



Improving Flood Management Planning in Thailand: A Case of Chao Phraya River Basin

Nipon Poapongsakorn

Atsmon Limskul

Thailand Development Research Institute (TDRI)

and

Ministry of Environment

SaciWATERS Waters Conference, CCW program, Katmandu, Nepal

18 June 2013

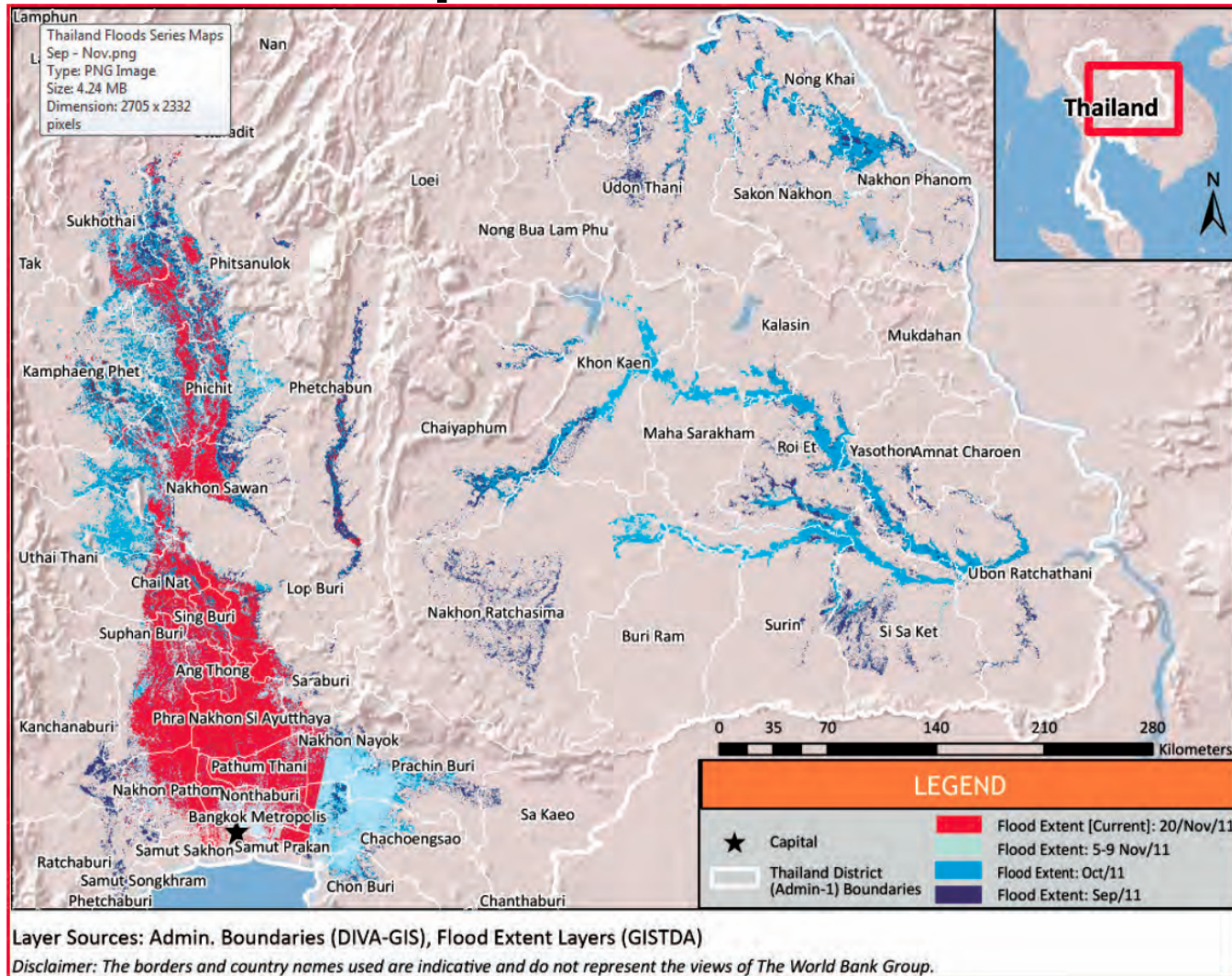
Outline

- Part I** – Research objectives and sub-projects
- Part II** – Causes and effects of the 2011 flood in Thailand
- Part III** -- Flood management institutions: preliminary results

I. Research problems & objectives



The 2011 flood inundated 16,000 square km of areas in the Central & lower Northern provinces : September – November 2011



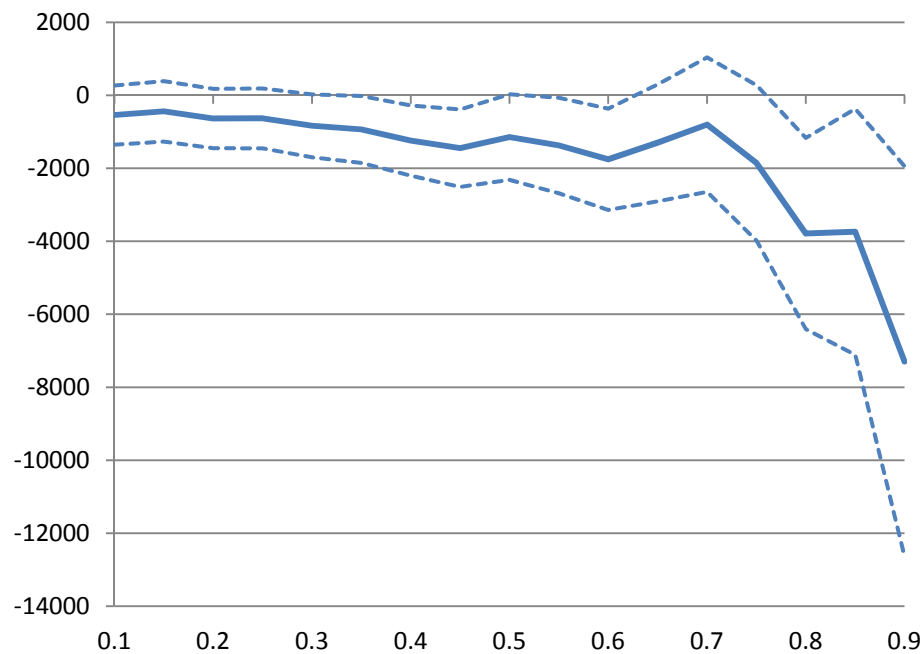
1. Problems

- Thailand flood in 2011 was the worst in term of loss and damage, estimated at \$ 1.4 trillion
 - More loss than damage because floods moved extremely slow, 3 km per day.
- The 2011 flood affected income and expenditures of the middle- and upper middle income households more than those of other households.
 - This becomes the political economy issues which partly explains why the government quickly responded by borrowing \$11.7 billion for the flood management master plan.

