





Climate Change: Challenge and Opportunity

Working with the Climate Finance
Community to Achieve a Paradigm Shift

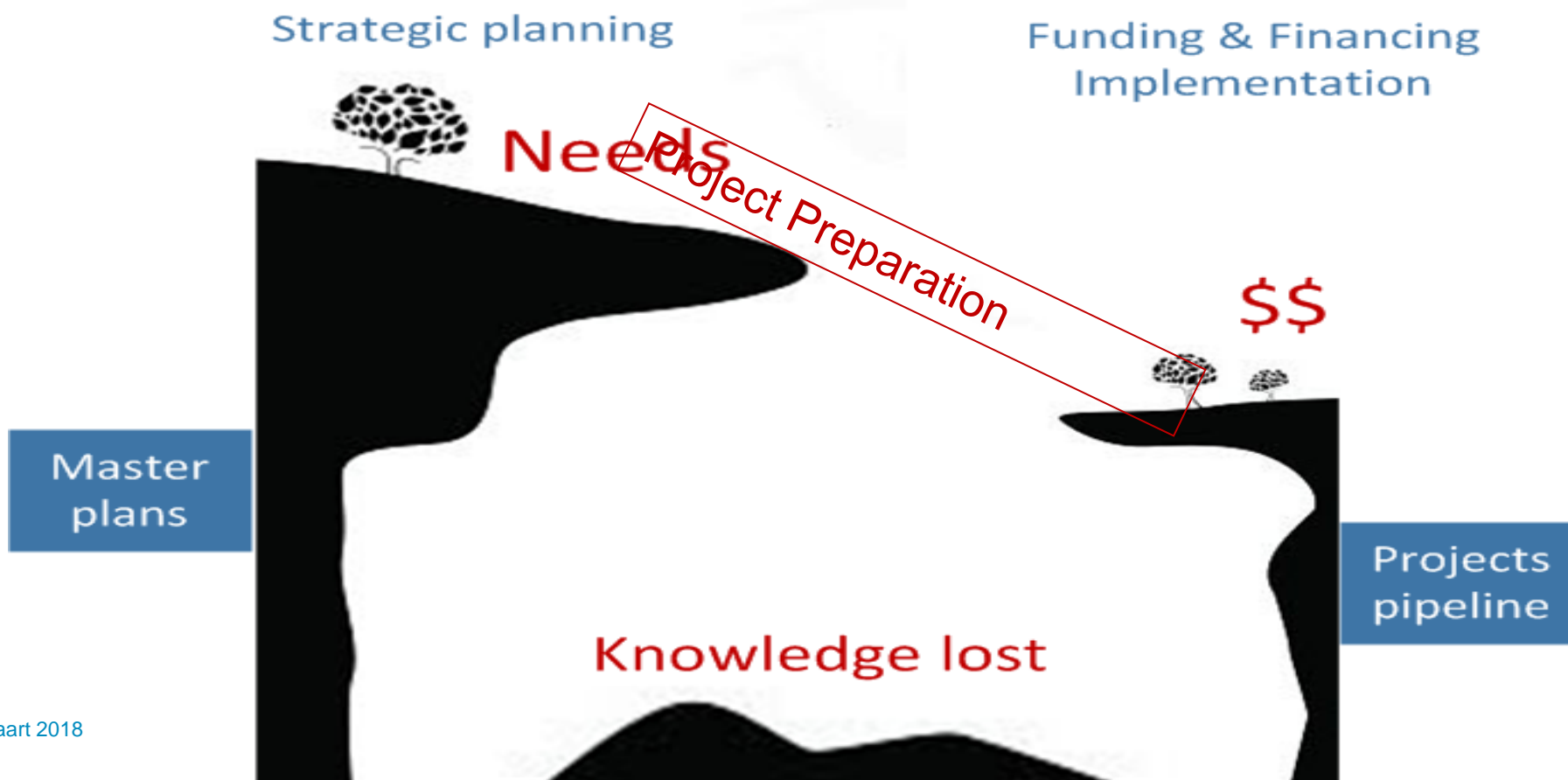
March 20, 2018

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Climate Finance

Secretariat of the 8th World Water Forum



From Master Plan to Project Pipelines



Developing an Investment Program



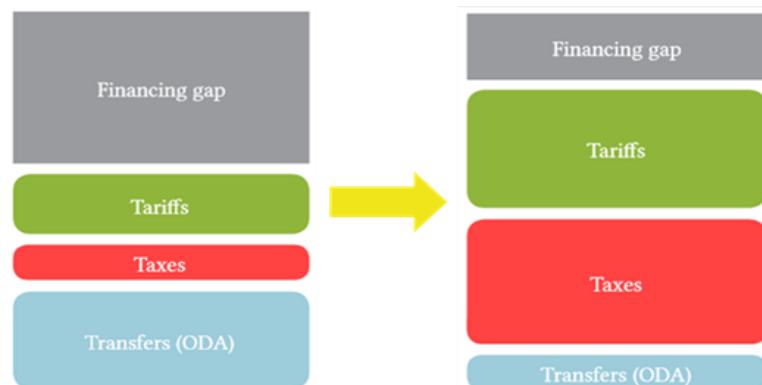
The 5 Business Cases required for any public and/or private investment

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Financing Framework for Water Security

Funding strategies

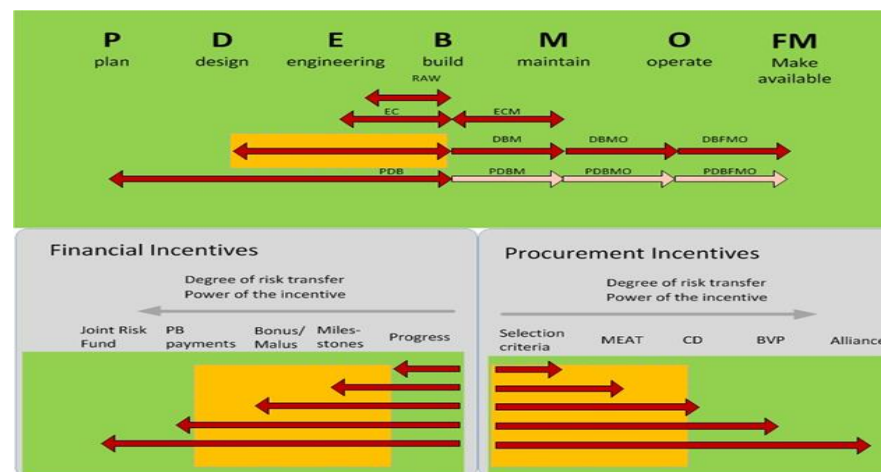


Financing mechanisms

- IFI's loans to governments
- Tax swaps
- Institutional investors
- Bonds Financing
- Concessional loans
- Impact investing
- Capital Markets
- Loans: corporate / project finance (PPP's)

Type of good (context) = governance mode

	Excludable	Non-excludable
Rival	Private Goods <i>e.g. ice cream, cheese, houses, cars</i>	Common Resources <i>e.g. fresh water, fish, timber, pasture</i>
Non-rival	Club Goods <i>e.g. cable television, cinemas, wifi, tollroads</i>	Public Goods <i>e.g. fresh air, knowledge, national defense</i>



Quickonomics

Deltares

Adaptation Solutions For a Changing Climate

Engineered & built-environment solutions

Coasts

- Sea walls & coastal protection structures
- Flood & cyclone shelters

Urban

- Improved energy, transport & water infrastructure
- Power plant & electricity grid enhancements

Institutional solutions

Community

- National, regional & local adaptation plans
- Land zoning & building codes
- Insurance
- Education

