

The Politics of Urgency



Svalbard Global Seed Vault

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The Global Crises

Financial

Terrorism

Energy Supply

Food security

**Environmental
Degradation**

Health Equity

Climate Change

**Loss of
Biodiversity**

An English Cottage Loaf



**Immediate
Crisis
on Top**

**Chronic Crisis
beneath**

Cost – Benefit Analysis

Costs

- **Political**
- **Economic**

- **Opportunity costs**
- **Costs of inaction – counterfactual**
 - **Now**
 - **Future**

Benefits

- **Political** } **Time Horizon**
- **Economic** }

- **Uncertainty**
 - **Will it work (evidence base?)**
- **Counterfactual**
 - **Magnitude of the risk**
- **Co-benefits**
 - **Win-wins**

Donald Rumsfeld's Haiku

- there are **known knowns**;
- there are things we know we know.
- We also know there are **known unknowns**; that is to say we know there are some things we do not know.
- But there are also **unknown unknowns** -- the ones we don't know we don't know

Climate Change

**Coping with the known knowns,
the known unknowns
and the unknown unknowns**

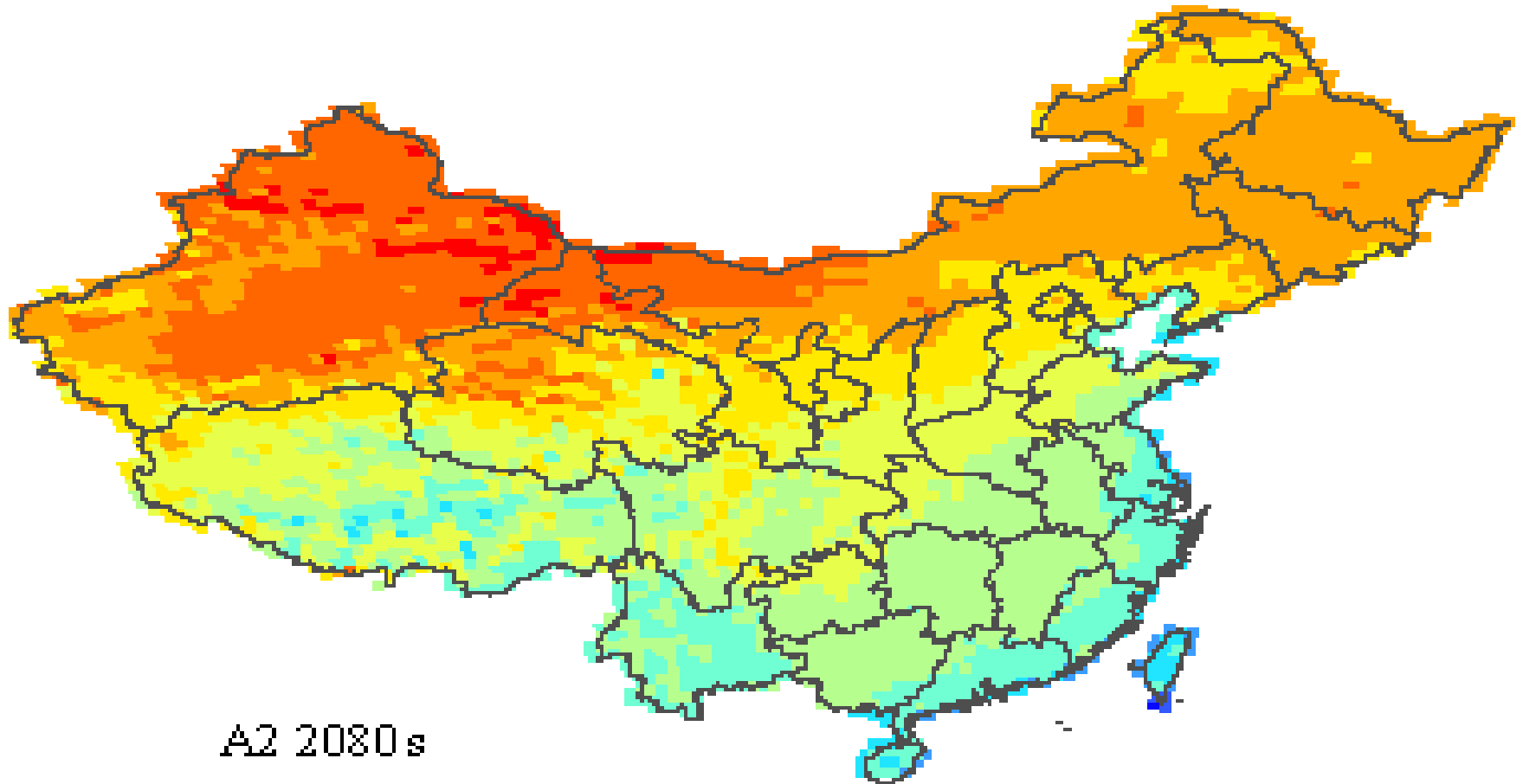
What do we Know?

