



Disaster Risk Management

Three Stories of Mainstreaming



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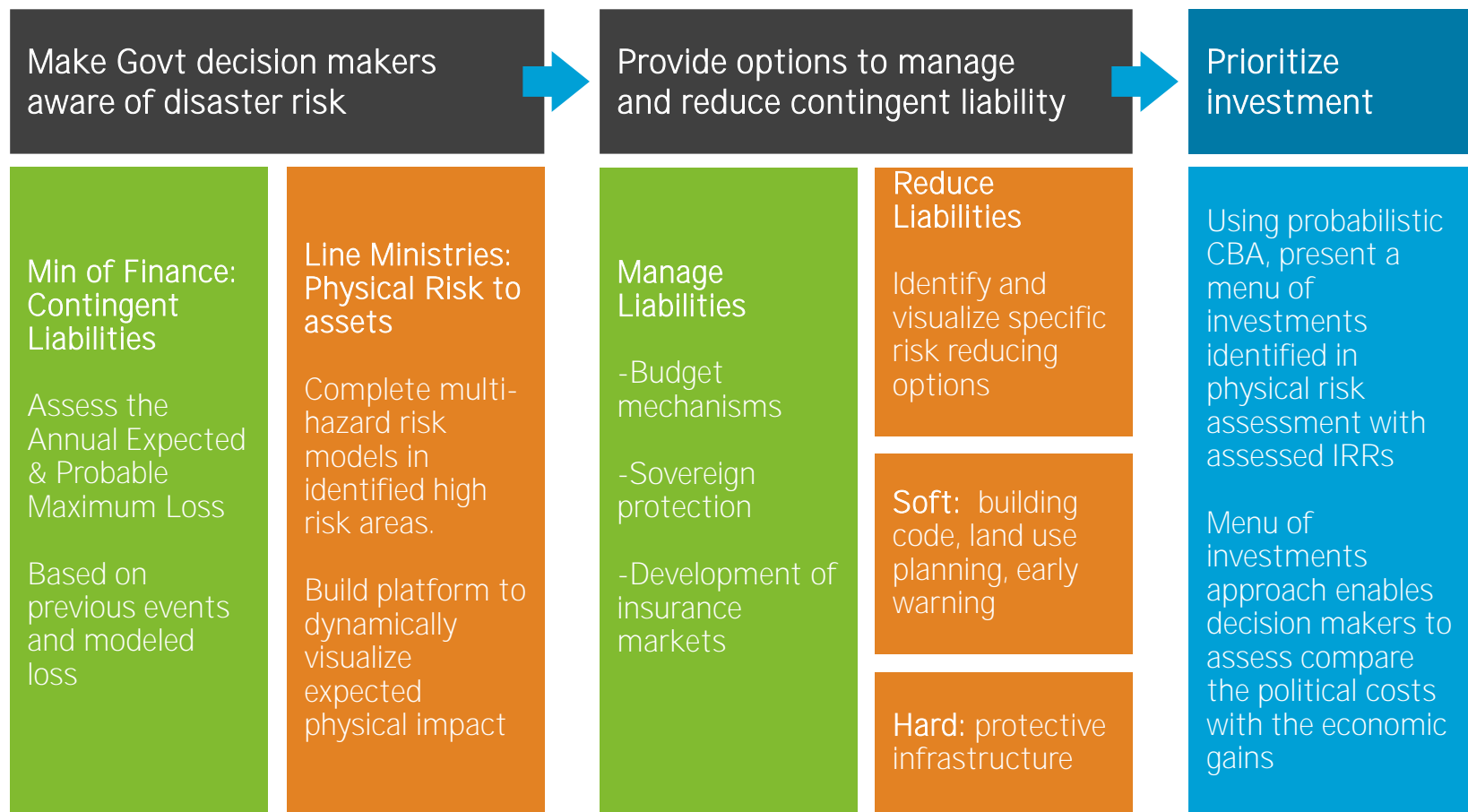
1. Water Sector: Addressing financial and physical risk in Sri Lanka through spatial analytics
2. Transport Sector: Bottom-up technical approach to building budgets in Bhutan
3. Multi-sector: Crowding in resilient investment and practices into city planning in Vietnam