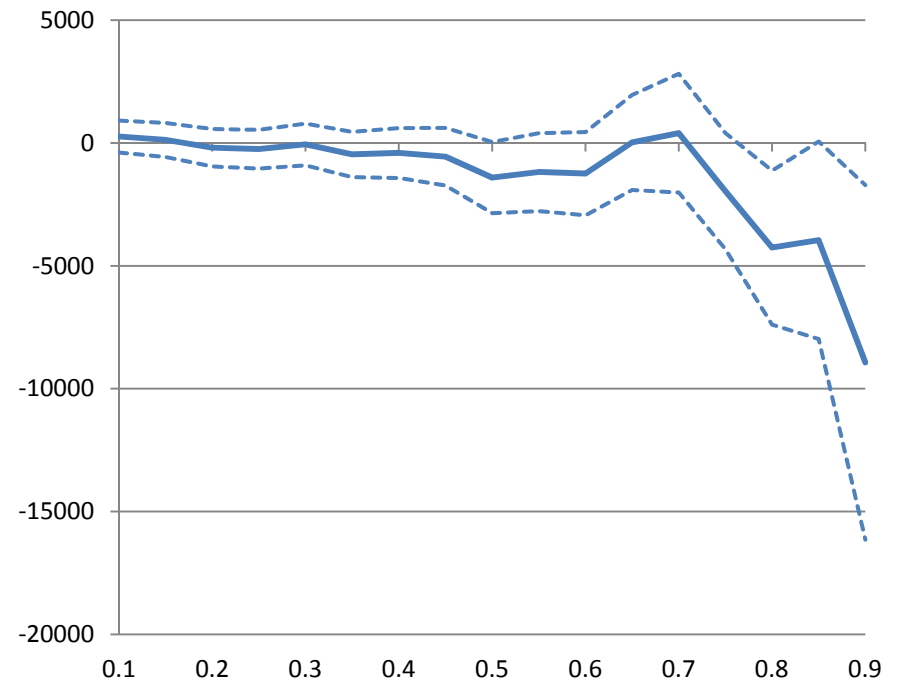
Flood significantly reduced income of upper middle class, explaining why the govt. immediately responded by borrowing money to finance the flood management plan:

Quantile regression results

Total money income

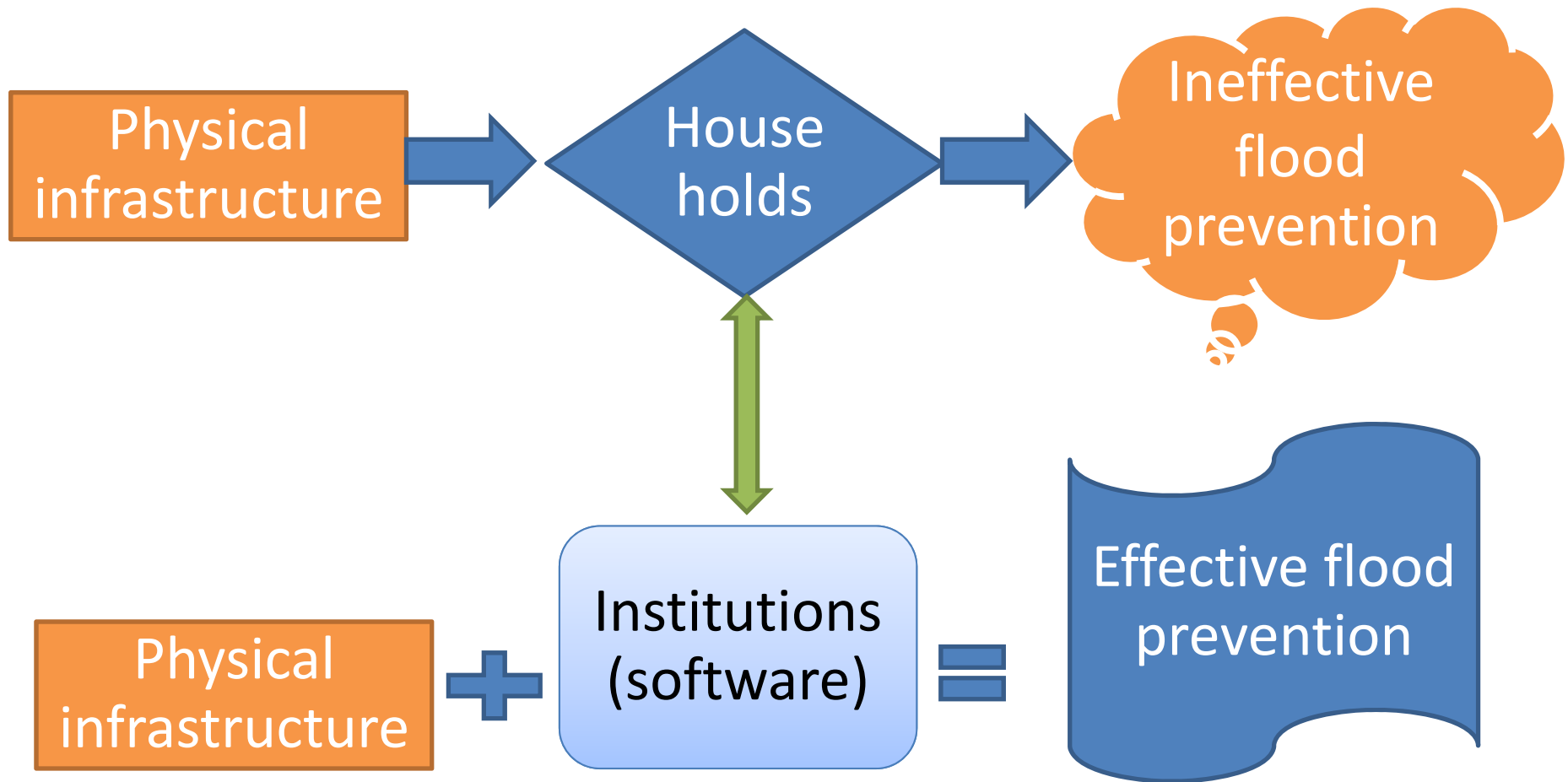


Wage and salary



1. Problems (cont.)

- But the government's focus is on “physical infrastructure”, with inadequate attention to the issues of “soft infrastructure” particularly the socio-economic impact, the land-use patterns and the water management institutional arrangement.
 - These are the main focus of the project
 - Without the analysis of behavioral impact of “physical flood prevention infrastructure” and flood management institutions to cope with the future extreme weather events, the flood prevention infrastructural projects will not be effective



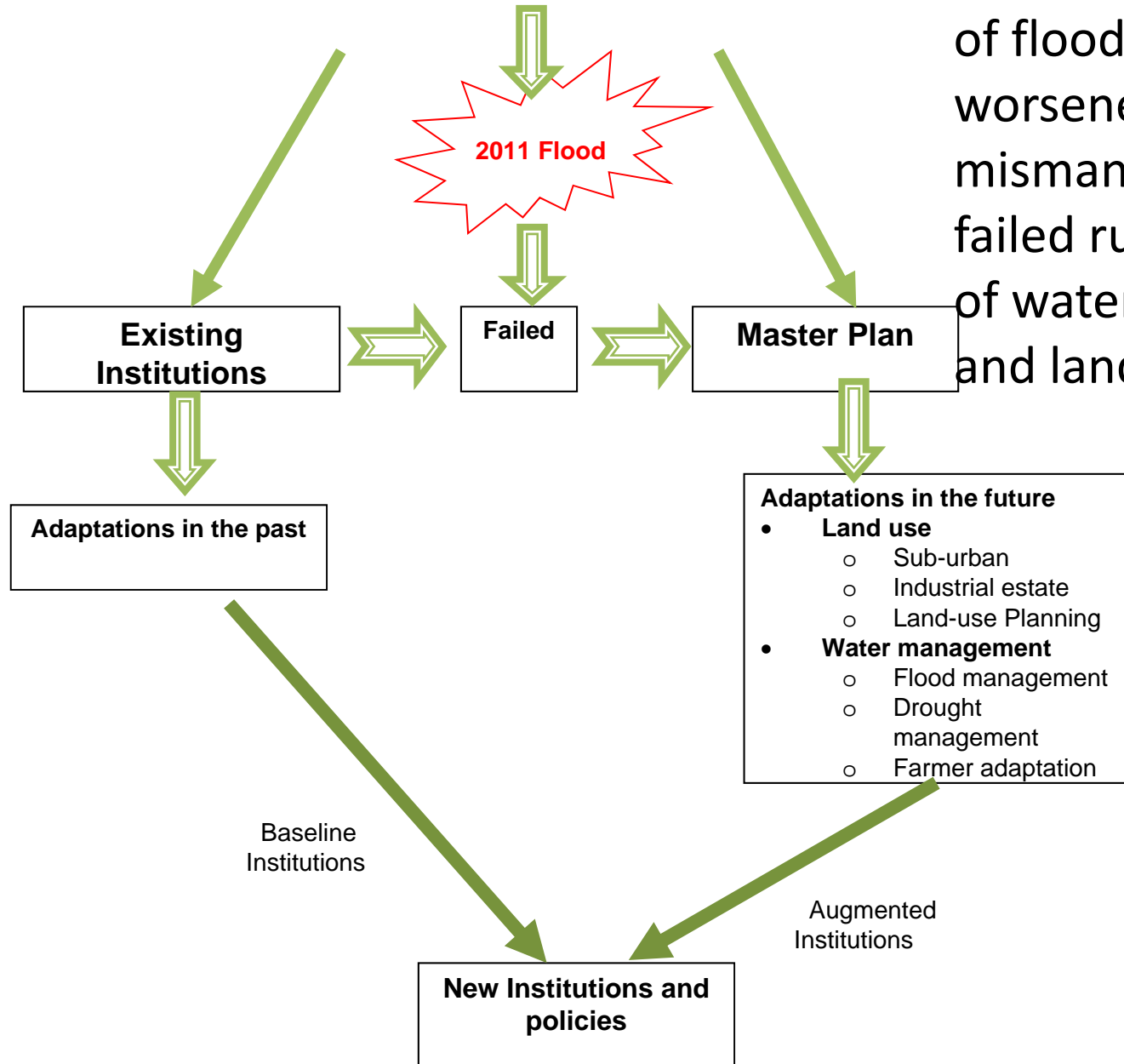
1. Problems

- ***1.1 Hypothesis***

- The impact of flood was made worsened by mismanagement and failed rules/ institutions of water management and land-use pattern

