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Factors affecting investment in flood protection in China

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Contents

1 Introduction

Flood disasters in China

In recent years, large-scale floods have occurred frequently in China.

ex. July 20, 2021. Flood in Zhengzhou, Henan province（河南省郑州市）

After the flood disaster, “Investigation Report on the “7-20” ”

→ not only Recovery plan,

disaster prevention and mitigation capacity improvement plan

Figure 1　7.20 Flood in Zhengzhou, Henan
（河南省郑州市）
Resource: 瞭望/Xinhua. http://lw.xinhuanet.com

China’s Flood Control Policy, Disaster Prevention and Mitigation Plan

ex. the National Comprehensive Disaster Prevention and Mitigation Plans

the 14th plan : 2022年6月《“十四五”国家综合防灾减灾规划》

→ this plan include Five-year plans up to 2025 and Long-term plan up to 2035

1 Introduction

Investing in flood protection is crucial in mitigating damage

the Sendai Framework for Disaster Risk Reduction (仙台框架) UNDRR (2015).

many researches also mention about the point.

Flood protection investment in China

China's government implements flood protection policies (flood protection investment), not only after flood disasters, but also at other times.

→ When will China increase or decrease investment in flood protection ?

There is still little research in this area.

This Research's Question

What kind of factors affecting investment in flood protection in China ?

Existing Research

Ishiwatari and Sasaki (2021)

・Researched six economies in Asia.

・The People's Republic of China (PRC) was able to steadily decrease economic damage, while the other economies fluctuated in their damage.

→ China can reduce the losses, but other developing countries cannot reduce the losses

→ Using five-year average data, and lack of detailed analysis on China.

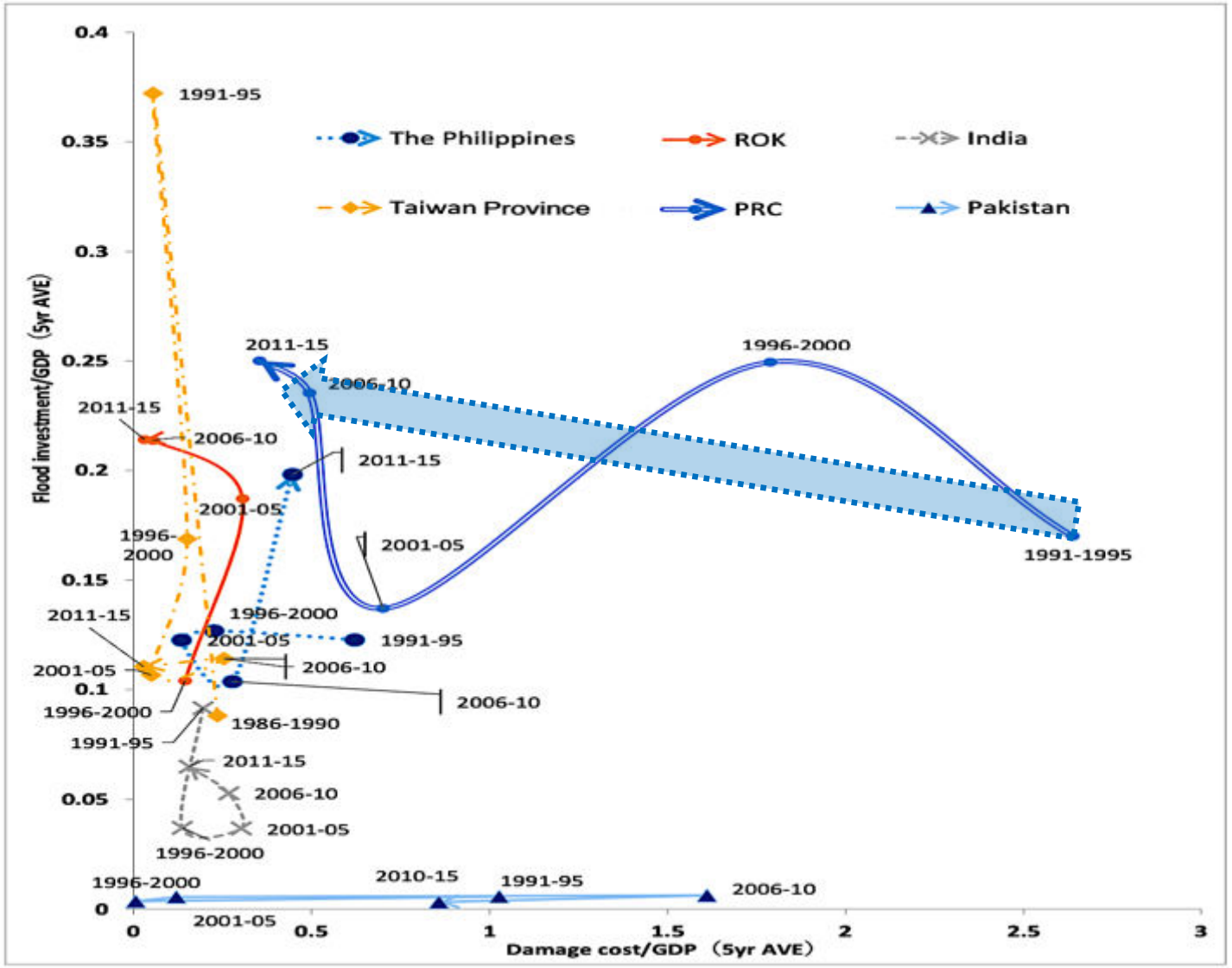

Figure 3 Flood damage and investment of six economies in Asia
Resource: Ishiwatari and Sasaki (2021)

Existing Research

Wei Ding al et. (2022)

・Researched Flood Risk Control in China.

