

# **Assessment of Health Impact on Samut Songkram Province in Thailand:**

## **The Case Study of Project Diverting Water from Mae Klong River (Phase 1)**



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# Background

- **National Economic & Social Development Plan**
- **Urban Development**
- **Population Growth**
- **Water Demand**

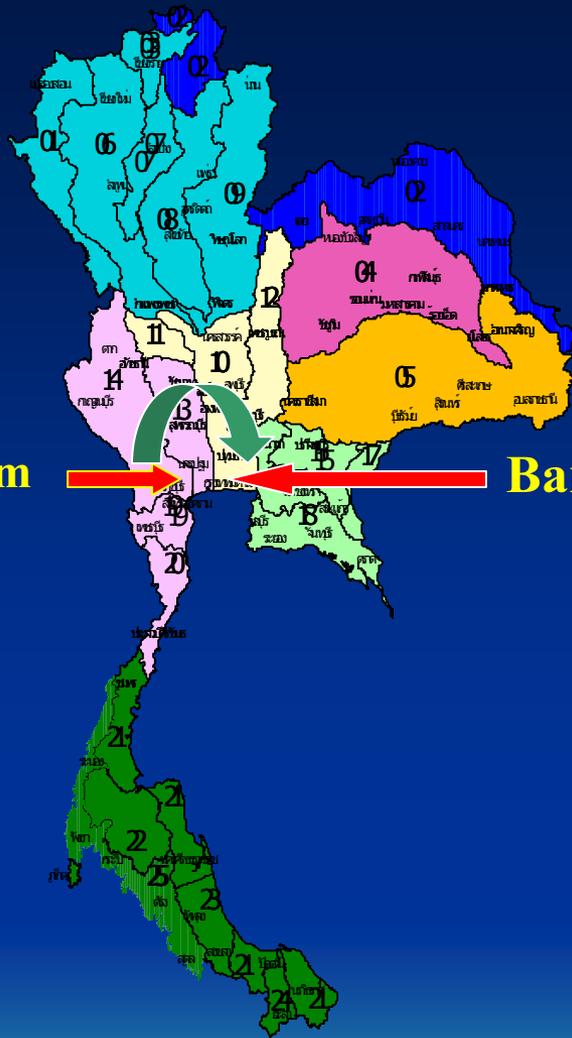


# National Water Resource Policy

## Problems

- Policy Making
- Public Participation
- Effects
- Conflict





**Samut Songkram**

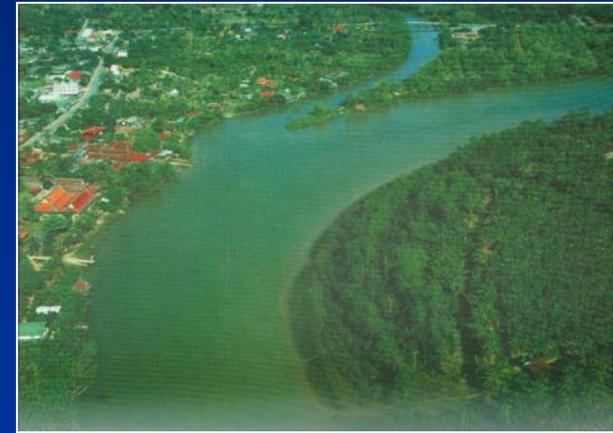
**Bangkok**

- estimated water consumption demand 8,000,000 m<sup>3</sup>/d
- over demand
- source raw water ?

