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An introduction to project climate finance

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Contents

Glossary[1]

Financing Instrument	Definition
Sustainable Investments	Is the mobilization of capital to businesses that engage in behaviors and practices that achieve ongoing social and / or environmental benefits
Convertible Bonds	A type of bond that can be converted into shares of common stock in the issuing company, or to cash of an equivalent value. A convertible bond is essentially a bond with a stock option; because interest is paid before any stock dividends, this is a safer instrument for the lender relative to an equity investment
De-Risking instruments	Such instruments help investors reduce or manage investment risks, typically in exchange for a fee, and thus, improve the perceived risk-reward profile of an investment
Insurance and Guarantees	Insurance and guarantee products protect investors from a borrower's failure to repay as a result of pre-specified events. A guarantee can be a minimum guarantee that protects a portion of the investment through its lifetime, or a back-end guarantee that covers the entire investments after a pre-specified timeframe
Political Risk	An insurance / guarantee that protects against borrower failure to repay as a result of political events such as government expropriation of assets, currency transfer restrictions or inconvertibility, breach of contract, war and other civil disturbances. If such an event occurs and repayments are disrupted, political risk insurance/ guarantees pay out all or a portion of the losses that arise due to the event
Partial Risk	Partial risk guarantees cover private sector lenders against the risks of a public entity failing to perform its contractual obligations to a private sector project. These obligations are usually non-commercial (political, regulatory, etc.) in nature
Partial credit	Are used primarily in poorer countries and support commercial borrowing for public investment projects by partially covering private sector lenders against the risk of debt service default by the public sector
Special Purpose Vehicle –Entity (SPV)	A legal entity created to fulfil a specific but limited use. The entity is separate from the parent company for tax and legal reasons and its typically used by companies to isolate the firm from financial risk
Private finance	Savings of individuals and of corporations
Private and corporate savings	The savings of individuals or legal entities invested directly in equity
National savings	Governments that channel national savings, collected from taxes and /or other fiscal revenues, through national investment vehicles such as sovereign wealth funds and state owned investment companies

[1] World Resources Institute, "Glossary of the financing instruments", working paper 2012: http://www.wri.org/publication/moving-the-fulcrum.

Interest – generated funds	Funds financed by the interest that banks collect through their operations, including “fiat money”, “sight deposits” or “chequebook money”
Fiat money	Fiat money is any legal currency that is not backed by a physical commodity, nor does the material it is made of have significant value. The currency’s stated value exists because of government decree. Hence the name “fiat,” which comes from Latin and means, “It shall be.” A currency that is fiat money maintains its value from the stability of the government and economy it belongs to—and through intelligent management of money supply by a central bank.

Sustainable movement, just another trend or do we really need it?

Our world is expanding, by 2050 the population on earth will increase by 2 billion and along with it the need for food, water and energy[2]. Our world is changing, global warming is a fact and if we do not change our current business as usual models the global temperature will rise more than 2°C by 2030[3].

Governments need to develop and implement policies that will secure the sustainable use of our natural resources and retain global warming below 2°C. The private sector has also a crucial role to play be deploying innovative technologies and developing new business models to meet these changing social and economic circumstances[4].

Implementation of green technology is required. However green projects require a significant amount of capital expenditure. Therefore more private capital is sought. However, investment should not be confused with charity. Today's investors will not compromise their financial return for positive environmental and social impact. Failing to secure high return on their investment the level of green investments will keep falling back.

Sustainability on the other hand is not about today, rather requires companies and investors to think long-term. Gradually companies are starting to realize that sustainable investing promotes stronger corporate governance, builds long term value for them and their stakeholders, and fosters businesses and innovations that benefit society[5].

> *"Sustainability requires companies and investors to think long term"*
>
> *Audrey Choi*

Additional signals of this new global sustainability movement are coming through from investors who are beginning to shift their investment mix and move towards sustainable investing[6]. In fact investors are increasingly asking for sustainable investing products across all asset classes[7]. Based on The Forum for Sustainable and Responsible Investment (US SIF), since 2012 total US assets under management using sustainable investing strategies increased 76% to $6.57 trillion.

If we want global sustainability to stay and become a mainstream, then a sufficient broad range of financial products and policies need to take place in order to support investments along this continuum.

[2] World Population Prospects: The 2012 Revision, UN, 2013
[3] International Energy Agency (IEA), Energy Technology Perspectives 2012: Pathways to a Clean Energy System, (Paris: OECD/IEA, 2012),1
[4] "The long term imperative for financial institutions", an essay by James P. Gorman, CEO, Morgan Stanley
[5] Report on US Sustainable, Responsible and Impact Investing Trends, US CIF, 2014
[6] "The Business Case of Sustainable Investing", Morgan Stanley, April 2015
[7] "Sustainable Investing Enters the Mainstream", Audrey Choi, CEO, Morgan Stanley Institute for Sustainable Investing, February 2015

Mobilizing private capital

Enhancing a transition to an inclusive green growth requires, amongst other things, conducive frameworks to provide certainty for investors and industry, and for protecting the environment. But it will also need to be financed. In 2013, annual global climate finance flows totaled approximately USD 331 billion, falling USD 28 billion below 2012 levels[8]. Out of that USD 331 billion, 57% was from private financing.