・Fatalities (number of death, 死亡数), economic loss and flood-covered areas have significantly decreased in China, owing to a range of structural and non-structural measures.

→ Using annual data, but not focus on short-term changes, and not using investment as a percentage of GDP.

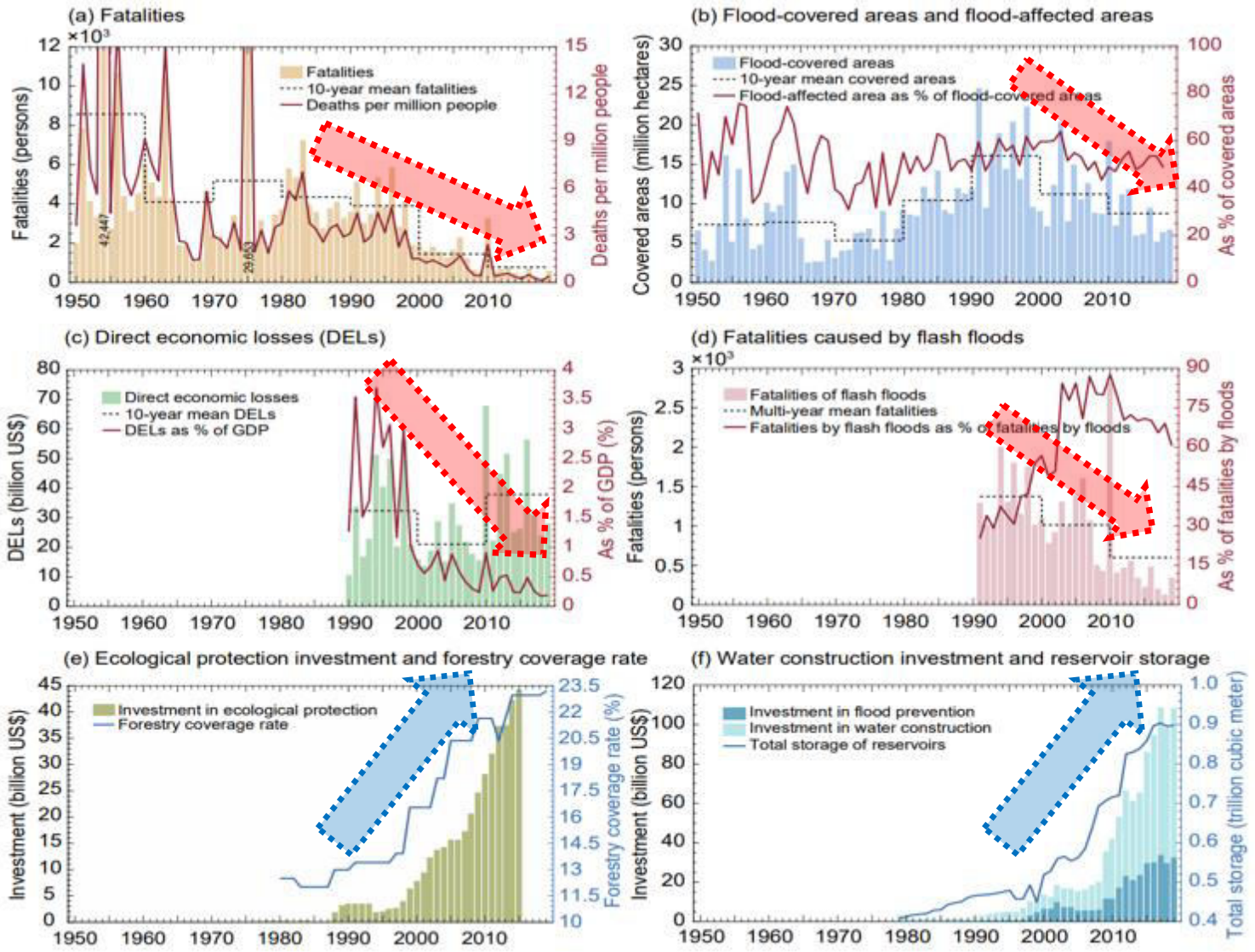

Figure 2 Changes in direct damages and investment in China
Resource: Wei Ding el at. (2022)

2 Research Methods and Data

This research

Analyze the relationship between flood protection investment and the economic loss in China.

Focus on short-term changes, especially each turning point.

Also refer to China's government budget data.

Data

- Amount of damage (direct economic loss): 1990-2020 (no data before 1989)
- Number of deaths: 1980-2020
- Damaged areas: 1980-2018 (no data from 2019 to 2020)
- Damage affected area: 1980-2020
- Flood control investment: 1980-2020
- Other data: 1980-2020

Data resource:

China Water Statistical Yearbook/ 中国水利统计年鉴

China National Bureau of Statistics Database/ 中国国家统计局 数据库

2 Research Methods and Data

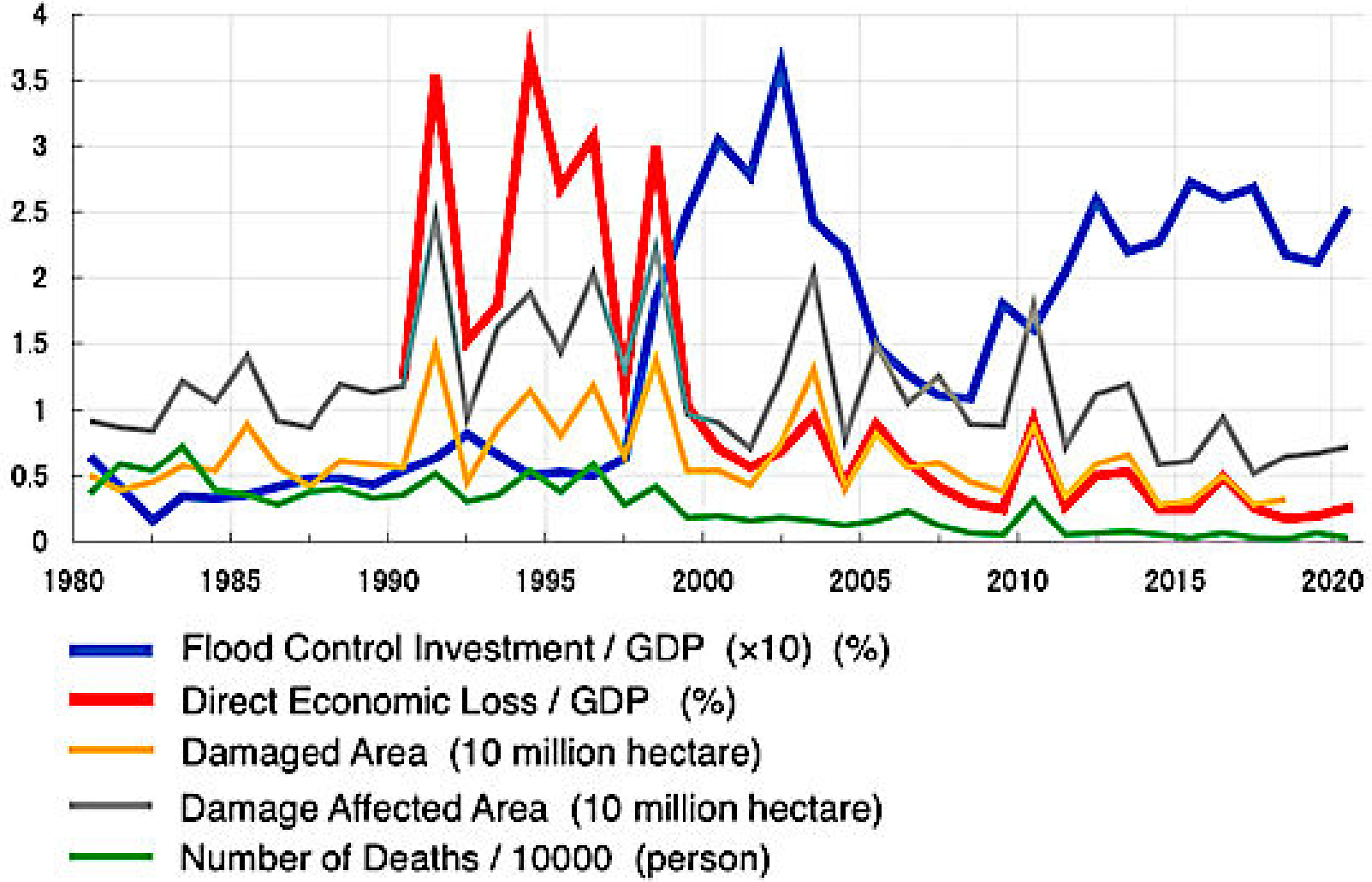

Figure 4 Flood control investment and Flood damage

2 Research Methods and Data

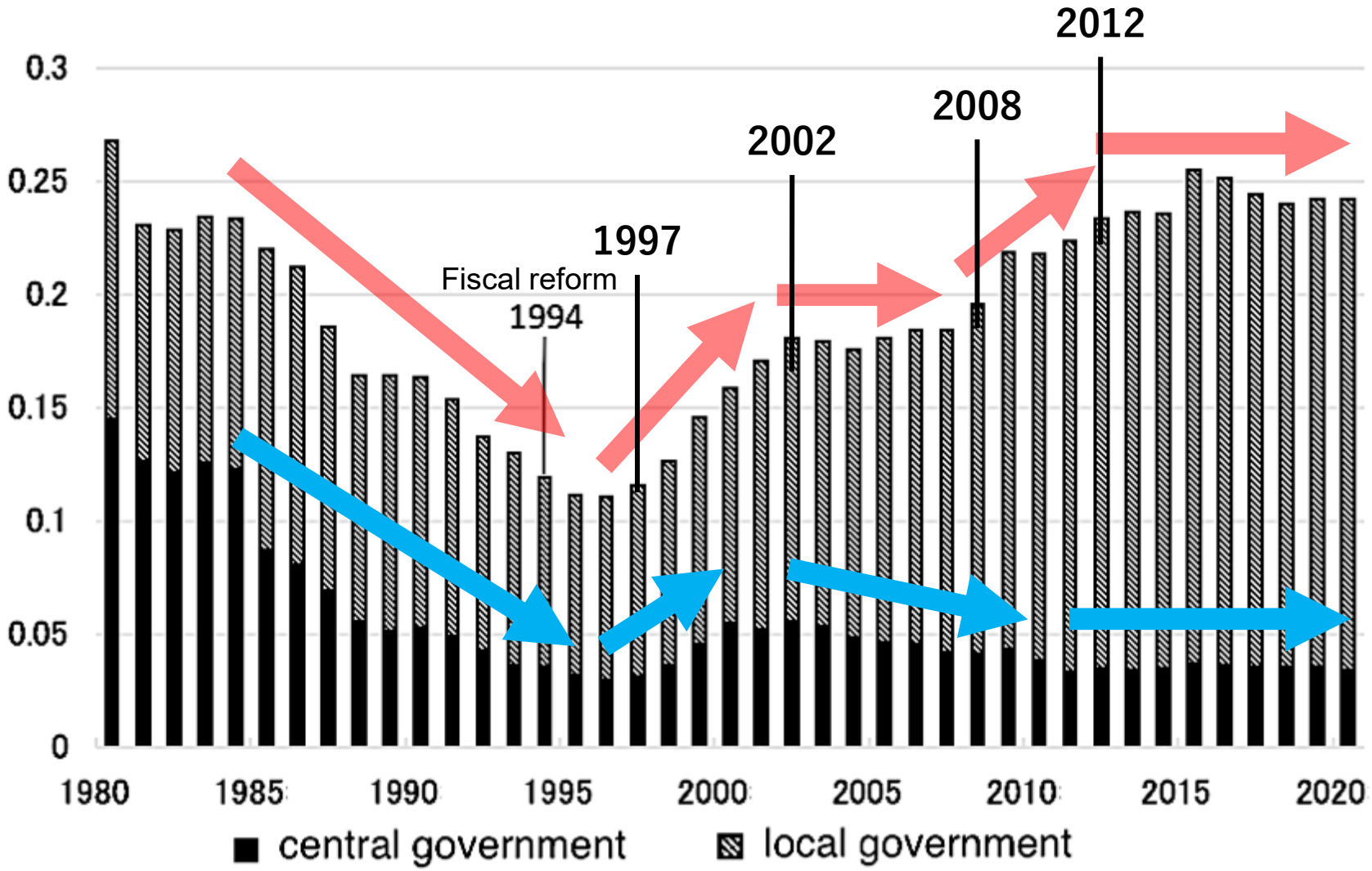

Figure 5　Financial expenditures of Central government and Local governments expenditures / GDP (%)