**Map of 25 Basins in Thailand**

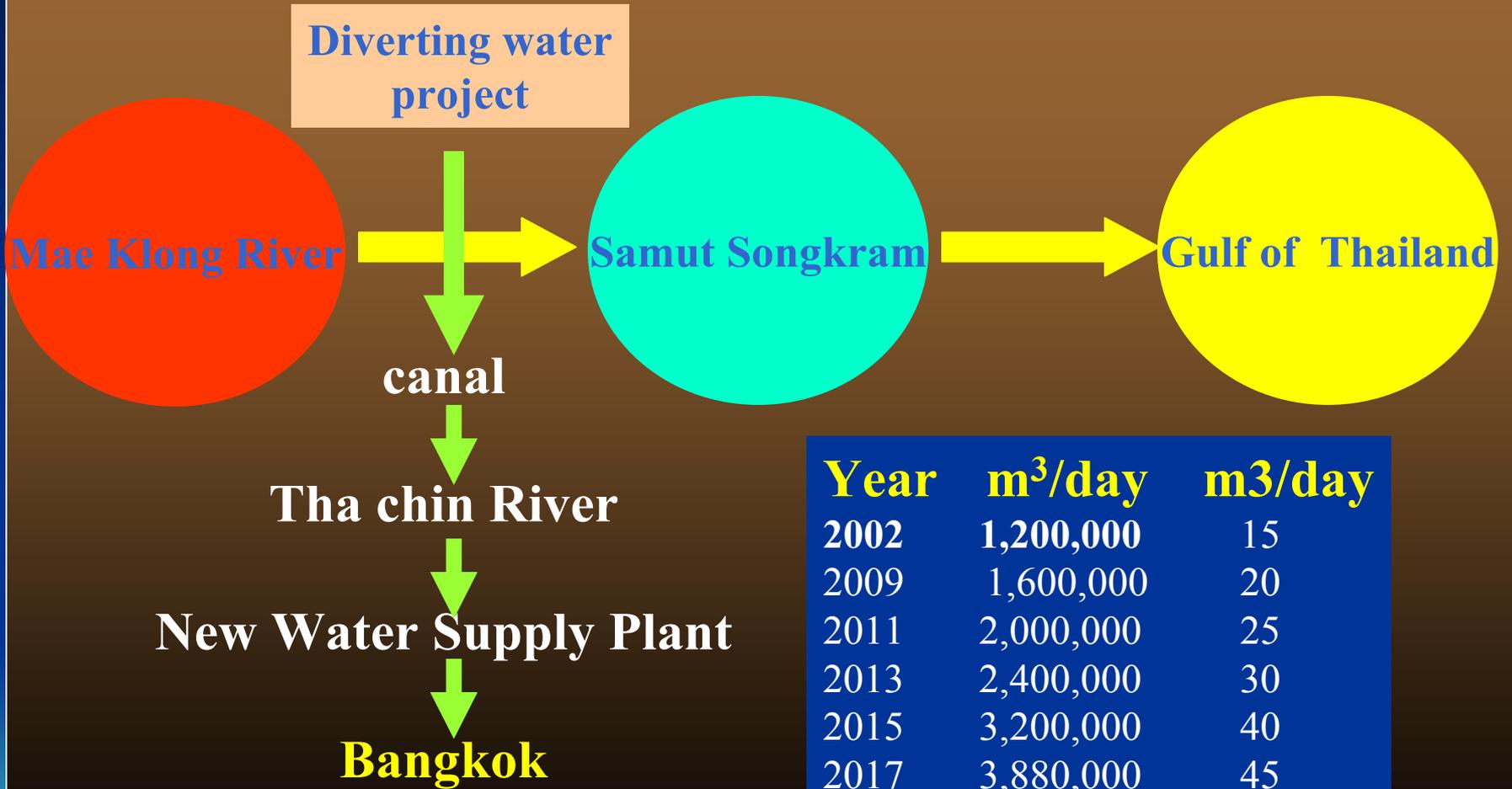
# raw water source

- **Old plant: from Chao Praya River**
- **New plant (Mahasawat plant)**
  - **Phase I : from Tha chin River**
  - **Phases II : from Mae Klong River**
  - **In 2017, estimated of converting water 1,419.1 million m<sup>3</sup> /year**  
**(45 m<sup>3</sup>/s)**



# Diverting Water from Mae Klong River Project





Year	m <sup>3</sup> /day	m <sup>3</sup> /day
2002	1,200,000	15
2009	1,600,000	20
2011	2,000,000	25
2013	2,400,000	30
2015	3,200,000	40
2017	3,880,000	45

# Research Objectives

## Phase I

- to define Health Determinants for the diverting water from Mae Klong River project
- to identify indicators of Health Impact

