



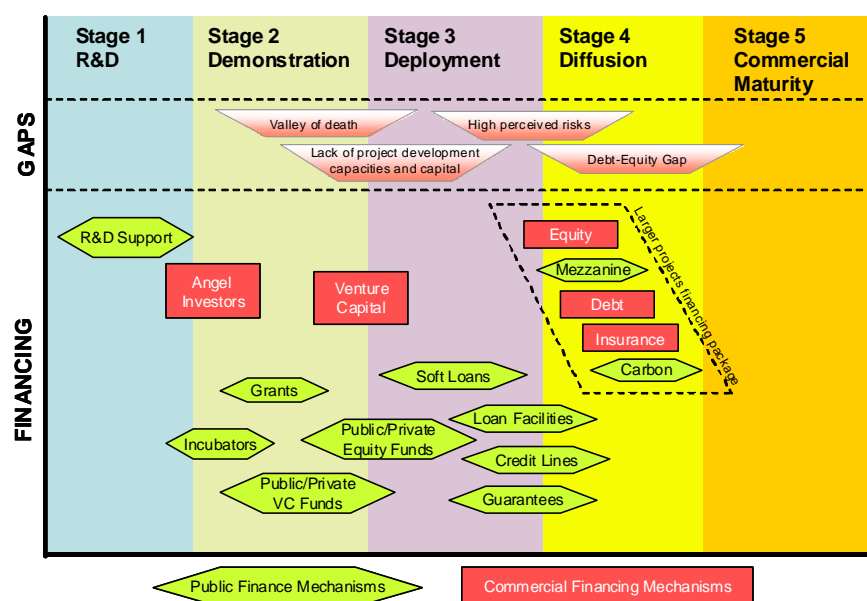
PUBLIC FINANCE MECHANISMS TO MOBILISE INVESTMENT IN CLIMATE CHANGE MITIGATION

*An overview of mechanisms
being used today to help
scale up the climate
mitigation markets, with a
particular focus on the clean
energy sector.*



ADVANCE DRAFT

PUBLIC FINANCE MECHANISMS TO MOBILISE INVESTMENT IN CLIMATE CHANGE MITIGATION



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Executive Summary

In August 2007, the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) published a technical paper, *Investment and Financial Flows to Address Climate Change*, which estimated that USD200-210 billion in additional investment will be required annually by 2030 to meet global greenhouse gas (GHG) emissions reduction targets. The technical Paper concludes that the **lion's share will need to come from the private sector** and that it will require substantial additional **public funding to mobilise and leverage that private capital**.

Parties to the UNFCCC are currently assessing how to respond to this challenge. Discussions focus on new financing resources and vehicles to support the development, deployment, diffusion and transfer of climate-friendly technologies in developing countries. Key questions include: What should be the scale of new financing by governments? How can public monies **mobilise and leverage sufficient commercial capital** to achieve greenhouse gas emissions reduction objectives? In other words: **how can the most be made of those new financing resources?**

Much of this government support will be used to set up or expand existing Public Finance Mechanisms (PFMs) aimed at climate change negotiation. These PFMs vary in their structure and focus, but all broadly seek to mobilise commercial financing and build commercially sustainable markets for GHG mitigation activities. Examples of climate mitigation focused PFM include:

- **Credit lines** to local commercial financial institutions (CFI) for providing both senior and mezzanine debt to projects;
- **Guarantees** to share with local CFIs the commercial credit risks of lending to projects and companies;
- **Debt financing** of projects by entities other than CFIs;
- **Private equity (PE) funds** investing risk capital in companies and projects;
- **Venture capital (VC) funds** investing risk capital in technology innovations,
- **Carbon finance** facilities that monetize the advanced sale of emissions reductions to finance project investment costs;
- **Grants** and contingent grants to share project development costs, and
- **Loan softening programmes**, to mobilise domestic sources of capital,
- **Inducement prizes**, to stimulate R&D or technology development,
- **Technical assistance** to build the capacity of all actors along the financing chain.

There is a **substantial body of experience** with the use of these PFMs for promoting investments in energy efficiency (EE) and renewable energy (RE) technologies, in particular. Various mechanisms are needed to enable the development and deployment of technology along the **technology innovation pathway**. In developing countries PFMs have mostly been used to support technologies that are in the later stages of innovation but are still facing significant market barriers that inhibit their deployment. In developed countries some mechanisms are also targeting investments in pre-commercial technologies that have yet to enter the market.

If well managed, PFMs can bring down market barriers, bridge gaps and share risks with the private sector. To be successful, however, rather than operating in isolation they **must be aimed at complementing national policy instruments** such as regulations, taxes and market mechanisms. Their role is to help commercial financiers act within a national policy framework, filling gaps and sharing risks where the private sector is initially unwilling or unable to act on its own.

Besides being aligned with policy frameworks, PFMs must also be structured to act along the entire chain of **financial intermediation**, which can include development finance institutions (DFIs), CFIs, investors, equipment manufacturers and technology delivery companies. In **many cases technical assistance (TA) programmes are needed** to build the capacities of these market actors to create a pipeline of investment-ready projects, a pre-condition for leveraging commercial funding.