Based on the International Energy Agency (IEA) and CERES, an additional USD 1.1 trillion in low carbon investments is needed every year[9] on average until 2030, if we are to keep global temperature raise below two degrees Celsius. However a change of this scale demands a "game changing" in public interventions[10] and at the same time more private financing. The need for mobilising private capital for inclusive green investments is one of the most pressing issues in the context of green growth.

> *"Delivering change on this scale will demand "game changing" public interventions".*
>
> UNEP- FI

High barriers for private sector investments persist, including regulatory and policy uncertainty and incompatibility (e.g. solvency and fair value accounting as well as mismatch such as tax driven renewables support incompatible with tax exempt pension funds), investor inexperience with direct investing into green growth and new technologies, as well as market failures, make this attempt look like Labours of Hercules.

Since 2012 the issue of mobilizing more private finance has attracted increasing attention. This has been accompanied by the launch of a number of collaborative initiatives looking to expand the scale of private investment - the US State Department with The Climate Innovation Laboratory[11] (The Lab), the UK Government with the Capital Markets Climate Initiative and Bloomberg New Energy Finance's with Finance Resilience[12] (FiRe) platform being just three such examples.

In conclusion to mobilize private capital for green projects may be paramount but also not easy to achieve. Especially where there is no one-size-fits all solution and we need to develop tailor made financial instruments and incentives depending the nature of the project. That makes the effort even more demanding.

[8] The Global Landscape of Climate Finance, CPI, 2014

[9] Investing in the clean trillion: closing the clean energy investment gap, Ceres,2014

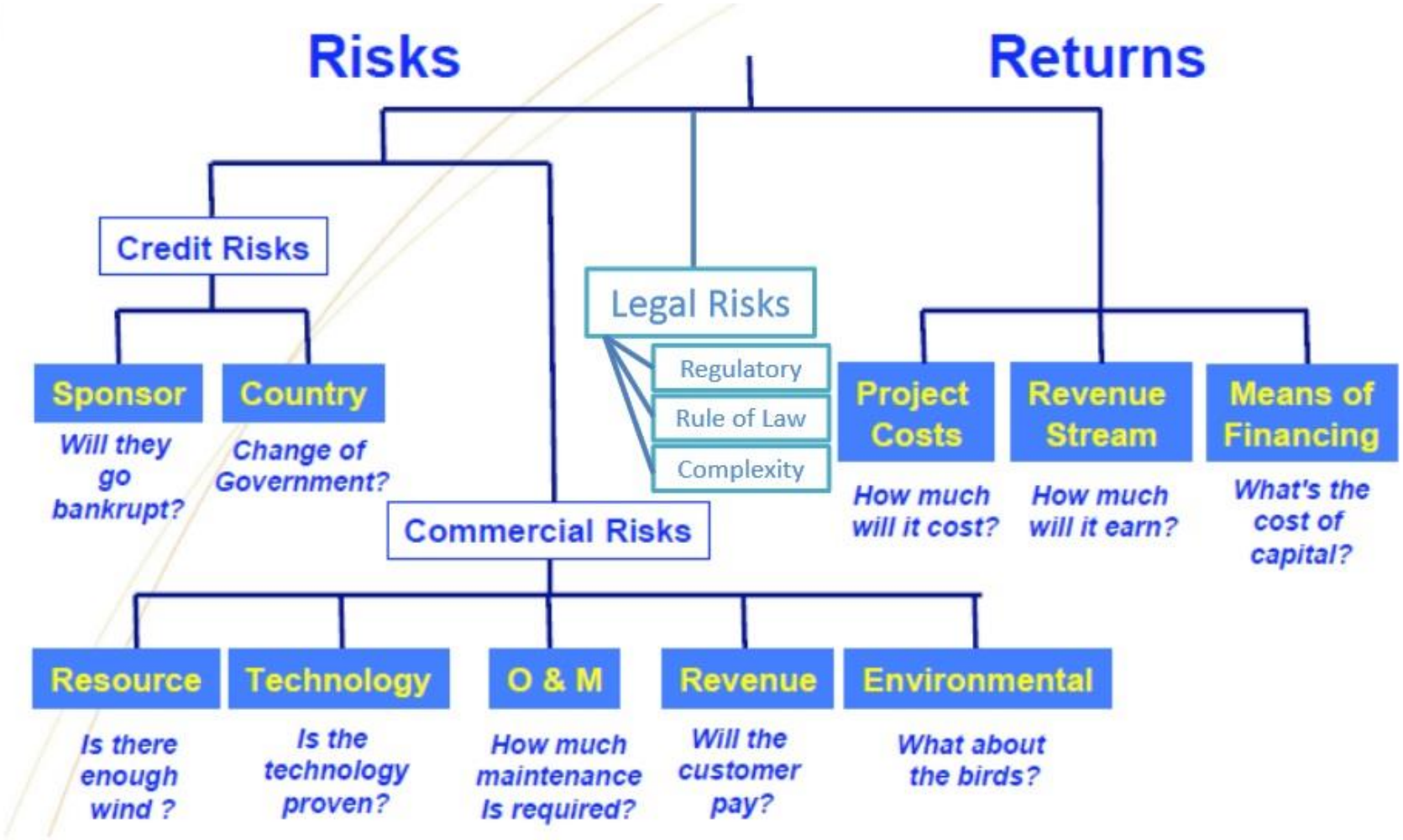
[10] Demystifying private climate finance, UNEP FI, December 2014