Extreme weather

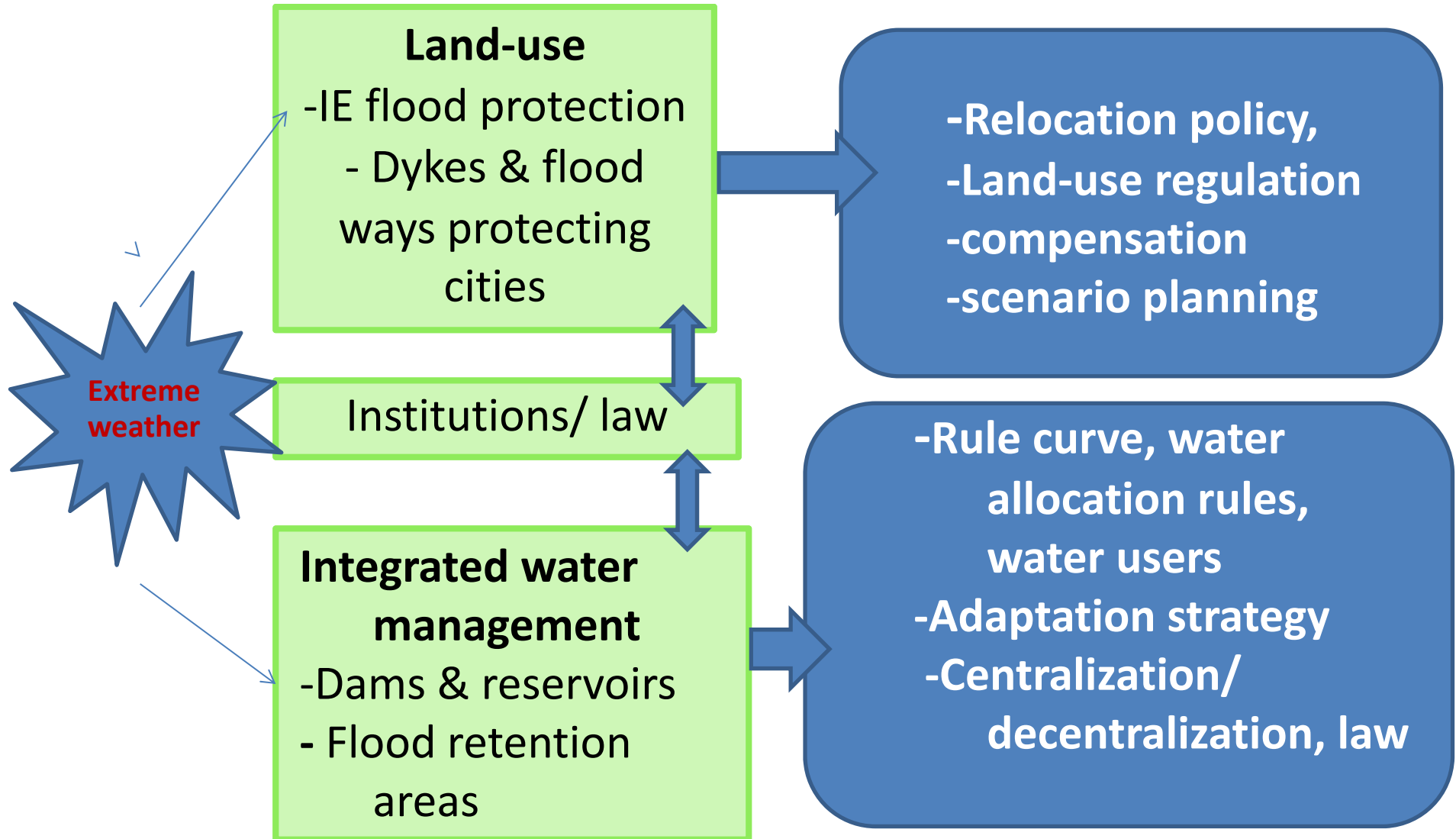
Hypothesis The impact of flood was made worsened by mismanagement and failed rules/ institutions of water management and land-use pattern



1.2 Four Objectives

- To analyze how the existing rules/organizations of water management and land use patterns failed during major floods like the one in 2011.
- To examine the likely socio-economic costs and benefits of adaptation options available to affected individuals in response to the Master plan's proposed investment and extreme weather events
- To explore and then recommend the appropriate institutional changes and water management policies that would complement the Master Plan's structural propositions.
- To build capacity of stakeholders