As a result of global warming there will be identifiable *stresses*

- **It will get warmer in some places (colder in others)**
- **It will get wetter, but also drier in some regions**
- **Higher sea levels**

Source: Chinese
Academy of
Agricultural
Sciences

Min Temp °C

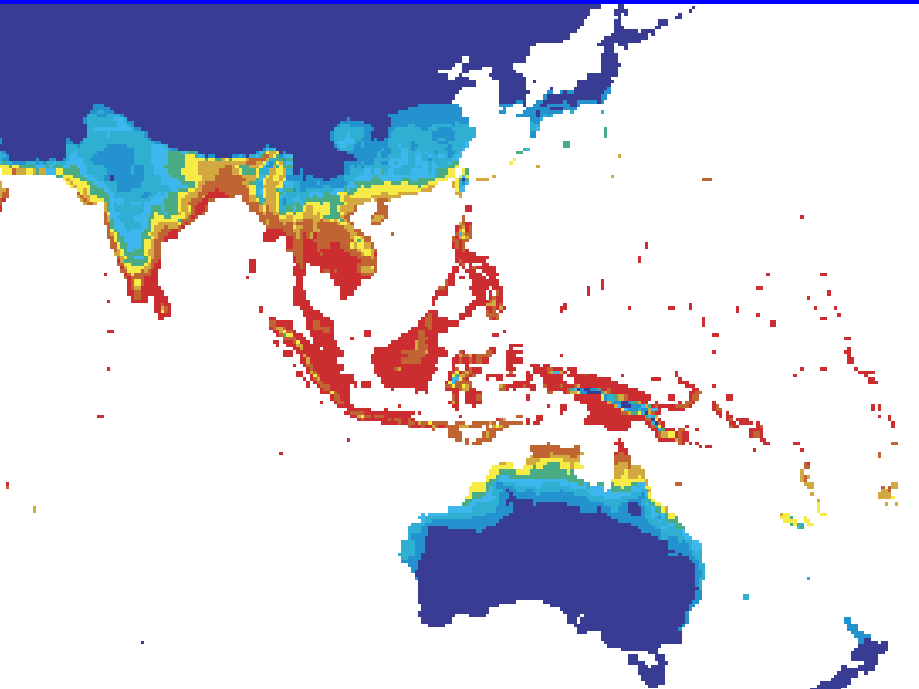


Changes of MinT corresponding to baseline (1961-1990)

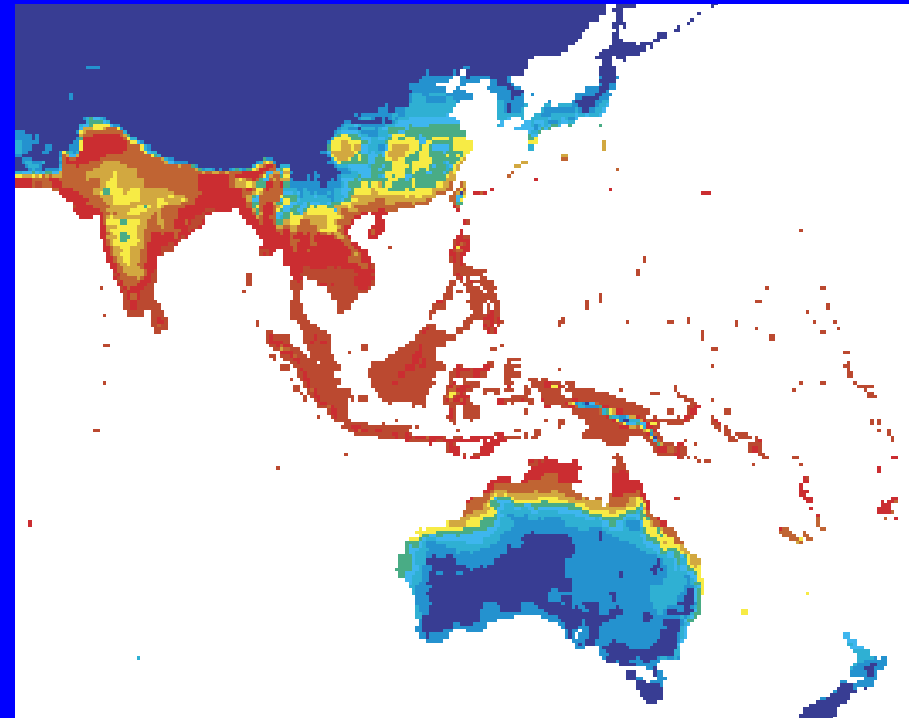
0.0-1.0	1.0-2.0	2.0-2.5	2.5-3.0	3.0-3.5	3.5-4.0	4.0-4.5	4.5-5.0	5.0-5.5	5.5-6.0	6.0-6.5
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Climate Change and Dengue