## Phase II

- to develop tools & methodology for assessment
- to assess of Health Impact



**Public Policy related to  
Water Resources Management & Development**

**Diverting Water  
Project**

**Samut Songkram  
Province**

**Health Determinants**

**Health Impact Indicators**

**Health Impact Assessment**

*Conceptual Framework*



# Research Methodology

- Literature Review
- Field survey
- Public meeting
- Expert meeting
- Data analyzing



# Public Meeting

- villagers
- Civil society groups
- NGOs
- Health's volunteers

## Expert Meeting

- Water specialists
- Health specialists
- Social specialists



# Negative effects

- Low quality water supply
- High level of seawater
- feel unfair
- risk for water scarcity



*Goods / Resources*

# Agricultural effects

- **Water scarcity in dry season**
- **25% losing water**
- **Decreasing cultivating area;**
  - **Rice fields 429,096 rais**
  - **Sugar cane 206,180 rais**
- **Economic loss 1,275 million baht/year**



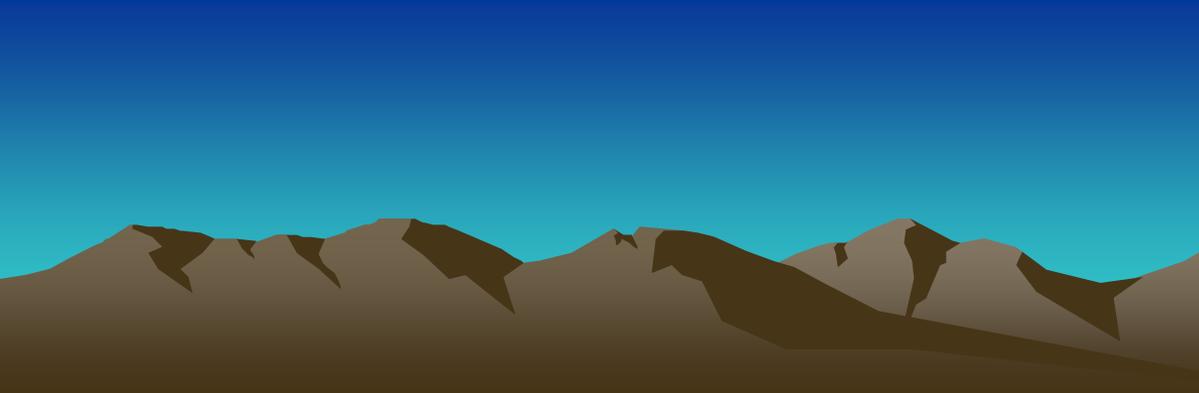
# Health Determinants

- **Water consumption**
- **Environment**
- **Transportation**
- **Socio-economic**



# Health Determinants

- **Water consumption**
  - lack of water supply
  - inadequate water
  - low water supply quality



# Health Determinants

- **Environment**
  - insufficient water
  - water pass through canal decreasing
  - changing of ecosystem
  - high seawater level
  - water flows decreasing
  - high pollutant
  - soil deterioration
  - wastewater



# Health Determinants

- **Transportation**
  - inconvenience transportation by water
  - raising of street construction

