



With the support of the
Erasmus+ Programme
of the European Union



Climate finance

Climate Change Adaptation

Dr. Elona Pojani

2020-2021

"The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

1

Presentation outline and highlights

- 1. Highlight current trends in climate finance and explain what the climate finance gap is
- 2. Outline challenges and opportunities for closing the finance gap
- 3. Highlight climate initiatives led by governments, financial institutions, and business communities
- 4. Identify the roles of individuals and communities in redefining economic incentives.

2

What is climate finance?

- “Climate finance refers to local, national or transnational financing, which may be drawn from public, private and alternative sources of financing.
- Climate finance is critical to addressing climate change because large-scale investments are required to significantly reduce emissions, notably in sectors that emit large quantities of greenhouse gases.
- Climate finance is equally important for adaptation, for which significant financial resources will be similarly required to allow countries to adapt to the adverse effects and reduce the impacts of climate change.

3

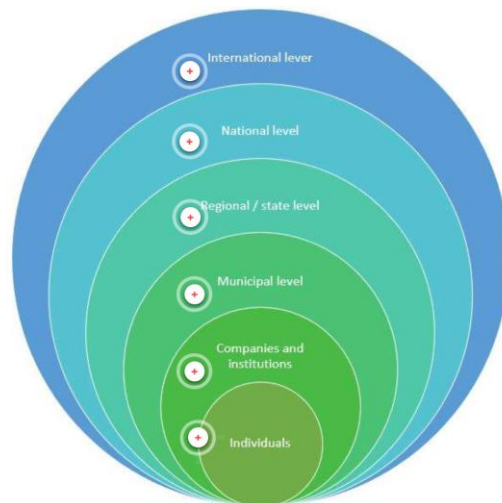
Climate finance

- Climate change is expected to increase risks to businesses, infrastructure, assets and economies.
- National development strategies should include climate change modeling.
- Apart from traditional financing means, there are further financial strategies targeting directly climate change.
- A combination of policies, regulations, and longer-term debt from DFIs can trigger private investments in climate resilience
- A decentralized approach to ‘innovative financing’, focusing on taxation, development-based charges, entry fees, small-scale enterprises and initiatives taken at the local level between the private sector, government authorities and NGOs.

Climate finance: Green money vs Brown Money



Climate policy and financial sources



6

International level

- International Agreements
- International Partnerships
- Joint climate action
 - Paris Agreement
 - First universal, legally-binding global CC deal adopted by 195 countries
 - Green Climate Fund
 - EU Emissions Trading System
 - Cap and trade system
 - Within the cap, companies receive or buy emission allowances, which they can trade with one another as needed.

7

International sources of financing

- UNFCCC funds
 - Adaptation fund
 - LDCF
 - Special CC fund
 - GCF
- World Bank
 - Global Partnership for Social Accountability (GPSA)
 - Small Grant Program (SGP) of Global Environmental Facility (GEF)
 - Climate Investment Funds (CIF)
- More: ACT Alliance Secretariat (2018) A RESOURCE GUIDE TO CLIMATE FINANCE

8

National Level

- Each government sets up policies, strategies and measures
 - Regulatory measures
 - Command and Control measures
 - Market instruments (taxes, fees, charges, PES schemes etc.)
- Mainstream CC in development strategies
- Affected by policy climate
 - Trump administration
- Regional and state level important in federal systems

9

Local level, business and Individuals

- Municipalities
 - Many cities have pledged to have 0 emissions by 2050
- Business
 - Innovation initiatives
 - Green operations and green incentives
- Financial Institutions
 - Insurance
 - Market instruments
- Households and Individuals
 - Live style

10

What is the role of Financial System?



