

UNTT Working Group on Sustainable Development Financing

Chapter 4

Public support to private investment for sustainable development: challenges and opportunities, with emphasis on the environmental pillar.

Contents

Executive summary.....	ii
Introduction.....	1
1) International public support to private investment in support of development objectives.....	1
1.1) Approaches to blended finance.....	3
1.1.1) Upgrading the policy environment.....	5
1.1.2) Deepening Local Financial Intermediation.....	5
1.1.3) Co-investment aiming to leverage private sector investment.....	6
1.2) Challenges for co-investment to leverage private finance.....	9
1.2.1) Lack of financial and development additionality.....	9
1.2.2) Alignment with effectiveness principles, especially country ownership, transparency and accountability.....	10
1.2.3) Sustainability and capacity to scale up investment.....	11
2) Coverage, coherence and consistency of international public financing frameworks for climate, biodiversity, and water.....	12
2.1) A complex web of financial flows.....	12
2.1.3) Climate change.....	13
2.1.2) Biodiversity.....	18
2.1.3) Water management.....	21
2.1.4) Summary of the financing landscape for environmental global commons.....	24
2.2) Trends in the numbers of international funds.....	25
3) Financing for integrated (cross-sectoral) development initiatives and projects.....	26
3.1) Financial implications of cross-sectoral feed-back loops, synergies and trade-offs.....	26
3.2) Constraints to Financing Integrated Sustainable Development.....	28
4) Toward an effective support of private sector investment for sustainable development.....	30
4.1) Rebalancing public support to leverage private finance.....	31
4.2) Capacity building for sustainable development finance.....	34
4.3) Specific considerations for international public finance in support of private sector investment.....	36
References.....	38

Executive summary

In order to achieve a transition to sustainable development, economies will need to be radically transformed. Businesses and households will be responsible for the bulk of the investment needed. Such a radical transformational change will require the blending of public and private, domestic and international, capital and technical assistance finance.

Global capital markets representing some USD 212 trillion in financial assets should, in principle, have the size and depth to meet large investment requirements, subject to improvements in enabling policy environment to address the significant institutional constraints in specific sectors and areas. The public sector has a critical role in setting goals, building a regulatory environment including establishing clear incentives and price signals, and investing in public infrastructure in ways that also create conditions for attractive investment risk/return profiles.

A wide range of public policy and financing mechanisms can be used for this purpose. Investment can be scaled up by adopting a range of risk reduction strategies. Those include reducing risks (through fostering long-term policy stability, streamlined licensing processes, local supply of expertise, etc.), direct risk-sharing (through co-investment, guarantees and insurances.), and increasing rewards (through premium prices, tax credits, etc.) compared to existing alternatives. So far, the bulk of international public funds have been used to provide subsidies to the private sector through concessional loans or grants or risk sharing mechanisms. In recent blended energy projects financed with public support, it has been found that the rate of subsidization can easily exceed 50% of the project costs — largely eliminating the risk to the private investors and almost guaranteeing them large profits for years to come. While this approach has proven effective to demonstrate green technologies and encourage early entrant investors, it is not sustainable over the longer term and cannot promote investment at the required scale.

Over the longer term, mechanisms that focus on risk-mitigation rather than risk sharing/compensating can more appropriately ‘crowd-in’ private sector finance. However, improvement of structural conditions for investment usually takes time – one or two decades. Thus, it may still be desirable to compensate private investors for extra risks or lower returns compared to other investment opportunities during this transition. This nevertheless, should be based on a cost-effective analysis of various mixes of risk mitigation, risk sharing and compensation instruments. Such an analysis will determine the efficiency of blended finance for sustainable development

The capacity of developing countries to access financial resources to design and implement public policy and financing mechanisms to catalyze private finance will in part depend on the capitalization, coverage, coherence and consistency of international public financing for sustainable development. For example, by pledging \$30 billion in climate change finance by 2012 and up to \$100 billion annually by 2020, governments have ushered in a new era of funding for climate change. Only ten years ago, climate finance was managed by a small number of large funds associated with the United Nations Framework Convention on Climate Change (UNFCCC) process. Since then there has been a significant rise in public, private, bilateral and multilateral sources with more than fifty international public funds, 55 carbon pricing mechanisms and countless equity funds in operation.

The diversity of climate finance is easily matched by biodiversity finance. Several international public funds have also been established to support biodiversity conservation. Furthermore, biodiversity managers are exploring a wide range of innovative mechanisms to generate revenue and to carry out their mandate, including resource user fees, payment for environmental services, biodiversity and carbon offsets, benefit-sharing/revenue sharing schemes, and certification mechanisms. Similarly, in the water sector, increased attention is

paid to innovative mechanisms to finance sustainable water resource management (water funds, payment for ecosystem services, 1% water levy, etc.).

However, this apparent abundance masks the under-capitalization of most of these new funds. Rather than reflecting increasing available resources, the development of new financing instruments appears as a sub-optimal response to an unresolved financing gap. By some estimates, global funding would need to increase by at least an order of magnitude to meet international biodiversity targets. Similar situations prevail in several climate and water sub-sectors. More broadly, there is still a substantial financing gap for sustainable development. In particular, present uses of international and domestic public finance are currently insufficient to address existing deficiencies in domestic policy infrastructure and unlock private finance, especially in developing countries.

An unintended consequence of the emerging financial landscape for the environmental pillar of sustainable development has been a dramatic increase in complexity. Requirements, processes and reporting differ markedly among the new funds and instruments. Countries are faced with the tasks of identifying which funds are appropriate for them and are currently capitalized, how to access resources, how to blend them to support transformative change and how to develop cost effective methods to monitor and evaluate results.

This proliferation of financing instruments has attracted increasing attention within international policy discussions. Notably, the UNFCCC established the Green Climate Fund to manage a “significant share” of these resources and reduce the fragmentation of the international climate finance architecture. Similar efforts are attempted for other global commons, with on-going discussions on a global fund for forests as well as the establishment of the Global Partnership for Oceans Fund. Despite these efforts, the coming years are likely to see a continued increase in complexity as, for example, environmental aid is increasingly provided through bilateral channels. Furthermore, over the past decade development assistance flows have shifted from traditional donors towards “non-traditional” sources (foundations, emerging donors, etc.). These non-traditional donors tend to rely on their own mechanisms, adding to those already established for Official Development Assistance.

Given these trends, the coverage, coherence and consistency of international public financing for sustainable development could prove as important as its capitalization for an effective response to global challenges. Sectors relevant to sustainable development are deeply interconnected and solutions (i.e. in terms of public and private investment paths and related policies) focusing on individual sectors lead to missed opportunities and substantially higher costs. By contrast, integrated solutions can leverage synergies and substantially reduce financing needs. For example, the total amount required to protect wetlands could be reduced by an order of magnitude if perverse incentives in other sectors that encourage conversion of wetlands could be reformed.

Unfortunately, a wide range of barriers currently discourages the tighter integration of sustainable development efforts. International agreements, targets and financial commitments are organized by sector. Institutional settings at the national level remains based on sectors. Decisions are made by different communities. These different actors operate across different spatial, temporal and institutional scales. They manage different budgets, and sometimes compete with one another for resources. Furthermore, in many countries capacity for integrated planning and engineering at all levels remains limited.

This sector-oriented, “silo” approach deeply influences the coverage, coherence and consistency of international public financing frameworks for sustainable development. It leads to: (i) a fragmentation of international, regional and national funding instruments, channels, agents and initiatives; (ii) unrealistic sector targets at all levels; (iii) missed cross-

sector synergies; (iv) incompatible sector policies; and (v) inconsistent fund allocation across sectors.

These gaps and inconsistencies are compounded by severe regional imbalances. Outside the BASIC countries (Brazil, South Africa, India and China), developing countries have consistently accounted for less than 10% of investment in clean energy over each of the last nine years. Africa accounted for less than 1% of total sustainable development investment in the environmental pillar, despite its critical importance for global ecosystem service management (notably biodiversity) and its recognized adaptation and energy access needs.

The international community faces several challenges to establish an efficient development cooperation landscape to finance post-2015 goals. A first challenge is to use public resources in a truly catalytic and sustainable manner to unlock private investment. A second is to deepen the financial landscape to ensure that it provides the additional public resources required to promote sustainable development at scale. A third is to consolidate it to reduce its complexity, while helping recipient countries navigate this complexity to improve effective access to funding. A fourth is to improve its coverage, coherence and consistency.

Efficient use of public finance: International public finance should be primarily used to put in place an adequate policy infrastructure to reduce investment risks and help transform markets to catalyze investment at scale. Policy makers will need to be able to identify and implement a portfolio of public instruments to remove barriers in a systemic and integrated manner. Subsidies or premium tariffs should be deployed last, only to compensate the private sector for above-average residual risks.

Meeting the public finance gap: A number of potential sources of finance could be used to fill the existing gap in public resources and unlock private finance, including Government, non-traditional partners, ODA and official climate finance, and innovative sources of finance. Emerging economies and developing countries have been driving global growth in recent years and this trend is expected to continue. In order to maintain this trend, some of the resources generated by this growth should be reinvested so as to build a solid basis for resilient economies and healthy societies. However, the scope for least developed countries (LDCs) and other poorest and most vulnerable countries to collect and allocate additional resources for this is likely to remain limited. ODA and climate finance will continue to be critical to fund sustainable development but present budget deficits in OECD countries will constrain its growth. Substantial investment in policy development and management capacity are necessary to scale up existing sources of public finance.

Increasing access to sustainable development finance: While the establishment and adequate capitalization of Global Vertical Funds such as the Green Climate Fund might facilitate some harmonization among climate and ecosystems funds, this is unlikely to prove sufficient to reduce the complexity of sustainable development finance and present geographic imbalances. An increased focus is required on building and strengthening national systems to access and use international sustainable development finance effectively. . These efforts can be supplemented by national funding mechanisms that can pool traditional and non-traditional funding sources to support transformative initiatives.

Improving coverage, coherence and consistency: In a context of strong interdependence across sustainable development sectors, a strategy to use finance to its utmost potential and increase its coherence should be based on an integrated assessment of needs, where sectors/activities that contribute most to unsustainable trends and whose “greening” is cheapest are addressed systematically. This will require expanding or rebuilding national and sub-national capacity for long-term planning that has been reduced, if not eliminated, in many countries over the past two decades. Furthermore, external public finance should be rebalanced towards the countries and sectors most in need, notably LDCs and SIDS that have

limited scope to allocate additional resources for sustainable development, as well as sectors where the potential for private sector involvement is limited.

Current approaches and practices in blended finance based on international public resources have shown a number of shortcomings with respect to their development impact and effectiveness. Going forward, it will be important to agree on the criteria that this use of international public resources for development should meet. A minimal list of criteria would include the following: respect of aid effectiveness principles, including country ownership; and transparency and accountability; financial and development additionality; a consideration of opportunity costs; and adequate consideration of the impacts of risk transfer between the private sector and host governments. To these principles, one could add an umbrella “Do no harm” principle. According to such a principle, the international community should not support the financing of private sector-led projects that jeopardize the economy or social fabric of recipient countries.

Introduction

This chapter is part of a report produced by the UN Working Group on Financing for Sustainable Development under the UN System Task Team (UNTT). The four chapters aim to inform the on-going deliberations on the post-2015 UN development agenda, as well as the work of the intergovernmental expert committee on sustainable development financing strategy (ICSDF) that was mandated at Rio+20.