[11] The Lab is a global initiative that supports the identification and piloting of cutting edge climate finance instruments. It aims to drive billions of dollars of private investment into climate change mitigation and adaptation in developing countries. http://climatefinancelab.org/

[12] Finance for Resilience is an open and action- oriented platform that collects, develops and helps implement powerful ideas to accelerate finance for clean energy, climate, sustainability and green growth. http://www.financeforresilience.com/

Project finance consists of a wide range of sources and intermediaries and through a variety of channels. Therefore features different levels of risks, return expectations and liquidity. The two major sources of project finance are public and private. Public actors are government ministries, bilateral aid agencies, export credit agencies and multilateral, bilateral and national development financial institutions (DFIs). Private actors are banks, portfolio management firms and/or pension funds. In general investors (public or private) crave for one thing, profit. Nonetheless even though investors are profit-driven, there are different sorts of project financing tools depending the actor and the nature of the project.

In the table to follow it provides a general overview of matters that project developers are coping with before they proceed into project implementation.



Source: US Department of Interior

Project Finance

When it comes to project finance things tend to be complex. Project financing depends on many factors, as projected above; what financial products will be used, what is the audience for each project type, where will the project be placed, are only few of the questions.

One way is to categorize projects based on their nature and the private transactions that are equivalent for each project type. This process will allow a vertical analysis of the project types, to who they address to and what are the barriers that each project is coping with.

The main three categories for climate projects are, a) renewable energy infrastructure projects, b) energy efficiency improvements in corporate operations and production processes and c) projects that climate-proof existing infrastructure can be challenged[13].

Renewable energy infrastructure projects

Such projects are onshore and offshore wind farms, solar PV and solar thermal energy, hydropower and large –scale tidal power, geothermal and biomass energy generation projects. Especially the large-scale ones, attract institutional investors who provide private sector financing via SPVs.

Those types of projects usually face macro-economic, technology and regulatory issues, as well as low maturity in the local financial market which fails to provide project finance to the magnitude required.

Energy efficiency improvements in corporate operations and production processes

The project sponsorship in this case would be through on-balance-sheets. Main actors are domestic banks involved in corporate or project lending, involving energy services companies (ESCOs).

Issues that these projects usually face are methodological related on how energy savings are calculated and the way in which they are likely to be allocated to a specific intervention. In addition, investors tend to favor project that lead to business expansion and continuity rather than investments that primarily lead to cost-savings.

Projects that climate-proof existing infrastructure can be challenging

Depending who owns the infrastructure, whether it is public or private, it attracts a different actor. If the ownership is public then commercial banks, institutional investors and infrastructure

[13] Demystifying private climate finance, UNEP FI, December 2014

funds are the audience. On the other hand if the management modeling and ownership is private than private project sponsors provide funding via on-balance-sheet.

One of the main issues that this type of projects cope with is the challenge of converting the already lack climate and environmental data into potential cash flow analysis that will make any given SPV structure bankable.

Financial instruments

The sources and the financial instruments that are available for green or low carbon projects vary. Public efforts are coming through Development Finance Institutions (DFIs), which remains a basic instrument to channel public finance. Based on CPI's "Global Landscape of Climate Finance 2014", multilateral and national climate funds approved USD 2.2 billion of funding for climate activities in 2013.

On the arena of the private sector, private funds contribute the majority of climate finance. Also the variety of tools available to finance a project is quite larger, than the one from public funding, and more complex. In summary the available financial instruments could be grouped into the following: a) grants, b) equity finance, c) debt finance, e) guarantees and d) tax reliefs.

- Grants include cash transfers goods or services for which recipients incur no legal debt[14], and they are used in building capacity and reducing capital costs of mitigation and adaptation projects. Based on a study by CPI, almost 3.3% of the global climate finance was under the form of grants.

  Grants can be received by calls for funding. Donors, usually public entities, will prepare a thematic call on which they wish to provide funding or co-funding, e.g. National Appropriate Mitigation Action (NAMA), where it provides tailor-made support for the implementation of highly ambitious and transformational proposals in developing countries. The Facility conducts competitive calls and selects the most ambitious and promising NAMA Support Projects for funding[15].

- Equity finance, is used to acquire a permanent share in the ownership of a corporation or a project. Depending the seniority the equity can be split into ordinary and preference.
  - Ordinary shares: These provide the right to a share of the profits and to voting on company matters, but have no preference rights. Investors with a higher appetite for risk tend to prefer these, thus the audience is usually project sponsors.

[14] OECD: DAC Glossary of Key Terms and Concepts, http://www.oecd.org/dac/stats/dac-glossary.htm#Grant
[15] NAMA Facility, http://www.nama-facility.org/start.html

- Preference shares: These have preferential rights but may have some restrictions e.g. reinvesting. The have less risk and therefore are selected by institutional investors, investment funds and tax investors.

