European development finance institutions (EDFI) and private sector combat climate change in the developing world

THE CHALLENGE

Climate change is the most far-reaching challenge the world faces in coming decades. Estimates of the costs of mitigating climate change and adapting to it vary, but they all indicate massive need of resources. The International Energy Agency (IEA) has calculated the investments needed to keep average global temperature increase below 2° C to amount to annual USD 590 billion for OECD countries and USD 769 billion for non-OECD countries by 2035. The biggest portion of the new money should go to transport, building and energy sectors. In addition, a marked change in the policy environment should take place to enable and encourage clean investments.

PRIVATE SECTOR IS NEEDED IN COMBATTING CLIMATE CHANGE

Against such needs the current climate financing is grossly insufficient. Estimates of annual flows vary around USD 350 billion. Of this, the private sector accounts for around 60 %[2], even more in the renewable energy investments and cross border flows. Active involvement of the private sector is crucial for global climate policies to be successful. Public sector alone cannot generate the needed financial flows.

Sources of Climate Finance 2011/2012[1]	%
Public sources *(Ministries, government agencies, etc.)*	3
Public intermediaries *(National, bilateral and multilateral development banks, etc.)*	34
Private intermediaries *(Commercial financial institutions, asset management companies, private equity, etc.)*	6
Private sources *(Project developers, corporate actors, households, utilities and independent power producers, etc.)*	56

TIME FOR RETHINKING CLIMATE POLICES

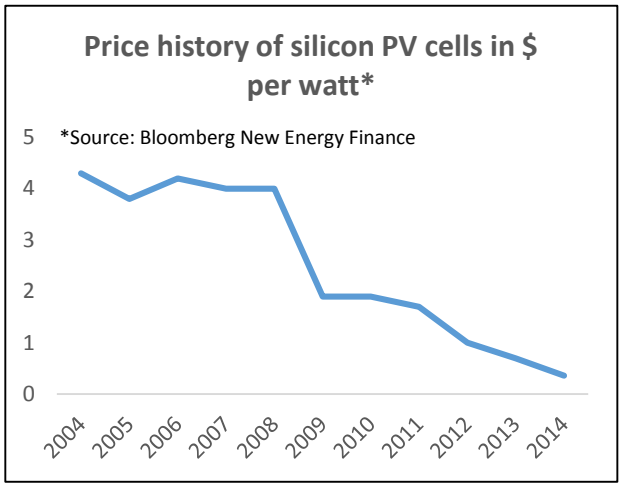
It is time for a rethinking in climate policies. This is needed partly due to the maturation of technologies and partly due to the fact that potential for private sector's participation has not been fully utilized.

Investments at market terms or at near market terms are becoming the most cost-efficient way to combat climate change. Efforts and resources should now be directed to foster such investments and assist private investors in finding the opportunities in them. If private sector already now accounts for more than half of all climate finance, how much can it do in the future, if rightly incentivized?

Private sector's key strengths are in identifying potential projects, developing them towards profitability, and executing them in a cost-efficient way. Markets, when rightly incentivized, can provide a potent vehicle for scaling up proven technologies delivering to climate change objectives.

[1] Climate Policy Initiative: Global Landscape of Climate Finance 2013.
[2] IPPC 5th Assessment Report and CPI's "Global Landscape of Climate Finance 2013", among others.

The standard tools of the public climate policies have included various market development mechanisms, such as feed-in tariffs and subsidies. There has been a need for them; until recently, many e.g. renewable energy or energy efficiency projects have not been able to compete against fossil fuel based high-carbon investments without support. Increasingly, however, the subsidy schemes have also unwanted consequences in crowding out more cost efficient projects and technologies.