1.5 Policies & institutions to improve the flood management plan



2. Causes of the 2011 flood, farmers' adaptation to extreme weather and land use

Natural causes: unusual increases in rainfall extreme events

+

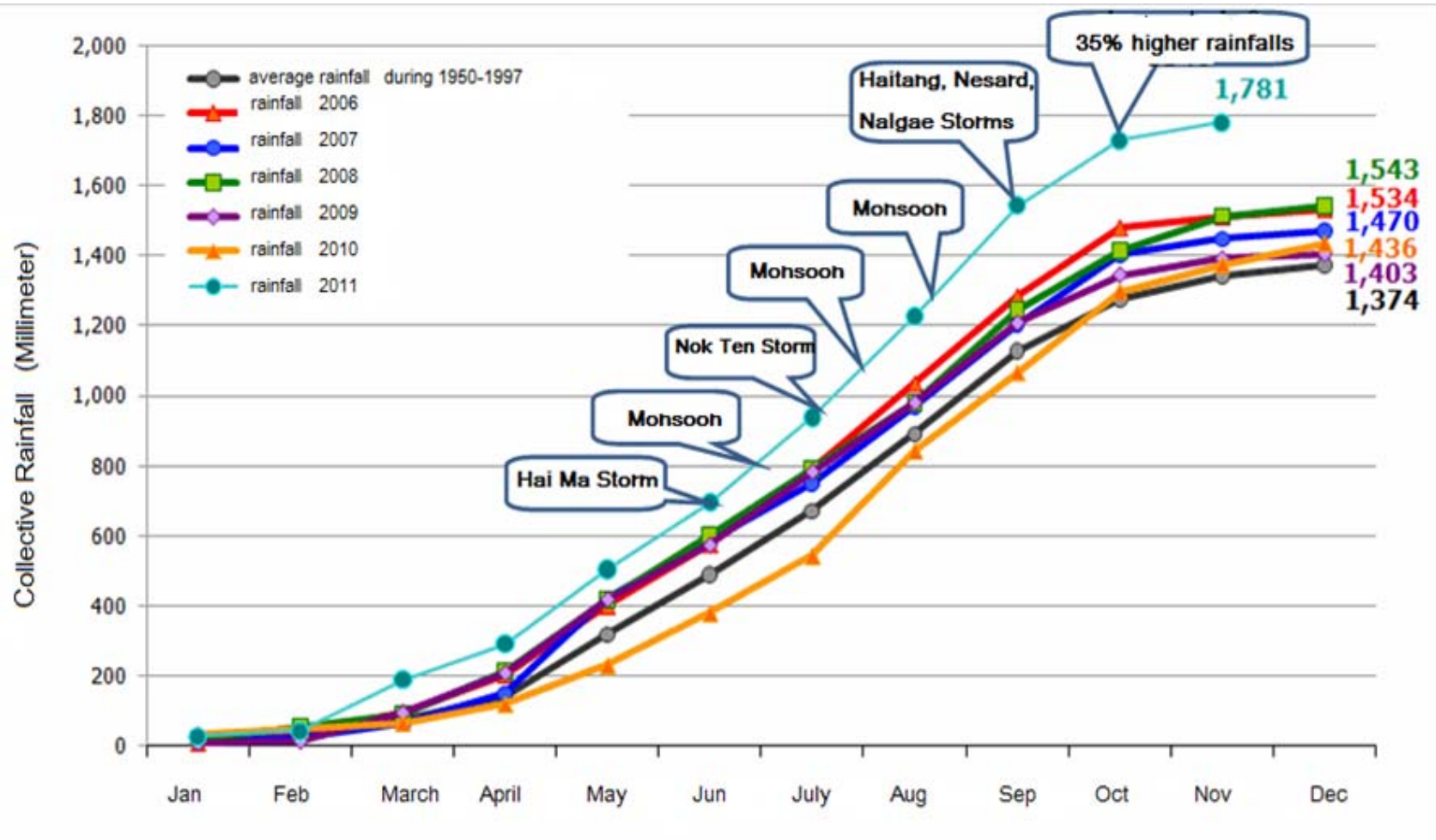
Man-made: other non-meteorological factors such as changes in the hydrology and land use and reservoir operation policies

The unprecedented scale of the 2011 Thailand flood disaster

```
graph LR; A[Natural causes: unusual increases in rainfall extreme events] --> D{{The unprecedented scale of the 2011 Thailand flood disaster}}; B[Man-made: other non-meteorological factors such as changes in the hydrology and land use and reservoir operation policies] --> D; A --- C[+];
```

Six consecutive storms in 70 days resulted in record rainfall in 2011

Average Cumulative Annual Rainfall – 1960-2011



Source: Thailand Integrated Water Resources Management. (www.thaiwater.net)

Farmer adaptation to extreme weather & water management

Analyze of WMO-based weather extreme indices



Prediction of rice production



Cost/benefit analysis of farmer adaptation



Policy recommendations on adaptation strategies

Man-made mistakes

-*Rapidly* unplanned urbanization and unsuitable land use



ictu

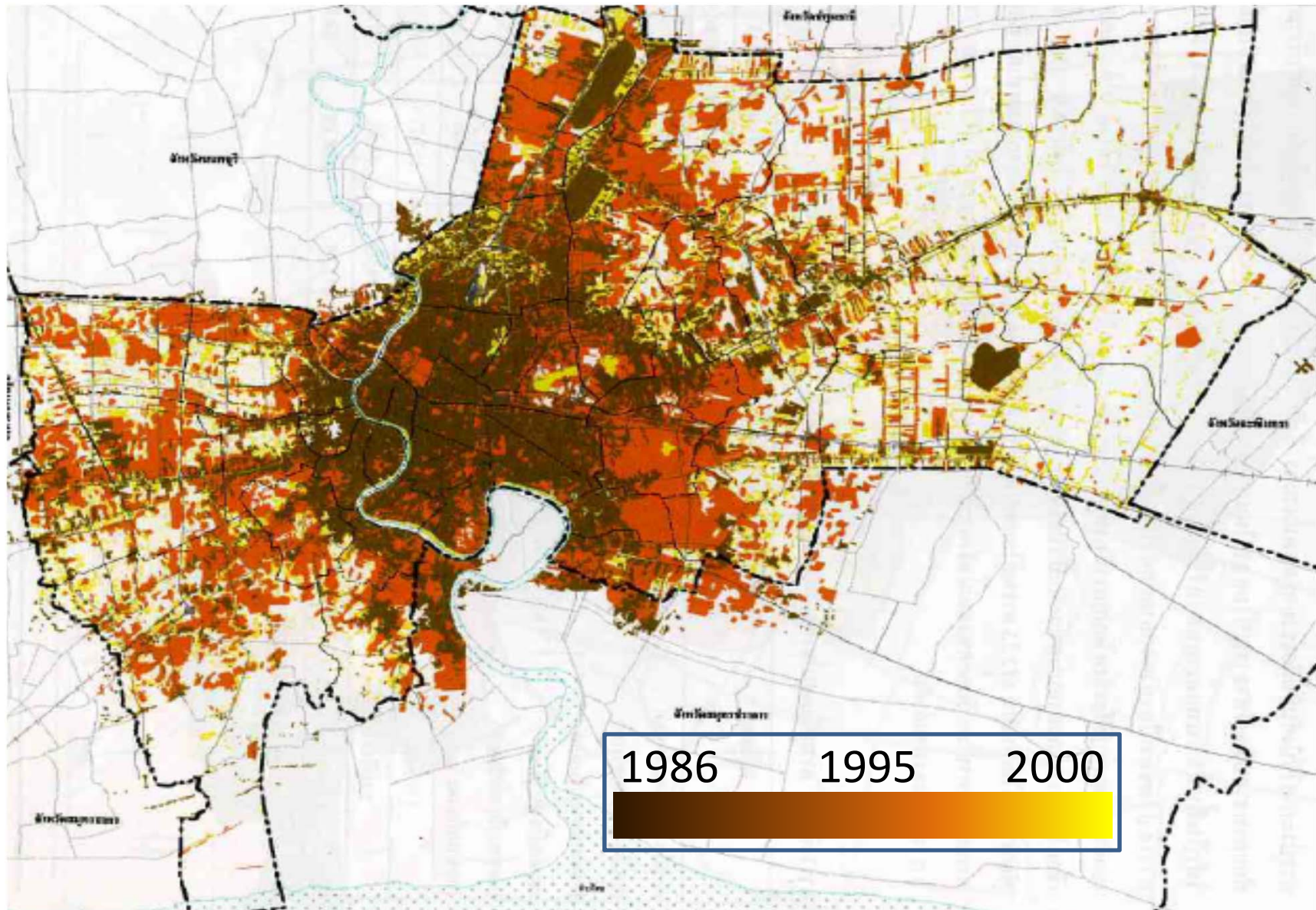
Industrial estates in flood plain area of Ayutthaya province: **cheap land price** & **wrong industrial location policy**