Channels through which equity capital can be raised are two; public and private. For publicly raised funds the methodology is simple, the corporation will go through an Initial Public Offering (IPO), meaning it will go public on the stock market. Companies that attract public injections tend to be Multinational Corporation with significant balance sheet. An IPO can indeed be an effective means of raising capital for corporate ventures and it has many upsides; i) money to grow the business, ii) money for shareholders and others, iii) valuable resources to be used in an effective incentive program.

On the other hand raising private equity capital involves different channels and actors. Private equity funds are generally investment vehicles that invest primarily in enterprises which are not listed on a public stock exchange[16]. Depending the maturity and the nature of the company private equity finance may have different name:

- Angel capital; an early-stage investment on projects or companies that are small, new and thus with high risk. The key actors are individuals.
- Venture capital; another early-stage investment. The key actors are individuals, groups and specialised teams who target returns that are multiples of their original investment. Both venture and angel capital have high risk, thus high return.
- Private equity capital; involves later stages of investment and is often sourced by pooled funds. The key actors are private equity firms. They have lower risks and the expected return is also likely to be lower than that of the angel and venture capital.

➢ Debt finance, is referring to loans, bonds and private placement. Debt represents a commitment to pay back the capital along with interest and it thus constitutes a financial service. Depending the size of the debt and the nature of the project/company there are different types of loans and bonds.

- Subordinated Loan / Mezzanine; loans that are paid after the senior loans have been paid. They are provided by Mezzanine specialised lenders.
- Syndicated Loan; long-term finance instrument provided by two or more lenders governed by one loan agreement. These are provided by banks
- Senior Debt; loans that are paid out once the asset-backed loans have been paid and before any other types of loans are paid. They are provided by commercial banks
- Development Loan; a loan provided to a project developers. They are provided by MDBs, individual lenders and vendors.

[16] KPMG and Savca: Venture capital and private equity industry performance survey of South Africa covering the 2014 calendar year, http://www.savca.co.za/wp-content/uploads/2013/08/KPMG-SAVCA-Private-Equity-Industry-Survey-2015-final-upload.pdf

- Intermediary Loan; a loan provided by an export-import bank to a financial intermediary (commercial bank)
- Corporate bond; the borrower issuing the bond is a company, usually a large company that is listed, or a multinational corporation
- Sovereign bond; the borrower issuing the bond is a national government
- Municipal bond; the borrower issuing the bond is a municipal-level entity
- Eurobond; issued in amounts averaging USD100 million without prior registration or approval by any particular government
- Green Bond; a bond that funds projects that have positive environmental and/or climate benefits[17]
- Private placement; direct sale of long-term debt/equity

Key difference between bonds and loans is that bonds are traded on public stock markets and they are transferrable, whereas loans are generally not traded on an open market.

- Guarantees[18] are the set of insurance products that cover losses in the event of a default on debt service regardless of the cause of the default. There are different forms of guarantees:
  - Credit guarantees
    - Full credit guarantee, which cover the entire debt service in the event of a default. They are widely used for asset- mortgage-backed securities. They are provided by Monoline[19] insurers, by issuing bonds to achieve the higher credit rating demanded by capital investors.
    - Partial credit guarantees (PCG) cover part of the debt service payment. The coverage can share the credit risk between the lender (or bond investor) and the guarantor. They are provided by a creditworthy guarantor, by improving the credit rating of a borrower's debt issue and thus its market access and the terms of the commercial debt.
  - Export credit guarantees or insurance cover losses for exporters or lenders financing projects. Offered generally by a country's export promotion agency, it provides the insurance cover on an ad valorem fee that takes creditworthiness of the importer and country risk into consideration. Some agencies, such as export import banks, also offer discounting of the exporter's invoices.
  - Political risk insurance or guarantee cover losses caused by specified political risk events. They are designed to facilitate co-financing by providing financing partners

[17] Climate Bonds Initiative, http://www.climatebonds.net/market/explaining-green-bonds
[18] Asian Development Bank, http://www.adb.org/site/private-sector-financing/commercial-cofinancing/guarantees
[19] It will be explained in Risk mitigation

with coverage against specifically defined political (or sovereign) risks. Under this scheme there are many sub-products[20]:

- Political Risk Insurance (PRI)
- Currency on convertibility and transfer restriction
- Expropriation
- War and civil disturbance
- Partial Political Risk
- Breach of contract
- Arbitration award default

- Tax relief are provided solely by governments and they take the form of a financial incentive. Examples of tax relief is the "Solar Investment Tax Credit". A federal policy mechanism to support the deployment of solar energy projects, which provides federal tax credit for solar systems on residential and commercial properties[21].

Climate finance barriers

It should have been clear by now that there is no "one-size fits all" model that can address all the project financing needs. Same applies for the barriers and risks. Depending the region, the sector and the type of the project, investors are coping with different set of barriers and risks. It is up to the investors' appetite to choose the level of risk – return that will have. However, in order to make the analysis more comprehensive we are dividing the barriers in two broad categories; project and non-project related[22].

Non-project related barriers have to do with the political issues that the country of interest is coping with. Political instability, corruption, war and civil unrest, are some of the examples that can set the risk even higher[23]. The uncertainty of a politically stable government does not allow long-term relations with the investors, which from the investor's point of view it is exactly what is missing[24].