The focus of this chapter is blended financing for sustainable development, whereby public resources are used to stimulate private sector investment. The main objective is to present the challenges facing the international community in the use of public finance in an effective way to support private investment patterns that are in line with sustainable development objectives. The purpose is not to be exhaustive or to address different sectors in depth, but rather to provide robust conclusions about existing institutional settings and practices and identify key unresolved challenges that would need to be addressed going forward. Detailed references are provided along the chapter for more in-depth insights on specific topics or areas.

The chapter is constructed as follows. Section 1 presents recent trends relating to the provision of international public resources to private investment in support of development objectives. Section 2 reviews the capitalization, consistency, and coherence of existing international public instruments for financing climate, biodiversity and water. Section 3 explores challenges linked with the financing of integrated (cross-sectoral) strategies and projects. Section 4 examines the main challenges going forward.

1) International public support to private investment in support of development objectives

Analyses of investment requirements and financing needs for sustainable development in the coming decades all conclude that financial needs are significant (see chapter 1). The data reveal that combined investment requirements to key sectors central to sustainable development far outstrip available public resources (domestic and international). Global capital markets, representing some USD 212 trillion in financial assets (McKinsey, 2011), should in principle have the size and depth to step up to the investment challenge. Recently, expectations have been put in institutional investors as a potential source of funds for investment in climate-friendly sectors, for example renewable energy (OECD, 2012). Impact investment has also begun to push the boundaries of what the private sector can accomplish with its own resources. However, beyond the amount of resources that these institutions and markets command globally, there are significant institutional constraints to the mobilization of resources to specific sectors and areas (Nelson and Pierpoint, 2013).

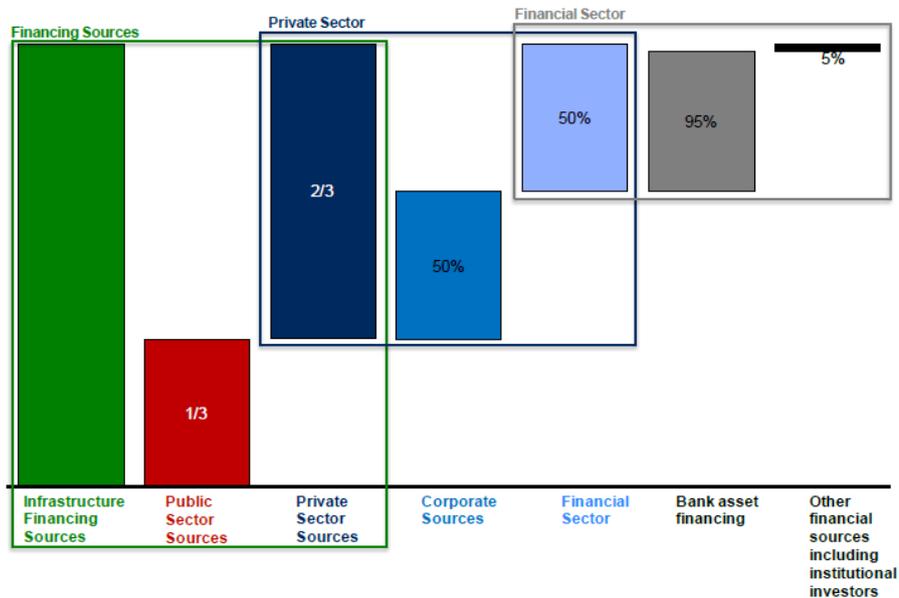
Many governments are already challenged to provide public resources to sectors for which they committed spending targets. While in the medium term there are prospects for increased public resources becoming available at the national level in developing countries (see chapter 2), this potential should not be over-estimated.

It is thus recognized that the bulk of investments supporting sustainable development will have to come from the private sector. Financing flows supporting this investment also primarily come from private sources. This is the case even for areas such as climate finance, which is supporting public objectives of climate mitigation and adaptation. For example, research by the Climate Policy Initiative estimated that around 60 percent of climate finance

in 2010 emanated from the private sector (Buchner et al., 2011). The International Energy Agency (IEA) estimates that approximately 40% of the global investment needed to transform energy systems alone will likely come from households, 40% from businesses, and just 20% from government (IEA, 2009). Figure 1 below shows that private sector accounts for about two-thirds of infrastructure financing in OECD countries.

Figure 1: Sources of infrastructure financing; estimates for developed economies.

Figure 7. Sources of infrastructure financing – Estimate for Developed Economies



Source: OECD; Author's analysis based on EIB figures

Source: OECD, 2012.

The potential for private investment vary across sectors, which in part determine where public investment occurs and in which combination with private investment. Some sectors closely linked with public goods such as education, health and basic services have always constituted high priorities for public investment. Others such as housing and transport may have strong public components but are complemented by important private sector involvement. Table 1 below illustrates this diversity based on a few sectors.

Because of this, changing the fundamental rules that govern private investment decisions (relating to, inter alia, reporting standards and market valuation, accounting rules, disclosure rules and standards, and fiduciary duties) to make them more compatible with broad sustainability objectives is critical. This is covered in chapter 2.

Table 1: Need for public investment in different areas at the national level (simplified)

	Research and development	Demonstration and pilot projects	Full-scale investment
Agriculture and food	++ Important role of public investment in R&D Mixed with private investment	++ Important role of public sector investment Co-exist with private sector investment	Overwhelmingly private
Buildings and housing	(+) Limited role of public sector financing in R&D	++ Important role of municipalities in pilot projects including through public housing	+ Mostly private outside public or social housing component Important role of municipalities in city-wide programmes for energy efficiency and urban renewal
Energy systems	+++ Important role of public investment in R&D Mixed with private investment	+++ Critical role of public sector	+++ Important role of public sector, many times in conjunction with private sector
Basic infrastructure (roads, ports, bridges, etc.)	(+) Limited role of public sector investment in R&D	n.a.	+++ Important, sometimes exclusive role of public sector investment
Public transport systems	+++ Important role of public investment in R&D Mixed with private investment	+++ Important role of public investment in pilot projects	+++ Important role of public investment, often in conjunction with private sector
Management of protected areas, control of land use changes	++ Important role of public resources	++ Important role of public resources	+++ Critical role of public resources

Source: Author's elaboration.

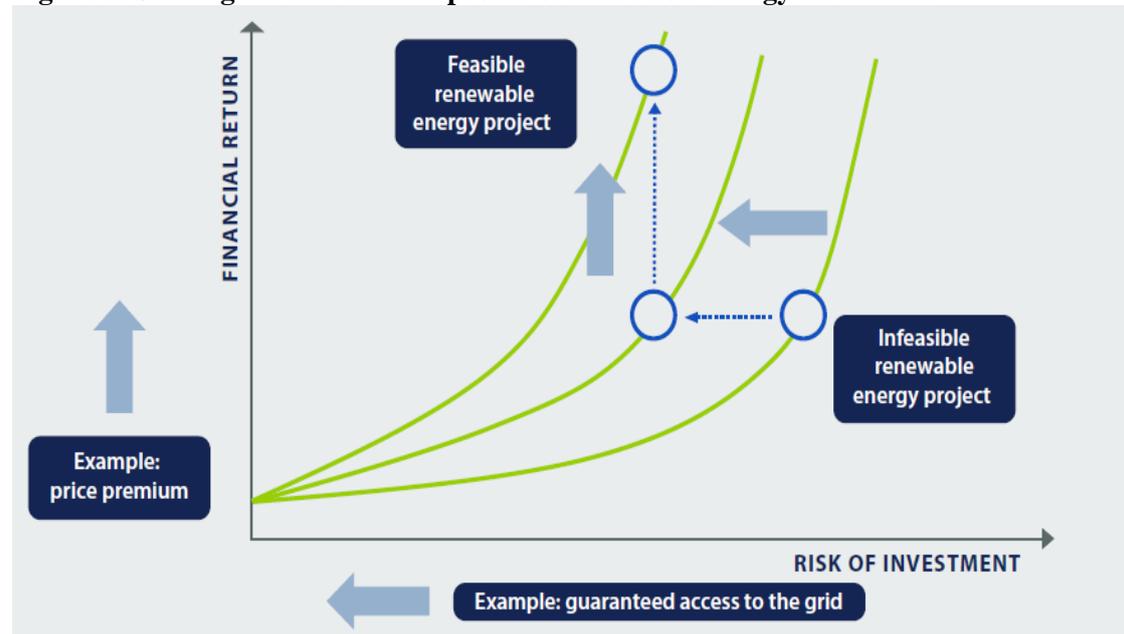
1.1) Approaches to blended finance

In many sectors, there may be strong rationales for national or local governments to catalyze and try to better align private investment with poverty reduction and sustainable development objectives. As global ODA stagnates, several aid agencies have suggested a dramatic scaling up of public finance devoted to supporting private sector investments (Kwakkenbos, 2012).

Policymakers have been exploring a broad spectrum of public instruments to foster private investment (Glemarec et al., 2011). The common objective of these instruments is to create conditions for attractive investment risk/reward profiles, adapted to different types of investors, either through reducing risks (and hence lowering the weighted average cost of capital demanded for these investments) or increasing rewards (through premium prices, tax credits, etc.). Figure 2 provides a conceptual illustration of the approach for renewable energy. The figure illustrates a shift from a commercially unattractive investment opportunity (right) to a commercially attractive one (top). This is achieved through two actions: first, by reducing the risk of the activity, for example through a regulatory policy such as guaranteed access to the grid for independent power producers (IPPs); and, second, by increasing the

return on investment through financial incentives such as a price premium for renewable energy.

Figure 2: Shifting the risk-reward profile of renewable energy investment



Source: Glemarec et al. (2011), adapted.

The challenge is to use public resources in the most efficient way, by leveraging private resources and expanding the profitability domain where private finance is willing to operate. Essentially three broad types of intervention are available to governments in this respect: (i) establishing a policy environment that addresses legal, regulatory and other practical barriers to investment to reduce investment risks in given sectors (often called “investment-grade policy infrastructure”); (ii) interventions aimed at deepening financial intermediation in order to facilitate access to finance by private investors; (iii) investing directly (co-investment), aiming to leverage private sector investment.

The main types of interventions at the disposal of national governments are also available to the international community. Compared to the national level, international institutions benefit from access to low-interest finance, made possible by explicit or implicit sovereign backing.¹ International development institutions also have an often considerable capacity as knowledge brokers and providers of technical assistance, capacity building, in particular for support to regulatory reforms and pilot projects.

The three main approaches to blended finance are mutually supportive. Capacity of the international community to use both grant and low-interest capital can simultaneously increase access to, and reduced cost of, financing through both reduced risk and increase rewards. Table 2 summarizes these complementary services.

¹ For example, in the case of the IFC, “The strong support that the IFC receives from its government owners affords a large measure of comfort to investors. In Moody’s view, the IFC faces very little transfer risk in its portfolio because of the preferred creditor status it has historically been accorded by the member countries in which it lends. IFC loans have never been included in a sovereign debt rescheduling, nor have payments to the IFC ever been permanently interrupted by a general debt-servicing moratorium.” (Moody’s Investors Services, 2012).

Table 2: Examples of traditional use of international public resources supporting different objectives

Objective	Possible intervention
Improve policy environment to reduce investment risks	Analytical work to support participatory policy development (assess technical options, quantify financing costs of various risks, etc.) and reduce the risk of policy reversal
	Technical assistance on regulatory changes in target sector(s)
	Institutional strengthening and skills development to support policy implementation
	Technical and policy pilots
Deepening of local financial intermediation	Insurances and hedging products
	Financial sector reforms
	Direct lending by public institutions
Co-investment to leverage private finance	Creation of financial intermediation infrastructure (liquidity facilities, etc.)
	Co-investment (various forms)
	Concessional and structured finance
	Direct support to investors
	Development of PPP schemes and business models

Source: Authors' elaboration.

