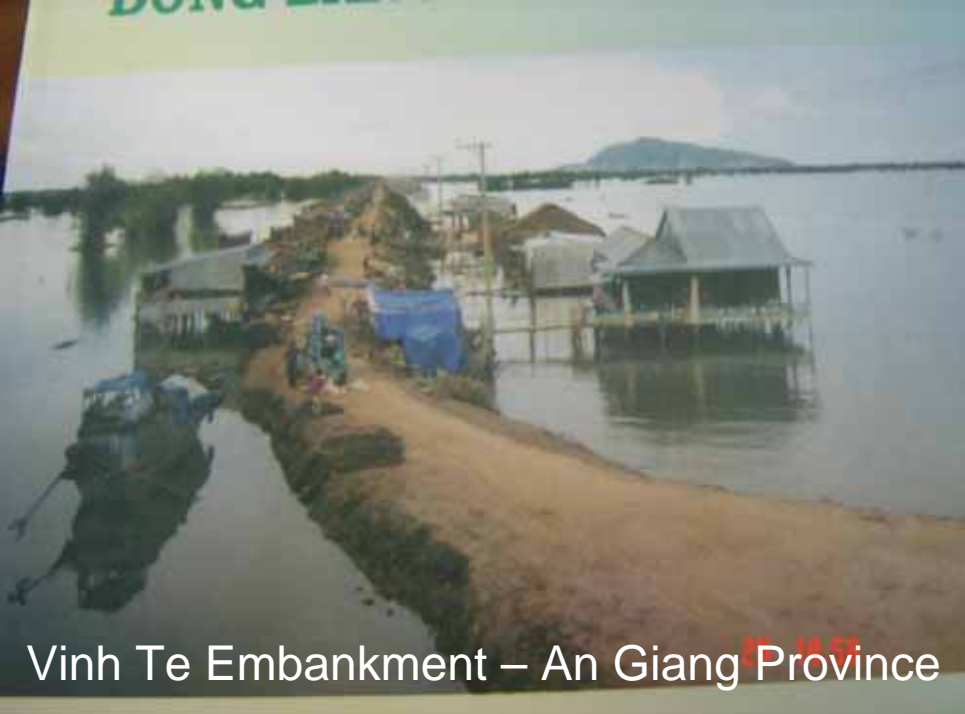
Vinh Te Embankment – An Giang Province
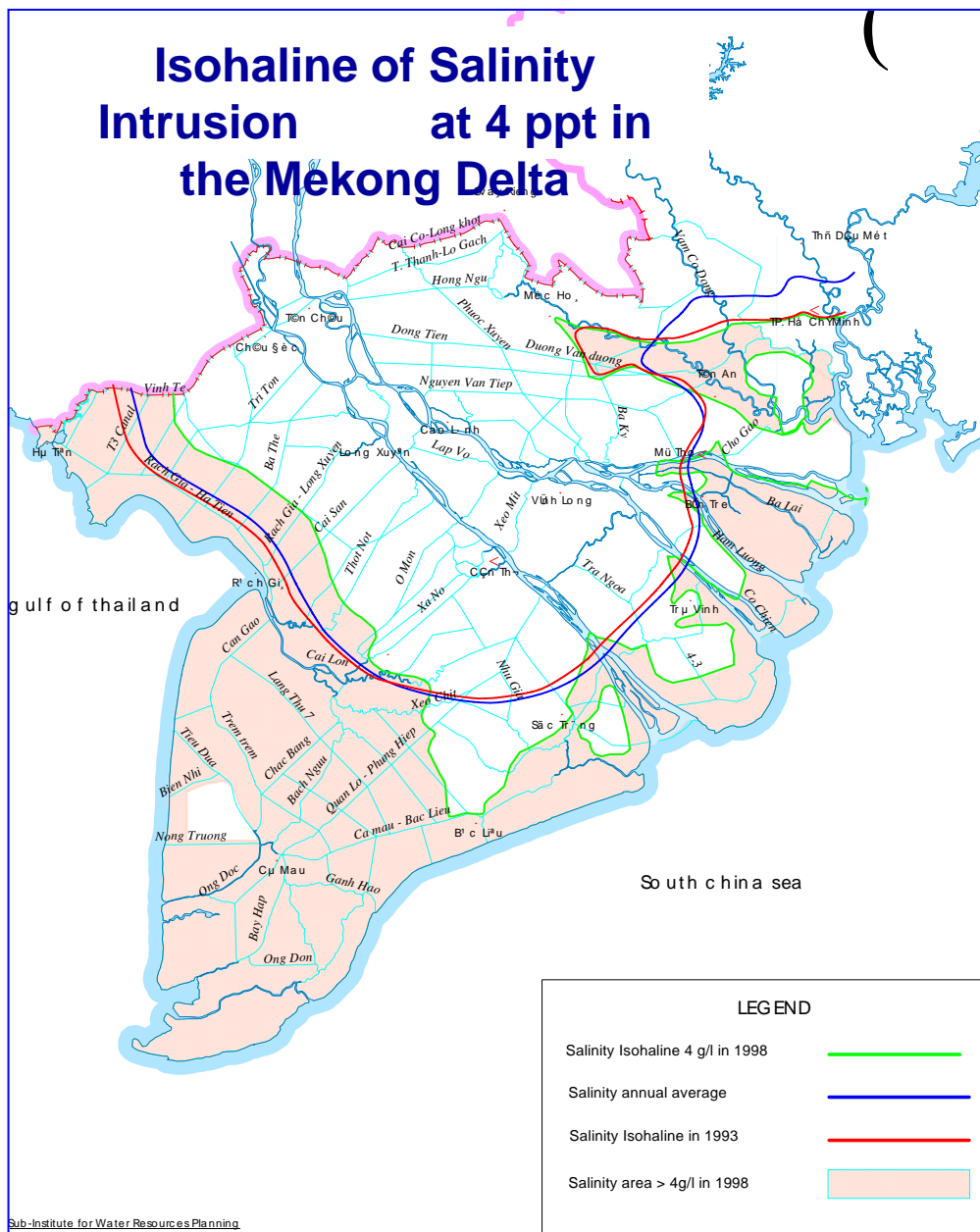