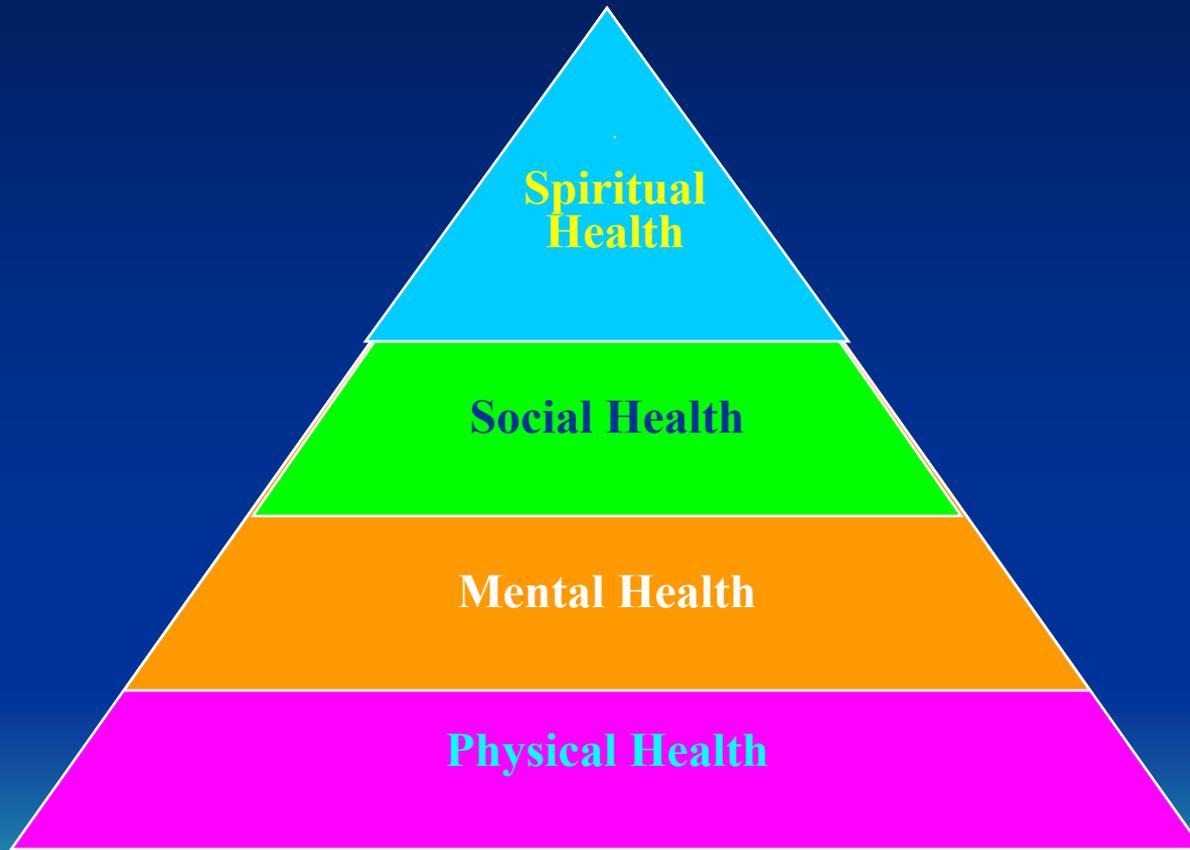


# Health Determinants

- **Socio-economic**
  - income
  - occupation
  - unwilling for working
  - community conflict
  - changing of occupation
  - agricultural products
  - needed more labor
  - migration
  - tourism site



# Health Impact Indicators



# Physical Health Indicators

- **Illness rate**
- **Frequency from health service using**
- **Birth rate**
- **Mortal rate**
- **Growth rate**
- **Rate of patience's bed**
- **Environment of house**
- **Disable condition**
- **Lack of water**
- **Accidental rate**



# Mental Health Indicators

- **Psychological illness**
- **Nervous**
- **Anxiety**
- **Work satisfaction**
- **Stress from family/community/public**
- **Life stability**
- **Suicide rate**
- **Safety in life and property**
- **Mental severity**



# Social Health Indicators

- **Incomes**
- **Employment and unemployed**
- **Social traditional changing**
- **Life style changing**
- **Social vigorous**
- **Family/social relationship**
- **Conflict**
- **Migration rate**
- **Family development**
- **Occupation changing**
- **Water consumption cost**
- **Expenditure**



# Spiritual Health Indicators

- **Life's goal**
- **Community responsibility**
- **Life expectation**
- **Respect**
- **Changing of social ethics and moral**
- **Skill for resolved problem**
- **Feeling of social owner**



# Conclusion

- **Water scarcity**
- **Water quality**
- **Lack of Public participation**
- **Social conflict**
- **Rights of Water allocation**
- **Life and property impacts**



# Conclusion

- **Negatives effects**
  - **Water consumption**
  - **Agricultural**
  - **Tourism**
  - **Ecosystem**
  - **Transportation**
  - **Socio-economic**