1990



2085



Probability : from 0.0 Deep Blue to 1.0 Deep Red

Source: Hales et al *Lancet* 2002

The known unknowns

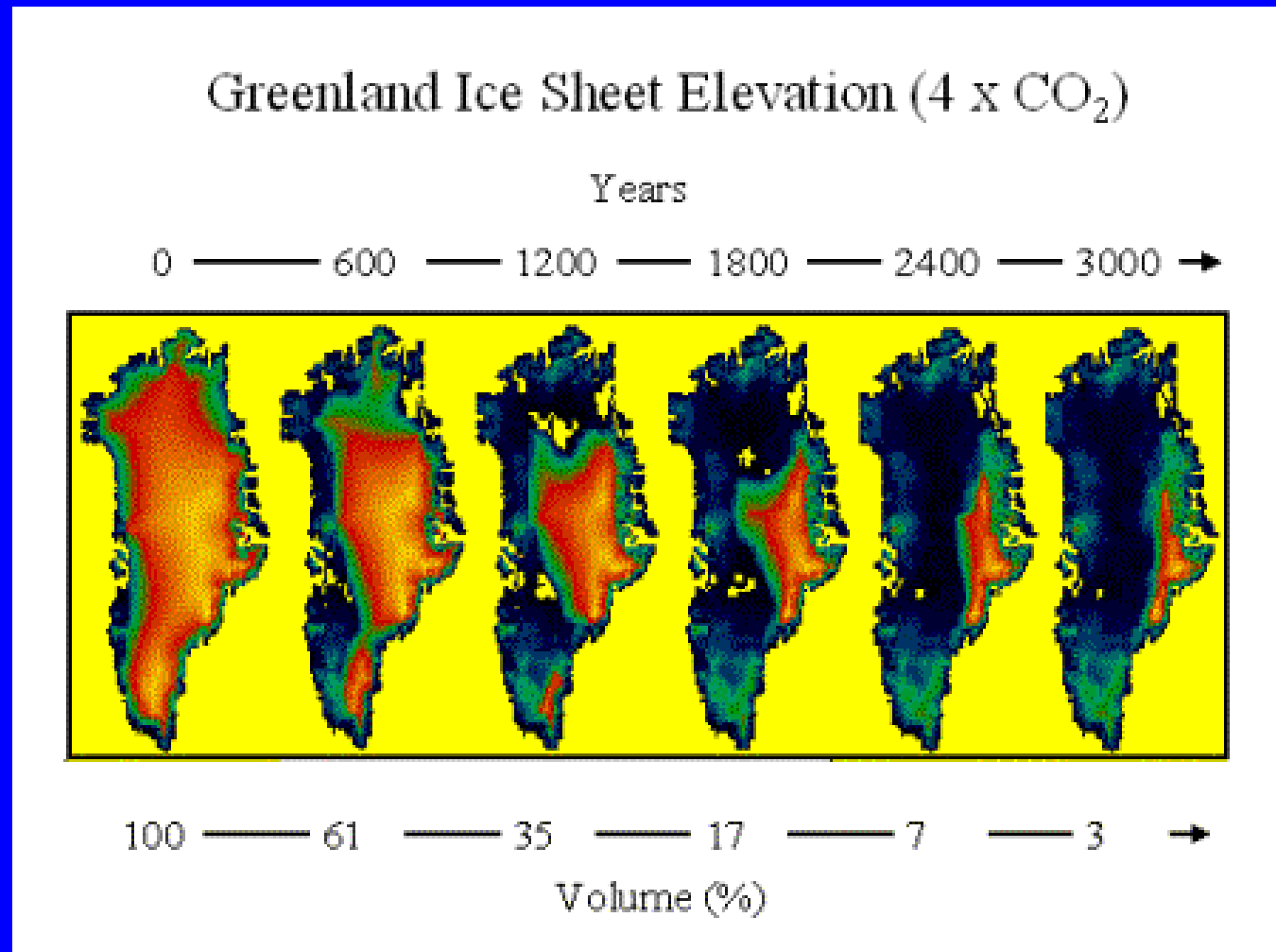
**There are possible
Tipping Points**

Tipping points

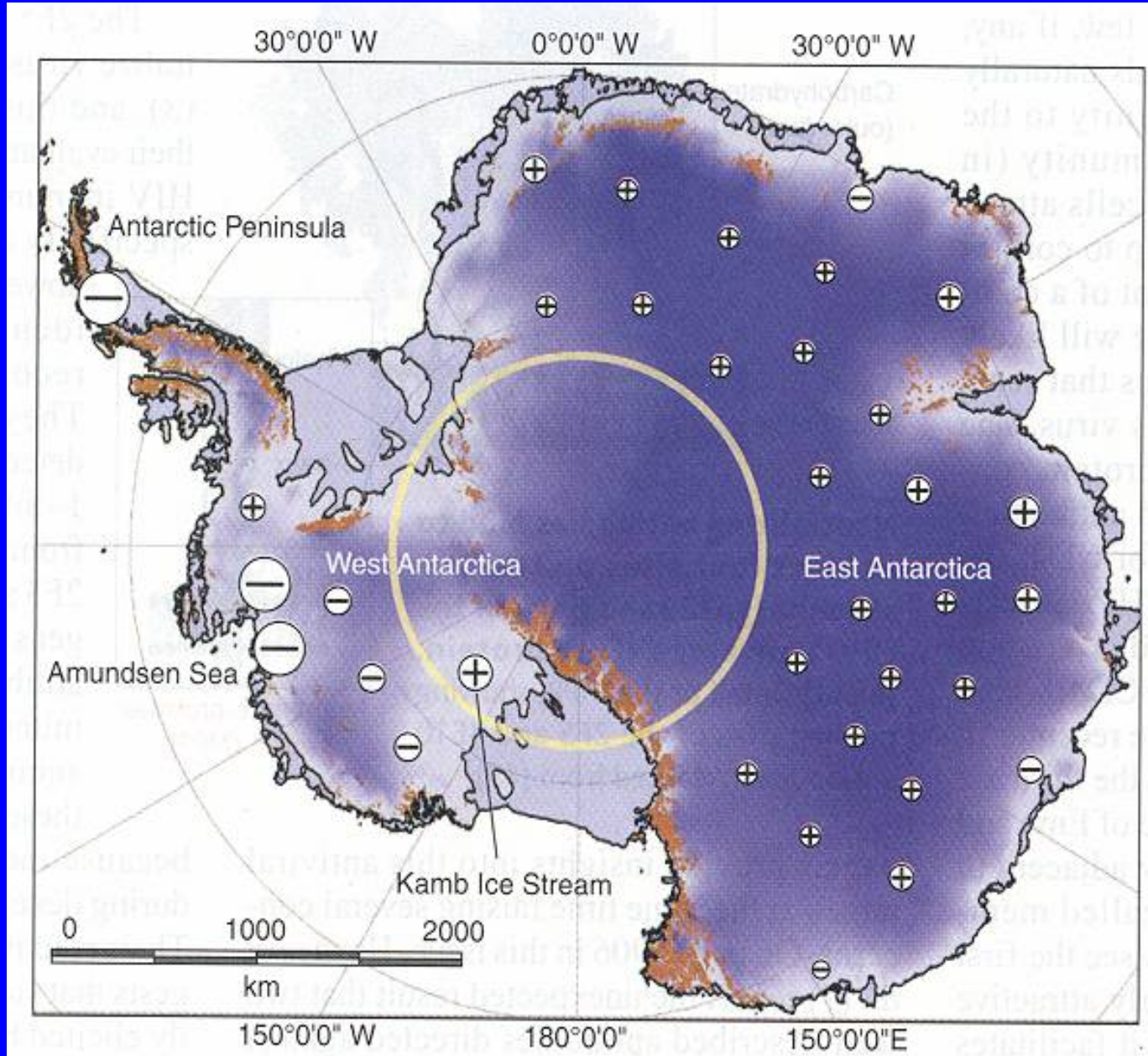
- a breakdown of the North Atlantic Thermohaline Circulation
- the disintegration of the Greenland and Antarctic ice sheets
- release of deep sea methane hydrates