School – Dong Thap Province

Tra Su Bridge - An Giang Province

Tan An Post – Long An Province

Isohaline of Salinity Intrusion at 4 ppt in the Mekong Delta

☞ **Salinity Intrusion:**

○ **Area: 1.4-1.6 million ha**

○ **Length (4 g/l): 40-50 km**

○ **Duration: 1-3 months in a half of area**

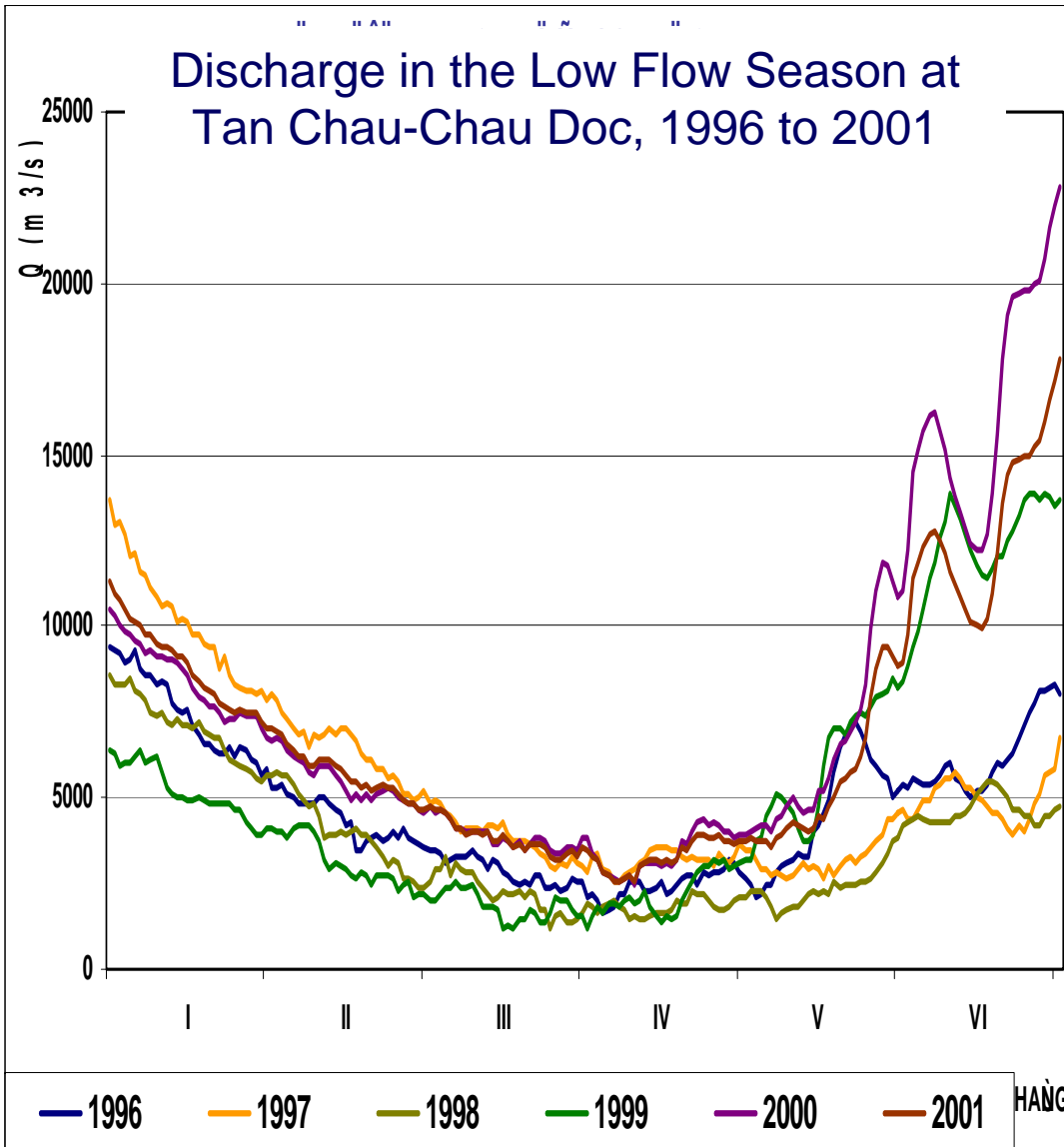○ **Historic salinity intrusion: 1977, 1993, 1998**