1.1.1) Upgrading the policy environment

Public authorities are responsible for establishing the legal infrastructure and ensuring a predictable business environment to support investment. Broadly speaking, investment risk can be reduced by the public sector in three ways: by mitigating risk; by transferring risk; or by compensating for risk. Together, these activities are referred to in the investment literature as reducing risk or “derisking”. Policy derisking instruments address and attempt to remove the underlying barriers that are the root causes of risks (quality policy design to reduce the risk of policy reversal, streamlining of licensing processes, etc.). Financial derisking instruments do not seek to directly address the underlying barrier but, instead, function by transferring the risks that investors face to public actors, such as the government or development banks. These instruments can include development banks loans and guarantees, political risk insurance and public equity co-investments. Recognising that all risks cannot be eliminated through policy derisking or transferred through financial derisking, efforts to reduce risks might need to be complemented by a third group of public instruments, direct financial incentives, to compensate for any residual risks and costs. These incentives can take a number of different forms including price premiums, tax breaks, such as production tax credits, and proceeds from carbon offsets.

1.1.2) Deepening Local Financial Intermediation

While establishing an adequate policy environment is critical to mobilize private finance, capital market conditions are also important determinants of the conditions under which private sector investment operates. At the risk of simplifying, least developed and low-income countries tend to have weakly developed financial markets and capital markets, as well as low capacity in financial sectors. The situation in middle-income countries is variable, with often limited development of local capital markets (with lack of long-term financial products in local currency being a critical hurdle), sometimes in combination with abundance of liquidity in the banking system but underdeveloped financial intermediation and missing lending business lines.

The degree to which countries are able to influence the allocation of lending to the private sector varies. Some countries have relied on directed credit to achieve public policy goals. For example, while the outstanding growth of clean energy technologies in China has been fueled by the strength of its capital markets, the return on many of China's investment at home has been below their costs of capital (McKinsey, 2013).² Thus, the inflow of investment into renewables is at least in part the product of directed investment by the government through public banks. While this undoubtedly has benefited renewable energy and other capital intensive industries, this model may not be easily transposable to other countries where market returns are expected.

Many countries have relied on public or quasi-public institutions to lend directly to project proponents in specific sectors. Those institutions are usually at the service of national economic development strategies and industrial policies, thus channeling support to economic sectors and companies that are considered of strategic importance. To do so, they rely on other sources of finance or capital e.g. (sovereign funds, pension funds), that can be more easily mobilized than private resources to cater to un-served or underserved sectors or sub-sectors. Notably, some developed countries have deeply rooted special financing circuits aiming to lend funds on favorable terms to municipalities and local governments as well as certain sectors (e.g. public social housing).³ Development banks in developing countries have also played an important role in past decades.

1.1.3) Co-investment aiming to leverage private sector investment

While the private sector is at the origin of most of global investment, some of it is directly or indirectly supported by public sector resources from national governments, national development banks, bilateral and multilateral financing institutions, through various instruments. The idea of "blending" resources by combining grants and concessional finance (e.g. loans) with market finance to finance development projects or programmes is not new. It has a long tradition in bilateral and multilateral development finance (Núñez Ferrar and Behrens, 2011). The two most commonly stated objectives that blended finance is supposed to fulfill are: (1) to increase the leverage of public resources and in particular official development aid (ODA), by mobilizing additional co-financing by the private sector for development projects; and (2) to finance global public goods.

Donor governments and multilateral institutions have provided grants and loans to private companies operating in developing countries for decades. However, since the 1990s the scale of this support has increased dramatically. In 2010 external investments to the private sector by international financing institutions (IFIs) exceeded \$40 billion (IFC, 2011). By some estimates, by 2015, the amount flowing to the private sector could exceed \$100 billion – making up almost one third of external public finance to developing countries.

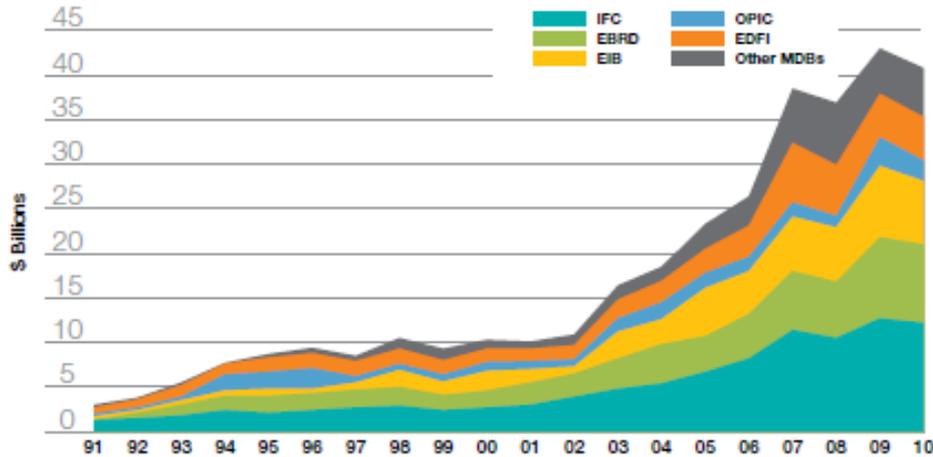
These interventions often do not deal with final clients. Rather, they tend to use the existing networks of financial institutions, which retain the responsibility of evaluating the risks, selecting projects, and managing project portfolios. For example, guarantees may be offered in the form of portfolio guarantees. In 2010, on average over 50% of public finance flowing from bilateral financing institutions to the private sector went to the financial sector. In 2010

² In contrast to most advanced economies, where lending has been stagnant, bank loans in China has been growing by \$ 5.8 trillion since 2007, reaching 132% of GDP. About 85% of that Chinese lending has been to corporation, households account for the rest (McKinsey, 2013). Chinese corporate-bond market is also developing. Bonds outstanding from non-financial companies have grown by 45% annually for the past 5 years.

³ The Caisse des Dépôts in France is an example of institution managing such specialized circuits.

lending and investments in the financial sector by bilateral and multilateral financing institutions had increased, on average, more than two fold compared to pre-crisis levels. (Kwakkenbos, 2012). Among financial intermediaries, commercial banks are by far the largest recipients of funds, although private equity funds are quickly becoming a favoured vehicle. (Kwakkenbos, 2011).

Figure 3: IFI private sector commitments to developing countries, 1991-2010.



Source: IFC Database, largely from annual reports. Data are for private sector operations, without sovereign guarantees or grants. Does not include political risk insurance. Data is for calendar year except for IFC where data is for fiscal year ending June of subsequent year. 2010 data is preliminary. It is estimated that over 90 percent of IFC private sector finance is covered in this database.

Source: IFC, 2011.

Figure 4: IFI private sector commitments by region and by sector, 2007-2009



Source: IFC Database, largely from annual reports. Data are for private sector operations, without sovereign guarantees or grants. Political risk insurance is not included.

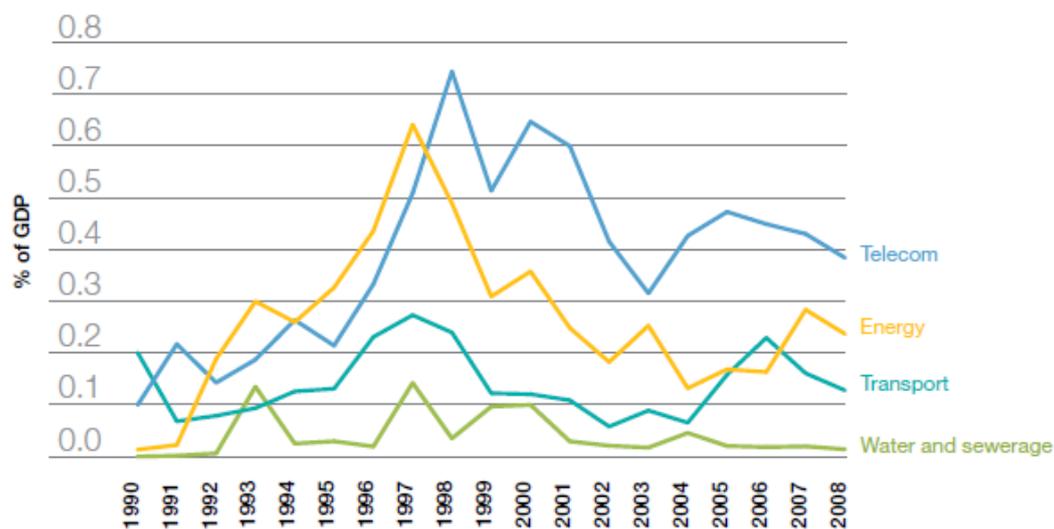
Source: IFC, 2011.

Public-private partnerships

This direct support to the financial sector is taking place in the broader context of rethinking the role of public private partnerships to catalyze private investment. As recently as the 1990s, the emphasis of institutional reform in the context of development was on sector restructuring and private participation – or “public-private partnerships”.⁴ This approach was advocated by international financing institutions across a wide array of sectors. In some regions, private sector participation has increased dramatically over the last decade. For example, according to a 2009 World Bank report, private finance to African infrastructure increased from very low levels to provide a flow of funds comparable in magnitude to traditional ODA to that sector (Foster, 2009).

Figure 5: Private participation in infrastructure in developing countries, 1990-2008.

Figure 8. Private Participation in Infrastructure in Developing Countries, 1990–2008



Source: PPI Database.

Source: IFC, IFIs and development through the private sector, 2011, obtained through World Bank PPI database.

This type of PPPs has yielded often positive results in the telecommunications sector, but elsewhere the benefits were often limited and showed great variability across countries, with many instances of problematic situations. A more nuanced, less academic, view of the comparative advantages of and optimal relationships between the private and public sectors has subsequently emerged, which values the significant private financing contribution that can be made in certain key areas (mobile telephony, power generation, ports) while recognizing its limitations in others (roads, power and water distribution). The concept of private sector participation has evolved, with greater emphasis put on the role of national firms (as opposed to international firms), and increasing exploration of hybrid models that experiment with different ways of allocating responsibilities between public and private sector partners.

⁴ There is no strict definition of public-private partnerships. In this paper, the term is used to refer to the provision of public services by the private sector.

1.2) Challenges for co-investment to leverage private finance

The increasing use of international public financing resources to finance development objectives through the private sector has come with an array of challenges. Some of these challenges are similar in nature to those faced by traditional development aid. Others are specific to blended financing, and reflect the additional complexity of adding the private sector to the traditional development equation. The three main concerns that have been highlighted in the development literature are the following: i) lack of additionality; ii) respect of aid effectiveness; and iii) sustainability.

1.2.1) Lack of financial and development additionality

The notion of leverage is commonly used to justify the rise of private development finance. Assessing financial additionality is difficult as different institutions use different definitions of leverage, resulting in potentially confusing arguments and claims about how much leverage public resources can achieve. Leverage is commonly used to encompass pooled financing by public institutions; catalytic investment, in particular through inducing policy reforms – “policy de-risking”; and financial leverage, measured as the ratio of public or publicly backed investment to private investment. The confusing uses of the concept of “leverage” to imply that public investments in effect generate additional private investments have been criticized as an indicator of development effectiveness (Kwakkenbos, 2012, Bretton Woods Project, 2012a, Wassbein et al. 2013). A high financial leverage ratio, i.e. a large ratio of private funds over public funds in a project, does not imply additionality – in other words, it does not imply that public investment caused the private investment. The question of determining additionality in the presence of public funds is the same as for other types of subsidies; the right question to ask is what portion of the private investment if any is additional, and what is the portion of the investment that would have taken place anyway.