Greenland ice sheet

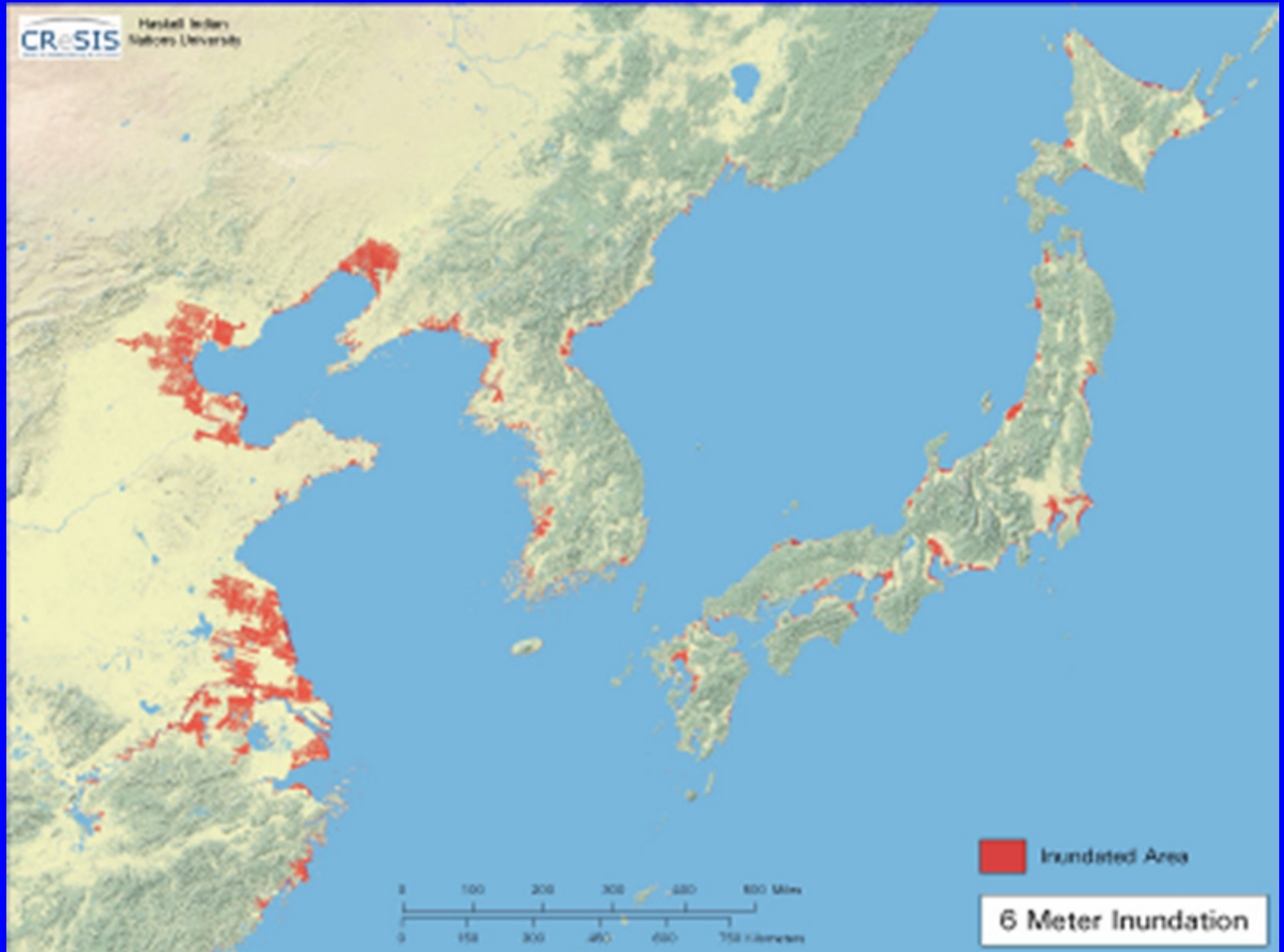
- ◆ More than 50% of ice sheet volume lost after 1000 years
- ◆ Almost completely lost after 3000 years
- ◆ Peak sea-level rise of 5 mm/yr
- ◆ Little effect on THC



The Antarctic



Sea Level Rise of 6 metres



What is also unknown?