LEGEND

Salinity Isohaline 4 g/l in 1998	———
Salinity annual average	———
Salinity Isohaline in 1993	———
Salinity area > 4g/l in 1998	▭

Acid-salt accumulation

Oxy-pyrite

Discharge in the Low Flow Season at Tan Chau-Chau Doc, 1996 to 2001

☞ **Fresh water shortage:**

- **Area:**
  2.0 million ha
- **Occurring in the low flow season**
- **Mostly in the saline & acid sulphate soils**
- **Severe areas: Coastal belt, Ca Mau Peninsula**

Erosion

Mekong river at Tan Chau, An Giang Province

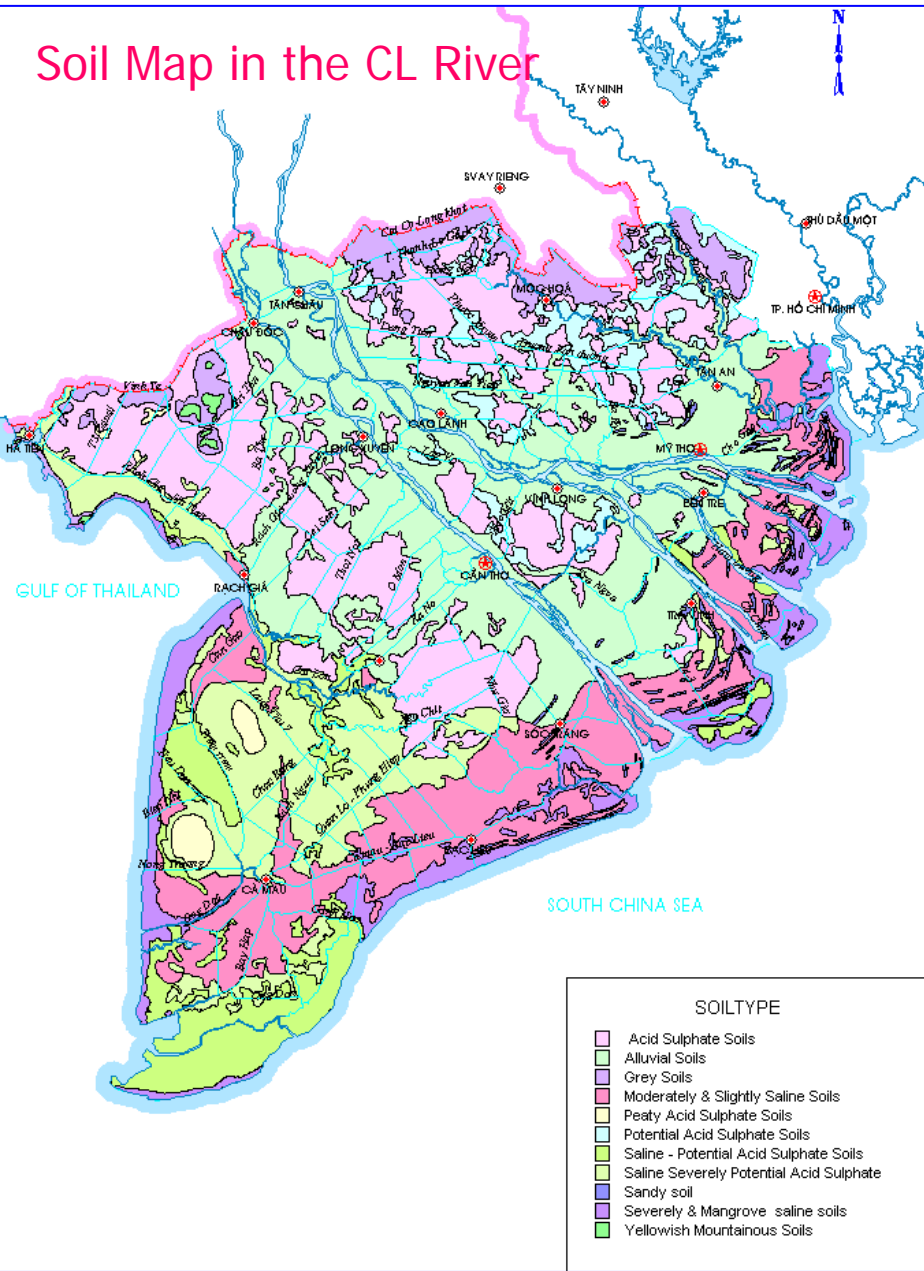Mekong river at Hong Ngu, Dong Thap Province