3 Analysis of Flood control investment change

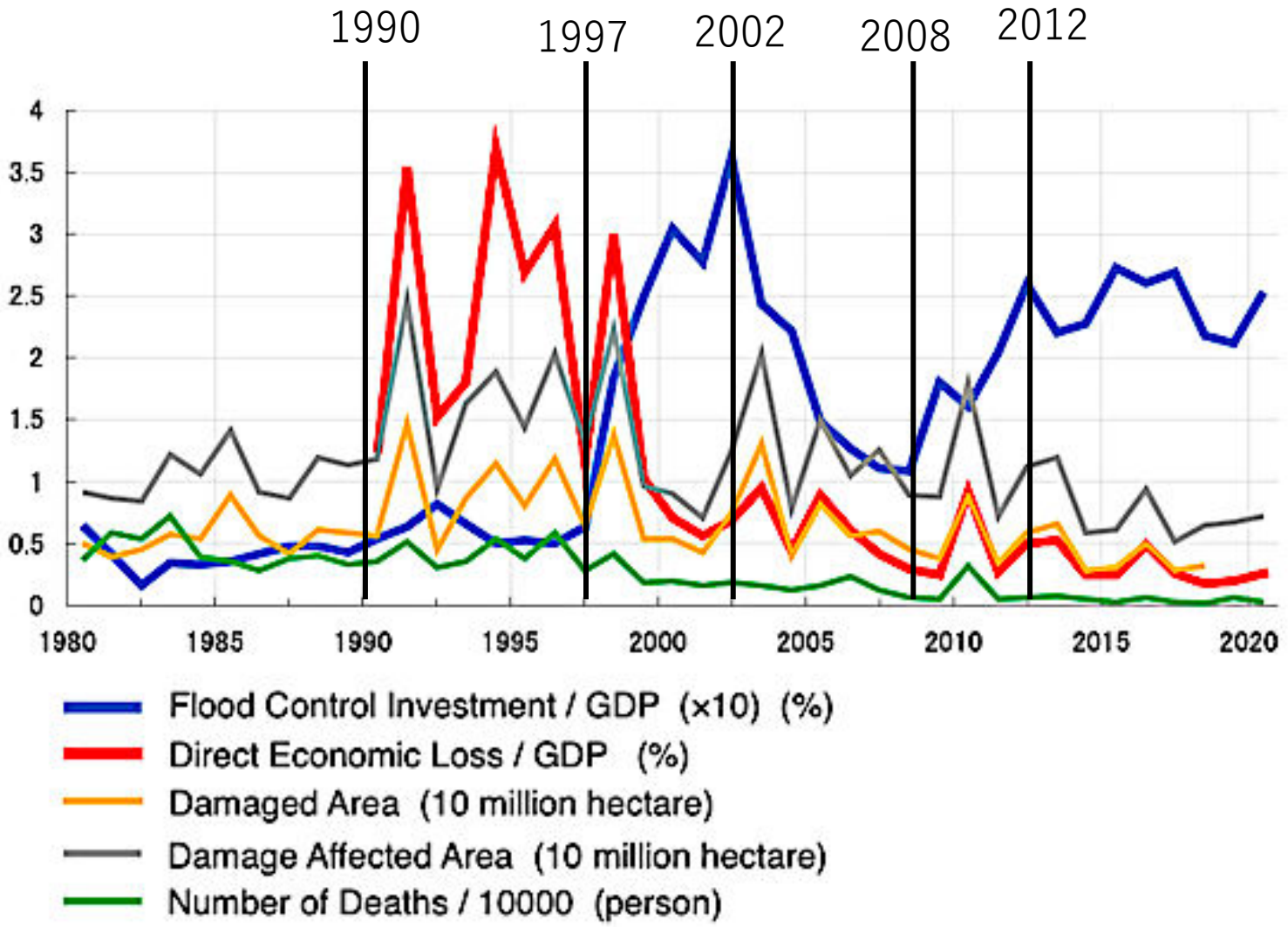

Figure 4 Flood control investment and Flood damage

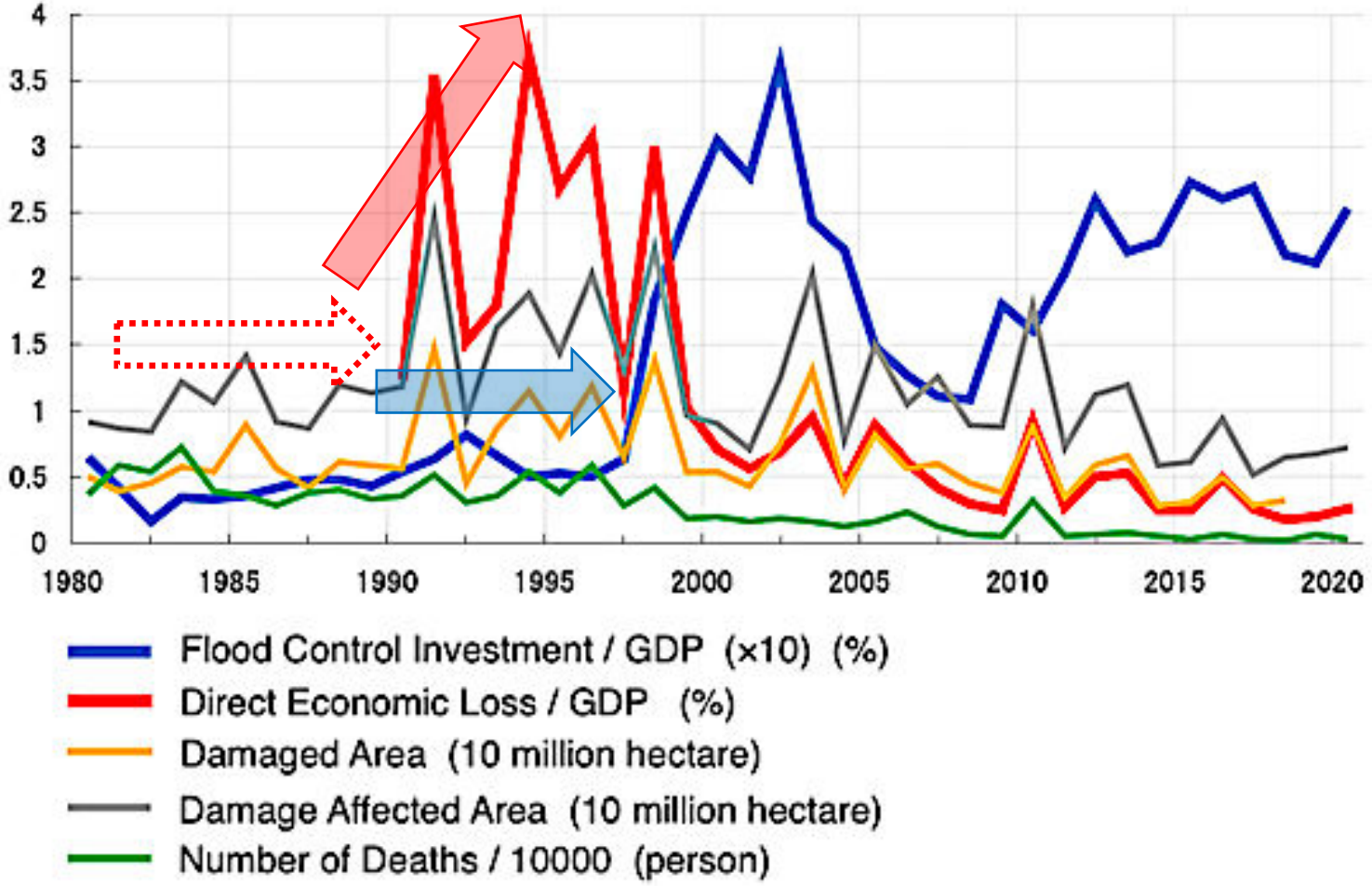

Figure 4 Flood control investment and Flood damage

1990-1997
Low flood control investment regardless of high economic loss

Why did not the investment increased?

- The scale of damage was low (economic losses, affected areas, deaths) during the 1980s

- Fiscal problem
  declined government's fiscal revenue as a percentage of GDP since mid-1980s
  → Fiscal policy reform in 1994