Characteristics of policies

- Efficient – able to alter behaviors
- Cost-effective
- Avoid perverse outcomes (example: Subsidies)
- Few policies/instruments targeting adaptation

Some instruments for Climate Finance

- Risk sharing and Risk Transfer Instruments
 - Insurance
 - Cat Bonds
 - Derivatives
 - Risk Pooling arrangements
- Other market based instruments
 - Taxes, water fees, subsidies
 - PES schemes
- Regulation

13

Economic Instruments for CC

- Make more efficient use of scarce resources and to ensure that risks are more effectively shared between agents in society.
- They help establish an efficient use of the resources that will be affected by climate change: water pricing is an example.
- Els can function as flexible, low-cost tools to identify adaptation measures.
- In developed countries, where markets function reasonably well, Els can be directly deployed through market mechanisms.
- In developing countries (and also in some developed ones), however, this is not always the case and markets often need government action and support.

14

Economic Instruments for CC

- Taxes:
 - Traditional financing mechanism
 - Based on the concept polluter pays
 - Raises funds and alters behavior
- PES schemes
 - Novatory instruments
 - Voluntary agreement
 - Private sector

15

Market risk transfer - Insurance



What insurance represents?

- A contractual agreement under which the insurance company, in consideration of the premium paid by the insured, promises to make payment to or on behalf of the insured, for losses caused by the perils covered under the contract
- The main purpose: to indemnify the insured, to restore his financial position prior to the occurrence of the loss

Market risk transfer - Insurance

- Insurance penetration in developed countries is considerable, whereas it is low in many developing regions.
- In the period 1980–2004 about 30% of losses were insured in high-income countries, but only about 1% in low-income countries.
- Developing countries are beginning to pool risks and transfer portions to international reinsurance markets

17

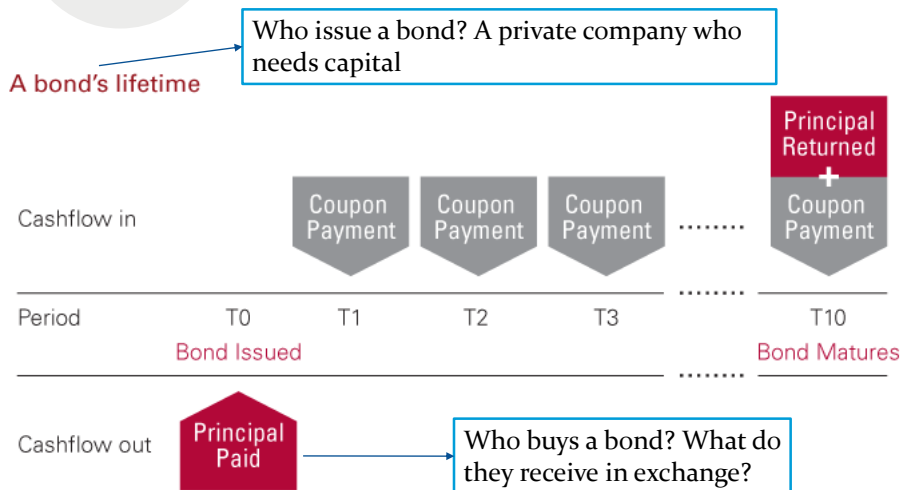
Insurance and adaptation

- Insurance-related instruments may promote adaptation directly and indirectly:
 - (1) Instruments provide claim payments after an event, and thus reduce follow-on risk and consequences; and
 - (2) they alleviate certain pre-event risks and allow for improved decisions
 - (3) provision of incentives and disincentive