Technological solutions

Buildings

- New building materials
- Improved building insulation and heating/cooling

Disaster risk reduction

- Hazard mapping & monitoring
- Early warning systems
- Emergency response and recovery management

Agriculture

- New crop varieties & animal breeds
- Efficient irrigation
- Flexible farm management
- Food & storage preservation facilities

Ecosystem-based solutions

Urban & Coasts

- Green infrastructure & spaces
- Mangrove conservation & replanting

Fisheries

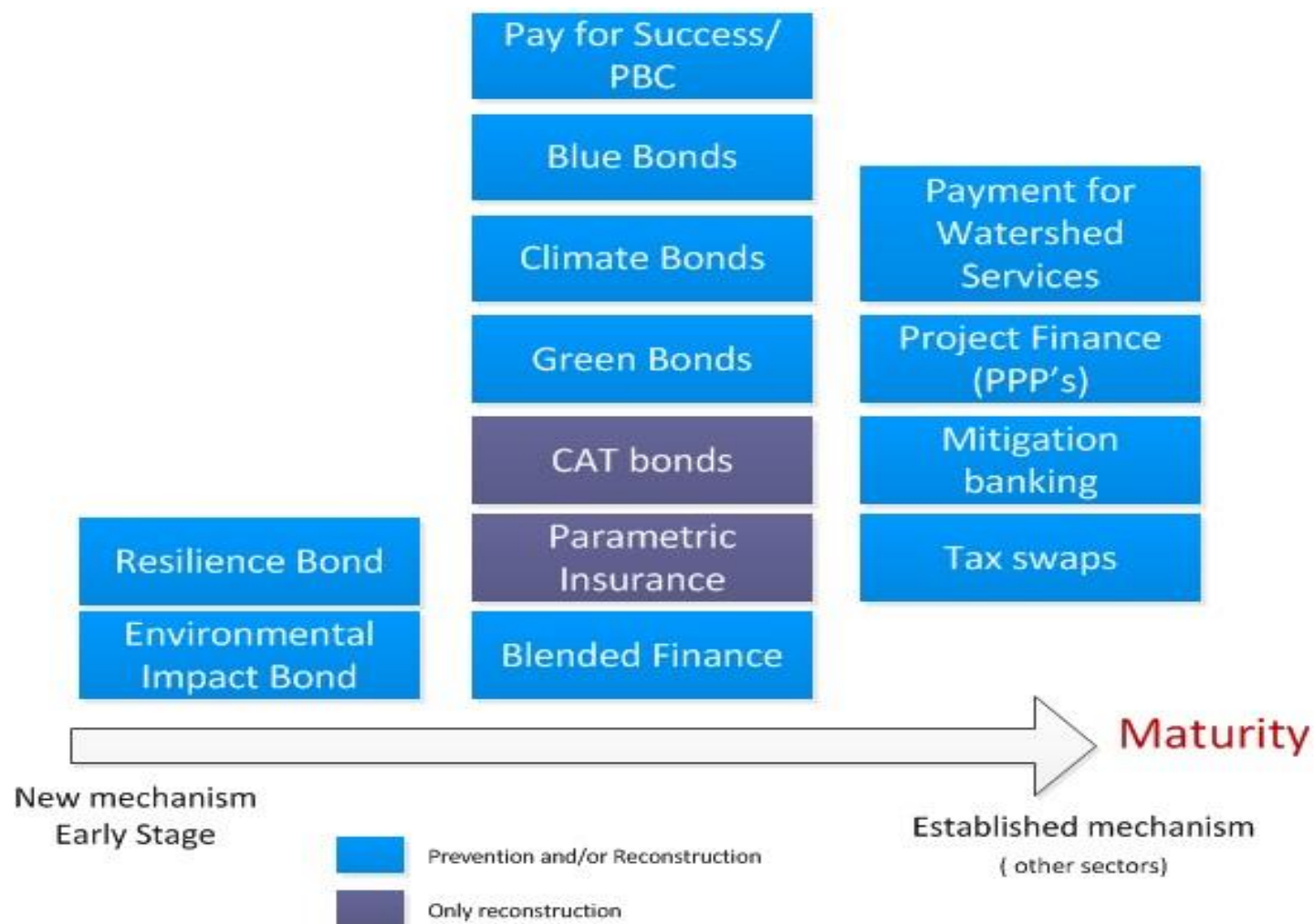
- Sustainable fisheries management

Conservation

- Reduce existing ecosystem stressors
- Assisted migration or managed translocation
- Ex-situ conservation & seed banks
- Community based natural resource management