Water Sector

Addressing financial and physical risk
in Sri Lanka through spatial analytics

Water sector: Sri Lanka



Water sector: Sri Lanka

Financial Resilience

Budget support

Establish CAT DDO

Advisory services

Development of
Fiscal Mechanisms

Physical Resilience

Analytical work to inform investments

Step #1
Identify Current
Climate Risk

Step #2
Identify Future
Drivers of Risk

Step #3
Create Basin Level
Mitigation
Investment Plans

Physical investments

*Implementation of
Immediate risk mitigation*

*Comprehensive approach to
climate resilience –
Basin Investment Plans*

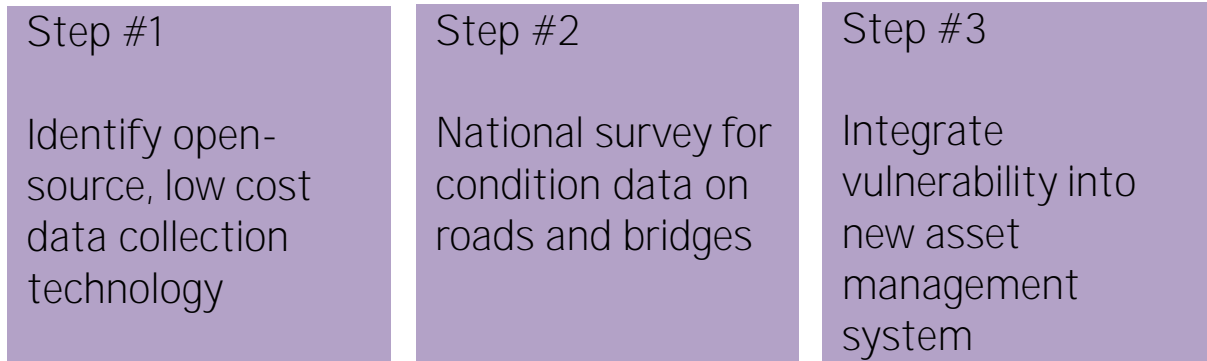
Transport Sector



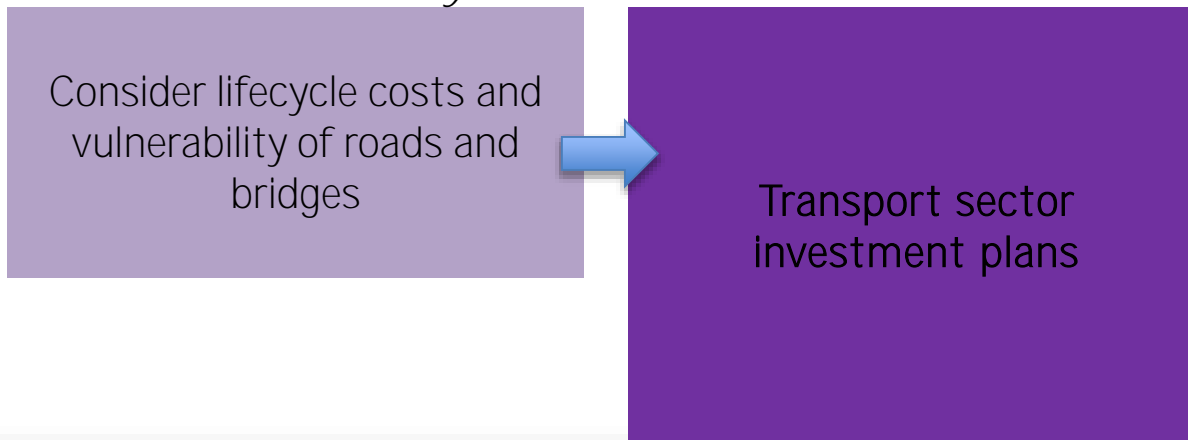
Bottom-up technical approach to
building budgets in Bhutan

Transport Sector: Bhutan

Bottom-up analytical work 'from the assets up' to inform investments



Physical investments



Lessons Learned

“The endgame is to direct **investment based on condition and vulnerability information** – this is also influenced heavily by political economy issues”

“**Training of road engineers** will be critical for sustainability

“Building budgets from ‘the assets up’ is compelling, including in negotiating with MoF for greater maintenance resources to **build a budget based on observed condition**”

“Sophisticated asset management systems can often generate unpalatable numbers for investment; a more **pragmatic, simple and grounded approach** can help as an entry point”

“Engineers – particularly younger ones- are **rapid adopters** of new technologies”