18

Market risk transfer

Financial Market Instruments – Cat Bonds



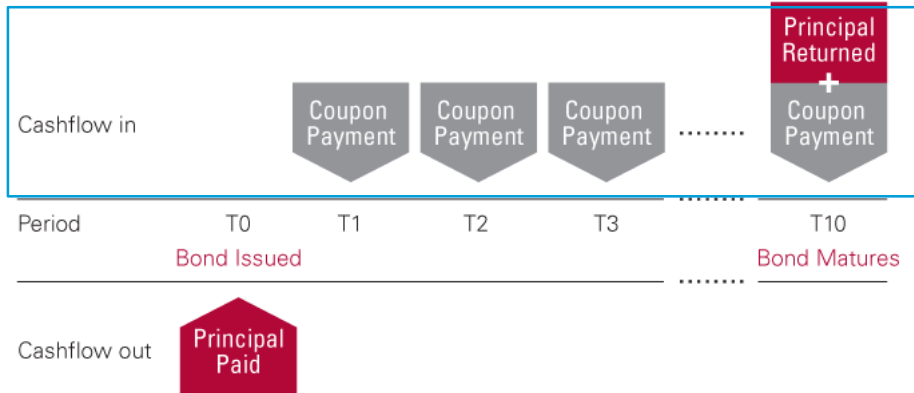
Market risk transfer

Financial Market Instruments – Cat Bonds



Market risk transfer Financial Market Instruments – Cat Bonds

A bond's lifetime



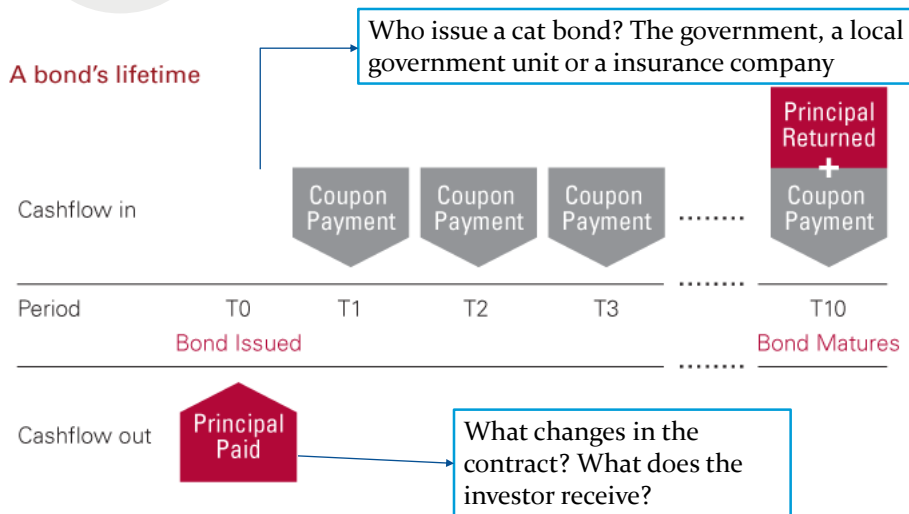
Market risk transfer Financial Market Instruments – Cat Bonds



NO, NOT THIS KIND OF CAT BOND!

Market risk transfer

Financial Market Instruments – Cat Bonds



Market risk transfer

Financial Market Instruments – Cat Bonds

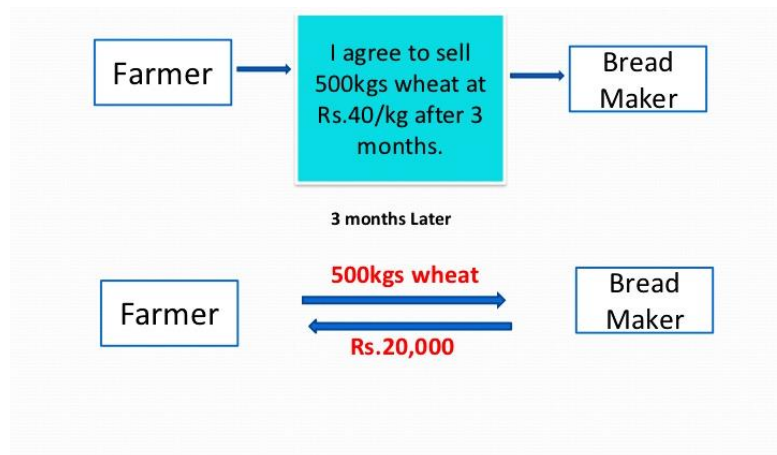
- Issued and trade mainly in the institutional investor marketplace
- Similarity with a corporate bond
- Maturity - from 1 year to 5 years
- Higher return from disaster bonds compared to corporate bonds with the same rating

Why to invest in catastrophe bonds?