- ☐ Structural & non-structural measures
- ☐ Grey and Green Infrastructure
- ☐ Behavioral change

Innovative Financing Instruments



Adapted from "Green Finance Markets and Innovative Mechanisms", EDF workshop *Incubating Financial Mechanisms to Support Nature-Based Coastal Resilience*, January 2017, Washington D.C.

Climate Change: Challenge & Opportunity

- ❑ Climate change → externalities visible
 - Frequency of El Niño events/ droughts & floods
 - Externalities visible
 - Awareness: Ecosystems & Water – real license to operate
- ❑ Companies and citizens: willing to pay



Drivers for Private investments in watersheds

- ❑ Government role in setting up the institutional and regulatory framework & safeguards
- ❑ Key ingredients:
 - Transparency in collection
 - Use for intended goals
 - Accountability at all levels
 - Clear scientific base to guide work of River Basin Agencies and committees
 - Rigorous hydrologic monitoring program to communicate & improve outcomes of investments
 - Models & tools to understand the vulnerabilities under CC

Enabling environment for Private Sector Action

Data and information

1. Climate and hydrological projections
2. Direct and indirect impacts
3. Adaptation measures, costs and benefits
4. Community vulnerability, risk and adaptation

Institutional arrangements

5. Institutions and forums

Policies

6. Building standards and/or codes
7. Public infrastructure
8. Local zoning rules
9. Permitting and impact assessments
10. Investor relations and/or stakeholder management

