Co-benefit of Mitigation & Adaptation in ADB Project

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Agenda

- The adaptation project in ADB
- Category of co-benefit
- Cases in ADB Project

Adaptation Project in ADB

- ADB has Adaptation Projects in 2012
  - 17 investments projects and 38 TA
  - 895M$ for adaptation component
  - 2.6 B $ value of Projects
  - Sectors… Agriculture & Natural resource, Urban, Transport, Energy

Assess Adaptation Needs and Options in the project process

Set of Activities	Steps
1. Project screening and scoping	Step 1: Screen the project exposure to climate change Step 2: Establish the adaptation objective Step 3: Survey existing information and knowledge Step 4: Identify and engage stakeholders Step 5: Identify methodology and data needs Step 6: Identify the required expertise
2. Impact assessment	Step 7: Construct climate change scenarios Step 8: Estimate future biophysical impacts Step 9: Assign probabilities to identified impacts
3. Vulnerability assessment	Step 10: Identify vulnerabilities Step 11: Identify biophysical drivers of vulnerabilities Step 12: Identify socioeconomic drivers of vulnerabilities
4. Adaptation assessment	Step 13: Identify all potential adaptation options Step 14: Conduct consultations Step 15: Conduct economic analysis Step 16: Prioritize and select adaptation option(s)
5. Implementation arrangements	Step 17: Establish arrangements for implementation Step 18: Identify needs for technical support and capacity building
6. Monitoring and evaluation	Step 19: Design monitoring and evaluation plan Step 20: Feedback into policy-making and knowledge management processes

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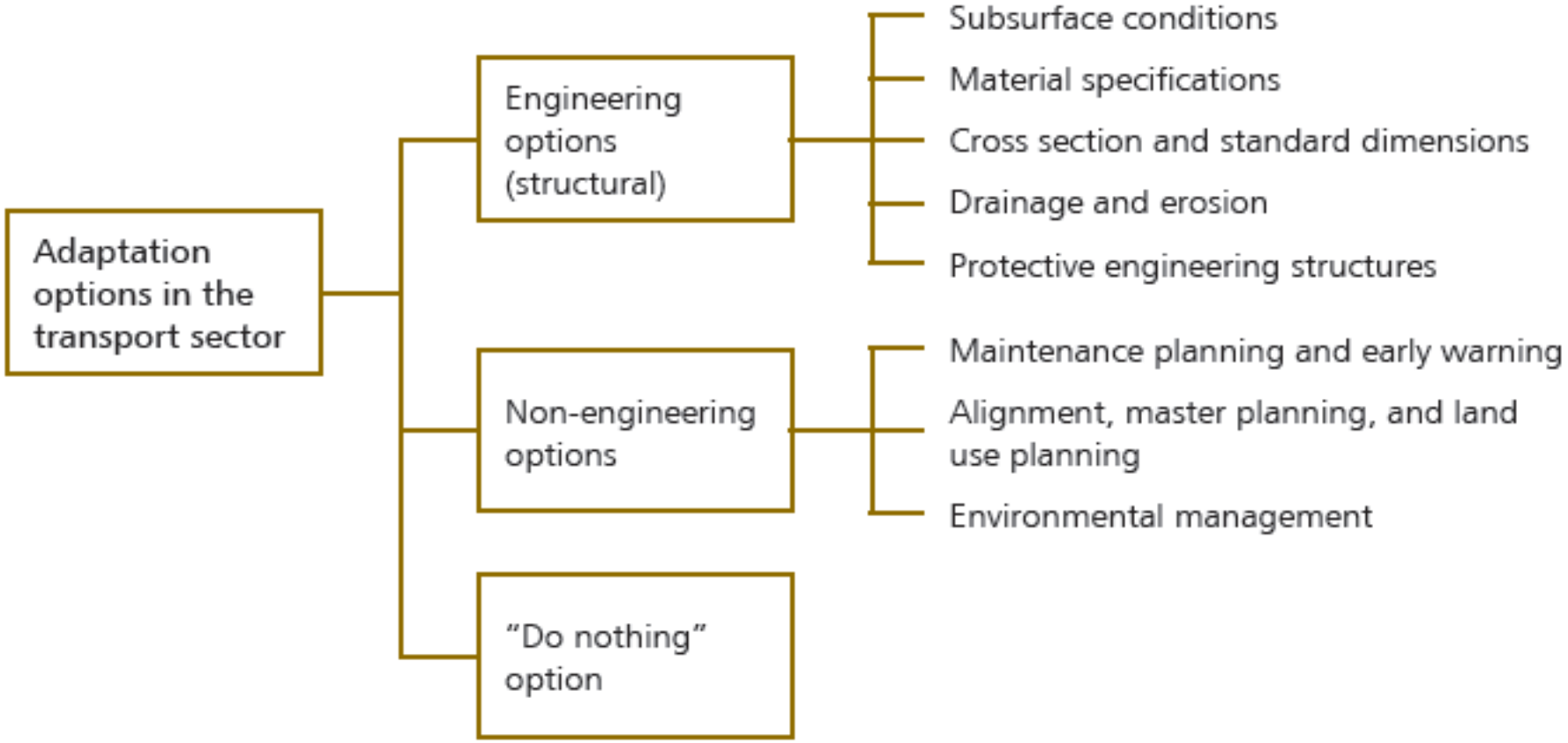
Guidelines for Climate Proofing Investment in the Transport sector