A key question is how much commercial financing can be **mobilised and leveraged** by a given amount of public money? An assessment of experience with a number of different models of PFMs shows that typical leverage ratios range from 3 to 15:1. Based on this assessment, it is estimated that if a concerted programme of PFMs were scaled up, **USD10 billion in public monies could leverage USD50-150 billion** in total investment in the climate mitigation sectors.

This estimate is conservative in that it does not take into account the fact that many PFMs “roll over”, supporting multiple generations of investments, and help create markets that continue to grow after the public funds are expended or recouped. It is important, however, to consider that such calculations represent programme capacity: the actual amount of capital mobilised depends on the size of the pipeline of bankable projects seeking investment. This **supply** of capital needs a corresponding **demand** for financing if programme leverage is to be achieved.

In addition to leverage, other factors that determine how successful a PFM will be in catalysing clean energy market growth include:

- **long-term effectiveness** – does the financial mechanism target the most reliable technologies and promising projects, and leave a financially sustainable market in place upon its completion?
- **fairness and equity** – is the finance mechanism adaptable to local market conditions and implemented in ways that maximise social and economic development co-benefits?

Table 1 lists some of the most common PFMs used today in the energy efficiency and renewable energy sectors and summarises the barriers and market segments they address.

Most have been used in a range of countries and some have the track record to justify replication and scaling up.

It has been found that PFM at any scale can be made most effective and efficient if they:

- Accurately assess technology *market barriers* and financial *market conditions*;
- Target market segments where the project *economics are compelling*;
- Take a *programmatic approach* to financial mechanism design;
- Use and *strengthen existing capacities* throughout the chain of financial intermediation;
- Address the lending or *investment criteria* of commercial financial actors;
- Define *project responsibilities* based on a complete roles and risk analysis;
- Include marketing and *market aggregation plans*; and
- Develop plans for public or donor-supported *technical assistance programmes* to build capacities, fill gaps, and take on any roles or risks not assumed by commercial parties.

The purpose of this report is to provide an overview of PFMs that mobilise and leverage commercial financing, build commercially sustainable markets, and increase capacity to deliver clean energy and other climate-mitigation technologies, projects and businesses. These mechanisms can play a prominent role in the implementation of an international mitigation strategy.

The report is based on a substantial body of experience in a wide variety of developed and developing countries. It suggests ways in which PFMs could be used at the national and international scale, offers scale up and replication strategies, and identifies how they might fit into a new financial framework under the UNFCCC.

UNEP and Public Finance

Changing attitudes and helping mainstream financiers to consider low carbon investments are key components of the energy and climate work within UNEP and the starting point for the UNEP Sustainable Energy Finance Initiative. SEFI provides current and targeted information to financiers and facilitates new economic tools that combine social and environmental factors – both risks and returns – as integral measures of economic performance. In the area of public finance, UNEP has recently set up the SEFI Public Finance Alliance (SEF Alliance), a partnership of public finance agencies focused on clean energy and climate sector development. This report, as well as a number of others on the public finance topic (available at www.sefalliance.org), builds off the experience of these members, the development finance community and other actors working to shift private sector investment towards a more sustainable development path.

Table 1: Overview of Public Finance Mechanisms

Mechanism		Description	Barriers	Financial Markets	Sectors
Debt	Credit Line for Senior Debt	Credit line provided to CFIs for on-lending to projects or corporations in the form of senior debt	CFIs lack funds and have high interest rates	Underdeveloped financial markets where there is lack of liquidity, particularly for long term lending, and borrowing costs are high	Large-scale RE and EE; wholesale loans for energy access markets
	Credit Line for Subordinated Debt	Credit line to CFIs for on-lending to projects with subordinated repayment obligations	Debt-Equity gap, whereby project sponsors lack sufficient equity to secure senior debt	Lack of liquidity in both equity and debt markets	Medium and small-scale
	Guarantee	Shares project credit (i.e. loan) risks with CFIs	High credit risks, particularly perceived risks	Existence of guarantee institutions & experience with credit enhancements	Large-scale RE and EE and energy access markets
	Project Loan Facility	Debt providing by DFIs directly to projects	CFIs unable to address the sector	Strong political environment to enforce contracts and enabling laws for special purpose entity	Large and Medium scale EE and RE
Equity	Private Equity Fund	Equity investments in companies or projects	Lack of risk capital; restrictive debt-to-equity ratio	Highly developed capital markets to allow equity investors to exit from the investee	Large scale grid-connected RE; energy companies
	Venture Capital Fund	Equity investments in technology companies	Lack of risk capital for new technology development	Developed capital markets to allow eventual exits.	Any new technology
Carbon	Carbon Finance	Monetisation of future cash flows from the advanced sale of Carbon Credits to finance project investment costs	Lack of project development capital; lack of cash flow for additional security; uncertain delivery of carbon credits	Availability of underlying financing for projects. Adequate institutional capacity to host CDM/JI project and to enforce contracts.	Large-scale RE and EE; programme of activities such as in energy access markets
	Carbon Transactions in post-2012 credits	Contracting for the purchase of Carbon Credits to be delivered after 2012	Lack of regulatory framework and short-term compliance driven buyers.	Availability of underlying financing. Adequate institutional capacity to host CDM/JI project and to enforce contracts.	Any GHG emissions reduction project.
	Project Development Grants	Grants "loaned" without interest or repayment until	Poorly capitalised developers; costly and time consuming	Can be needed in any financial market context	Any sector

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