- The returns are largely uncorrelated with macroeconomic factors
- Risk exposure can be reduced by diversifying across many different catastrophe bonds
- The likelihood of incurring extreme losses is lower than the chance of benefitting from extreme returns

Market risk transfer Financial Market Instruments – Disaster Derivatives

Forwards/futures



Market risk transfer Financial Market Instruments – Disaster Derivatives

Options



Market risk transfer

Financial Market Instruments – Disaster Derivatives

Swaps

Counter parties:: A and B

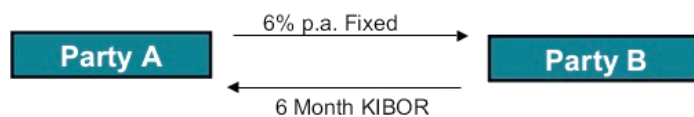
Maturity:: 5 years

A pays to B : 6% fixed p.a.

B pays to A : 6-month KIBOR

Payment terms : semi-annual







Notional Principal amount: PKR 10 million.



Market risk transfer

Financial Market Instruments – Disaster Derivatives

How these instruments are used to create a disaster derivative

Items Sold	Preferred Weather	Risk Factor	Weather Derivative
			Managing risk to prevent rainy weather
			Managing risk to prevent sunny weather

Market risk transfer

Financial Market Instruments – Disaster Derivatives

Problems related to this market:

- young age of the market
- regulatory market requirements of the insurance market and of banks
- liquidity not like most of the derivatives markets
- use of different indexes which influences the risk of the transaction
- moral hazard

Non-market risk transfer

Solidarity – government and donor assistance

Government assistance categories:

- funds allocated to cover the financial cost of the damages to public sector infrastructure;
- financing made available as a result of political pressures to private businesses who lacked sufficient insurance coverage;
- funds to meet the government's obligations to care for the poor.

Government financing possibilities:

- New taxes
- Budgetary reallocations
- Exploitation of reserve funds

Non-market risk transfer

Solidarity – government and donor assistance

Donors assistance categories:

- reimbursable or non-reimbursable financing
- the refinancing or forgiving of past debts

Shortcomings of donors assistance:

- not always immediately available
- frequently in-kind
- create bad incentives

Non-market risk transfer

Informal risk sharing - Kinship arrangements

- When savings, credit and government support are not forthcoming, at-risk individuals in developing countries traditionally rely on financial arrangements that involve reciprocal exchange, kinship ties and community self-help
- These arrangements might be inappropriate for high-layer, covariate risks, where whole families and regions may be affected, but could be very effective for low- and medium-layer risks.

Non-market risk transfer

Risk Pooling - National and regional insurance pools

National insurance pools

- public disaster programs
 - pooling of risks through a scheme similar to insurance, but with a focus on one coverage type and a specific area.
 - state insurance, at affordable prices, and often mandatory ones
 - social nature
 - Turkish Catastrophe Insurance Pool
- disaster funds
 - contingency fund, which is activated in cases of catastrophic nature.

Non-market risk transfer

Risk Pooling - National and regional insurance pools

Regional insurance pools

- A common mechanism, for example: a regional disaster recovery fund
- Reduces the exposure of governments of any country to a disaster risk by dividing it with other countries
- Reduces the impact on the fiscal and macroeconomic parameters of each country part of the scheme
- Integrates insurance markets in the countries involved in the scheme
- Improves risk management techniques through its diversification
- Reduces the dependence of the participating countries on the scheme from international disaster relief.

Non-market risk transfer

Risk Pooling - National and regional insurance pools

Regional insurance pools, problems:

- more complex than national schemes that can apply to any country.
- The problem of moral risk is not avoided
- the countries concerned should have the same profile of disaster risk
- a need for political will and coordination which can be much more difficult and bureaucratic than in the case of a national scheme.

Examples:

- CCRIF in the Caribbean countries
- SEEC-CRIF applied in South East Europe and the Caucasus area.

Inter-temporal Risk Spreading Instruments

Contingent Credit

- In exchange for an annual fee, gives the right to take out a specific loan amount post-event that has to be repaid at contractually fixed conditions.