Source: Tastythailand.com

**Bangkok has expanded into the eastern areas which are
designated as the flood plain**

BKK land used in 1986 1995 2000



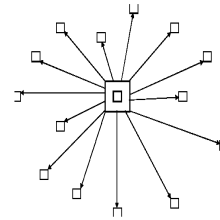
Policies and institutions on land-use pattern that will be analyzed

- Land-use regulations for flood control in suburban areas: **how to constrain the uses of land, fair compensation and new law on constrained property rights**
- Social cost-benefit of locational options for industrial estates and factories: **logistics plan during the flood, and relocation policies**
- Scenario-based integrated land-use planning: **new institutions (rules) allowing stakeholders to participate in the land-use planning**

Domestic Flood Management Institutions



Flood Mgt at
the Central
Level




Decentralization



Flood
Mgt. at
the Local
Level

Flood Management Institutions – At a Glance

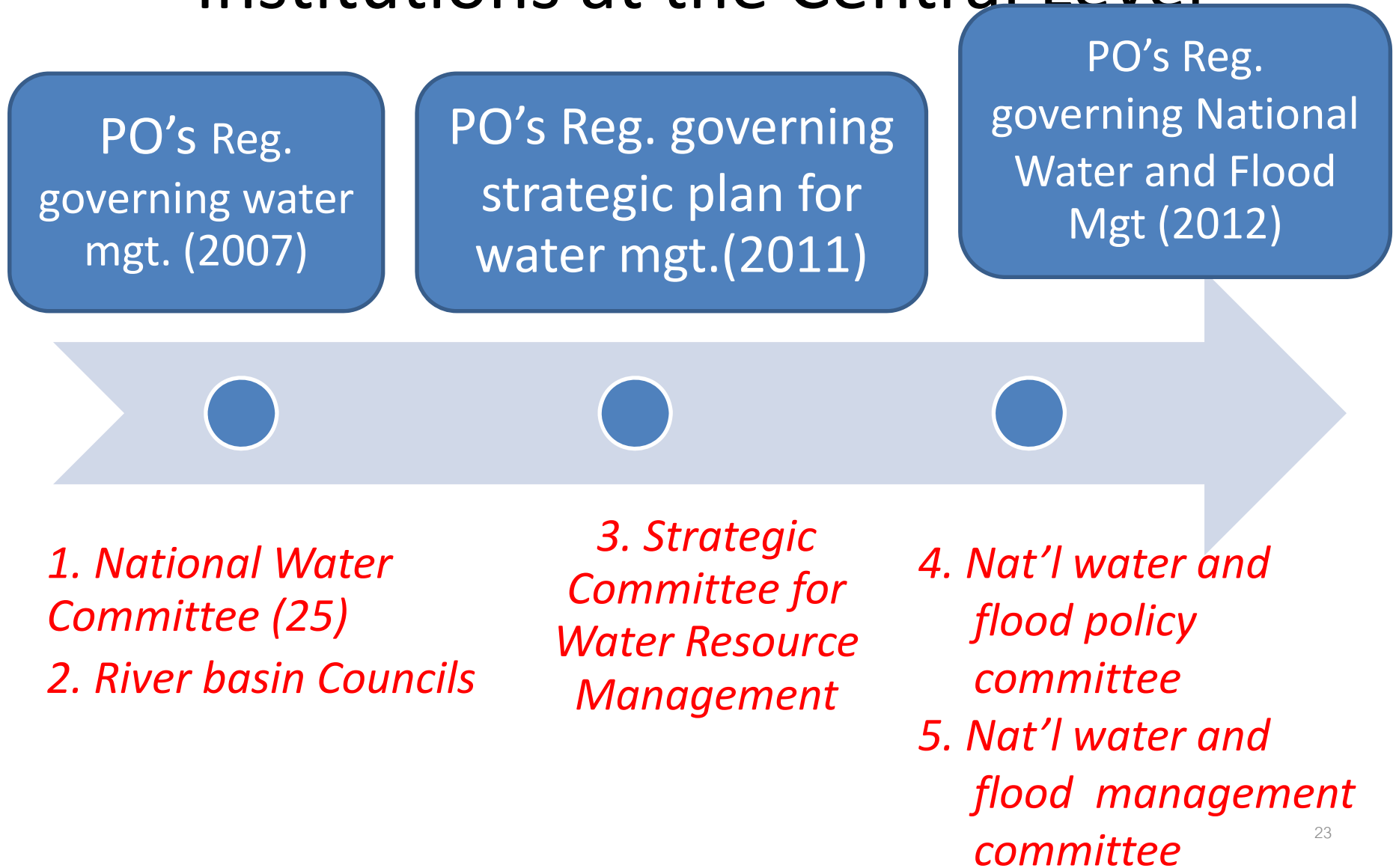


Multiple laws and institutions	<ul style="list-style-type: none">• Over 50 laws• Over 30 state organizations under 7 Ministries• Many overlapping authorities with own specific mandate/objective
Most dealing with “drought” and emergency – little prevention	<ul style="list-style-type: none">• Major floods are rare. Hence, no established flood mgt. institutions• Department of Irrigation (management of water in Dams) and Department of Disaster Prevention & Mitigation
Limited Decentralization	<ul style="list-style-type: none">• Thailand’s administrative unit is extremely small (more than 3000 of 7,854 LAOs have pop. Less than 5000)• Hence, only small scale water management affecting only residents of a particular LAO is devolved.