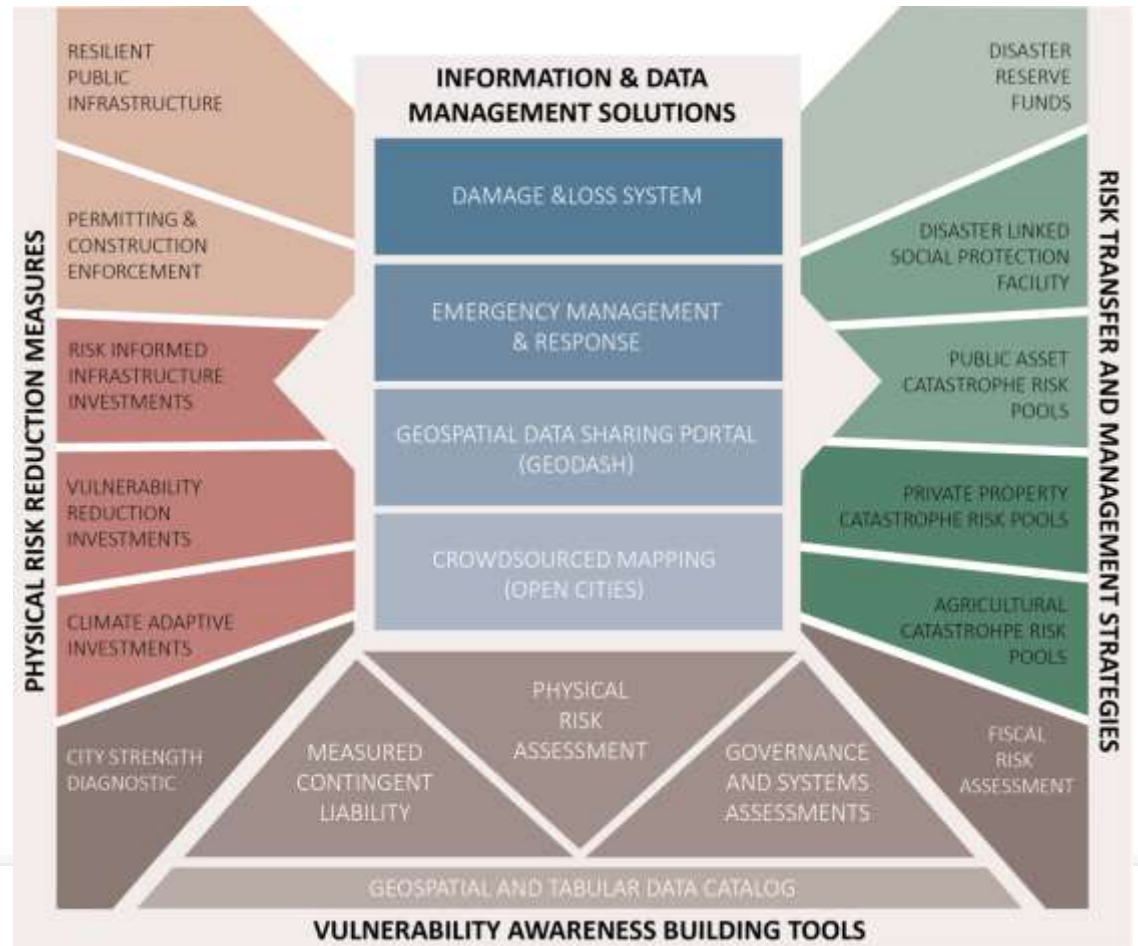
Multi-sector

Crowding in resilient investment and practices into city planning in Vietnam

Multi-Sector: Vietnam

Customizable modular framework for investment

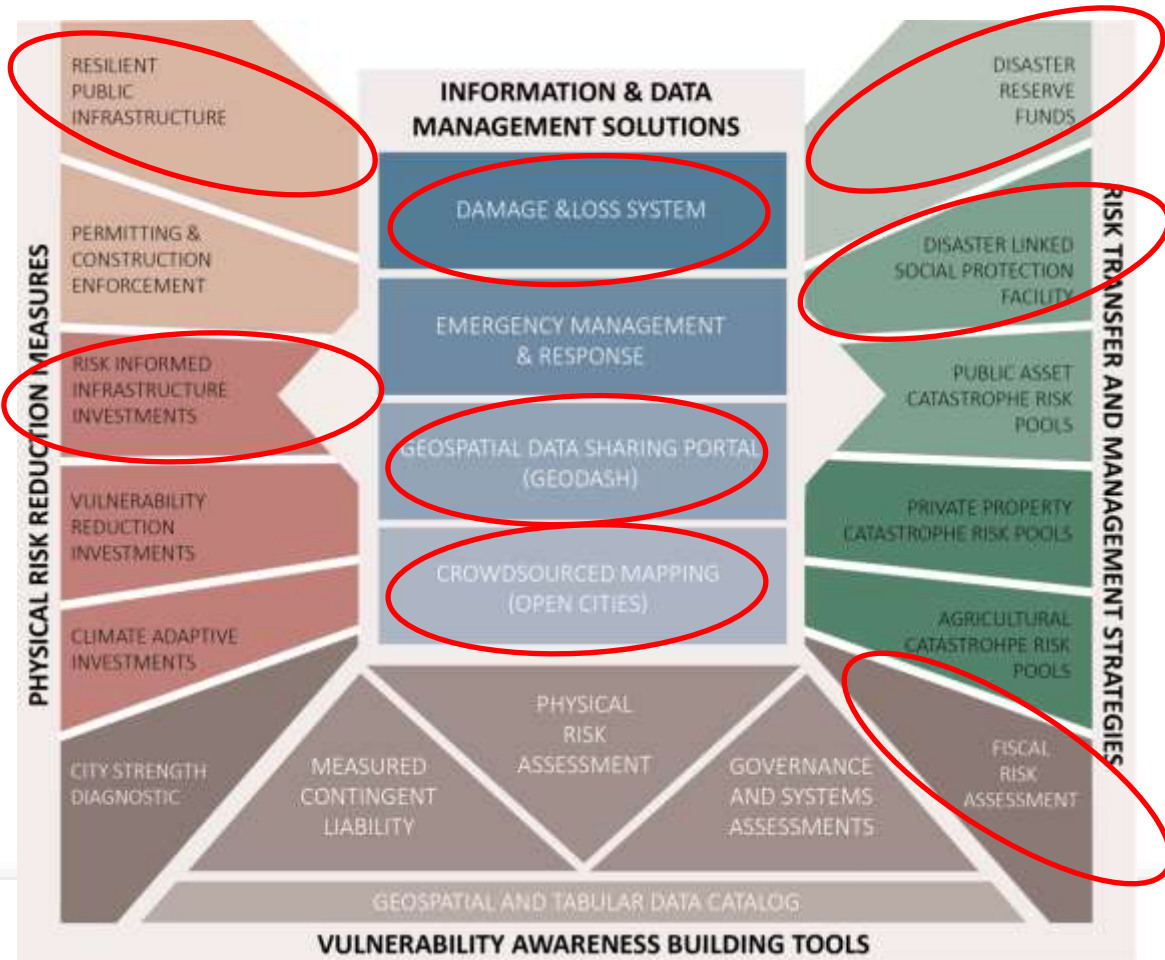
- ✓ Vulnerability awareness building tools
- ✓ Information & data management solutions
- ✓ Physical risk reduction measures
- ✓ Vulnerability awareness building tools