Economic incentives

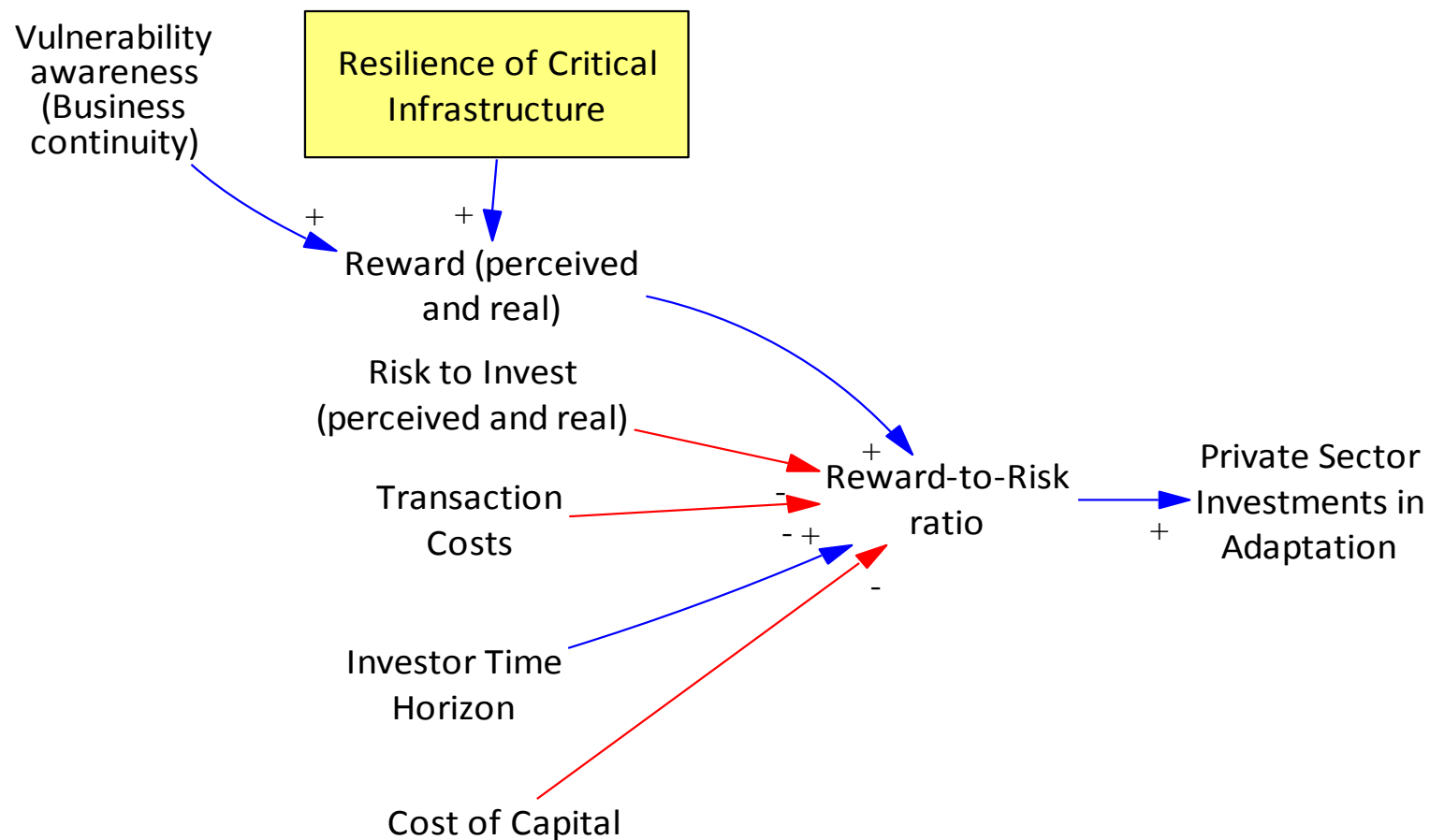
11. Government incentives
12. Finance
13. Full-cost accounting for water and energy
14. Environmental trading markets

Communication, technology and knowledge

15. Information and communication technologies
16. Technology and knowledge

Source: Stenek, Vladimir; Amado, Jean-Christophe; Greenall, David. 2013. *Enabling Environment for Private Sector Adaptation* : An Index Assessment Framework. Available: <https://openknowledge.worldbank.org/handle/10986/26121>

Barriers for private sector investments



Public Scheme Payment for Watershed Services



Ecosystem Marketplace
A FOREST TRENDS INITIATIVE

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Lima To Invest \$110 Million in Green Infrastructure And Climate Adaptation

Author: Steve Zwick

The city of Lima made headlines around the world when it announced it was funneling some of its water fees into a program to restore pre-Incan structures that capture excess rainwater in the rainy season and redirect into the mountain, so that it's available in the dry season. That program, however, is just a small part of a massive green infrastructure program that could serve as a model for cities around the world.



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PPP's for Ecosystem based Adaptation Blue Finance

PROJECTS

For each project, Blue finance is partnering with key actors to design and implement investment mechanisms for the conservation of the marine ecosystems

Blue finance



Antigua & Barbuda



Bahamas



Barbados



THE 4 PROJECTS

Blue Finance: Marine Conservation + Impact Investment

3. Antigua&Barbuda: co-management of 3 protected areas

- 33km² of coastal ecosystems (incl. coral reef)
- 10% of the coastal areas of the island
- Expected benefits for 800 households
- Investment planned for Q1 2018

4. Barbados: co-management of the future Barbados Marine Management Area

- 70km² of coastal ecosystems (incl. coral reef)
- 20% of the coastal areas of the country
- Expected benefits for 6,000 households
- Investment planned for Q2 2018



Emerging Green Bonds Fund

Amundi @Amundi_ENG · Mar 16

#GreenFinance | Amundi & @IFC_org are proud to announce the closing of their #Emerging #GreenBond fund, the largest GB, which will deploy \$2bn into the market by 2025 cc @WBG_Climate @IFC_Investors #EM More about this unique and innovative structure: amundi.lu/professional/p...