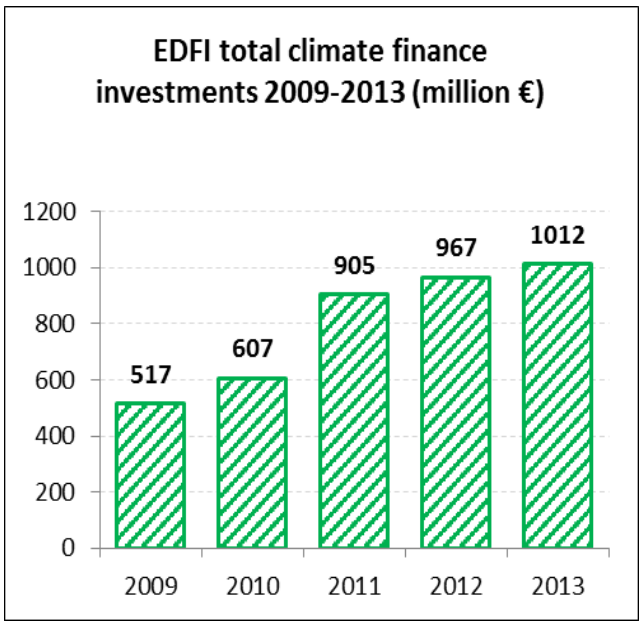
During the last years, the advancements of technology, together with increased competition and more efficient manufacturing methods, have cut the costs and strengthened the competitiveness of many climate friendly technologies in a decisive way. A prime example is photovoltaic modules, the key components in many solar energy systems. The price of the PV cells has shrunk to one fifth or even one sixth in five years. In some markets and locations, investments in non-subsidized low-carbon energy production are already competitive (i.e. have reached "grid parity") in relation to their more emission intensive alternatives. Everywhere else they are closing the gap quickly. Significant technical improvements and reductions in costs have also changed the landscape for many types of energy-saving investments.

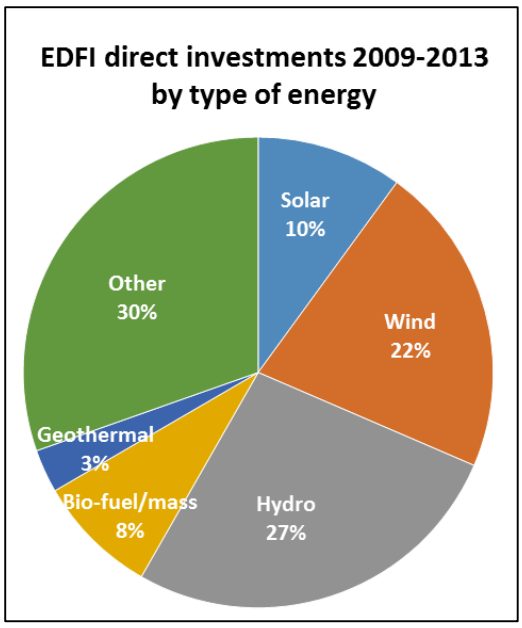
DEVELOPMENT FINANCE - THE NEXUS BETWEEN PRIVATE INVESTMENTS AND COMBATTING CLIMATE CHANGE

EDFI is the association of European Development Finance institutions, a group of 15 bilateral institutions[3] operating in developing and reforming economies. EDFI institutions (EDFIs) provide equity, mezzanine finance, debt and guarantees for bankable, profitable businesses. They protect investors against various risks and project failures, thus cutting the cost of capital.

The EDFIs are mandated by their governments to foster growth in sustainable businesses, help reduce poverty and improve people's lives; and contribute to achieving Millennium Development Goals, MDGs. The EDFIs have been active in combatting climate change, and their climate financing has increased steadily, reaching € 1012 million in 2013. 27 % of this has been directed to hydro power projects, wind and solar energy accounting for 22% and 10 %, respectively. Some of the most effective EDFI climate investments involve projects that increase energy efficiency, promote recycling or fight deforestation through sustainable forestry.