In addition, it has been pointed that leverage cannot be the sole criterion used to assess the opportunity of public investment. First, the more “difficult” a sector is in terms of distorted playing field (for example, in the presence of massive subsidies to certain technologies or industries), the more public resources are needed to overcome obstacles to private investment in alternative solutions, and therefore the lower the leverage ratios will be. Lower leverage ratios do not automatically imply that public intervention is less necessary or less justified. For example, the lower leveraging ratios observed in UNDP-GEF projects for clean energy compared to oceans reflect market characteristics specific to these two sectors rather than differences in approaches for blended finance (UNDP, 2012b).

Second, observers have pointed that high leverage ratios signal that private investors have a strong interest in investing. The higher the leverage ratio for a given project, the stronger the private sector influence on project design and the lower the development additionality is likely to be (Kwakkenbos, 2012, Bretton Woods Project, 2012a).

Regarding development impact, recent reports found that while investment in infrastructure that promotes the private sector has increased drastically, investment in social sectors has either stagnated or decreased (Action Aid et al., 2010).⁵ This is partially due to the nature of investing in the private sector, where social outcomes are usually not the objective of the

⁵ One of these studies observes that the large sums that are now invested by private equity firms into infrastructure would seem to suggest that such funds need no encouragement from DFIs to invest (Bretton Woods Project, 2012b).

private sector partner, and are difficult to measure.⁶ Other studies have pointed to limited inclusion of internationally agreed development objectives into project concepts and designs. In their review of the IFC portfolio, the IEG noted that very few projects explicitly incorporated poverty reduction objectives in project design (IEG, 2011a). Studies of the portfolios of major bilateral and multilateral development finance institutions have noted imbalance between mitigation and adaptation in financing by international public funds (Bretton Woods project, 2013), as well as a bias of international climate finance to middle-income countries versus LDCs.

1.2.2) Alignment with effectiveness principles, especially country ownership, transparency and accountability

It has been noted that in the quest to achieve leverage of public resources, national strategies and policies may be ignored or overridden (Bretton Woods Project, 2012a). Existing models and institutions often operate through global funds or international financial institutions that are not always well linked to national plans. In their recent review of World Bank's managed trust funds, The IEG found that trust funds had in some occasions been used to bypass the framework of the Country Assistance Strategies (CAS), de facto resulting in projects in sectors that were not priorities for national governments (IEG, 2011b). The same concerns have been voiced regarding the Climate Investment Funds (Bretton Woods Project, 2013).

Research also found that a substantial portion of the IFC and other DFIs support large companies from advanced economies, which invest in poorer countries, rather than domestic companies.⁷ This mirrors concerns with foreign direct investment (FDI) as a source of finance for development in general. Many developing countries, particularly LDCs and LLDCs, have only been successful at attracting foreign investment into resource extraction sectors, and the contribution of those sectors to long-term development has proven problematic in many cases. The support provided to developed country companies through public funds is often seen as a form of tied aid, in contradiction with the principles of aid effectiveness (Kwakkenbos, 2012).

ODA co-funding of PPPs has faced the same type of concerns as project-based finance. In terms of country ownership, the selection of donor-funded PPP projects seems to be in many cases the result of an agreement between the donor and a private entity, raising questions on national ownership (Bayliss and McKinley, 2007). Some donor-funded PPP programs have been only accessible to firms from donor countries, a form of tied aid. Such practice substantially reduces the value of PPPs for private sector development in the host countries, since their firms are de facto excluded from business opportunities.

It has also been argued that transparency and accountability in private development lending are often lower than for traditional aid. This has been linked to different access to information

⁶ Investment through intermediaries rather than directly can also limit influence of DFIs on project design. In their review of the State-owned fund Swedfund, the Swedish National Audit Office emphasized that “investments through venture capital funds, and also loans, cannot be influenced and followed up to the same extent as direct investments in share capital. When making direct investments in companies, Swedfund is generally entitled to a place on the board. Opportunities for following up the development effects of projects are more limited when investments are through loans and venture capital funds.” (SNAO, 2009).

⁷ In a recent study, Eurodad found that “only 25% of all companies supported by the EIB and IFC were domiciled in low-income countries. Almost half goes to support companies based in OECD countries and tax havens. Around 40% of the companies in Eurodad's sample are big companies listed in some of the world's largest stock exchanges”. The study concludes that these numbers cast “doubt on whether IFIs are succeeding in channeling their financial support to the most credit-constrained companies in the world's poorest countries: instead, they appear to be simply following market trends”. (Kwakkenbos, 2012).

policies between private lending financiers and their public lending counterparts (for example World Bank versus IFC); limited monitoring and evaluation standards (Bretton Woods Project, 2012a; IEG, 2011a); differing requirements for monitoring and evaluation across financing instruments (Nuñez and Behrens, 2011); and limited transparency of commercial operations due to confidentiality concerns. The fact that financial institutions are used as intermediaries to dispense funds to ultimate beneficiaries in many projects funded by development finance institutions has raised concerns regarding the monitoring and evaluation of the development impacts of public investments, as clear reporting standards or requirements may not be in place or may be of limited depth (Bretton Woods project, 2012a, Kwakkenbos, 2012). For example, it has been mentioned that it is difficult to precisely track whether DFI and IFI lending and investments reach small businesses, as commercial banks, private equity funds and other financial intermediaries may not provide disaggregated data on which projects and companies they support and what development impacts are achieved. (Kwakkenbos, 2012). Among the resources that are directed to small and medium enterprises (SMEs) by IFIs, typically 70 to 90 percent are delivered through intermediaries rather than directly (Perry, 2011).

Other potential downsides have been mentioned as well, including impacts of private development lending on private and public debt in recipient countries (Eurodad, 2011); risks inherent to increased reliance on foreign direct investment, including volatility and procyclicality (Bretton Woods project, 2012a).

Various measures have been and are being taken by international development institutions to address those challenges. However, existing evaluations suggest that more work is needed to improve the development impacts of public resources invested in private sector support.

1.2.3) Sustainability and capacity to scale up investment

As discussed in the previous section, the three main approaches to catalyze private finance for sustainable development are mutually supportive. Furthermore, a growing body of evidences shows that it is more cost effective to mitigate investment risks rather than to compensate for investment risks (UNDP, 2012 and 2013).

However, in many cases existing practices to leverage private finance result in a large portion of the risks being taken up (on commercial terms or not) by international financial institutions and especially by national governments.

The bulk of public funds in both developed and developing countries so far has been used to provide subsidies to the private sector through concessional loans, grants and premium tariffs to increase investment reward. In recent energy projects financed with public support, the rate of subsidization can easily exceed 50% of the project costs. For example, extensive federal and state subsidies have been offered for solar power in USA since 2009. An analysis by Booz & Company shows that taxpayers and ratepayers are providing subsidies worth \$ 1.4 billion on a \$1.6 billion solar project in California (NY times, Nov. 11, 2011). The bouquet of government subsidies — which includes loan guarantees, cash grants and contracts that require electric customers to pay higher rates — largely eliminated the risk to the private investors and almost guaranteed them large profits for years to come. Similar concerns have been expressed vis-à-vis clean energy investment projects in developing countries. For example, the financial engineering of a large concentrated solar panel (CSP) project in Ouarzazate, Morocco, exposes rates of subsidization and risk transfer that, while being obviously attractive to private investors, place a heavy burden on the government's shoulders (Falconer and Frisari, 2012).

Blended finance approaches that shift the burden from tax payers to rate payers can be equally problematic and have led to a number of policy reversals in Europe. As pointed out by Liebreich (2009), Spain's solar programme had created an off-balance sheet future liability for of EUR 26 billion, 8% of its national debt in 2008 alone. Spain retroactively changed this financially unbearable policy at the end of 2010. Spain's retroactive changes to the programme sent shockwaves that continue to reverberate today through the clean energy investment community. Spain was followed by the Czech Republic, Bulgaria and a number of additional countries are likely to follow suit (Liebreich, 2013).

In summary, compensating for risks has proven effective to demonstrate green technologies and encourage early market entrants in the presence of adverse conditions for investment. However, it is not sustainable over the longer term and cannot promote investment at scale. In case of policy reversals, it can make lasting damages to entire economies and sectors. A necessary condition for enabling scaling-up is to address the conditions for investment in the selected sector in a structural manner, by devising appropriate rules and policies.

2) Coverage, coherence and consistency of international public financing frameworks for climate, biodiversity, and water

Section 1 discussed opportunities and challenges associated with the main conceptual approaches for blended finance. The capacity of the public sector to leverage private finance for sustainable development is also influenced by international financing frameworks. This section reviews the coverage, coherence and consistency of the existing international public financing frameworks for climate, biodiversity and water. It complements the review of infrastructure finance provided in chapter 2. The goal is to identify gaps in coverage in terms of areas and sectors compared to existing and perceived needs, and to assess the depth of reach of public, mixed, and private finance in those sectors.

2.1) A complex web of financial flows

There is an international consensus (UN, 2010; UNDP, 2011; UNFCCC, 2012) that the bulk of sustainable development finance will need to come from the private sector. As seen in section 1, public finance has however a key role to play to establish an enabling environment to de-risk investment in green technologies and infrastructure. The present levels of international and domestic resources are still likely to prove insufficient to meet this task.

The international community has responded to the scarcity of public finance for the environmental pillar of sustainable development by increasing North-South public finance transfers for climate change and ecosystem finance activities. For example, governments have designed and reformed institutions such as the Global Environment Facility (GEF), the Adaptation Fund (AF), the Climate Investment Funds (CIF), and most recently the Green Climate Fund (GCF). They have also introduced new evolving financial mechanisms such as performance-based payments for reducing emissions from deforestation, degradation, and forest conservation (REDD+), as well as carbon crediting and trading schemes, and water funds.

In addition, developing countries have increased their own public spending on climate change and ecosystems activities, including through national budgets and national climate and biodiversity funds. Pilot Climate Public Expenditure and Institutional Reviews (CPEIRs) conducted by UNDP in Asia and Africa revealed that Government are already allocating from 3% to 15% of their budget to climate change-related expenditures. In addition, an increasing

number of developing countries are establishing national biodiversity trust funds and national climate funds to complement budgetary allocations. Several of these funds are capitalized from innovative sources of finance such as a levy on CDM revenues or on fuel exports (see Box 3).