EIB - the EU bank @EIB · Mar 16

We are proud to support the world's first emerging market green bond fund with \$100 million investment. This exciting new initiative will transform sustainable investment in countries that are the most vulnerable to #ClimateChange. bit.ly/2GAeIsw



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Cities
São Paulo live

The Amazon effect: how drought is starving São Paulo of water

A drought two years ago triggered fighting across the metropolis, with the army preparing for the worst. New warnings suggest it could happen again - and this time the stakes are even higher.

● O efeito Amazônia: como o desmatamento pode afetar a cidade



‘Welcome to the Cantareira Desert’ ... In January 2015 the city was left with barely a month’s supply of water. Photograph: Sebastiao M...



WEATHER/ METEO WORLD

@StormchaserUKEU

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Very Severe flash [#flooding](#) in Belo Horizonte, in [#Brazil](#) yesterday 16th March.... video: Conexão GeoClima [#severeweather](#) [#extremeweather](#)

 severe-weather.EU



9:43 AM - 17 Mar 2018

Climate Finance Flows & Instruments

LANDSCAPE OF CLIMATE FINANCE IN 2015/2016

Global climate finance flows along their life cycle in 2015 and 2016. Values are average of two years' data, in USD billions.

410 BN USD
ANNUAL
AVERAGE



SOURCES AND INTERMEDIARIES

Which type of organizations are sources or intermediaries of capital for climate finance?

INSTRUMENTS

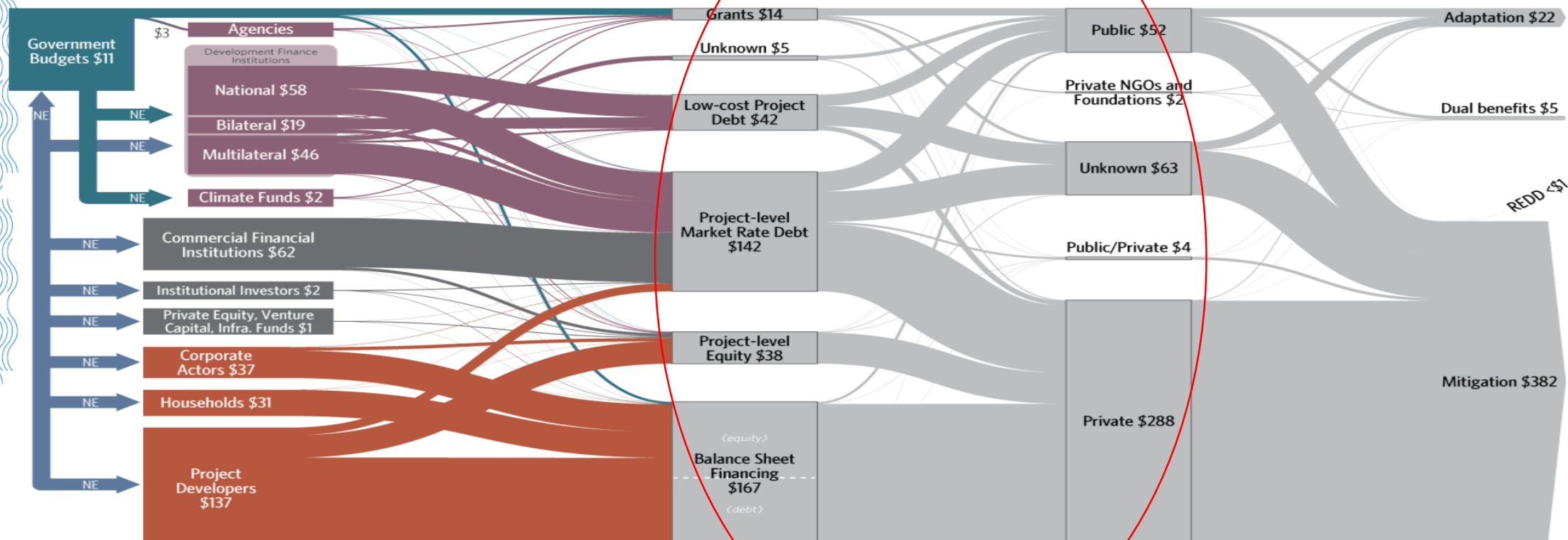
What mix of financial instruments are used?