3.2.1 Flood Management at the Central Level



Evolution of Flood Management Institutions at the Central Level



1. The National Water Committee

Law

- Prime Minister's Office Regulation Governing Water Management 2007
- Based on Draft Water Resources Act which has been around since 1996

Structure

- Head by PM (or designate deputy PM)
- Consists of Ministers, bureaucrats, non government rep and experts.

Task

- **to coordinate the fragmented water management functions.**

Performance

- **No meetings were held until two year after** as non-gov. committee members were appointed only in 2009
- In 2010, met only 3 times with no tangible output.

2. The River Basin Councils

Law

- Established as a Subcommittee by the National Water Committee (NWC) – 25 councils in total

Structure

- Headed by a Provincial Mayor (central government)
- Consists of provincial mayors, water users and experts

Task

- Jointly manage the particular river basin

Performance

- Little achievement because **the councils lack legal authority** and are simply too large (approx 45 members)

3. The Strategic Committee for Water Resource Management

Law

- PO's Reg. governing strategic plan for water mgt.(2011)

Structure

- Headed by the PM and report to cabinet
- Consists of Ministers, Bureaucrats and experts

Task

- **establish a Water Mgt. Master Plan**

Performance

- Lasted for only 3 months during the flood
- Proposed the creation of a "Single Command Authority" for water, which are (1) National Water Resources and Flood Policy Committee (2) Committee for Water Resources and Flood Management and (3) Office of National Water Resources ad Flood Policy and Management

4. National Water Resources and Flood Policy Committee

Law

- PO's Reg. governing National Water and Flood Mgt (2012)

Structure

- Headed by the PM and report to cabinet
- Consists of Ministers, Bureaucrats and experts
- Chaired by the PM

Task

- formulate flood management and prevention policy as well as propose appropriate budget allocation to cabinet.
- **Suggests appropriate budget allocation**

Performance

5. Committee for Water Resources and Flood Management and

Law

- PO's Reg. governing National Water and Flood Mgt (2012)

Structure

- Head by the Deputy PM or Minister designated by the PM

Task

- **execute policies** prescribed by the National Water Resources and Flood Policy Committee

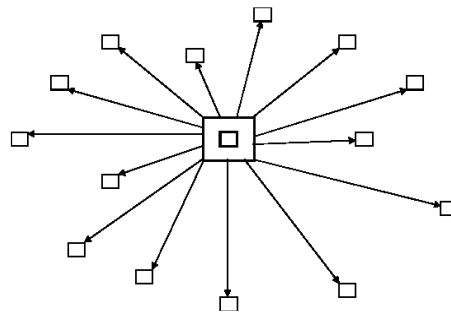
Performance

Conclusions

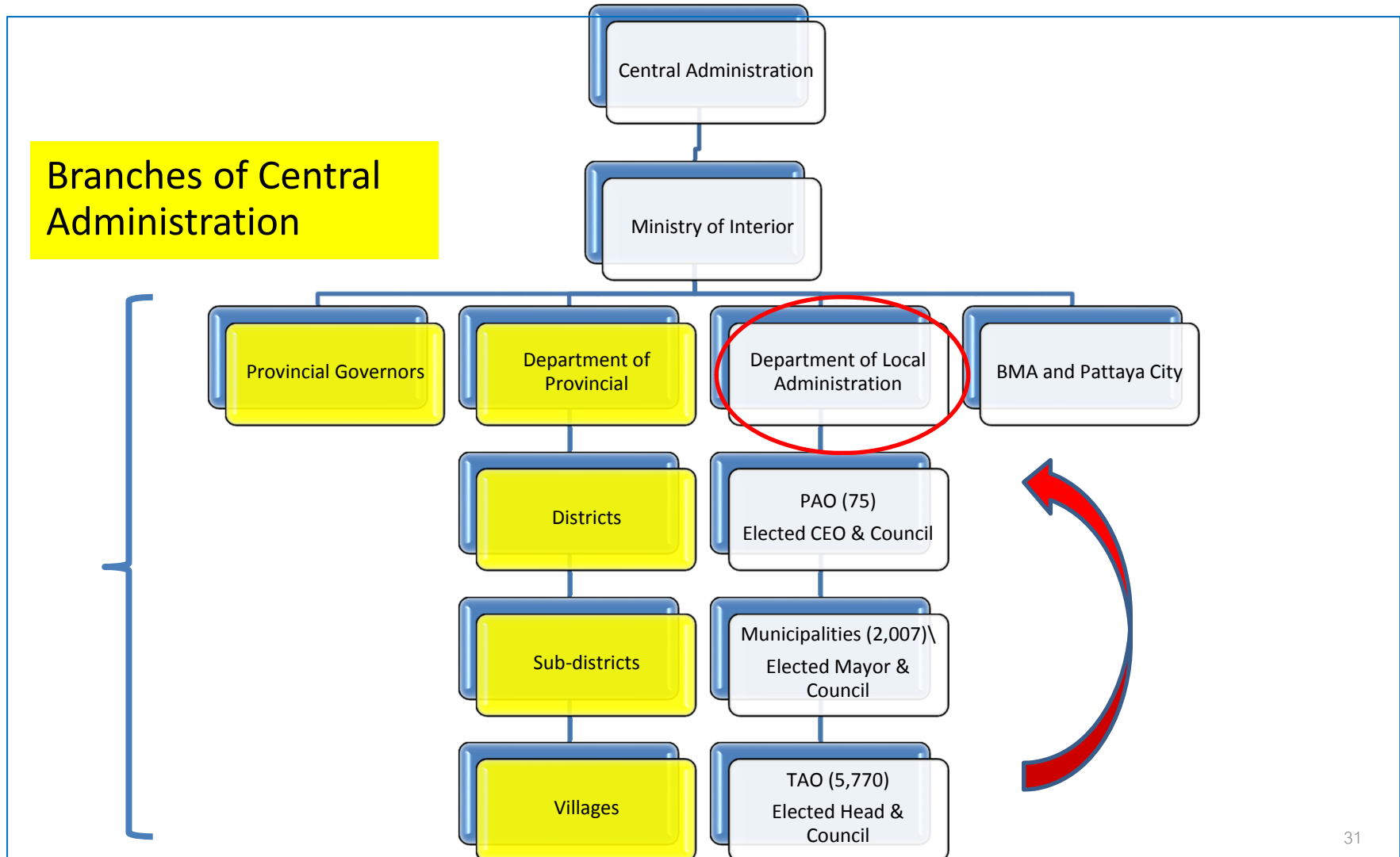
1. Thailand has a very fragmented water & flood management institutions