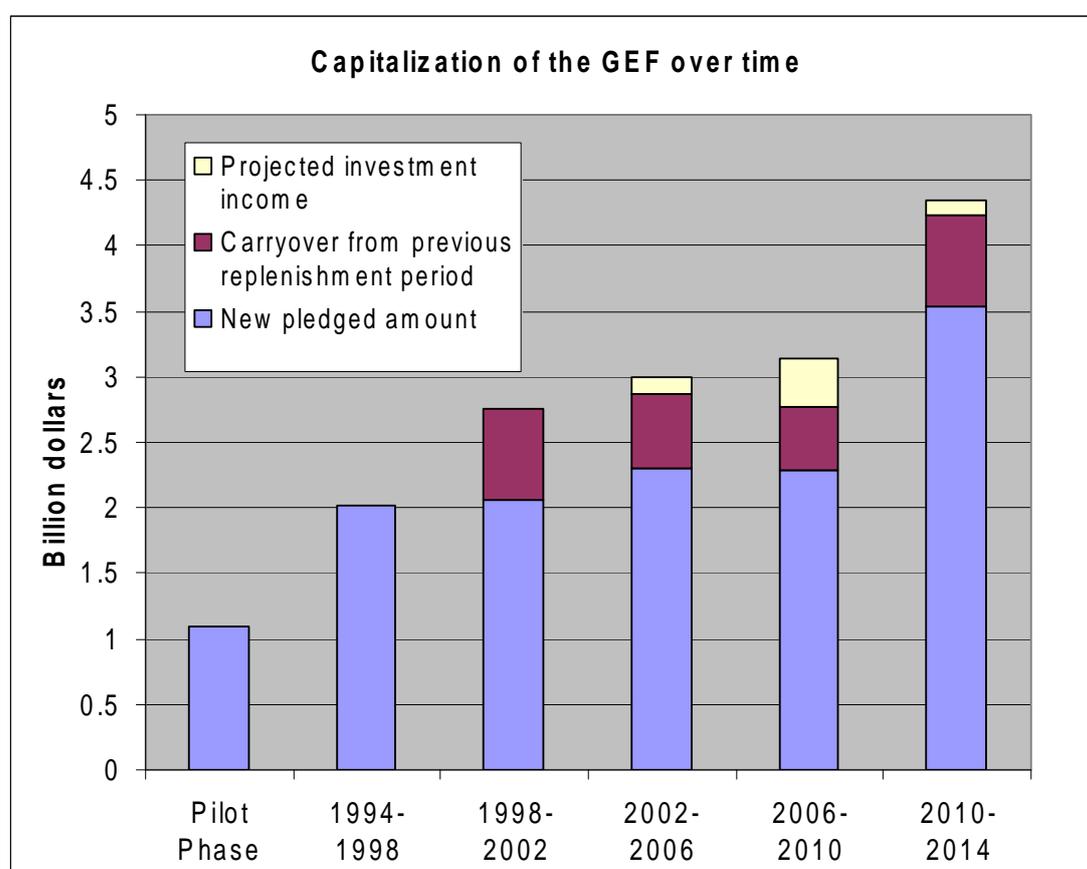
However, this apparent luxuriance masks the under-capitalization of many funds. Rather than reflecting the need to manage exponentially increasing resources, the development of new financing instruments appears as a sub-optimal response to an unresolved financing gap.

2.1.3) Climate change

The GEF is currently the largest source of funding for climate change mitigation and adaptation. The GEF is replenished every 4 years. Five replenishments and the pilot phase have provided a total of nearly US\$ 14 billion over the 20 year history of the GEF. In nominal terms, GEF replenishments have increased from about US\$1 billion during the pilot phase to US 4.34 billion during GEF-5 (2010-2014) as shown in Figure 6. The real value of replenishments (adjusted for inflation) has actually hovered around US\$ 500 million per year over the years, while at the same time additional focal areas (sustainable land management and persistent organic pollutants) have been added to the GEF mandate.

While the newly established Green Climate Fund is expected to dramatically increase international public finance by 2020, sources of finance have yet to be identified to capitalize the fund.

Figure 6: Capitalization of the GEF over time



Source: GEF Secretariat, 2013.

LDCs and SIDS in particular are vulnerable to climate change. Given their limited contribution to global warming the UNFCCC has determined that for such countries the focus should be on climate adaptation as opposed to mitigation. However, despite increased recognition amongst the international community of the importance of adaptation, the sums involved are not commensurate to cover estimated costs of damages, loss of livelihoods and long-term socio-economic impacts. Around 92% of approved climate finance has, as of 2012, been directed to middle income countries, and has primarily supported mitigation action to reduce greenhouse gas emissions. SIDS, which are most vulnerable to climate change have received very little finance so far; for example, Fiji, Kiribati, Marshall Islands, Samoa, Tonga, Tuvalu and Vanuatu have received just 2% of the total amount directed to Asia and the Pacific (ODI, 2012).

The funds specifically set up to assist LDCs in their efforts to respond to the climate change challenge include the UNFCCC GEF-administered Least Developed Country Fund (LDCF). As of June 2012, \$346 million have been approved for projects and enabling activities, related to the implementation of NAPAs and some \$537 million had been pledged. The Green Climate Fund, which is expected to be operational in 2014, is expected to allocate minimum amounts to countries particularly vulnerable to climate change, like LDCs and SIDS. However, it is not clear whether the contributions to these funds are in addition to ODA. Furthermore, the allocation of fast start finance has been unbalanced in favor of mitigation. Based on information submitted in 2010, roughly 62% of fast start finance was allocated for mitigation, 25% for adaptation and 13% for Reducing Emissions from Deforestation and Degradation plus (REDD+) (ACPC, 2011).

Box 2: Potential of innovative sources of climate finance

Many proposals for public sources of climate finance have been made, though the economic merits of some novel options are not universally accepted (e.g., the financial transactions tax, for which experience in Europe is showing just how difficult anything like near-universal adoption would be) while traditional sources (e.g., income taxes, tobacco taxes) eat into domestic revenues.

Instruments related to climate mitigation however have natural appeal, in their novelty, widely accepted economic rationale and, in some cases, the weak claim of national government on the tax base. A starting point could be the removal of fossil fuel subsidies which WB/IMF (2011) put at about \$50 billion a year in 2010 in OECD countries. But more promising, both in terms of raising revenue and putting in place the incentives needed to catalyze private investments in clean technology development and adoption, is to comprehensively price the carbon content of fossil fuels (though carbon taxes or emissions trading schemes with allowance auctions). A CO₂ charge of \$25/ton could raise revenues of around \$250 billion from OECD countries in 2020, while costing less than 0.1 percent of GDP on average (if revenues are used productively). According to the IMF, these policies are more effective than other mitigation instruments such as incentives for energy efficiency and renewables) at reducing emissions, and their environmental benefits also make them a more efficient revenue source (up to a point) than broader fiscal instruments.

While carbon pricing and subsidy removal harm vulnerable households and firms, more targeted measures (e.g., adjustments to the tax/benefit system) are far more effective at helping these groups than holding down energy prices below levels warranted by production and environmental costs.

Charges for international aviation and maritime fuels are also an attractive source of climate finance, not least because these fuels are undercharged from both a fiscal and environmental

perspective and national governments have a weaker claim to the tax base than for domestic fuel taxes (for which, presumably, they would retain most of the revenue). Ideally (due to the mobility of the tax base, especially for maritime) these charges would be internationally coordinated, but even with compensation for developing countries, they could raise upwards of \$20 billion a year.

Apportioning 100 percent of revenue from international fuel charges, and 10 percent of revenue from subsidy removal and carbon pricing in developed countries, would meet half of the \$100 billion target for climate finance (while indirectly leveraging additional—perhaps very substantial—private flows).

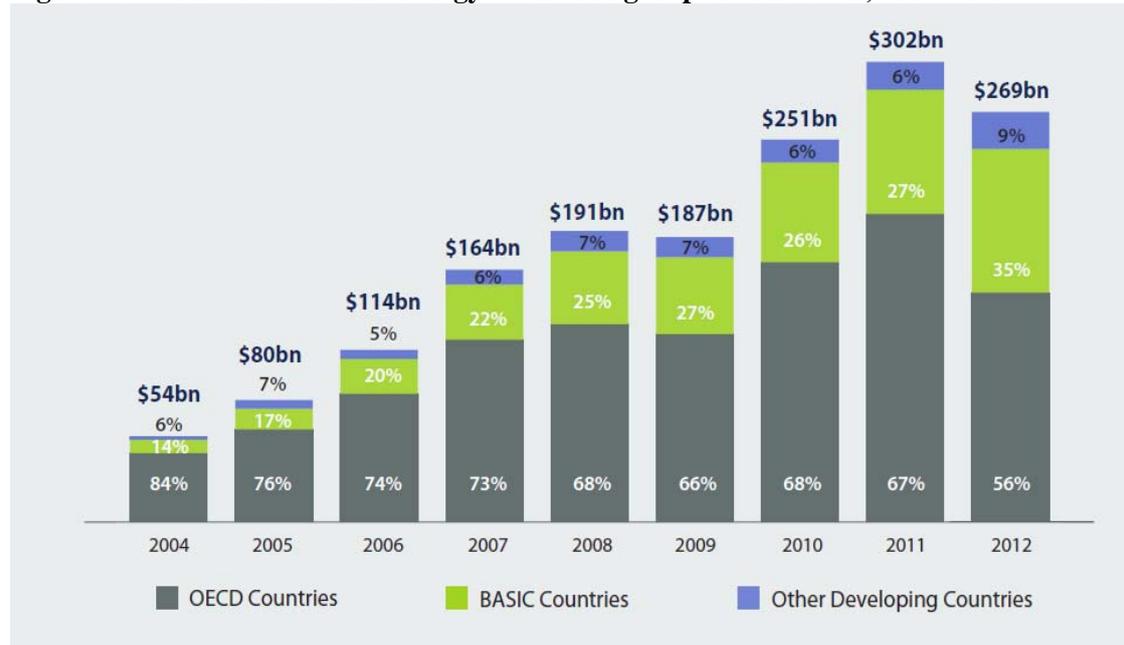
A wide variety of innovative financing mechanisms have already been established for the management of global pandemics and climate change (international airline taxes, International Financing Facility for Immunization, carbon levies, etc.). However, actual revenues raised to date from innovative sources remain small, standing at only \$57.1 billion between 2000 and 2008, or only 4.5% of ODA and IFI bond proceeds (Greenhill and Ali, 2013). For most of these mechanisms, there are high start-up costs associated with setting up new innovative financing schemes and the initial revenues have been low (Atun et al. 2012). Significant scaling up compared to current revenues is therefore needed.

References: World Bank and IMF, 2011.

Private investment is likely to be critical in promoting climate compatible development. The existence of significant potential for low-carbon investments, with many options already available and cost-effective, should make a compelling case for businesses, private investors and households to independently adopt mitigation and adaptation technologies. Nonetheless, such investment in seemingly straightforward technologies faces a range of informational, technical, institutional and financial barriers.

As a result, global investment in climate compatible technologies suffers from severe regional imbalances. For example, figure 8 compares investments in clean energy in OECD countries, the BASIC countries (Brazil, South Africa, India and China) and others. Outside the BASIC countries, developing countries have consistently accounted for less than 10% of investment in clean energy over each of the last nine years (BNEF, 2013). In 2011, BNEF (2012) estimates that North/South financial flows accounted to about US\$ 8 billion, on a par with public flows. Like innovative sources of finance, private finance will need to be significantly scaled up to address the financing gap in developing countries.