Reserve Funds

- Funds to be used in case of a disaster event should be accumulated, by making annual deposits of the funds.

Development funds

- Accumulating funds which aim at prevention and mitigation with the purpose to finance activities which lead to the reduction of vulnerability.

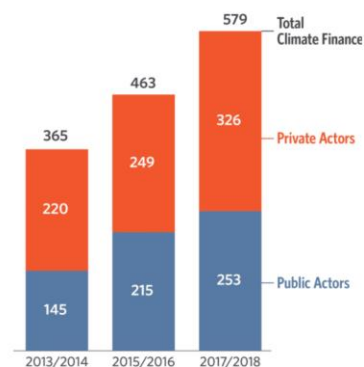
Microfinance and savings

- Provision of financial services to low-income individuals, including the self-employed

Climate finance- Summary

Source of funding	Financing instruments	Field of action
International funds	Grants and Donations	Biodiversity; Forestry;
	Soft credits and loans	Ecosystems;
	Swap contracts	And/or any other areas of
	IPA	international importance
Domestic funds From the private sector:	Payment for Environmental Services (PES)	Tourism
	Financial conditions for the approval of private activities	Agriculture
	Compulsory insurance of property	Forestry
	Licensing fees for touristic operators	
Domestic funds: From households	Environmental taxes and charges for municipal services	Population and Settlements
	Compulsory insurance of property	
Domestic funds From the state sector:	Review of budgetary allocations	Infrastructure
	Reserve and Development Funds	Hydrological
	Environmental taxes	Regime and Water
	Insurance	Resources
	Entry fees in protected areas and touristic locations	Forestry Agriculture

Climate Financing - Some data



Source: Climate Policy Initiative

Investment to address climate change is increasing, reaching USD 579 billion in 2017/2018.

Where are climate capital flows coming from?

- **National:** Most climate finance – 76% of the tracked total – is still invested in the same country in which it is sourced.
- **Public and private:** Both domestic and private climate finance is growing. However, private investment outpaces public money, accounting for 56% of all climate finance.
- **Corporations** continue to account for the majority of private investment, but **commercial financial institutions** play a more important role than ever, having increased financing by 51% from 2015/2016 to 2017/2018.

Climate finance - Highlights

- Some highlights:
 - Financing for mitigation amounted to USD 537 billion, or 93% of all climate finance. Financing for low-carbon transport is increasing rapidly, up by 54% from its 2015/2016 level to USD 141 billion in 2017/2018.
 - Only USD 30 billion (around 5%) went towards adaptation. According to the Global Commission on Adaptation ([GCA 2019](#)) adaptation costs amount to USD 180 billion annually from 2020 to 2030.
 - Households emerge as an important source of climate finance. In fact, just in the period 2017/2018, households invested 33% more in climate action.
 - USD 337 billion went towards renewable energy generation. Yet, this amount pales into significance compared to fossil fuel investments, which were three times higher.
 - While climate finance has reached record levels, action still falls far short of what is needed under a 1.5 °C scenario. Estimates of the investment required to achieve the low-carbon transition range from **1.6 trillion to 3.8 trillion USD** annually between 2016 and 2050, for supply-side energy system investments alone (IPCC 2018).

39

Other measures

- Technology and innovation
- Research and development
- Change of behavior

40

How are Public Policies and Innovation Key to Tackling Climate Change?



Awareness and education on CC



Changing our behavior



Summary

- Climate change brings both **risks** and **opportunities** to businesses and financial institutions.
- Risks:
 - Market and policy risks
 - Physical risks
 - Uncertainty
- Opportunities
 - According to the Global Commission on the Economy and Climate, climate actions could bring at least 26 trillion USD in economic benefits by 2030. To harvest these benefits, the Commission advises on focusing on capturing the opportunities in key sectors and embracing innovation.
 - Sharing economy; circular economy; climate resilience

Readings

- *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Kapitulli 17*
- *ACT Alliance Secretariat (2018) A RESOURCE GUIDE TO CLIMATE FINANCE: An orientation to sources of funds for climate change programmes and action*