Figure 1 Nature of Adaptation Options in the Transport Sector



Source: ADB.

Why co-benefit is important

- Get the different benefit now and daily
  - Mitigation Benefit → reduce energy cost daily
  - Adaptation Benefit → reduce risk in the future
- Get the access of additional finance
  - chances to access the finance from Developed Countries, Private sectors
- On the other hand, get different beneficiaries
  - Mitigation → For global benefit (NIMBY issue)
  - Adaptation → For their own Communities & Regions

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The category of Co-benefit b/w mitigation and adaptation measures

1. Adaptation Meas. = Mitigation Meas.
   - The outcome of tech. effect on Mitigation & Adaptation
   - ✓ Greening in Urban, Efficient Waterworks

2. Adaptation Meas. + Mitigation Meas.
   - Upgrade for another purpose
   - ✓ Raise the height of train rail, battery with RE,

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The measures of adaptation with mitigation

Sector		Adaptation	Mitigation
Water Resource & Agriculture	Preventing Water leakage from pipe	• Reduce the water intake	• Increase efficiency of water supply
	Mangrove as break water	• Reduce flood risk	Carbon capture
Transport	High elevated LRT with urban planning	• Reduce flood risk • Support relocation of area • Avoid flood road	• Reduce the use of vehicle
Urban	Compact City (residential relocation)	• Keep the protect area compact	• Reduce Trans. Needs
	Greening urban	• Mitigate the temp. increase	• Reduce A/C demands
Energy	Renewable energy with battery	• Disaster resilient by off-grid • Reduce flood risk	• Reduce thermal plants

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Case of Transport Sector

Cascade of multi-purpose barrages Adaptation=Mitigation

[Adaptation]

- Keep water minimum depth in dry season now and in future

[Mitigation]

- Develop intermodal shift to inland waterway

Hunan Xiangjiang Inland Waterway Project in PRC

Case of Urban Sector

Road and WWTP rehabilitation

Adaptation+Mitigation

[Adaptation]

- Use of permeable surface for sidewalk to improve water retention in urban area

[Mitigation]

- Light Emitting Diode (LED) Street Lights

[Both]

- Study on Climate Proofing Design for urban infrastructure
- Capacity Building for Local stakeholders

Case of agriculture

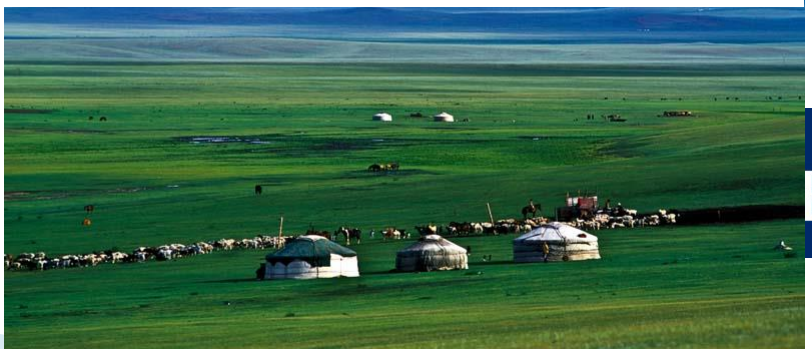
Establishment of Climate-resilient Rural Livelihood Project