Figure 7: Investments in clean energy in various groups of countries, 2004-2013

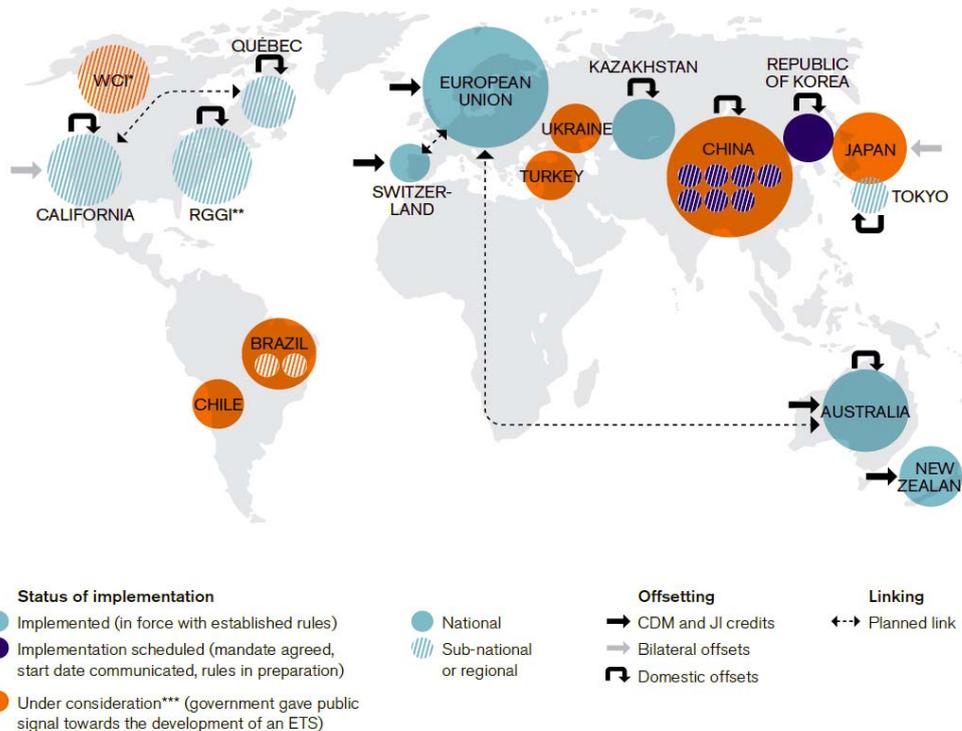


Source: Bloomberg New Energy Finance (2013)

Source: BNEF, 2013.

Regarding climate financing, a long-standing focus has been on “getting prices right” --i.e. ensuring that energy and other product prices properly reflect production costs and environmental damages. Carbon markets are regarded as an option to price carbon and to scale up private investment in climate change and regional, national and sub-national carbon pricing initiatives are proliferating (see figure 8).

Figure 8: Existing and planned ETS-type carbon price mechanisms



Source: BNEF, 2013.

Despite this strong endorsement of carbon markets to reduce GHG emissions, prices in the major existing carbon markets are at a historic low. The present economic downturn in most OECD countries has led to a significant reduction in industrial activity and demand for carbon allowances. As a result, offset carbon prices have been plummeting since mid-2011. Kyoto offsets are currently being traded at a few Euro (€) cents,¹ while EU Allowance (EUA) prices fell from about €30 in mid-2008 to lows of below €4 in early 2013, substantially less than what is needed for a transition to a sustainable, low-carbon world according to IPCC, and notably for scaling up investment in clean energy in developing countries. Carbon markets are likely to remain plagued by uncertain prices for several years. Decisions taken at COP 18 in Doha in 2012 ensured that the existing carbon mechanisms under the Kyoto Protocol would continue. However, mainly European countries made carbon emission reductions pledges. Outside the Kyoto Protocol, no decisions are expected on new international emissions reduction targets or new carbon market mechanisms before 2015, making implementation impossible before 2020.

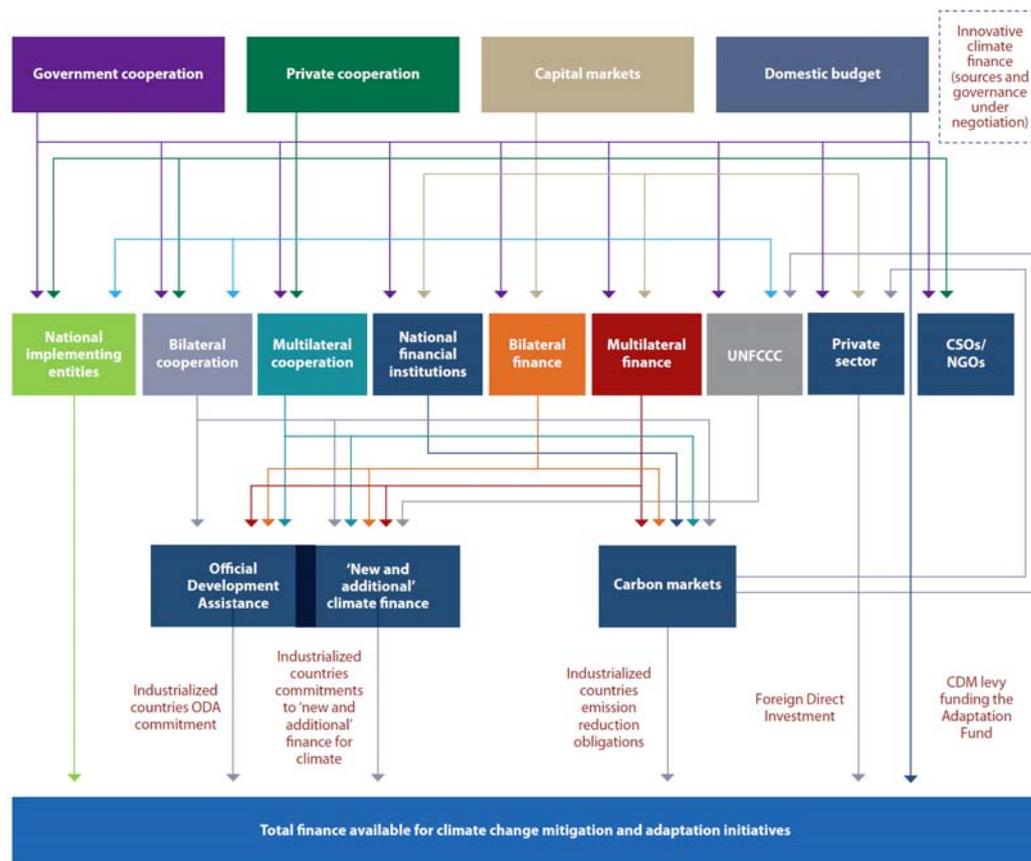
In addition, it has been noted that ETS systems (e.g., in the EU, California) have largely forgone the fiscal dividend which is a key rationale for using pricing instruments over regulatory approaches. And, as they are imposed downstream rather than on fuel suppliers they lack full coverage—e.g., the EU ETS does not cover about 50% of emissions.

Carbon taxes (with credits for offsets) may be just as promising and have been put in place or are proposed in many countries (e.g., in British Columbia, Scandinavian countries, proposed in South Africa).

Finally, it has to be noted that carbon taxes or carbon markets, while improving the return to environmentally-friendly investment compared to that of investment based on fossil fuels, do not change the underlying risk structure associated with specific technologies. Policies to mitigate those risks are therefore needed in order to generate more energy-friendly investment (Wassbein et al., 2013).

In conclusion, while the new landscape of climate finance is expected to eventually provide increased resources to address the growing financing gap, it also brings increased complexity. Requirements, processes and reporting can differ among the funds and countries are faced with the challenge of identifying which funds are appropriate for them, how to collect resources, how to blend them together, how to coordinate the actions funded by them and how to develop the methods to monitor and evaluate the results. Figure 9 below summarizes the main sources, channels and agents for climate finance.

Figure 9: landscape of climate finance



Source: Glemarec (2011), adapted from Atteridge and others (2009).

2.1.2) Biodiversity

The complexity of climate finance is easily matched by the complexity of biodiversity finance. The recognition of the role of biodiversity conservation for sustainable development is manifested in several regional and international conventions, including the Convention on Biodiversity, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), World Heritage Convention, the Ramsar Convention on Wetlands and the Nagoya Implementation Protocol for Access and Benefits Sharing. Most countries have ratified these conventions and consequently formulated national policies and legislation to meet their obligations under these conventions.

Several international public funds have been established to support biodiversity conservation (Dlamini and Masuku, 2013). The World Heritage Convention established the World Heritage Fund while the Ramsar Convention is supported by a fund issuing grants for the conservation and sustainable use of wetland habitats and aquatic ecosystems. The Global Environment Facility (GEF) serves as a financing mechanism for the implementation of the Convention on Biological Diversity. The CBD also established the Forum on Financing Biodiversity which is a platform where financing institutions, governments, parties, development agencies, NGOs and other relevant stakeholders meet to share information on the latest developments on biodiversity conservation and sustainable use as well as financing mechanisms for biodiversity conservation.

However, biodiversity conservation is still not adequately funded. The decisions adopted by Parties to the Convention on Biological Diversity (CBD) indicate that a significant gap remains in finance for biodiversity management at the global level, for countries to drastically

scale up their efforts and achieve the 20 Aichi Targets defined in the CBD's Strategic Plan for 2011-2020.

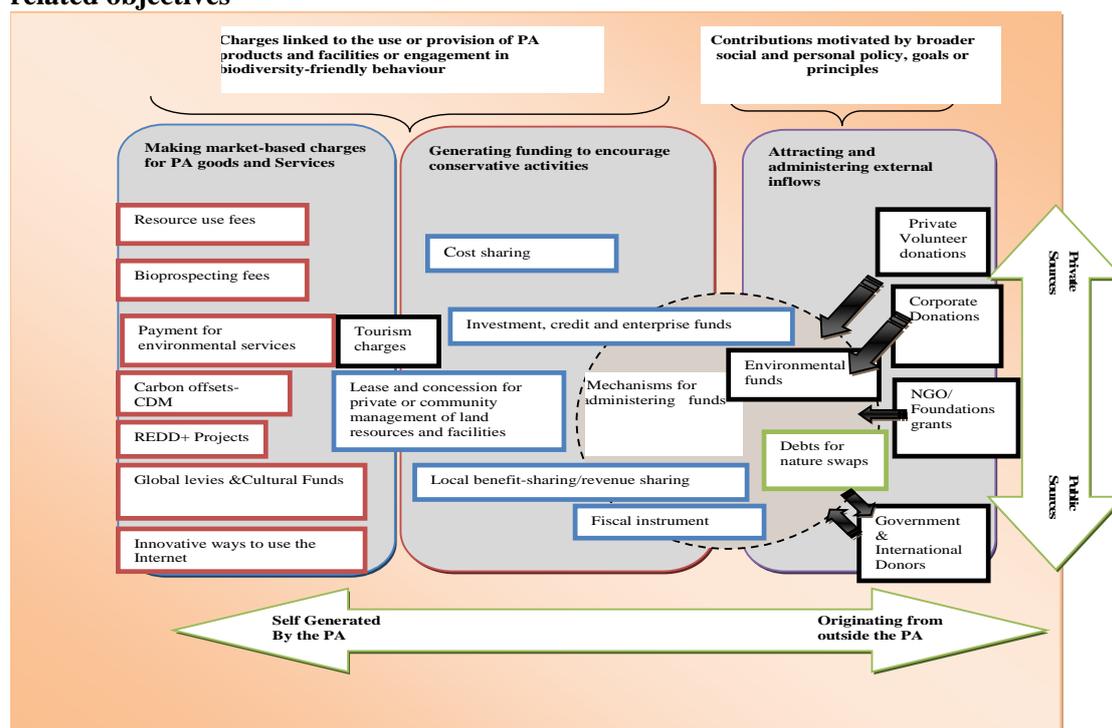
A preliminary assessment recently conducted under the auspices of the High Level Panel for Resource Mobilisation, convened by the Governments of UK and India and the CBD Secretariat (SCBD), estimated that the global investment required amounts to between 130 and 440 billion annually. A recent assessment (Waldron et al, 2013) suggested that global funding would need to increase by at least an order of magnitude to meet CBD biodiversity targets.⁸

Some countries are more severely underfunded than others. Waldron et al (2013) identify 40 most severely underfunded countries compared to their biodiversity assets. Highly underfunded countries are often neighbors, creating areas where underfunding affects taxa across their entire ranges. Short-term biodiversity losses may be substantial if coverage and adequacy of funding are not improved: The 40 most highly underfunded countries steward 32% of all threatened global biodiversity (Waldron et al, 2013). Not surprisingly, lower middle and low income countries represent the majority of these countries (although the list also includes a number of developed countries). This analysis confirmed the trends observed in climate finance: domestic spending accounts for the bulk of resources and low income countries have a limited capacity to finance the sustainable management of global environment assets.