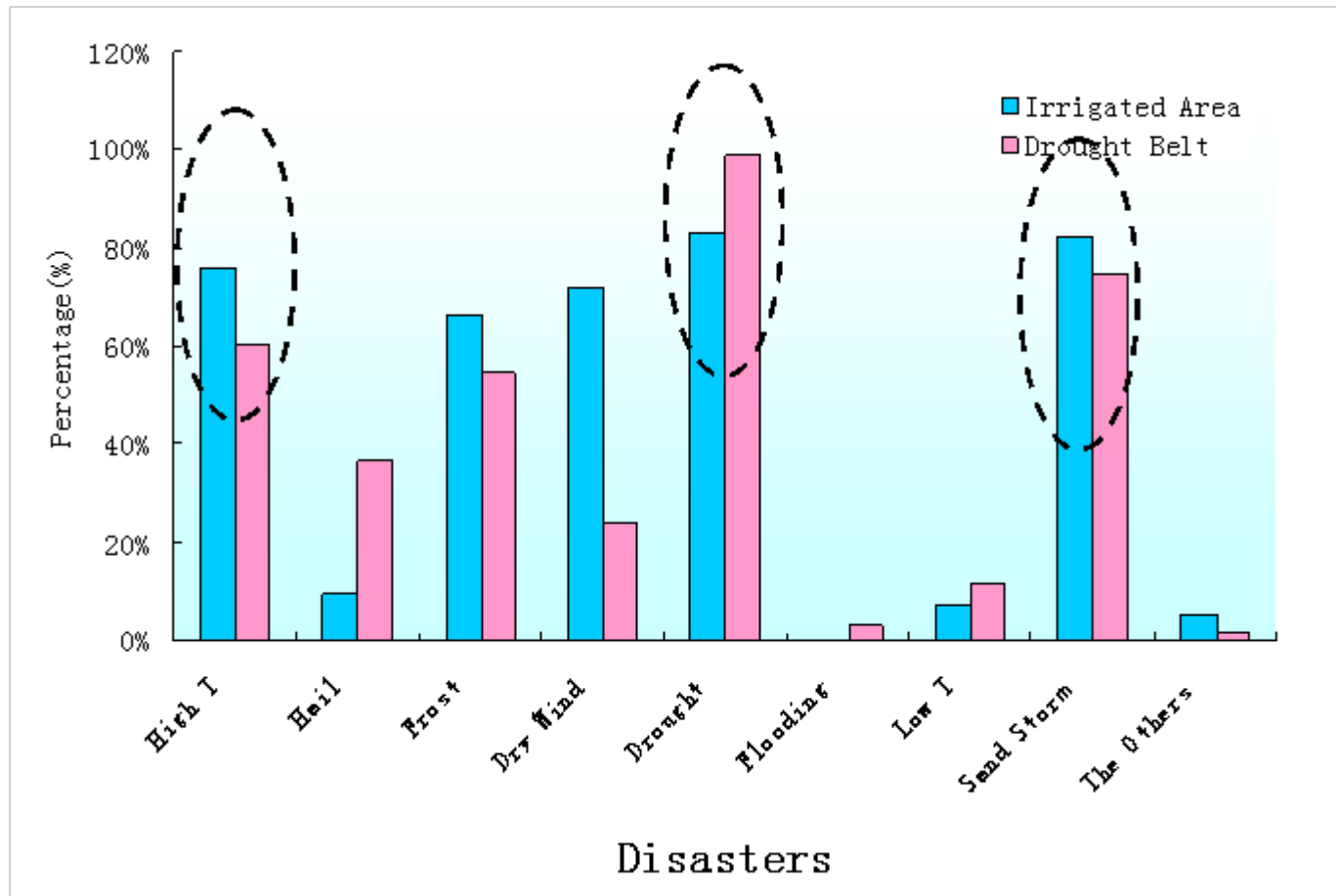
As a result of global warming there will also be less predictable *shocks*

- **More intense tropical cyclones**
- **More storm surges**
- **More floods**
- **More droughts**