Giao Hoa River, Ben Tre Province

MAY 17 2004

MAY 17 2004

Soil Map in the CL River

SOILTYPE
- Acid Sulphate Soils
- Alluvial Soils
- Grey Soils
- Moderately & Slightly Saline Soils
- Peaty Acid Sulphate Soils
- Potential Acid Sulphate Soils
- Saline - Potential Acid Sulphate Soils
- Saline Severely Potential Acid Sulphate
- Sandy soil
- Severely & Mangrove saline soils
- Yellowish Mountainous Soils

➦ Acid Sulphate Soils:

○ **Area:**

   1.4-1.6 million ha

○ **"Problem soils":**

   0.8-0.9 million ha

○ **Duration:**

   3-6 months (pH=3.5-5)

○ **Severe areas:**

   Plain of Reeds,

   LongXuyen Quadrangle,

   Ca Mau Peninsula

Farming land

Jarosite

pyrite

New Canal
In Dong Thap Muoi
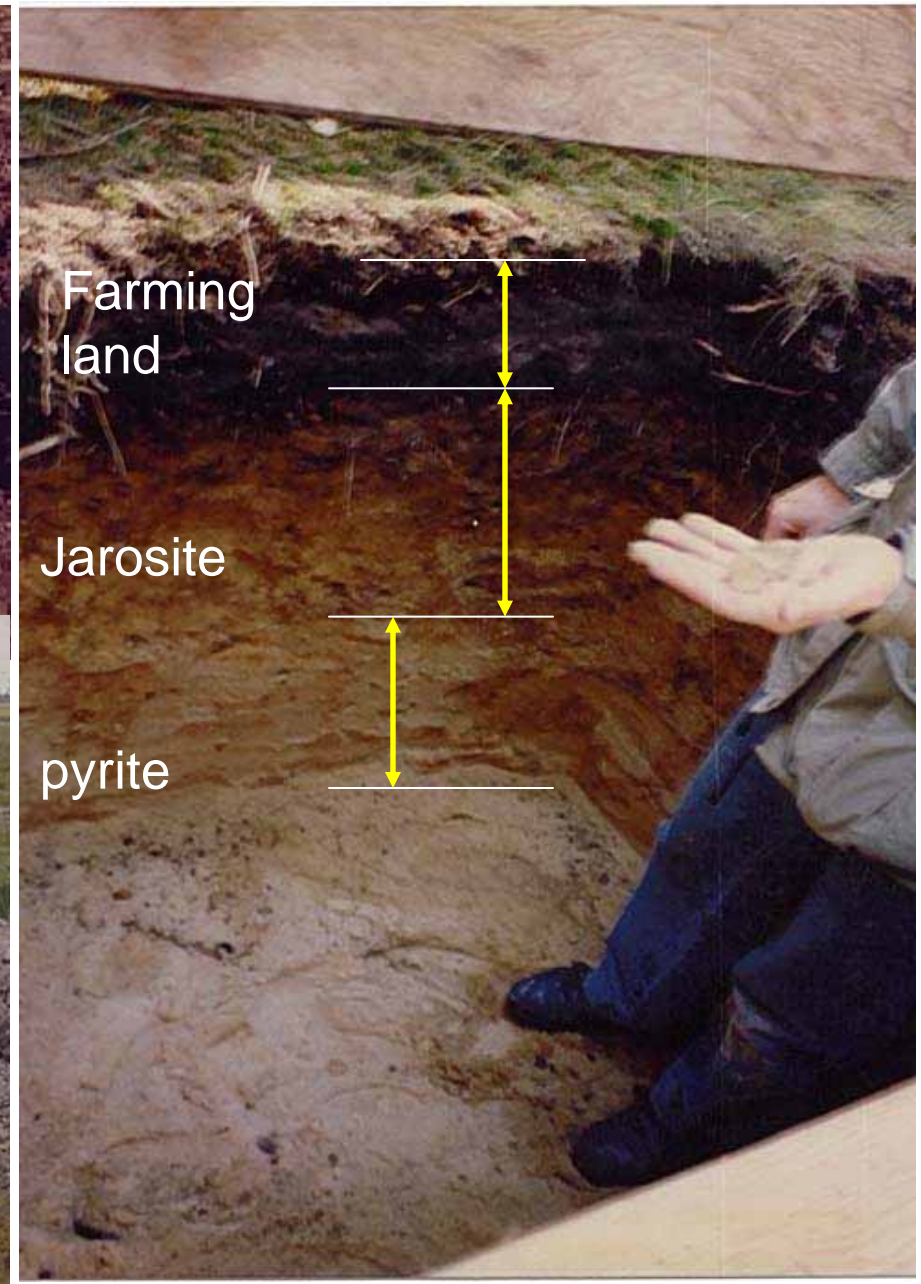
Melaleuca cajuput Forest fire in UMT, Kien Giang Province

WATER RESOURCES DEVELOPMENT STRATEGY FOR THE MEKONG DELTA

NATIONAL SOCIO-ECONOMIC DEVELOPMENT STRATEGY

LOWER MEKONG BASIN VISION: "An Economically Prosperous, Socially Just and Environmentally Sound Mekong Delta"

NATIONAL WATER RESOURCES DEVELOPMENT

LONG-TERM OBJECTIVES

SUSTAINABLE WATER RESOURCES DEVELOPMENT

SUSTAINABLE DEVELOPMENT

AGRICUL-TURAL DEVELOP-MENT · INDUS-TRIAL DEVELOP-MENT · HYDRO-POWER DEVELOP-MENT · FORES-TRY DEVELOP-MENT · FISH-ERY DEVELOP-MENT · NAVI-GATION DEVELOP-MENT · SOCIAL DEVELOP-MENT · ENVIRON-MENT & ECO-SYSTEM