2. Attempts to consolidate the management of water resources and floods have been *ad hoc* and *transitory*.

3.2.2 Decentralization



Structure of Decentralization: 1) Central Gov. 2) Regional Admin. (controlled by Central), and 3) Local Governments:



Decentralization

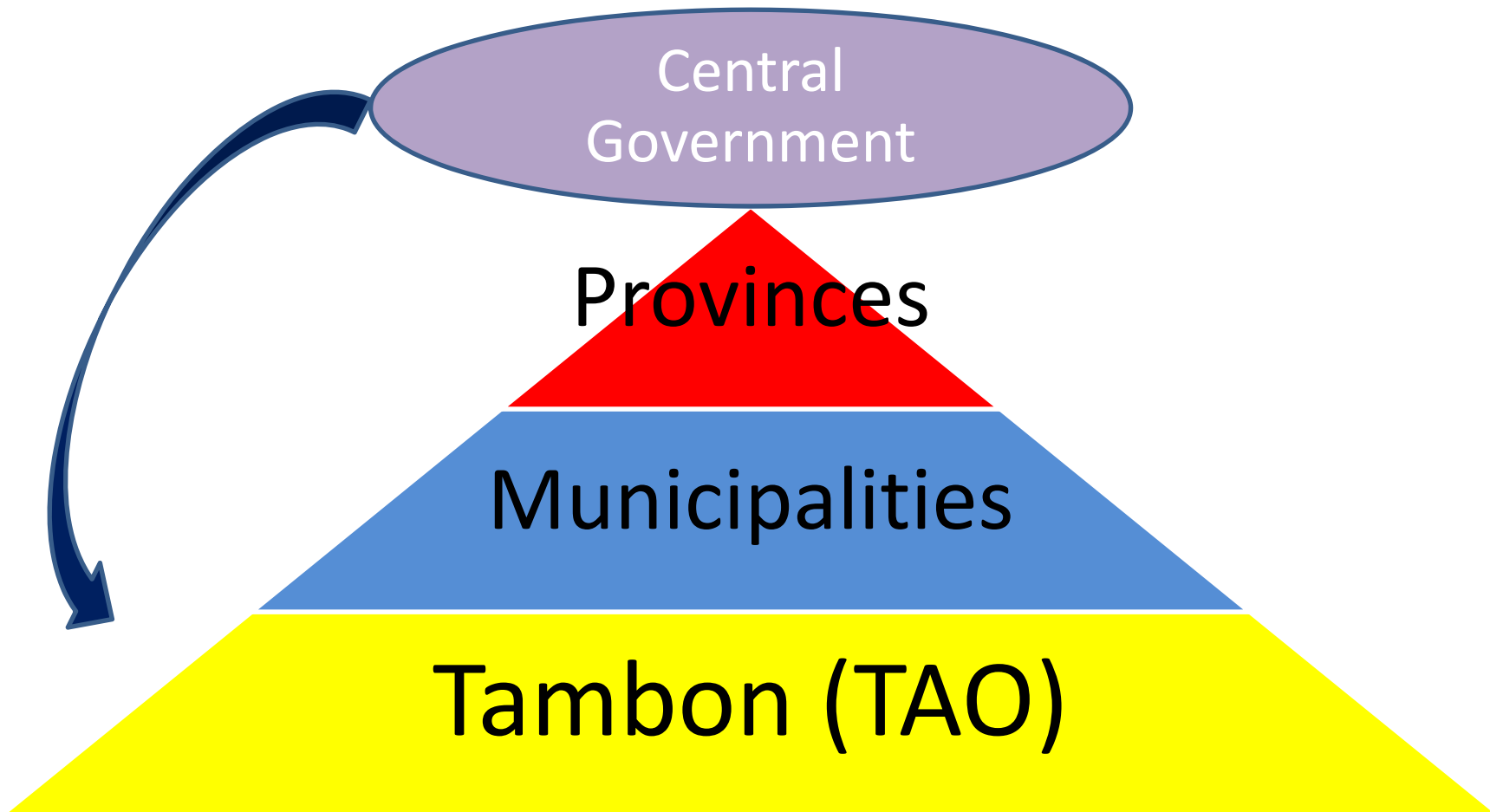
Devolved Functions

- Dredging of canals and waterways
- The constructions and maintenance of water pumping stations and facilities
- Constructions of dikes, weirs and dams
- etc

Limitation

- Devolved functions restricted to those involving waterways or watersheds within the local admin.
- Devolution depends on the capacity of the specific local admin.

Decentralization Landscape



3.2.3 Flood Management of LAOs



Flood Management at the LAO

Key characteristics:

- Water management is managed presently at the provincial level as there are Department of Irrigation has provincial offices
- Decisions are made based on historical reference and information provided by the Irrigation Department
- Informal Coordination with other PAOs – i.e, provincial mayor calling one another.
- **Workable under non-extreme circumstances**
- **Under emergency situation each protects on constituency in the absence of a hierarchical authority.**

3.2.4 Institutional Reform Proposals in the Pipeline: **being analyzed**



THANK YOU