Political instability translates into changing of governments, which in turn means change of legislation. If for example a renewable energy project e.g. solar PV has been implemented and a specific Feed in Tariff (FiT) has been agreed that makes the project profitable, then a potential

[20] Tomoko Matsukawa and Odo Habeck "Review of Risk Mitigation Instruments for Infrastructure Financing and Recent Trends and Developments (World Bank and PPIAF, Washington, D.C., 2007)
[21] http://www.seia.org/policy/finance-tax/solar-investment-tax-credit
[22] Climate Change Capital (2012), The green climate fund and private finance: Instruments to mobilise investment in climate change mitigation projects
[23] Baldwin, Political risk in sub-Saharan Africa, 2006
[24] PPIAF, Institutional Investment in Infrastructure in Emerging Markets and Developing Economies. March 2014

change of the regulation on the Feed in Tariff (FIT), will jeopardize the profitability of the project, thus creating uncertainty/ barriers for investments. There is a direct connection between the bankability of projects and of the regulatory framework of each country. If policy makers fail to put in place measures that promote investments, then the environment becomes unreliable for investors and hence risky.

Project barriers are also related with the long-term commitment issues between the government and the investors. The nature of green infrastructure projects involves a substantial upfront capital expenditure (CAPEX)[25]. Translating into money, high CAPEX means that the project requires a big debt to start with, while maintaining a low operational expenditure (OPEX),(quite the opposite from a fossil fuel project). Given the fact that renewable energy projects use technology that is not so efficient like the one of the fossil fuel projects, and thus the return will not be so high, the issue of the high debt at the beginning of the project creates barriers.

High CAPEX can result due to the higher incremental cost relative to fossil fuel technologies, which impacts directly on the economic viability of a green project. The higher capital intensity means higher financing cost and more capital being at risk[26]. The higher CAPEX is followed by the lack of climate and market related data, than more than often are not in place[27], resulting in the increase of the project preparation cost.

Project related barriers have also to do with the lack of local currency financing. The lack of a domestic financial system that will provide project finance at the required scale and term. Lack of substantial balance sheet or access to channels needed to provide the large debt required is a major barrier. Furthermore, the general lack of capacity of the domestic financial market to provide services during the project lifecycle “mid-flight” in which the project releases from debt or change the funding structure to better suit project requirements, is obstructing.

In the table that follows there is a summary of the barriers by sector and project category.

[25] UNEP, Financing renewable energy in developing countries, 2012

[26] ibid

[27] UNEP, in collaboration with a number of partners, has developed the Solar and Wind Energy Resource Atlases, which improve access to , and understanding tool , information relevant to solar and wind energy project development through high-resolution maps of solar and wind energy resources

TABLE 1: SPECIFIC BARRIERS TO PRIVATE CLIMATE FINANCE ACCORDING TO PROJECT TYPE

	Key Issues			
Project type & financial profile	**Financial**	**Policy**	**Institutional**	**Other Issues**
Large-scale renewable energy infrastructure projects *These are generally financed through SPVs to attract large-scale project finance through project loans, private equity and, increasingly, project bonds.*	• Electricity generation from renewable sources is often not cost-competitive with conventional, fossil-fuel power plants. Often this is a result of the higher capital-intensity of the former relative to the latter • Transaction costs can be significant. The best locations for renewable energy projects (e.g. where there is sufficient wind or solar intensity) are often located at a major distance from the centres of demand (urban areas). As a result, RE projects often require significant investment in transmission and distribution infrastructure. Also, developing RE projects requires extensive data (e.g. historic weather-related data covering wind, sun radiation and precipitation). These data are often difficult to obtain in developing countries. • Project returns often depend on subsidies or other forms of policy support. • In many countries, the incentives provided are often not sufficient to compensate for the risks that financiers face. • Elevated off-take risks as a result of the purchaser of the electricity having a poor credit rating.	• Even where RE policies do exist, they are often seen as lacking dependability and longevity, both in developed as well as in developing countries. • Weaknesses in overarching policy and macroeconomic frameworks - in particular country, political, and currency risks - can limit the effectiveness of RE related policies.	• Financial markets in many developing countries lack the maturity and depth needed to provide project finance at the required scale and tenor. • Local financial institutions may not have a substantial enough balance sheet or access to channels needed to provide the large debt volumes typically required for these types of projects. • There may be a lack of refinancing vehicles, making it difficult for project developers to exit their investment. This is particularly important in the case of large renewable energy projects which operate for 20 years or more.	• The absence of an extensive track record of development of large-scale RE projects or uncertainty over their performance (particularly in developing countries) translates into higher upfront costs and higher perceived levels of risk. These can only be addressed through the relatively wide deployment of the technology.
EE improvements in corporate operations and production processes. *These can be financed directly by the project sponsor possibly using bank lending or through some form of SPV involving an energy service company and/or a third party finance provider.* *ESCOs can sit between financiers and the energy end-users. They can invest in EE projects on behalf of these end-users, and take a share of the value of the resulting energy savings.*	• Companies tend to favour projects that lead to business expansion and increased revenues rather than investments that primarily deliver cost-savings (e.g. energy efficiency improvements). • The actual savings that are achieved are often less than those predicted when account is taken of management time, disruptions to production, staff training and information gathering and analysis. • Companies are often reluctant to directly finance energy efficiency improvements through their balance sheets. However, EE equipment tends to have a low collateral asset value and is often difficult or uneconomic to remove and use elsewhere.	• The case for investing in EE is dependent on managements' views on short- and long-term energy prices (which includes the effect of carbon taxes or other climate change-related policy measures). Low energy prices reduce the incentive to invest in EE.	• The novelty and particularities of discrete EE related interventions mean that third party financiers tend to look for other collateral. • It is difficult for ESCOs to obtain third party financing from banks and other lenders. There are various reasons: the ESCOs are exposed to the end-user credit risk, revenue-sharing arrangements between ESCOs and host companies are often difficult to monitor which creates uncertainty that bank loans will be repaid, and the novelty of the ESCO model means that local banks often have limited understanding of the business model upon which ESCOs operate.	• It is often difficult to calculate energy savings and to attribute these savings to a specific intervention. • There can be significant upfront transaction costs associated with researching and analysing energy efficiency opportunities. • ESCOs often lack full control over equipment operation and, therefore, expected cash flows. Energy savings, and consequently the revenue for the ESCO, depend on the host company correctly operating the equipment.
Climate proofing of existing infrastructure *The approach to financing depends on the ownership and management model for the underlying asset and the size of the investment required. For publicly owned infrastructure, any investment is typically made by the corresponding government agency using fiscal revenue or debt instruments (e.g. municipal bonds). For privately owned infrastructure, smaller retrofits may be financed through the balance-sheet of the project sponsor whereas larger retrofits may be financed through SPVs which attract project finance through project loans, private equity and project bonds.*	• It is often difficult to convert (or monetise) the benefits of climate-proofing interventions into cash-flows that a third-party financier would be willing to lend against.		• Climate proofing is still a relatively new concept, and as a result the financial and information systems needed to create a functioning market are frequently absent. • In developing countries, relatively few project-sponsors or financial institutions have the capacity and resources to access, produce or analyse 'climate information' such as the hydrological and meteorological implications of climate change for the infrastructure at hand.	• There are often important information gaps regarding, for instance, the nature, likelihood and intensity of the meteorological and hydrological impact of climate change that can be expected for the region and location at hand. • There is limited information on projects and associated costs.