[3] Bio (Belgium), CDC (UK), Cofides (Spain), DEG (Germany), Finnfund (Finland), FMO (Netherlands), IFU (Denmark), Norfund (Norway), OeEB (Austria), Proparco (France), SBI (Belgium), Sifem (Switzerland), Simest (Italy), Sofid (Portugal) and Swedfund (Sweden)



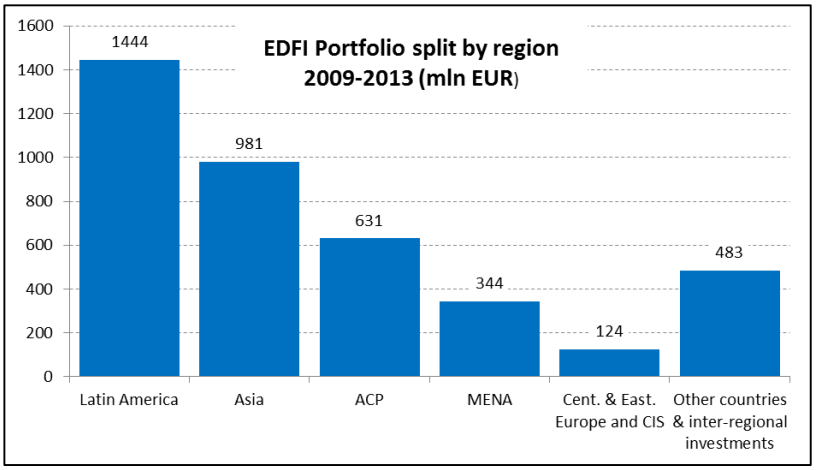


Seen from the global climate policy perspective a typical EDFI investment in renewable energy or energy efficiency is extremely efficient. It targets an opportunity in a developing country (for example establishment of a wind park in a location of strong and constant winds) that produces much more output per invested euro/dollar than an investment of the same amount would produce in the developed world (where the best opportunities have already been exploited). Moreover, since the existing power systems tend to be highly inefficient in developing countries, each unit of power generated, or saved, from renewable sources contributes more to climate change mitigation than would be the case in a rich country.

PRIVATE CAPITAL LEVERAGED FOR CLIMATE FRIENDLY INVESTMENTS

Climate friendly energy projects include often specific kind of extrinsic (for example uncertainty of future policy decisions and electricity prices) and intrinsic (such as project lead times, insecurity of off-take agreements) risks. These influence both costs and sales sides of investment calculations. EDFI financing is geared towards lowering the risks the private investors face, thus attracting investments that would not otherwise be made. Currently, about 50 % of the EDFI institutions' consolidated portfolio consists of equity investments, which – together with the use of other financing instruments such as sub-ordinated debt and different kinds of guarantees - sends a powerful signal of risk reduction to potential private sector investors. As a consequence, the EDFIs have been remarkably successful in leveraging private finance; estimates made of leveraging ability of EDFIs point to a range of 1 to 9 € invested by private sector businesses for each 1 € of EDFI financing.

EDFI PORTFOLIO HAS A WIDE GEOGRAPHIC COVERAGE



Climate friendly investments face often additional barriers in developing countries, stemming for example from challenging legal and regulatory environments, poor physical and institutional infrastructure, under-developed capital markets or a subsidy structure favoring fossil fuels. Combined with the sometimes modest mitigation potential in the low-income countries this has led to an uneven distribution of global climate finance; of the approximately 50 % of the global flows going to non-OECD countries[4] the clear majority ends up in a few, mostly middle income countries (e.g. China, India, Brazil, South Africa and Mexico).[5] This is true even in the projects partly financed by the most important multilateral climate funds.[6]

EDFIs' financing operations are spread widely over geographic regions and country groups. At the end of 2012, the EDFIs were active in more than 4700 projects worldwide. The member institutions operate also in Low Income Countries (LIC), Small Island Development States (SIDS) and Least Developed Countries (LDC) where businesses otherwise often face challenges in securing long term finance. This is enabled by EDFIs' networks comprising of local offices and long standing cooperation with local sponsors, small and medium sized enterprises (SME) and financial as well as micro finance institutions (MFI). Such networks provide EDFIs with thorough knowledge of markets and operating environments all over the world.