In order to overcome the financial challenges, biodiversity managers have explored several innovative mechanisms to generate revenue and to carry out their mandate. As an example, Figure 10 illustrates the diversity of instruments developed to finance natural areas.

⁸ Waldron et al (2013) estimate that the total annual expenditure on global biodiversity was approximately US\$21.5bn for 2001–2008 (2005 US dollars). Of this amount they were able to further analyze US\$16bn. A total of US\$14.5bn of the US\$16bn analyzed represented domestic spending, allocated among the four World Bank income categories (upper, upper-middle, lower-middle, and lower income) in the proportions 94%, 4%, 2%, and 0.5%. A further US\$1bn annual expenditure represented international biodiversity aid. The major biodiversity aid donors were the Global Environment Facility (22% of biodiversity aid spending).

Figure 10: The variety of mechanisms and instruments used for financing biodiversity-related objectives



Source: Dlamini (2010).

As observed for climate finance, this variety of funding instruments provides critical resources but also brings added complexity. For example, the concept of payments for ecosystem services (PES) is becoming an increasingly popular solution for biodiversity conservation. However, substantial investment in technical capacity, research and negotiations are essential prior to introducing a fully-fledged PES system and a key issue with PES remains the willingness to pay of potential buyers. Most PES are presently financed from national public resources and constitute a different form of public intervention that a truly additional source of finance.

Other instruments geared to private markets, such as certification mechanisms for agriculture and forests, also have the potential to contribute to biodiversity conservation. Because of the sheer size of the markets involved, even a small fraction of certified products could result in substantial areas of land being managed in a way that preserves biodiversity and thereby eases the constraints on protected areas, thus providing both direct and indirect contribution to the overall goals of biodiversity conservation.⁹ However, the extent of the benefits of sustainability-oriented certifications is debated. Until recently, there have been no reliable and globally comparable metrics to understand the effects of sustainability initiatives. This has been compounded by the proliferation of sustainability labels — 426 available in 2011. This issue is significant because these sustainability standards are being adopted by millions of producers and certified products are fast-growing and substantial multi-billion dollar market segments. For example, coffee, the world’s most valuable export crop, and bananas, the most important fruit in global trade have both seen substantial shifts in the past decade and expect similar trends in the future (Giovannucci et al., 2012). Table 3 below summarizes the status of PES and market certification systems worldwide.

⁹ For example, the current size of certified markets for agriculture is estimated at US\$64 billion. If annual investment in sustainable land management practices mandated by certification processes represents e.g. 5% of this on average, the corresponding amount is US\$3.2 billion – a non-negligible amount in regard to the explicit expenditures on biodiversity preservation.

Table 3: status of PES and market certification systems worldwide.

Ecosystem market	Products	Supplier	Customers	Market value (current)
Government-mediated PES (Watershed and Biodiversity)	Streams, rivers and lakes meeting water quality standards, biodiversity conservation, protection of specific wildlife habitats.	Private landowners and land managers (farmers, communities); land stewards.	Governments; Water basin agencies; Industrial businesses; Private companies and foundations; National and international NGOs, Multi-lateral organizations.	\$11.3 billion in 2012
Biodiversity offset and compensation programs (compliance and voluntary)	Acres of restored or conservation land managed/wetlands, biodiversity conservation	Private landowners and land managers (farmers, communities); land stewards.	Governments; Water basin agencies; Industrial businesses; Private companies and foundations; National and international NGOs, Multi-lateral organizations.	\$3 billion
Certified agricultural and fishery products	Certified agricultural products whose production respects social, environmental specifications	Agricultural producers; Certification organizations issue certificates	Traditional agricultural investors; consumers paying a 5-10% price premium on certified goods: e.g. coffee, cocoa, banana, marine fisheries, and various organic products	\$64 billion
Certified forest products	Acres of sustainably managed forest	Private (industrial) producers of wood products, non-industrial forest landowners, communities	Forest Stewardship Council; Scientific Certification Systems; Program for the Endorsement of Forest Certification; the certifying bodies themselves, etc.	\$54 billion
Forest Carbon Financing (Compliance, Voluntary, and REDD)	Acres of restored or conservation managed forest	Forest nations; Local communities and landowners; Retailers; Project developers	Regulated industry; donor countries; Multi-national Corporations; NGOs, Multi-lateral Organization, Project developers.	\$434 million
Bio-prospecting contracts	Commercially valuable genetic information	Local communities and conservation agencies, indigenous groups	Pharmaceutical, biotech companies and academic institutions	\$35 million

Source: adapted from Ecosystem Marketplace, 2012.

2.1.3) Water management

Present official reporting mechanisms do not include financing for water resources management and development as a specific category. This makes it difficult to determine

trends from official statistics. Based on a survey of existing literature on financing for Inclusive Green Growth, IFC estimates annual investment in water resources management at US\$ 270 billion in 2010, essentially from public sources (IFC, 2013). This amount seems relatively high compared to the estimated needs and the observed gap in infrastructure investment.¹⁰ However, IFC strongly qualifies this figure, noting that the source of this investment is unclear.

A study from the Stockholm International Water Institute (SIWI, 2010) breaks down financial flows for water management and confirms the importance of the public sector in financing water infrastructure.

Table 4: Infrastructure Spending on Water Sub-Sectors in Sub-Saharan Africa (US\$ billion/y)

Sector	O&M	Capital Expenditure						
	Public Sector	Public Sector	ODA	Non-OECD Financiers	PPI	Household Self Finance	Total	Total Spending
WSS*	3.06	1.06	1.23	0.16	0.01	2.13	4.58	7.64
Irrigation*	0.6	0.3	n/a	n/a	n/a	n/a	0.3	0.9
Power**	7.0	2.4	0.7	1.1	0.5	n/a	4.6	11.60

Source: Briceño-Garmendia et al. (2008).

* USD Billions annually. Based on annualised averages (billions) for 2001-2006. Averages are weighted by country GDP. Figures are extrapolations based on the 24-country sample covered by AICD Phase 1.

** USD Billions annually. Notably, 93 percent of the continent's economically feasible hydropower potential remains unexploited (Eberhard et al. 2008) therefore hydro-electric spending represents a small fraction of these estimates. n/a: not available.

Source: SIWI, 2010.

A survey conducted by UN Water (UN Water, 2012) provides some qualitative information on existing sources of finance for water resources management. According to the survey in the past 20 years there was a notable increase in allocation of government expenditures on water resource development in over 50% of all countries (figure 11a). As shown in Figure 11b, 44% of the respondent countries also indicate an increase in grants and loans from aid agencies for water resources management and development.¹¹

As shown in Figure 11c, many countries indicate a lack of data on private sources of finance (e.g. 30% for low HDI group). A significant number of countries (24%-48%) in the four HDI groupings indicate an increasing trend, whilst only a small minority show decreases (3%-6%). There is a need for better monitoring of private sources of finance for water resources management and development. However, the UN Water Survey seems to confirm IFC's and SIWI's findings that most capital investments in the water sector are still publicly finance.

The capacity to mobilize increased resources from the private sector will depend on the capacity-to-pay and willingness-to-pay of users. There is a notable increased trend in revenue-raising for a majority of countries (ranging from 20% in low HDI countries to 71% in very high HDI countries (Figure 11d). Clearly, paying for water resources evolves with increased development.

¹⁰ WHO (2012) estimates the combined additional costs of achieving universal coverage of water supply (\$ 203 billion) and sanitation (\$ 332 billion) at \$ 535 billion between 2010 and 2015.

¹¹ The paragraphs in this section are taken from UN Water (2012).

Figure 11. Perceptions of trends relating to financing of water resources management at the national level from a global survey

Figure 11a.: Government budget allocation (% of GDP) for water resources development

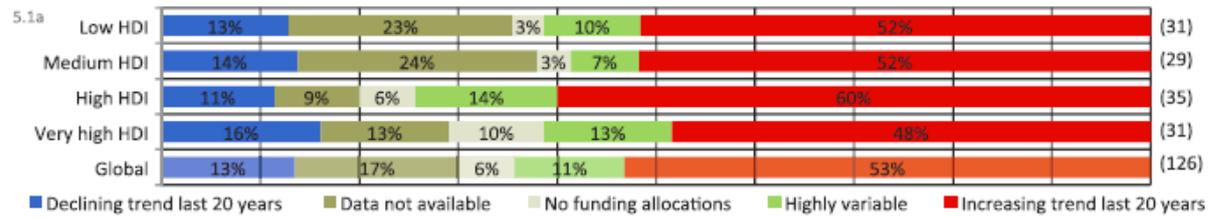


Figure 11b: Grants and loans from aid agencies for water resources development

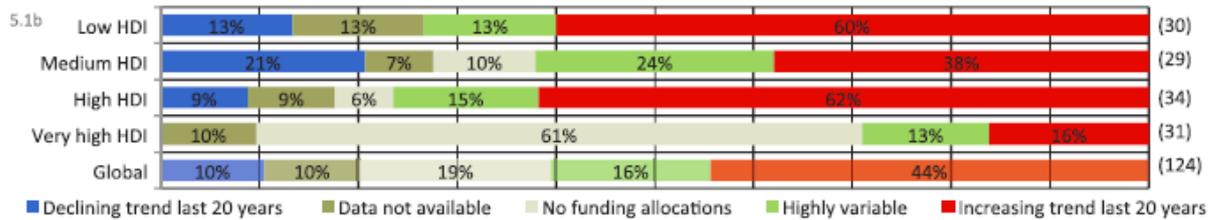


Figure 11c: Investments from private sources (e.g. banks and private operators, non-profit) for water resources development

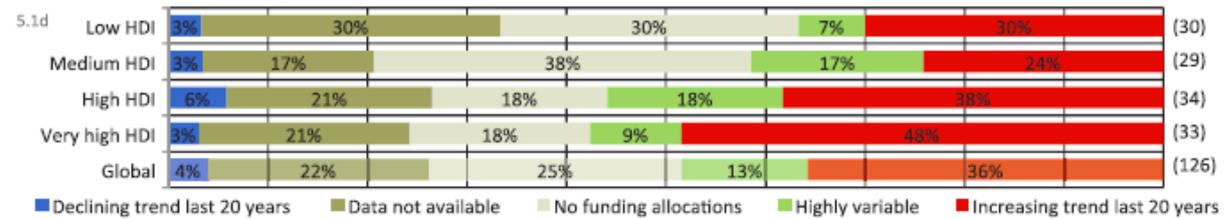


Figure 11d: Revenues (e.g. water use charges/tariffs) used for water resources management