Source: Demystifying Private Climate Finance, UNEP, 2014

Each project category has its own issues to cope with and each project itself has its own barriers. Nonetheless there are few general suggestions that could be addressed for each category, resulting this way in more private capital flow into green projects.

RE infrastructure projects

i) Regulatory adjustments in incentives
ii) Transferring or mitigating project and non-project risks
iii) Supporting the development of a domestic financial system that is able to provide services at the required scale and tenor

EE improvement projects

i) Encouraging electricity utilities to provide incentives for improvements in efficiency
ii) Promoting and developing the market for ESCOs

Climate proof retrofits existing infrastructure

i) Close information gap about the physical implications of climate change in the future
ii) Require project owners to make credible assessments of the climate resilience of their assets
iii) Develop methods, tolls to monetize the resulting climate-proofing benefits so that they can be identified as bankable cash-flows

Risk Mitigation

The use of risk mitigation instruments to support infrastructure finance has attracted growing interest among developing country governments, the donor community and the private sector[28]. Risk mitigation instruments help mobilise commercial debt and private equity, when governments or local infrastructure entities, lack of the creditworthiness or track record to attract finance on their own. What they do is to transfer project related risks to third parties (official agencies or private institutions) that private lenders are unable or unwilling to take.

Risk mitigation instruments are filling the gap, while a government establishes a sound legal and policy framework that will eventually reduce risk and create a conducive environment for investments. Even though mitigation instruments are not panacea, they have many benefits:

- Mobilise private capital to supplement limited public resources
- Enable private lenders and investors to participate when risks beyond their control or perceived excessive are transferred
- Enable governments to share risks of public projects with private sector financiers

[28] Tomoko Matsukawa and Odo Habeck "Review of Risk Mitigation Instruments for Infrastructure Financing and Recent Trends and Developments (World Bank and PPIAF, Washington, D.C., 2007)

- Upgrade government's credit and in turn lower financing costs
- Allow official agencies to leverage their financial resources
- Facilitate the development of commercial and sustainable financing mechanisms for infrastructure

Risk mitigation providers include multilateral development banks and agencies, bilateral or national agencies, and private financial entities. Each has its own structure and benefits[29].

Multilateral Agencies

Development banks offer Partial Credit Guarantees (PCG) and Partial Risk Guarantees (PRG) for debt providers while multilateral insurance agencies offer Political Risk Insurance (PRI) for debt and equity. These institutions offer partial coverage so as to share risk with private financiers on meeting their development objectives.

Bilateral Agencies

Bilateral agencies have similar development objectives to those of multilateral agencies and offer similar guarantees (PCG and PRG). National export credit agencies (ECAs) include investments insurance agencies, and offer fairly similar insurance and guarantee programs covering trade transactions as well as equity investment or project finance debt.

Private Financial Entities

Private Monoline insurers[30] guarantee structured debt transactions such as mortgage and other asset backed securities and offered full credit guarantees for project finance debt. To maintain a triple-A rating, they normally offer guarantees only to investment- grade countries. Private political risk insurers[31] provide insurance similar to that offered by multi and bilateral insurers.