Multi-Sector: Vietnam

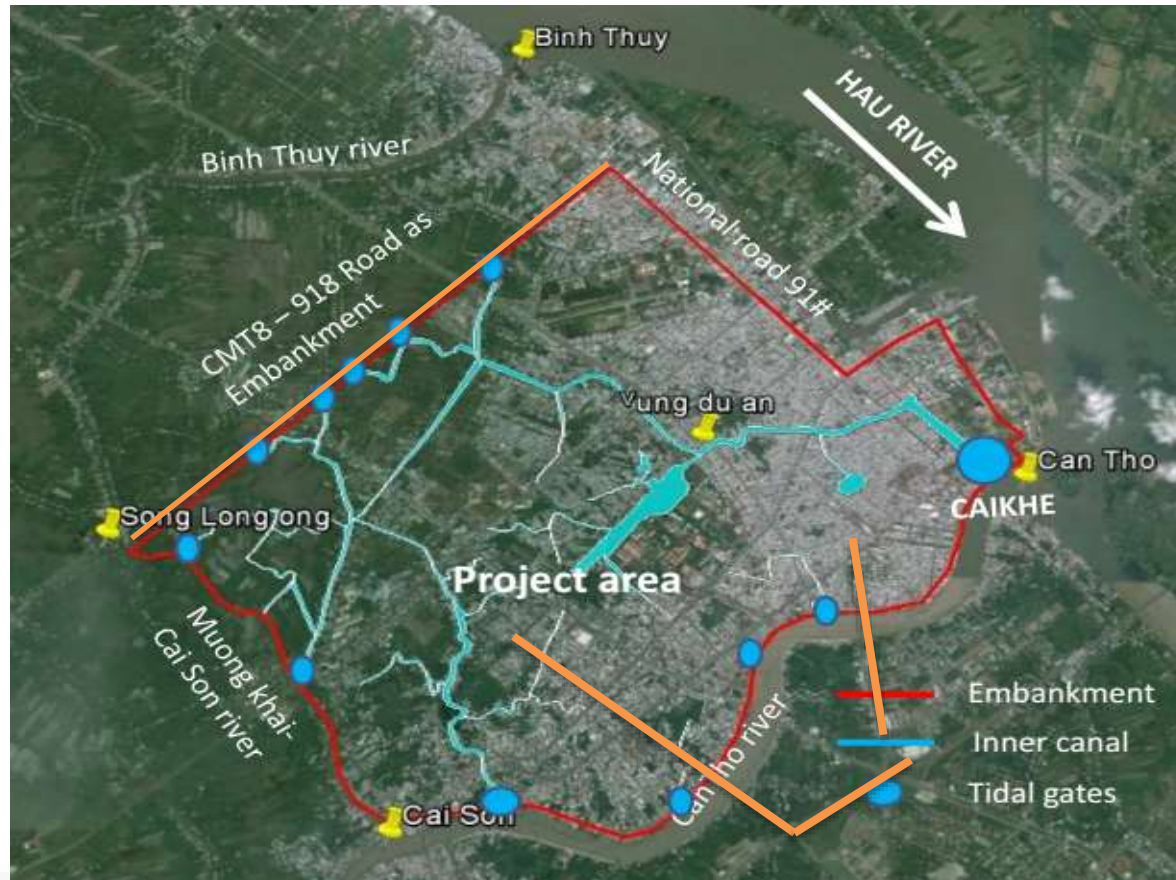
Customizable modular framework for investment

- ✓ Risk Informed Infrastructure Investments
- ✓ Spatial planning platform
- ✓ Crowd-sourced mapping
- ✓ Operations & Maintenance system at Dept of Finance
- ✓ Fiscal risk assessment
- ✓ Disaster linked social protection
- ✓ Disaster Reserve Fund



Multi-Sector: Vietnam

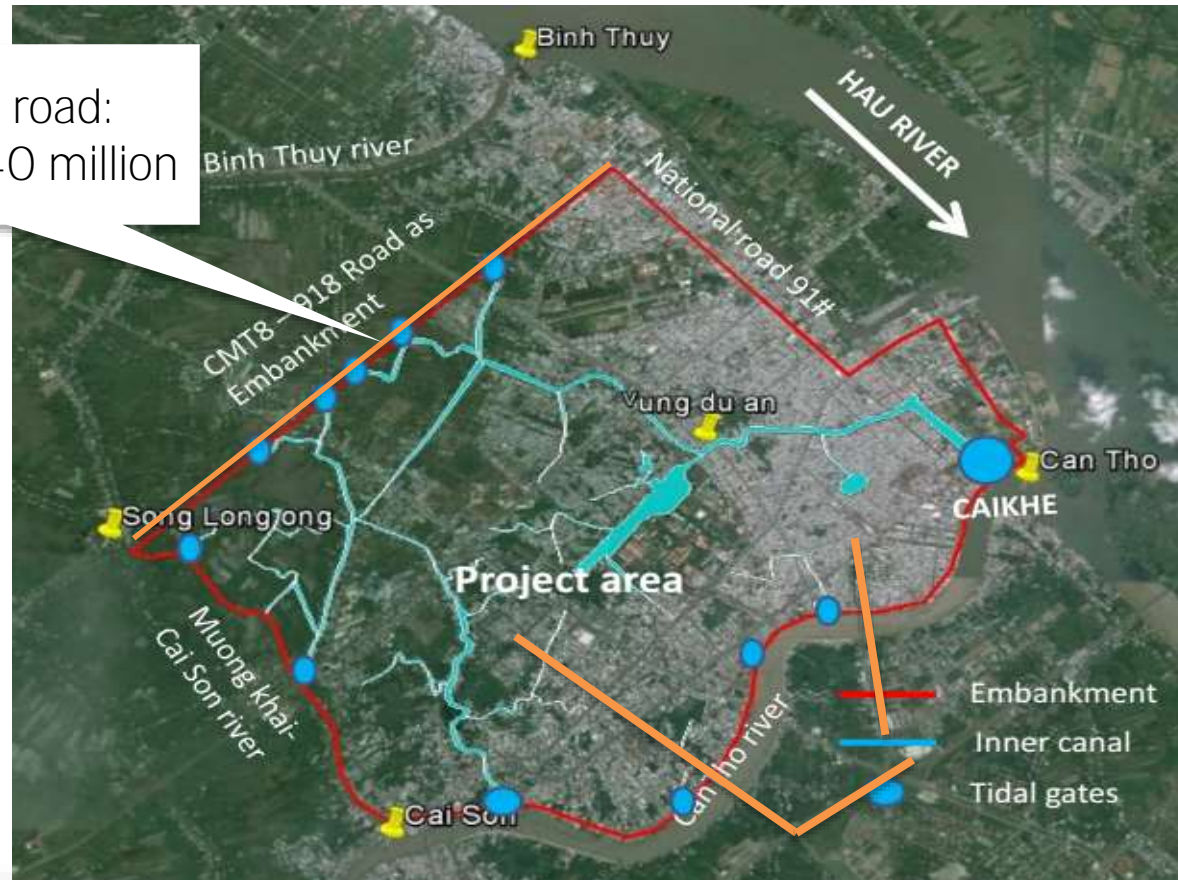
Risk Informed Infrastructure Development