WATER QUANTITY MANAGEMENT

WATER QUALITY MANAGEMENT

WATER ENVIRONMENTAL MONITORING

REGIONAL W.R PLANNING

INTEGRATED RIVER BASIN MANAGEMENT

IMMEDIATE OBJECTIVES

RIVER BASIN PLANNING

PRE-FEASI-BILITY PROJECT

FEASI-BILITY PROJECT

DESIGN & CONST-RUCTING WORKS

OPERATING & MANAGEMENT SCHEME

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

WATER RESOURCES DEVELOPMENT PLANNING OFFICE

MEKONG BASIN ORGANIZATION

CONCLUSION AND RECOMMENDATION

- IWRM measures should have to be implemented step by step in order to supplement justify practically.

- Develop capacity building for engineers, increase regularly data exchange between the riparian countries.

- Study and establish early warning system of: flood, erosion bank, salinity intrusion in the short, medium and long terms, it can minimized the damage to property and lost of people's lives in the Mekong Basin.

- Improve models as essential tools in flood management and mitigation.

- Flood in the Mekong Basin has both advantages and disadvantage, how can flood management and mitigation make full use of the advantage and limit disadvantage? Therefore, the international cooperation for support and exchange data, information, knowledge and experiences in flood management and mitigation is indispensable.

THANK YOU FOR YOUR ATTENTION