**In many places
droughts and floods
will occur with greater
frequency and intensity**

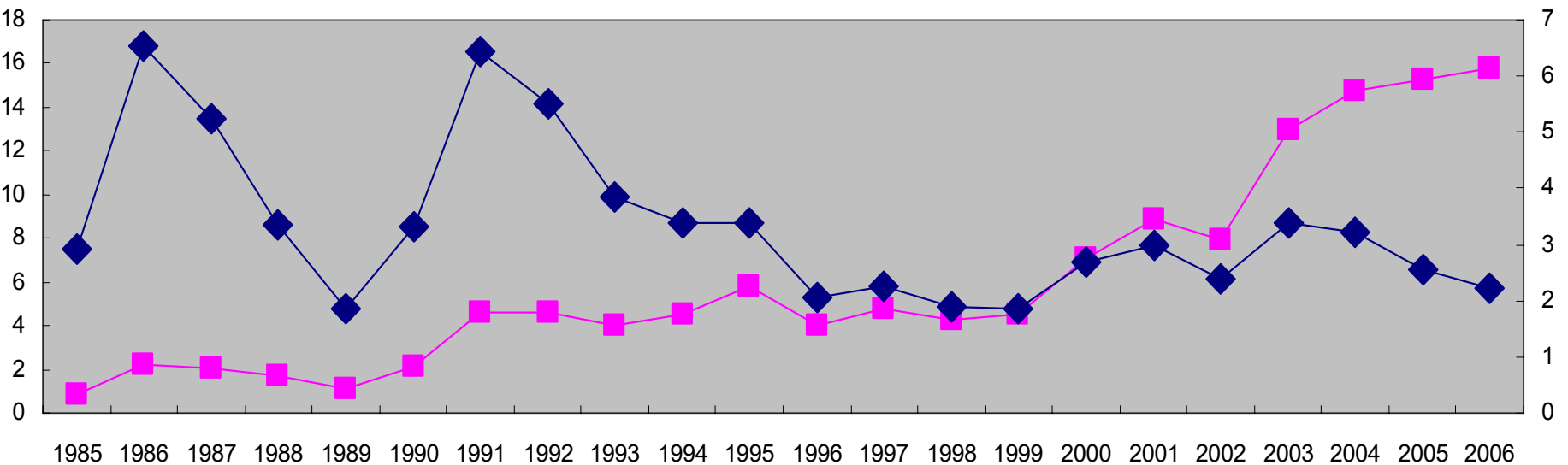
**But we don't know
where and when**

Major Climatic Shocks in Ningxia



- Drought, high T, and sand storm are considered as major climatic disasters
- All these disasters are enhanced by climate warming

Costs of Climate Related Damage, Ningxia Autonomous Region



■ 气象灾害直接经济损失 (亿元)
 ◆ 气象灾害经济损失占GDP的百分比 (%)

Direct Economic Cost

Loss of GDP %

100 million ¥

Source: Chinese Academy of Agricultural Sciences

Adaptation measures in Ningxia

■ Drought:

■ Farmer level

■ Plastic film

■ Change to plant other crops

■ Cover small stone

■ Terrace

■ Saving water irrigation

■ Water cellar

■



Thames Barrage

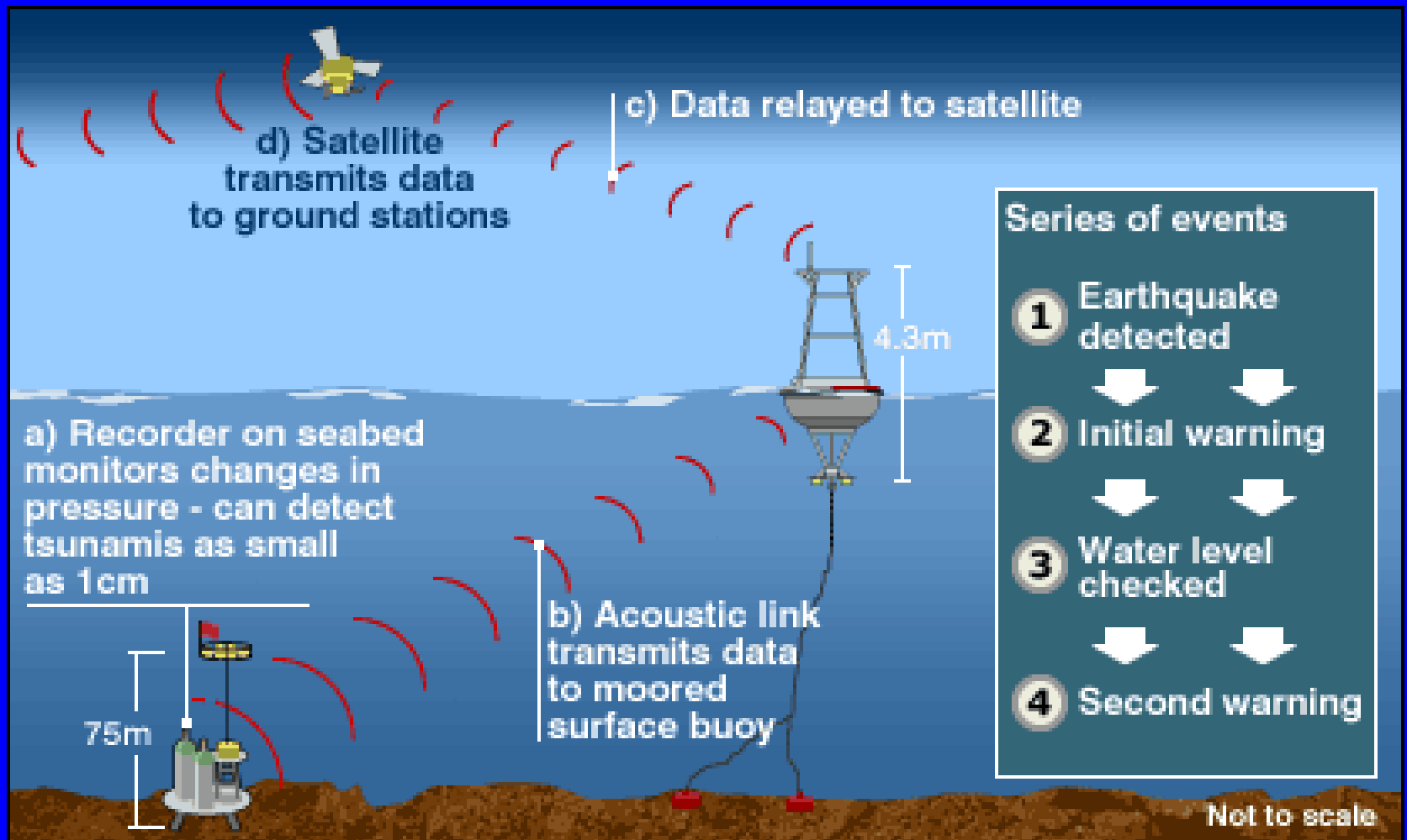


'1 in a 100 versus 1 in 200 flood'