All three actors provide sophisticated risk mitigation instruments, which can be complementary and, in fact, have been used together. Multilateral and bilateral agencies have a great leverage with host governments. Actually multilateral institutions enjoy preferred creditor status. Risk mitigation instruments offered by all these institutions are complementary and have been used together in many project financings. Some multilateral agencies have "guarantor of record" programs to share risk with private insurers, which then benefit from the multilateral's umbrella. Reinsurance arrangements to share and manage risks are common among all PRI partners.

[29] ibid

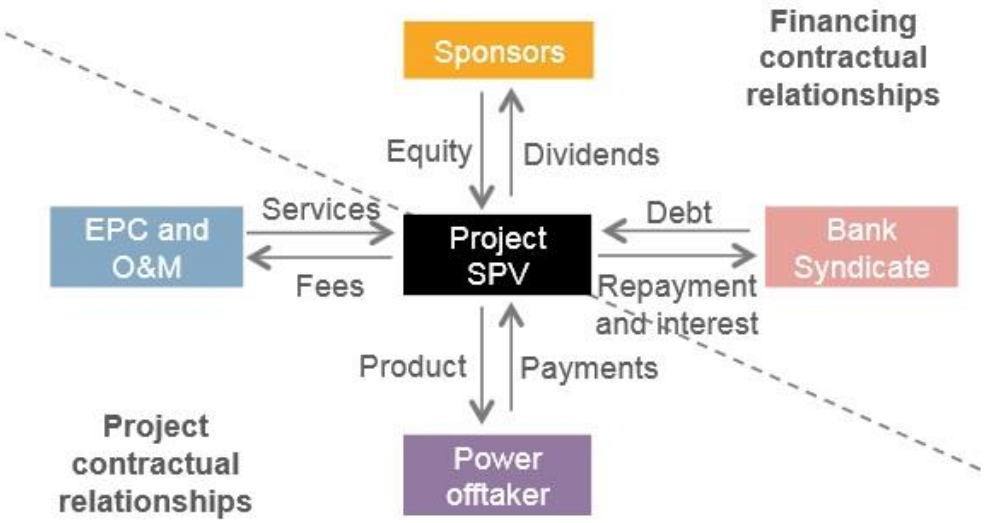
[30] Major monoline insurers include MBIA, AMBAC, FSA, FIGIC, XLCA and others/ www.afgi.org

[31] Major political risk insurers include AIG, Chubb, Sovereign, Zurich, Lloyds (the latter is not a company but comprise several syndicates) and others

Key actors in the financial landscape and how do they relate to each other

The key players in project finance are the project sponsors who invest in the special purpose vehicle, the host government and local companies, the construction and engineering company that will actually construct the project as well as the legal entities that will design the contracts essential to allocating project risks and responsibilities. Governments, however, play a much larger and more direct role in project finance.

Financing and project contractual relationships



Source: The green climate fund and private finance: Instruments to mobilise investment in climate change mitigation projects, Climate Change Capital (2012),

Special Purpose Vehicle (SPV)

The main actor is the Special Purpose Vehicle (SPV), the project company that has been set up to implement the project. In several cases the SPV is usually a subsidiary company with an asset/liability structure and legal status that makes its obligations secure even if the parent company goes bankrupt.

A corporation can use such a vehicle to finance a large project without putting the entire firm at risk. These vehicles played a vital role in the efficient operation of global financial markets. They

allowed large corporations to meet specific objectives by way of obtaining finances, transferring risk and performing specific investment activities[32].

SPVs have a number of key utilitarian features and benefits that allow investors access to investment opportunities which would otherwise not exist. These include facilitating and supporting securitisation, financing, risk sharing and raising capital to name a few. In the absence of SPVs, these objectives would not be possible without putting the entire corporation at risk. It also provides significant benefits to the parent firm by allowing ease of asset transfer, reducing 'red tape', providing tax benefits and legal protection.

Some of the key risks SPVs pose to the sponsoring firm are lack of transparency, reputational risk, liquidity and funding risk and equity risk. Problem is, due to accounting loopholes, these vehicles became a way for CFOs to hide debt. Essentially, it looks like the company doesn't have a liability when they really do. Lessons learnt from these collapses and their knock-on effects have led regulators to take strong measures that subject these vehicles to even more scrutiny than before.

Project Sponsors

The size and diversity of potential project sponsors is significant, including but not limited to, governments; public and private universities; private and public companies; real estate investment trusts to private individuals; institutional investors; nonprofits and nongovernment organizations.

Due to the nature of the climate projects, the capital expenditure is significantly high, thus they need a sponsor. The sponsors will provide equity in order for the project to be implemented and in return they will get a share of the profit. The bigger the risk the bigger the return.

Bank Syndicate

Banks (local and International) play an important and pivotal role in the financial system. They lend directly to the SPV and they undertake longer-term funding and investment through securitisation and covered bond issuance. Banks use their securities affiliates' to participate in underwriting debt securities issued by companies, using the banks' balance sheet; and they participate in derivatives markets including swaps and CDS which affect the cost of capital. A dysfunctional banking system reverberates through all of these channels and may be associated with deleveraging and high risk-premiums[33].