PRIVATE INVESTMENTS FOR ADAPTATION TO CLIMATE CHANGE

Only a fraction of the current global climate finance is directed towards adaptation to climate change. Of the private flows, the portion is even smaller; it is challenging to construct adaptation projects so that they would be financially profitable.

But the benefits accruing from private climate investments are not limited to the owners and closest stakeholders of the companies; a successful renewable energy investment increases access to energy and has strong positive direct and indirect effects on employment, household incomes and living conditions widely in the society. They contribute to increased resilience and adaptation capacity against the impacts of climate change.

EDFIs assess all investments besides from the profitability, also from the wider development effectiveness perspective; the number of jobs they create and the amount of taxes and other contributions to the host country government. Especially the EDFIs' financed micro finance institutions have a major impact on the

[4] CPI, data from the years 2011/202
[5] Bloomberg New Energy Finance
[6] Global Environmental Facility (GEF), Climate Investment Funds (CIF), Global Energy Efficiency and Renewable Energy Fund (GEEREF). Source: ODI: The Role of Multilateral Climate Funds in mobilizing private investment. Working Paper 398. June 2014.

economic resilience of the poorest segments of populations. Being finance institutions focusing on development, the EDFIs understand the need to fit their investments to the broader development context of the host countries.

BEST PRACTICE ENVIRONMENTAL, SOCIAL AND FIDUCIARY STANDARDS

All EDFI members follow the IFC Performance standards on Environmental and Social Sustainability (IFC PS) in their investments and require compliance also from the investee companies. As a part of their active ownership policies the EDFIs support and incentivize development of the investee companies' corporate governance, providing in some cases also technical assistance for this purpose.

To ensure accountability and transparency of their operations the EDFIs apply internationally recognized fiduciary standards and practices in their operations, reviewed and evaluated by third party specialists.

EXAMPLES OF EDFI CLIMATE INVESTMENTS

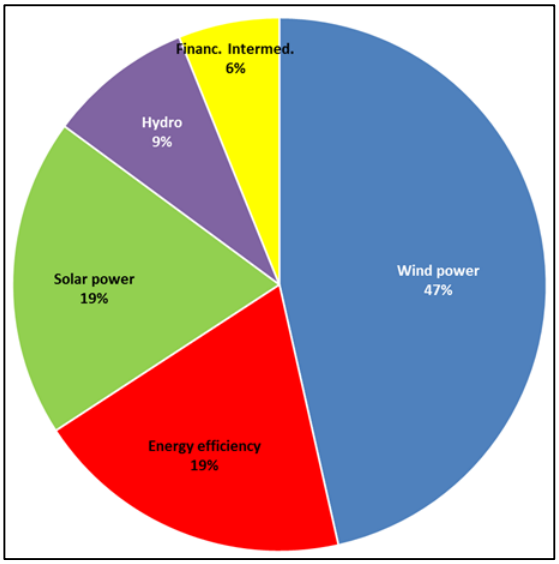
1. INTERACT CLIMATE CHANGE FACILITY (ICCF), A JOINT EUROPEAN INVESTMENT COMPANY FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY PROJECTS

ICCF is a private limited liability company established in 2011 in Luxembourg and owned by 13 European Development Finance Institutions. ICCF finances renewable energy and energy efficiency projects in the private sector in developing countries and emerging markets.

The funding capacity of ICCF is provided by Agence Française de Développement (AFD), the European Investment Bank (EIB) and by 11 EDFI members: BIO (Belgium), CDC (United Kingdom), COFIDES (Spain), DEG (Germany), FINNFUND (Finland), FMO (the Netherlands), NORFUND (Norway), OeEB (Austria), PROPARCO (France), Sifem (Switzerland) and SWEDFUND (Sweden).

The operational structure of ICCF is unique among the institutional investors, and is characterised by an efficient and fast track process with low administrative overheads. The operation of ICCF is regulated by the Master Investment Agreement, which delegates full authority for investment decisions to the Investment Committee, which is composed of representatives from the institutions, which have committed funds to ICCF.

Since 2011, ICCF has approved 15 projects providing long term financing of EUR 300 mln in the sectors shown in the pie to the right.