Adaptation=Mitigation
Adaptation+Mitigation

[Component]
- Establishment/rehabilitation and management of water points
- Capacity building for sustainable pasture management
- Alternative income generation

[Adaptation]
- Fodder production (to supplement pasture during winter)
- Animal shelter strengthening (to protect livestock from severe winter)
- Sustainable pasture management (to prevent desertification)

[Mitigation]
- Sustainable pasture management (to prevent degradation of pasture so that carbon can be sequestrated by pasture and pasture land)



Case of Energy

The risk assessment of climate change regarding Tharmal Power Plant

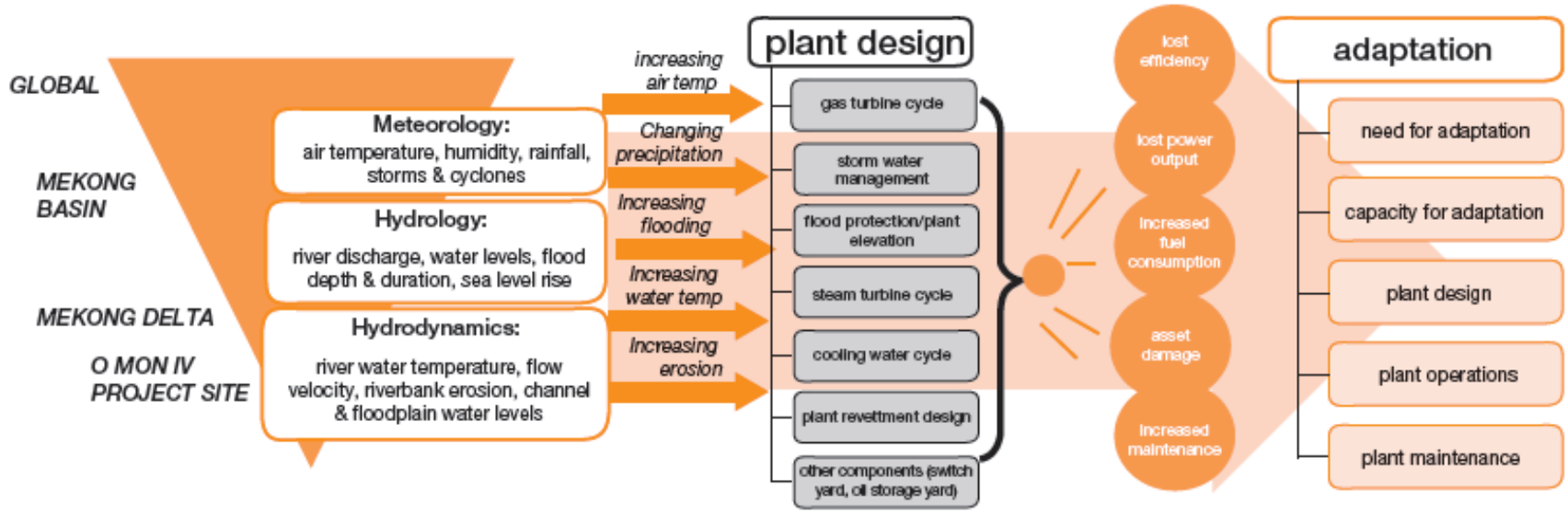
Due to increase of temp. of air and water

- Loss of Generation ：827.5GWh（Ave.-0.8%, 2015-2040）
- Cost Increase：150M$（Reduction rate 10%）

Figure 6. Potential Threats

Direct climate threat	Potential sensitivity of a power plant
Air temperature →	Gas turbine cycle performance
River water temperature →	Steam turbine cycle + coolant water cycle performance
Direct precipitation →	Performance of gravity-driven stormwater management
Flood depth + Duration →	Asset damage + plant downtime
Erosion →	Asset damage

Figure 4. Conceptual Framework of the Climate Change Rapid Threat and Vulnerability Assessment



Conclusion

- It is effective of the idea of co-benefit between adaptation and mitigation on developing and expanding both measures

- Project wide consideration provides more chance of the co-benefit

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Thank you !

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Fodder

Animal Shelter