[32] PWC (2011), The next chapter; Creating an understanding of Special Purpose Vehicles (http://www.pwc.com/en_GX/gx/banking-capital-markets/publications/assets/pdf/next-chapter-creating-understanding-of-spvs.pdf)

[33] OECD (2013) Role of Banks, Equity Markets and Institutional Investors in Long – Term Financing for Growth and Development

Bank vulnerability to default is a direct impediment to lending and hence long-term investment. This vulnerability can be measured and monitored by the distance-to-default (DTD, a normalised measure of the market value of assets versus the book value of liabilities.

With respect to long-term investment projects, the most important consideration is the cost of capital. There is always an array of possible investment projects that vary with respect to:

- Inherent riskiness (e.g. at the high-risk end, technology, pharmaceutical research, etc.; versus more certain cash generating projects that include infrastructure at the lower risk end), and
- Financing horizons, that may be short term (less risky) or long-term (more risky).

The higher the cost of capital, the more likely it is that longer-term and inherently risky projects do not pass the hurdle rate

Engineering, Procurement and Construction (EPC)

The EPC set-up provides developers and owners with a single point of contact throughout the project execution phase and reduces financial risks. EPC projects are multidisciplinary in nature, and efficient construction management coupled with a continual focus on HSEQ are key success factors.

EPC is a prominent form of contracting agreement in the construction industry. The engineering and construction contractor will carry out the detailed engineering design of the project, procure all the equipment and materials necessary, and then construct to deliver a functioning facility or asset to their clients. In some cases, the contractor carries the project risk for schedule as well as budget in return for a fixed price called lump sum turnkey (LSTK) depending on the agreed scope of work.

The EPC phase of the project is also known as the Execution phase which normally follows what is known as a FEED, Front End Engineering Design phase. Some EPC contracts terminate at Mechanical Completion but before Commissioning while LSTK contracts always include Commissioning. EPCs are increasingly common worldwide.

Off taker – Product Buyer

An agreement entered between a producer and a buyer to buy/sell a certain amount of the future production. It is generally negotiated long before the construction of a facility to guarantee a market for the facility's future production and improve chances of getting financing for the installation concerned. These agreements are fairly common in the natural resource sector, where capital costs to extract the resources are important. They usually include several protective clauses and can take months to negotiate.

References

- Asian Development Bank, http://www.adb.org/site/private-sector-financing/commercial-cofinancing/guarantees
- Baldwin, Political risk in sub-Saharan Africa, 2006
- Ceres, Investing in the clean trillion: closing the clean energy investment gap, 2014
- Climate Bonds Initiative, http://www.climatebonds.net/market/explaining-green-bonds
- Climate Change Capital (2012), The green climate fund and private finance: Instruments to mobilise investment in climate change mitigation projects
- CPI, The Global Landscape of Climate Finance, 2014
- Finance for Resilience, http://www.financeforresilience.com/
- International Energy Agency (IEA), Energy Technology Perspectives 2012: Pathways to a Clean Energy System, (Paris: OECD/IEA, 2012)
- KPMG and Savca: Venture capital and private equity industry performance survey of South Africa covering the 2014 calendar year, http://www.savca.co.za/wp-content/uploads/2013/08/KPMG-SAVCA-Private-Equity-Industry-Survey-2015-final-upload.pdf
- Morgan Stanley, an essay by James P. Gorman, CEO, “The long term imperative for financial institutions”,
- Morgan Stanley, Sustainable investing is the mobilization of capital to business that engage in behaviours and practices that achieve ongoing social and/or environmental benefits. See more “The Business Case of Sustainable Investing”, April 2015
- Morgan Stanley, Audrey Choi, CEO “Sustainable Investing Enters the Mainstream”, February 2015
- NAMA Facility, http://www.nama-facility.org/start.html
- OECD: DAC Glossary of Key Terms and Concepts, http://www.oecd.org/dac/stats/dac-glossary.htm#Grant
- OECD (2013) Role of Banks, Equity Markets and Institutional Investors in Long – Term Financing for Growth and Development
- PPIAF, Institutional Investment in Infrastructure in Emerging Markets and Developing Economies. March 2014
- PWC (2011), The next chapter; Creating an understanding of Special Purpose Vehicles (http://www.pwc.com/en_GX/gx/banking-capital-markets/publications/assets/pdf/next-chapter-creating-understanding-of-spvs.pdf)
- The Global Innovation Lab for Climate Finance, http://climatefinancelab.org/

- The Forum for Sustainable and Responsible Investment (US CIF), Report on US Sustainable, Responsible and Impact Investing Trends, 2014
- Tomoko Matsukawa and Odo Habeck "Review of Risk Mitigation Instruments for Infrastructure Financing and Recent Trends and Developments (World Bank and PPIAF, Washington, D.C., 2007)
- US Department of Interior, www.doi.gov
- UNEP FI, Demystifying private climate finance, December 2014
- UNEP, Financing renewable energy in developing countries, 2012
- UNEP, in collaboration with a number of partners, has developed the Solar and Wind Energy Resource Atlases, which improve access to , and understanding tool , information relevant to solar and wind energy project development through high-resolution maps of solar and wind energy resources
- World Population Prospects: The 2012 Revision, UN, 2013
- World Resources Institute, "Glossary of the financing instruments", working paper 2012: http://www.wri.org/publication/moving-the-fulcrum.