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2. GREEN RESOURCES AS; EMISSION REDUCTIONS THROUGH FORESTRY TRANSACTIONS IN EAST AFRICA

In December 2013, the Dutch EDFI member, FMO, provided a USD 20 million corporate finance mezzanine facility to the Norwegian forestry company Green Resources AS. Green Resources is East Africa's leading forestry company with 150 000 ha of forestry under management, of which 23 000 ha of planted forest. The company also processes wood products and operates sawmills and charcoal processing facilities in Uganda and Tanzania. Currently, 76% of its planted forests have received FSC certification and 13 500 ha have been designated as conservation areas and are excluded from harvesting. Alongside FMO Green Resources has received financing from IFC and EDFI (Finnfund and Norfund).

The company's main focus is growing trees for use in local markets as construction materials and bioenergy. Green Resources mainly operates in Mozambique, Tanzania and Uganda, with a small operation in Southern Sudan. Since it was established in 1995, the company has planted more new trees than any other private company in Africa – including a record 6 000 ha of new forest was planted in 2010.

Green Resources is a leader in forestry-derived greenhouse gas emission reductions, having registered the world's first forestry project based on the Voluntary Carbon Standard (VCS) in 2009 and having sold the first issued credits in 2010. Green Resources expects to generate carbon credits of an average of 260 000 tons CO2 equivalent per year from 2013-2017. All Green Resources' carbon offset revenues are reinvested in the countries where they are generated and 10% will be used to improve social and economic conditions for communities in rural areas, making the credits some of the most attractive in the world.

3. LA HUAYCA SOLAR PARK IN CHILE; COMPETITIVE SOLAR POWER WITHOUT SUBSIDIES

The Atacama Desert in northern Chile is considered to have the highest level of sunshine in the world, its level of solar irradiation hardly changing over the course of the year. The region therefore offers ideal preconditions for a predictable and constant solar power production.

In such circumstances operates the La Huayca solar park. The pilot plan's 1.4 MW production capacity is now being expanded to 30.5 MW. The German EDFI member, DEG, provided the operating company SP La Huayca with a USD 18.5 mln loan for the expansion. The total size of the IFC (International Finance Corporation) arranged financing package is USD 44.5 mln. La Huayca is majority-owned by the German photovoltaic manufacturer Saferay Holding GmbH

La Huayca investment fits excellently the Chilean government's goal of increasing the share or renewables in the country's energy production. Thanks to favorable location and increased competitiveness of photovoltaic technology, La Huayca will be the first large scale PV investment in Chile with no subsidies or feed-in tariff included. The plant is expected to avoid emissions of 24 500 tons of CO2 per year compared to power generation with conventional technologies.

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4. AFRICA'S LARGEST WIND FARM RISES ON THE SHORES OF LAKE TURKANA IN KENYA

365 turbines, each with a capacity of 850 KW. Total installed capacity of 310 MW. Construction works for the largest wind farm so far in sub-Saharan Africa have begun on the shores of Lake Turkana in northern Kenya. When complete in approximately three years, it will account for 16 percent of the total installed power generating capacity in the country.

The farm is located in an exceptionally favorable area, in a desert valley between tall mountains, swept by strong, predictable and unidirectional winds. Thanks to the circumstances the load factor for the turbines on the Lake Turkana site has been estimated to be 55 percent on average. (The corresponding figure being 27 percent in European wind farms). Lake Turkana can offer a competitive power price without subsidies; it will be able to produce electricity for the grid at a price that is 40 percent lower than the average cost of the power generation mix in Kenya.

Among the shareholders in the project company are the EDFI members (IFU, Finnfund and Norfund), together with KP&P Africa of the Netherlands and the British power developer and investor Aldwych International. The debt finance has been arranged by the African Development Bank, Standard Bank and Nedbank of South Africa. Debt is also provided by EDFI members (DEG, FMO and Proparco), the joint investment company "Interact Climate Change Facility" (see case study 1), the European Investment Bank (EIB) and Agence Française de Développement (AFD).