Multi-Sector: Vietnam

Multi-use Infrastructure

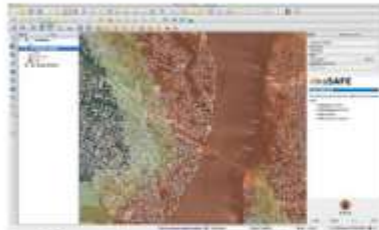
Dual Use road:
Saved US\$40 million



Multi-Sector: Vietnam

Spatial Planning Platform

Risk



Contingency Plans



Investment Planning



Loss Assessment

Data Sharing



Govt data portals



Connecting academia
government, &
communities

Others

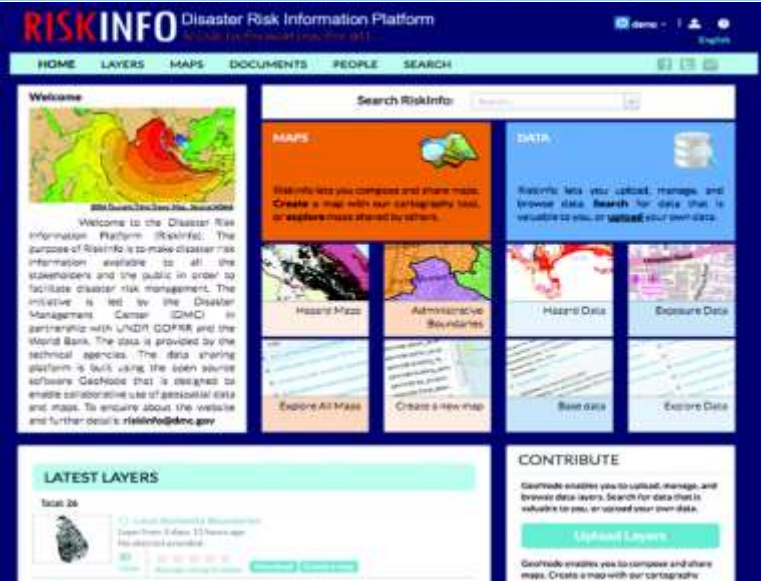
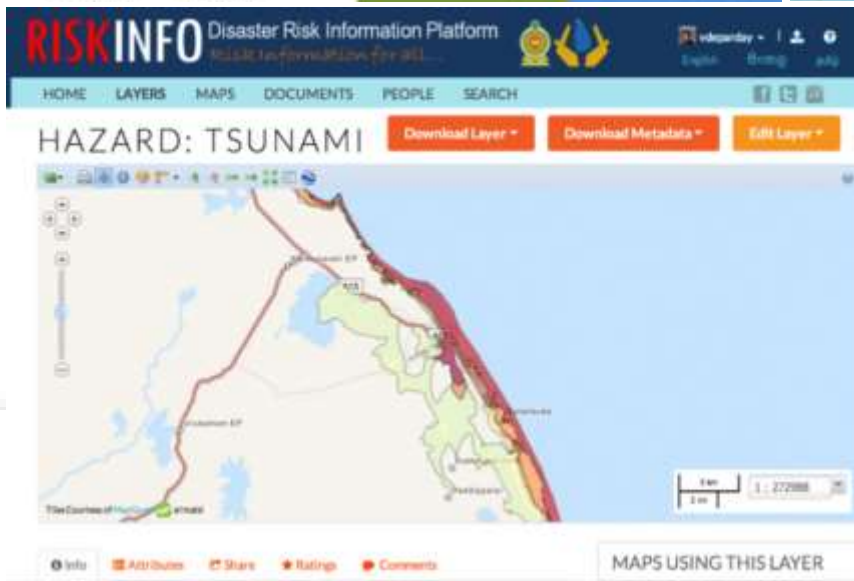