Tsunami, 2004



Tsunami sensing buoys

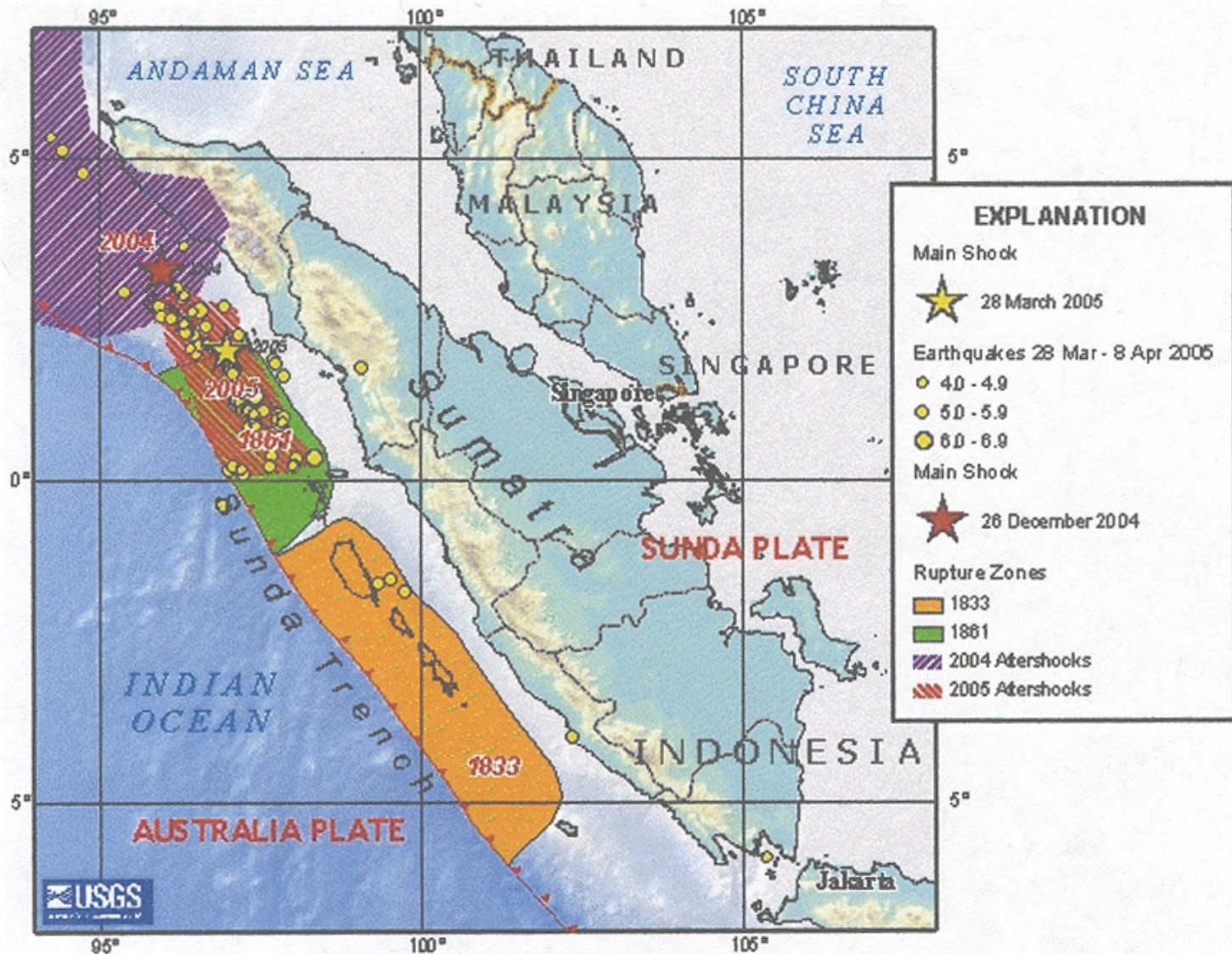


Information Centre in a Tamil Nadu village



M.S. Swaminathan Research Foundation

Recent & Past Slippages



Avian Flu



Folk Memory- Avian Flu



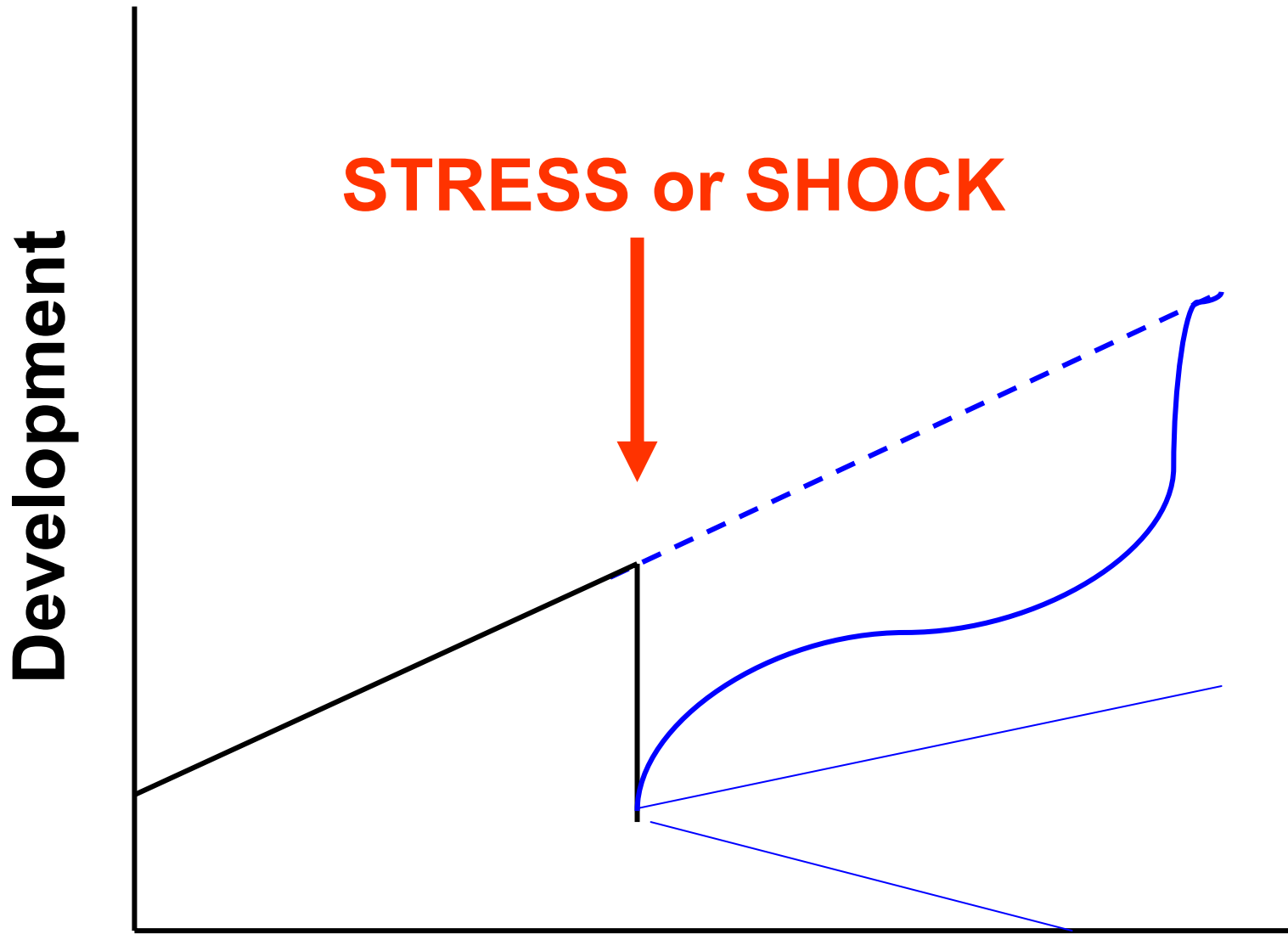
Unknown unknowns

- **Unknown tipping points**
- **New infectious diseases of animal origin (zoonotic)**

Policy making in the context of Resilience

What is Resilience

- **The pathway of recovery of a system or process after a disturbance**
 - **Does it recover?**
 - **How fast?**
 - **What is the pattern?**



STRESS or SHOCK



Development

Anticipate **Prevent** **Recover** **Learn**
Survey **Tolerate** **Restore**

Anticipation

- **What?**
- **Where?**
- **When?**
- **The Possible Options?**

Countermeasures - Preventative

- **Institutional**
 - Land use zoning, river management, warning systems
- **Physical**
 - Cyclone shelters, levees, building codes
- **Environmental**
 - Mangrove belts, tree shelterbelts
- **Agricultural**
 - Crop & livestock diversity, drought and flood resistant varieties
- **Livelihood**
 - Income diversity, rural-urban linkages

Resilience from Diversity

Experience shows that one of the best defenses against shock is to diversify the livelihood – to increase the diversity of crops and livestock on a farm or more generally to have a wider set of sources of income for the household.

Coping with Drought, Kenya

- Skilled work
- Selling land
- Collecting honey
- Making bricks
- Engaging in food producing or money making group activities
- Business
- Burning charcoal
- Salaries or remittances
- Handicrafts
- Selling or consuming exotic fruits
- Receiving credit
- Borrowing food or money from relatives or neighbours
- Casual labour
- Selling livestock
- Collecting indigenous fruit
- Receiving food aid

Innovative and Resilient Livelihoods







The Lewes Pound