The project has strong developmental effects globally, nationally and locally. It is expected to cut carbon dioxide emissions by 790 000 tons a year. Kenya's current account will be improved between 120 and 150 million euros annually, thanks to substitution of imported fossil fuels. About 2 500 people will be employed during the construction period, and approximately 200 permanently after the completion. A large corporate social responsibility programme has been drawn up to assist local inhabitants. Boreholes for water supply have been drilled near the wind farm. 200 km of roads have to be improved and a village for contractors and employees be constructed. Schools and health facilities will be built. A power line of over 400 kilometers will be financed by Spain and the Government of Kenya.

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5. AZITO THERMAL POWER EXPANSION PROJECT IN CÔTE D'IVOIR; 15% INCREASE IN POWER GENERATION WITH NO ADDITIONAL NEED OF GAS.

In the Azito thermal power plant expansion and energy efficiency project in Côte d'Ivoire the capacity of the country's power generation will be increased by roughly 15% without increasing fuel consumption.

EDFI member, Proparco, finances the investment with a USD 55 mln loan for Azito Energie. Proparco also coordinated, together with the West African Development Bank (BOAD), the contributions of other EDFI members (BIO, DEG and FMO) and the joint investment company "Interact Climate Change Facility" (see case study 1) contributions for the USD 450 mln investment.

The project will include installment of a 139 MW steam turbine by 2015, increasing the total capacity of the plant to 427 MW. No additional gas is required for the capacity increase due to the expansion being based on improving yields at the plant by recovering the energy released in the form of heat. The project will turn the existing simple-cycle plant into a combined cycle plant.

After the completion of the project, the Azito plant will meet almost 45% of Côte d'Ivoire's power consumption needs. **E**lectricity will also be exported to its neighboring countries. The investment will reduce greenhouse gas emissions annually by approximately 400 000 teq CO2 compared to present.

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6. BUGOYE PLANT IN UGANDA PROVIDES A MODEL FOR SUCCESFUL, SOCIALLY RESPONSILBLE HYDRO POWER PROJECT IN AFRICA

Bugoye Hydro Power Project (BHPP) is a 13 MW run-of-river hydro plant, located in western Uganda. The plant is planned and constructed, and is currently owned and operated by TronderPower ltd (TPL) the shareholders of which are Norfund and a Norwegian energy company TronderEnergi. Their equity investments total USD 19.7 mln. The project has received USD 31.7 mln loan from the Emerging Africa Infrastructure Fund (EAIF). The government of Norway provided a grant of USD 8.9 million to Ugandan government to construct the transmission line that links BHPP to the national grid. BHPP has been operating since October 2009.

In Uganda, about 90 per cent of the population lack access to grid electricity, and the main electricity source is small diesel generators. Electricity shortages are common. Against such a background BHHP has strong development effects in Uganda nationally, as well as for local populations. Its direct employment effect during the construction period was about 2 300 person years, indirect effect being more than 4 800 person years. Nationally, the person years created by more/better power supply were by an external evaluator estimated to amount up to 256 000 person years[1]. Investments in reliable power supply have strong employment multiplier effects.

BHHP has been registered as a clean development mechanism (CDM) and is expected to reduce annual CO2 emissions in Uganda by approximately 54 kilotons. Contributions to emission reductions are monetized, strengthening both to the financial viability of the project and public finances; Ugandan authorities will receive 60 per cent of the revenues from the sale of CO2 quotas. The government also receives income from the VAT charged on the sale of power geneated by the plant, estimated USD 2 mln annually.

BHPP has had a strong demonstration effect in showing that a private sector operator can succesfully finance, build and operatate a small hyropower plant in Uganda. The project's emphasis on high standards of social and environmental performance, and, in particular, its participatory and consultative apporach to implementation is already being looked to as a model for other projects in the country, and internationally.

[1] Overseas Development Institute (ODI): Job Creation Impact Study; Bugoye Hydropower Plant, Uganda. Final report. June 2013.