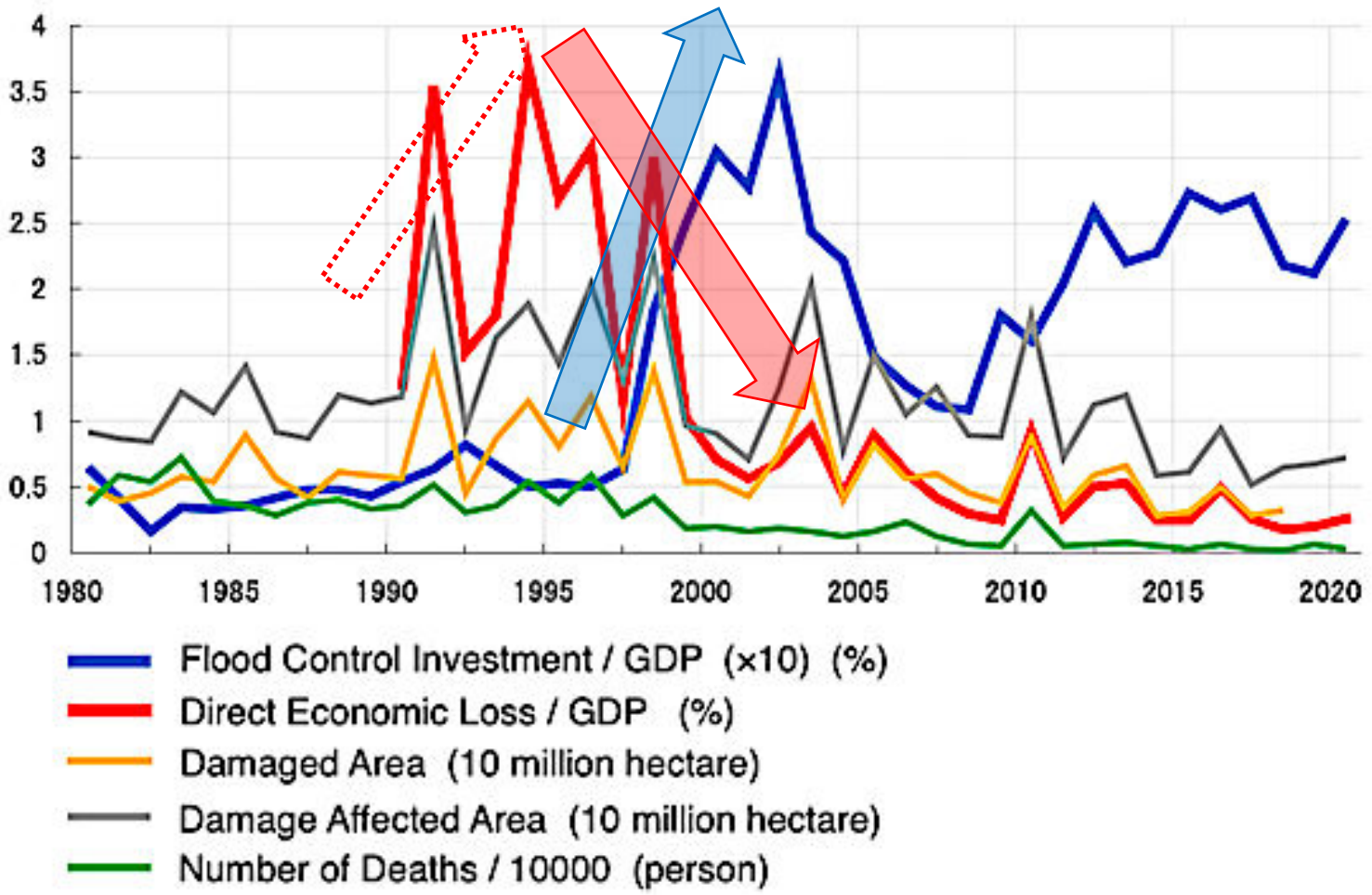

Figure 4 Flood control investment and Flood damage

1997-2002
Flood control investment increased, economic loss decreased

Why did the investment increased?

・Flood damage is high during the 1990s
・Large-scale flooding in the Yangtze river basin in 1998
・Fiscal situation improvement since 1997

Flood control policy
・1998: flood control law (防洪法)
・1998 disaster reduction plan (1998-2010) (減災計画（1998-2010年）)