Urban planning



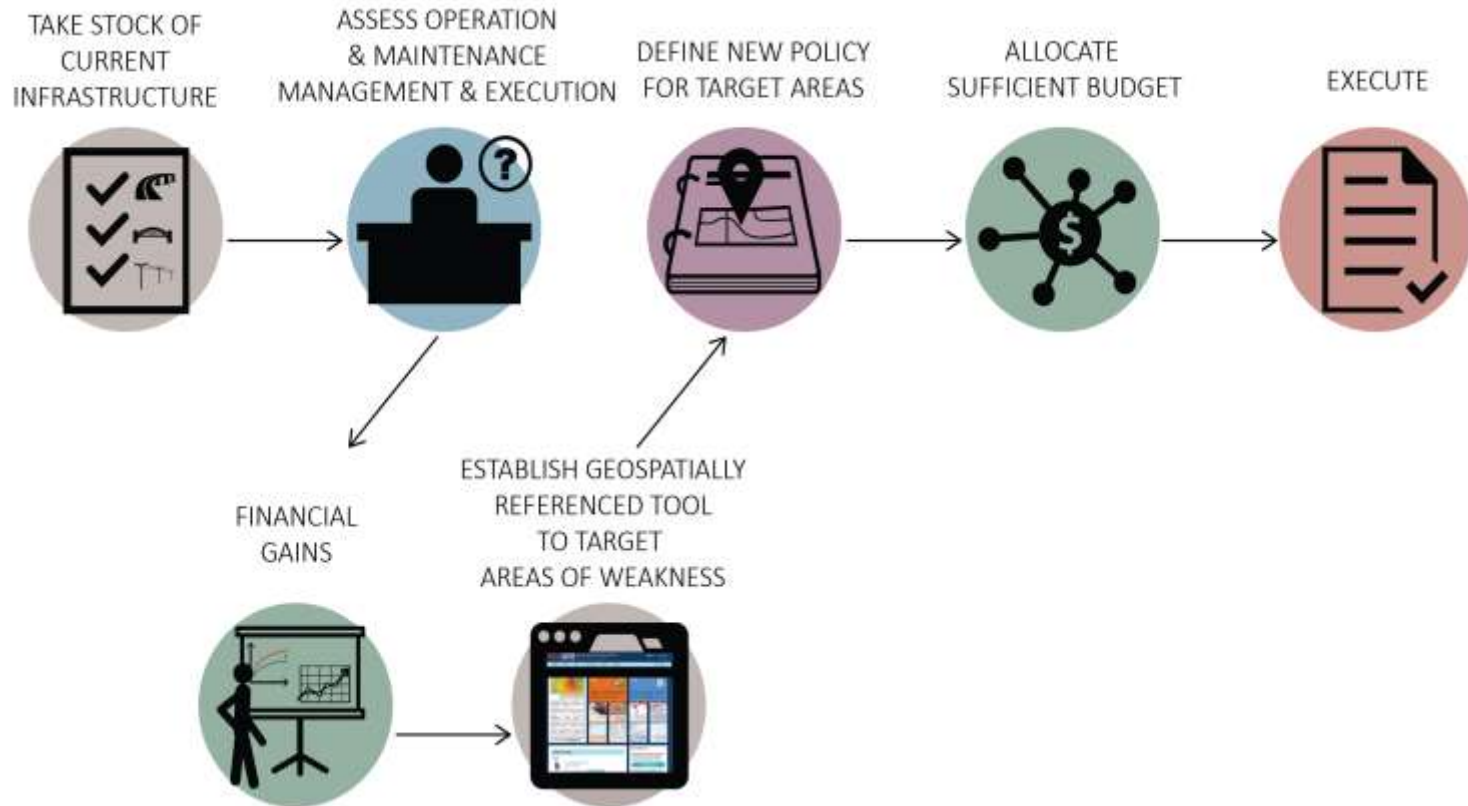
Transport networks

Multi-Sector: Vietnam



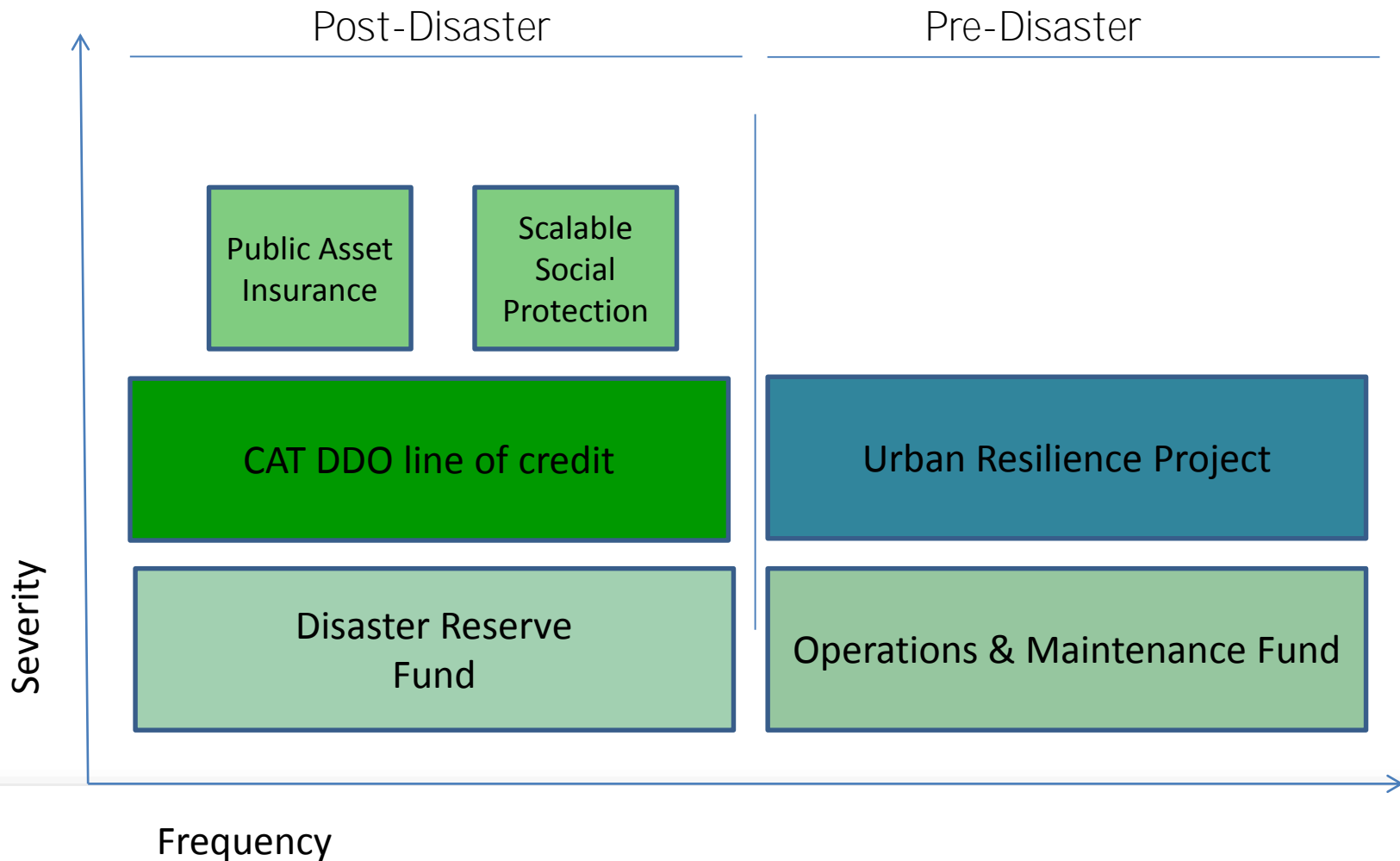
Multi-Sector: Vietnam

Operations & Maintenance at Department of Finance



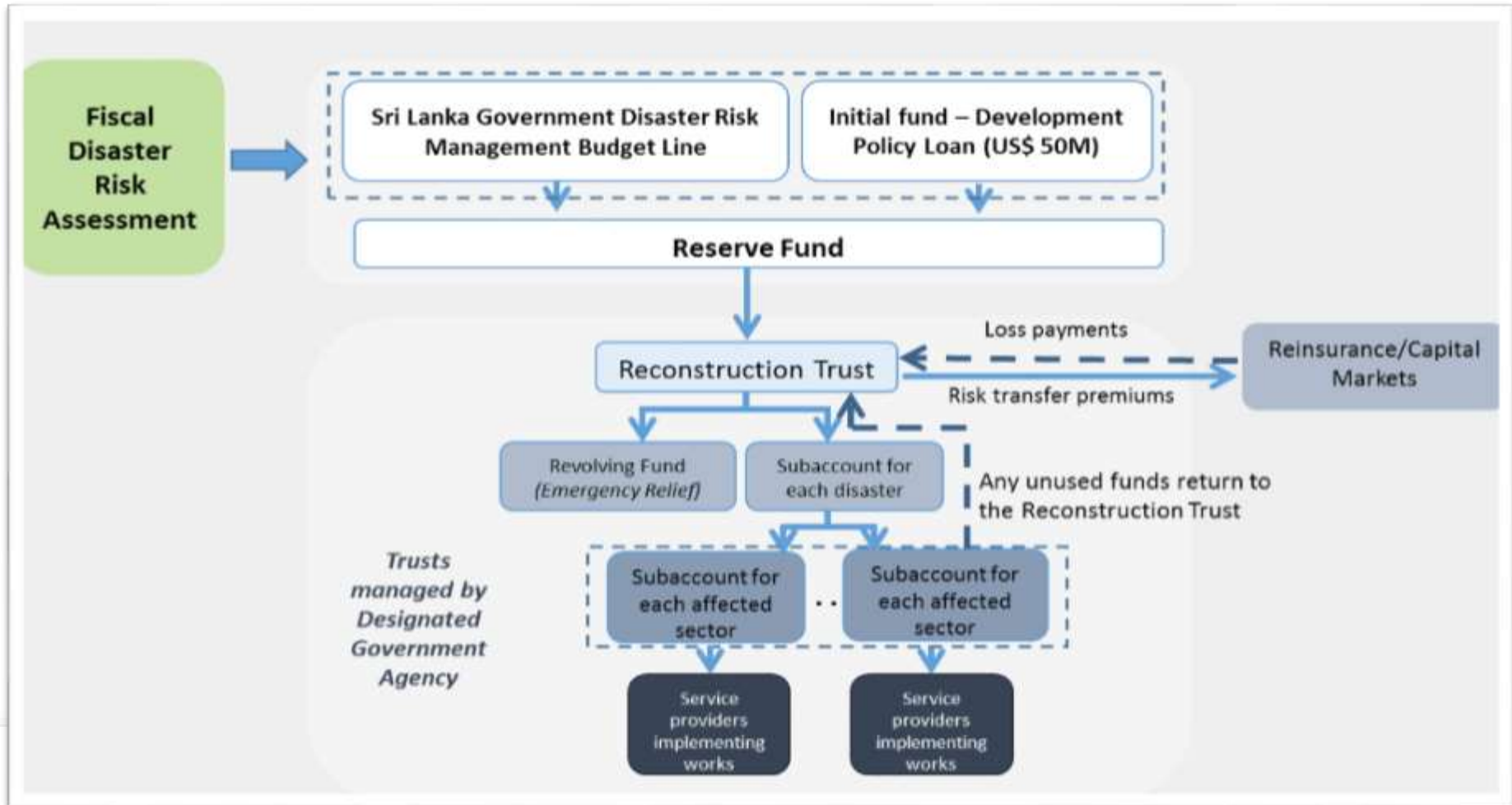
Multi-Sector: Vietnam