RECIPIENTS

Does climate finance go through public or private channels?

USES

What types of activities are financed?



KEY

PUBLIC MONEY

PRIVATE MONEY

PUBLIC FINANCIAL INTERMEDIARIES

PRIVATE FINANCIAL INTERMEDIARIES

FINANCE FOR INVESTORS & LENDERS

NE: NOT ESTIMATED

Working together on a Paradigm Shift

- ❑ Higher Ambition – Envision the New Paradigm, challenge current models
- ❑ Theory of Change WASH and WRM
- ❑ A joint agenda of work – synergies:
 - Climate rationale per subsector
 - Evidence for BC of green and hybrid versus grey only
 - Valuation methods to improve the Economic and Financial BC of multipurpose and multisector investments
 - Clear metrics , Performance and Impact measurements
 - Guidelines for effective adaptation in the water sector
 - Pilot together required governance structures

Structuring Bankable Water Adaptation Projects

By creatively:

- ☐ Bringing different sectors and expertise together – collaborative modelling
- ☐ Blending differences sources of funding
- ☐ Nexus approach to National Investment Systems: Developing innovative cross-sectoral PPP's and multi-functional infrastructure – capture the value of positive externalities
- ☐ Social Business Models at community level to cover O&M costs
- ☐ Embracing the possibilities of innovations, e.g. FinTech

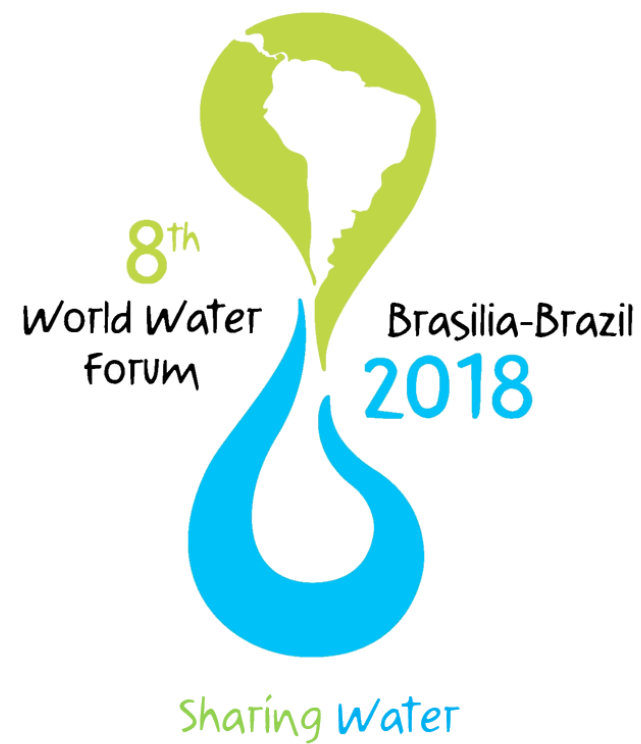
Source: Altamirano, M.A. (2014) *Financing green adaptation strategies to Climate Change: The potential of Public-Private Partnerships (PPP)*. Deltas in times of climate change II. Rotterdam, The Netherlands.

Thank you for your attention

Any questions?

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