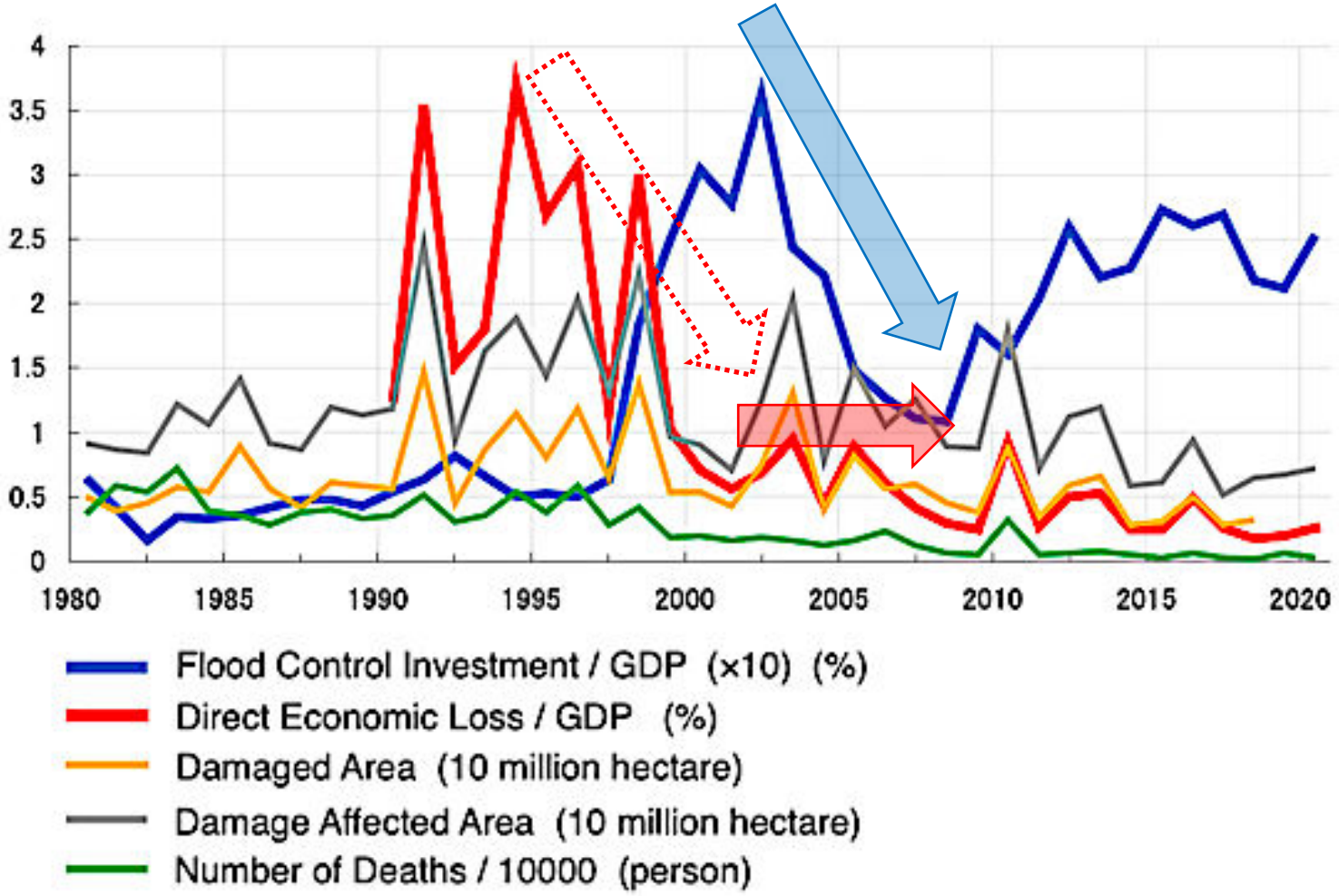

Figure 4　Flood control investment and Flood damage

2002-2008
Low economic loss, flood control investment decreased

Why did the investment decreased?

・Keep low economic loss
・Keep same level fiscal budget
as a percentage of GDP from 2002 to 2008
・Central government expenditure is slightly decreasing

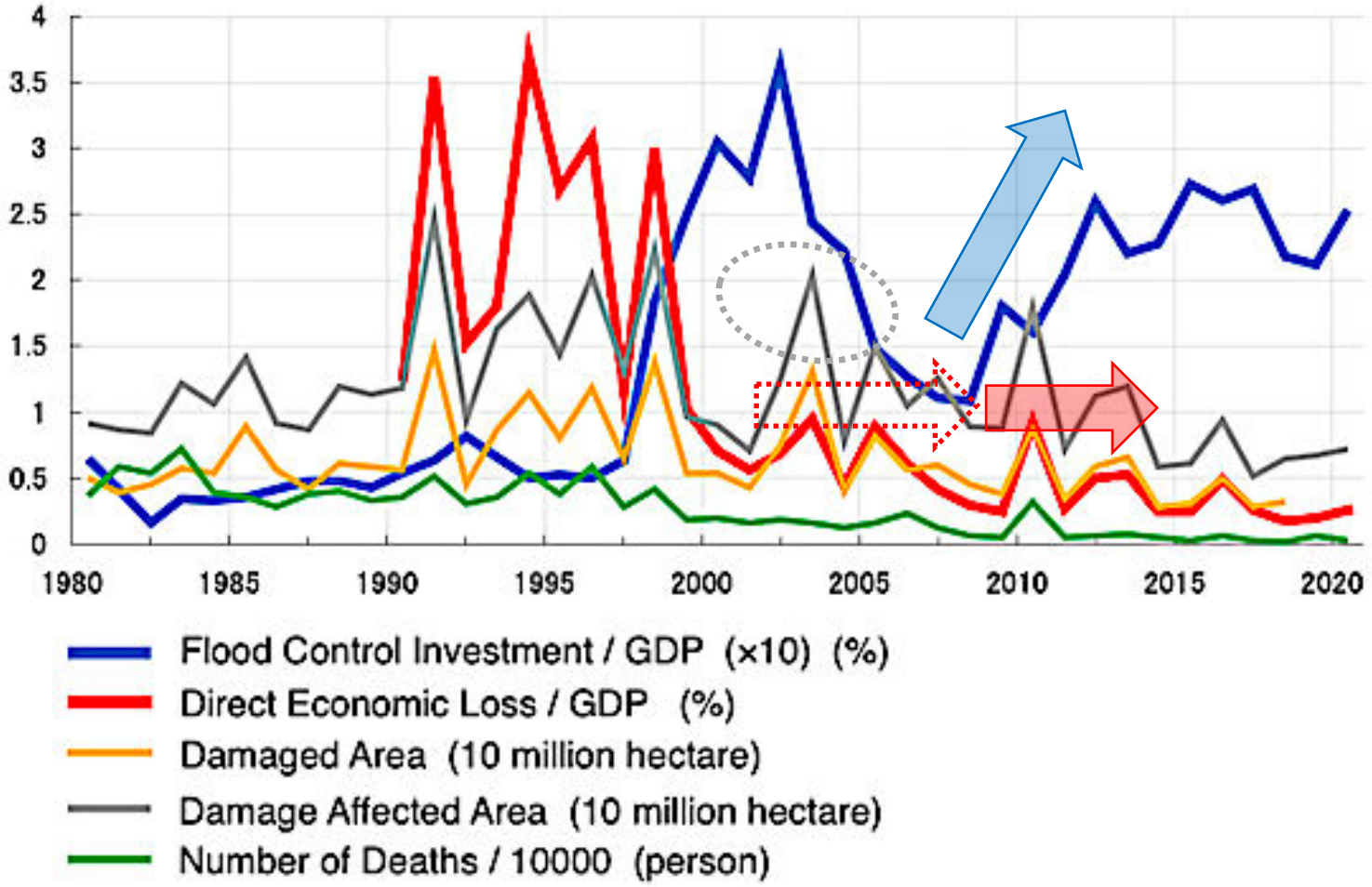

Figure 4 Flood control investment and Flood damage

2008-2012
Flood Control Investment increased again

Why did the investment increased again?