Disaster Risk Financing & Insurance Program

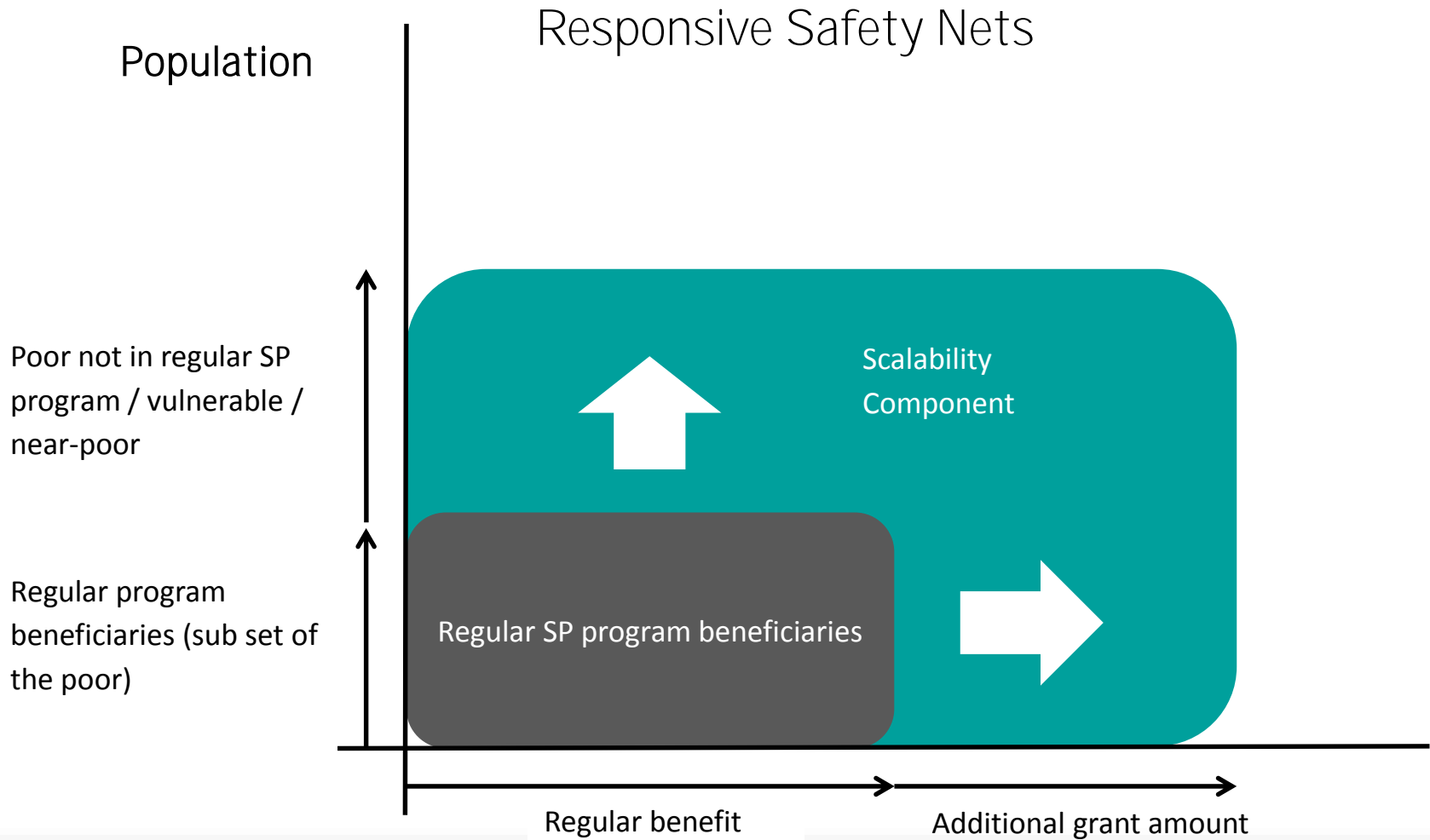


Multi-Sector: Vietnam

Disaster Reserve Fund



Multi-Sector: Vietnam



Multi-Sector: Vietnam

Conclusions

1. Most effective to invest in city infrastructure with risk based approach
 2. Experienced based approach – not buzzwords and untried methods
 3. Holistic approach to link multiple sectors
 4. Seek cost savings through financial understanding of risk and loss
 5. Unlock land value and opportunity through reduced vulnerability
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Thank you.