・Increase in economic losses caused by flood damage in 2010
・Earthquake in Sichuan Province In 2008
Disaster mitigation was promoted
・No. 1 central document for 2011
(中央一号文件)
Water development policy to 2020
・Global financial crisis in 2008
Increased government spending

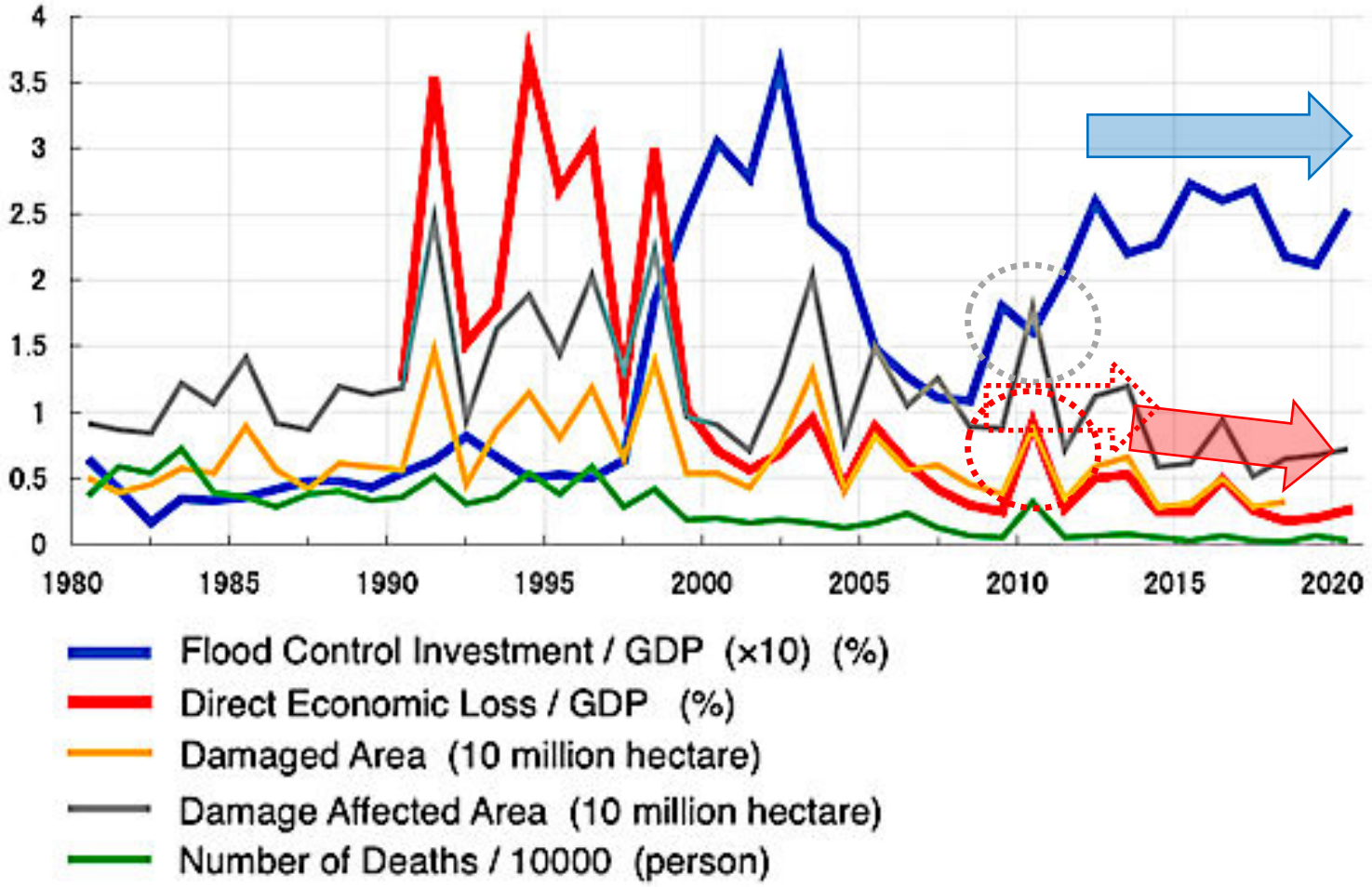

Figure 4 Flood control investment and Flood damage

2012-2020
Keep high level Flood control investment, Low economic loss

Why the investment keeps a high level?

・same factors as 2008-2012 period
・New era of Flood control/ Water development (Wang, Yahua 2022)
→ Focus on minimize the damage

・Current Chinese government‘s focus on water conservancy（水利） and water control（治水/防洪）.

4 Conclusion

Factors for increased Flood Control Investment

・Increased economic loss ex. 1990s
・Large-scale Flood/Natural disasters.
ex. 1998 Yangtze River flood, 2008 Sichuan earthquake
・Long-term Plans and Policies
ex. Five-years plans (防灾减灾规划), No. 1 central document for 2011 (中央一号文件),
1998: flood control law (防洪法)
・Improvement of the government's financial situation
ex. after Tax Reform 1994（分税制）, after Global Financial Cricis 2008

Factors for decreased Flood Control Investment

・Decreased economic losses
ex. 1980s, after 2002
・Aggravation of the government's financial situation
ex. after mid-1980s, after 2002

Factors affecting investment in flood protection in China

・1 Economic losses, 2 medium- to long-term plans, and 3 government’s financial situation.

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