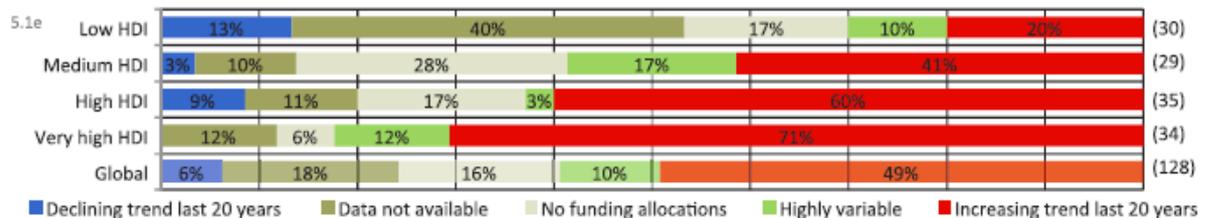
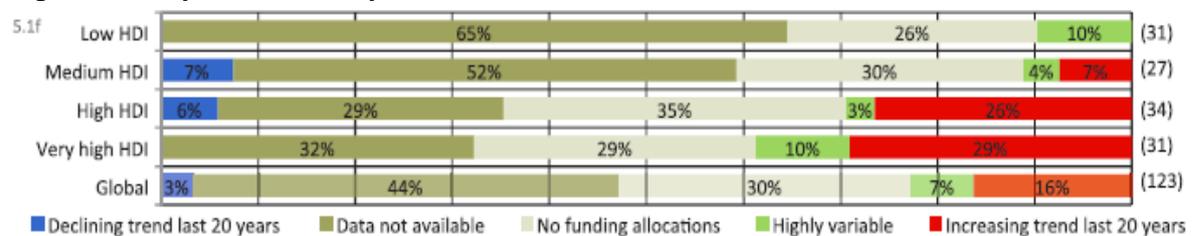


Figure 11e: Payments for ecosystem services and related benefit/cost transfer schemes

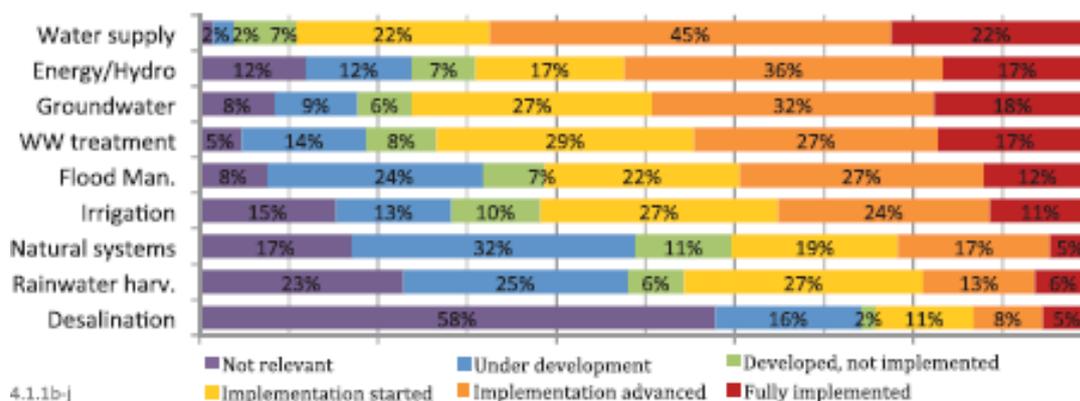


Source: UN Water, 2012.

As for climate change or biodiversity, increased attention is paid to innovative mechanisms to finance sustainable water resource management (water funds, payment for ecosystem services, 1% water levy, etc.). For the majority of countries (especially the low HDI at 96%) either data are not available or no payments are made. There is a marked correlation between level of development and ecosystem payments. Progress has been made in high and very high HDI countries with 23-30% recording an increase in payments for ecosystem services (Figure 11e).

Once again, this brief review of financing flows for water resource management confirmed the trends observed in climate finance and biodiversity. Domestic spending accounts for the bulk of resources and low income countries have a limited capacity to finance the sustainable management of global environmental assets. The capacity to mobilize additional resources from the private sector will depend on the capacity-to-pay and willingness-to-pay of end users. This poses the risk of a persistence of existing imbalances in the sector, including insufficient investment in sanitation and in LDCs, affecting particularly the poor. Infrastructure development is at an advanced stage in some important areas with over 65% of countries reporting advanced implementation of water supply and hydropower infrastructure. However, fewer countries report advanced implementation for waste water treatment, irrigation, rainwater harvesting, and investment in natural systems (Figure 12).

Figure 12: Progress with infrastructure development for various water-related purposes



Source: UN Water, 2012.

2.1.4) Summary of the financing landscape for environmental global commons

In summary, data availability on financial flows for climate change, biodiversity and water resource management to developing countries are limited, sporadic, often inconsistent and with major gaps. As pointed out by IFC (2013), this has serious implications for decision-making. However, available evidence indicates that funding is insufficient to meet internationally agreed targets for global commons. Given competition among sectors in contexts of limited public budgets, the proportion of public funding going into investment in biodiversity conservation or water resource management can actually be declining in some countries despite on-going efforts to diversify sources of finance (Greenhill and Ali, 2013). In this context, pressures on developing countries for the allocation of additional finance to preserve global commons may result in addressing part of the financing gaps for climate change, biodiversity, land and international waters at the expense of investment in other sectors, given the inadequacy of overall resources.

As mentioned in section 1, the potential for private investment vary across sectors. While it is already playing a leading role for clean energy, the scope for private sector investment in biodiversity and water management remains uncertain, particularly in LDCs. Furthermore, the increased complexity of sustainable development finance is likely to prove an additional barrier to manage global assets. Substantial investment in policy development and management capacity is needed to scale up existing sources of finance and improve access

2.2) Trends in the numbers of international funds

The proliferation of financing instruments has attracted increasing attention within international policy discussions on sustainable development finance. In particular, The UNFCCC Copenhagen Accord (December 2009) and Cancun Agreements (December 2010) committed developed countries to jointly mobilizing \$100 billion per year by 2020 to support climate change mitigation and adaptation activities in developing countries. While it is acknowledged that these funds will come from a variety of “public and private, bilateral, multilateral, and alternative sources of finance”, UNFCCC COP 17 established the Green Climate Fund to manage a “significant share” of these resources and reduce the fragmentation of the international climate finance architecture.

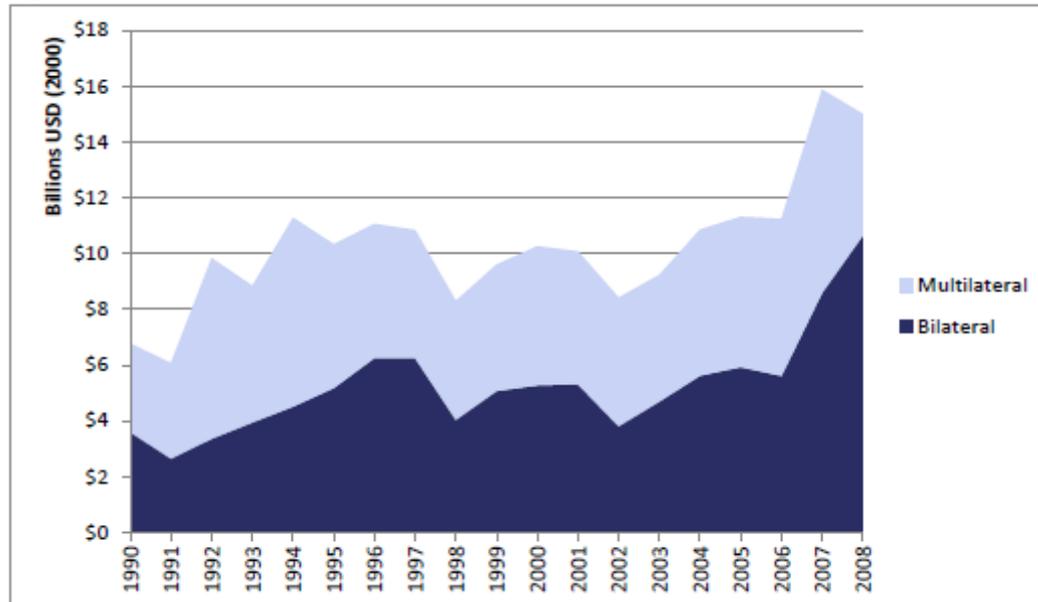
Similar efforts are attempted for other global commons, with ongoing discussions on a global fund for forests as well as the establishment of the Global Partnership for Oceans Fund. However, history indicates that many of the funds have been created in multilateral processes have been inadequately financed. While the steps toward the establishment of the GCF can be celebrated, important questions remain unanswered about how much funding it will govern. To date, financing for the GCF has yet to be forthcoming.

While the establishment of a Global Sectoral Fund such as the GCF might facilitate some harmonization among climate and ecosystems funds and centralize a slice of international public finance for sustainable development, the coming years are likely to see a continued increase in the diversification of financing sources, agents and channels.

First, environmental aid is increasingly coming from bilateral sources as shown in Figure 13. This trend has been particularly marked in recent years. In 2000, bilateral aid represented about half of the US\$10 billion (real US\$ 2000) categorized as environmental aid. By 2008, bilateral aid represented about two thirds of the US\$15 billion (real US\$ 2000) categorized as environmental aid. In other words, the volume of environmental aid from bilateral sources approximately doubled while the value of environmental aid from multilateral sources remained essentially constant.

Second, as explored in chapter 2, official development aid accounts for a diminishing share of sustainable development finance, with non-traditional “non-traditional sources” (foundations, emerging donors, etc.) now making up 31% of total development assistance (Greenhill and Ali, 2013). While developing country governments welcome these additional sources of funds, combined with a greater bilateralization of aid, they are however likely to contribute to an increasing complexity of the sustainable development finance landscape.

Figure 13: Bilateral and multilateral environmental aid, 1990-2013



Source: Marcoux et al. (2013).

3) Financing for integrated (cross-sectoral) development initiatives and projects

International agreements, targets and financial commitments are organized by sector. This sector-oriented silo approach not only influences the coverage, coherence and consistency of public financing frameworks for sustainable development as seen above but it also leads to significantly higher investment requirements. This section explores the rationale, current limitations and existing potential for financing integrated solutions that create synergies between sectors, as opposed to purely sector-based financing.

3.1 Financial implications of cross-sectoral feed-back loops, synergies and trade-offs

At the global level, long-term sustainable development scenarios have consistently shown that approaches based on multiple goals allow for the identification of significant co-benefits, while highlighting trade-offs that cannot be identified from purely sectoral approaches (Roehrl, 2013). At the national level, recent applied research has shown that integrated planning backed by integrated modeling of land, energy and water resources and integrating climate variability not only has the potential to identify superior (in the sense of criteria of value to national policy-makers) solutions and paths; it also exposes important differences in terms of investment requirements and required policies, compared to traditional sectoral policies (Welsch et al., 2013).

The investment needs to achieve a given sustainable development objective influence the approach, resourcing and effectiveness of the delivery of others. Understanding these inter-linkages and co-dependencies across sustainable development objectives is critical to accurately assess investment needs and enhance investment effectiveness. As illustrated in Box 3., a reform of perverse subsidies could reduce the cost of wetlands protection by over an order of magnitude.

Box 3.: What is the actual cost of protecting wetlands biodiversity?

The High-Level Panel on Global Assessment of Resources for Implementing the Strategic Plan for Biodiversity 2011-2020 estimates that the total amount required to protect wetlands is approximately US \$33 billion per year on average. The vast majority of this cost is for expenditure required to acquire land and to prevent it being converted to an alternative use. If incentives were aligned to the sustainable use of biodiversity, then it is likely that this pressure to convert habitats would be reduced. For example, a commitment to reform perverse agricultural incentives that encourage conversion of wetlands in favour of sustainable use of biodiversity, could, if met, greatly reduce the resources required to reduce wetland habitat loss.

In the absence of conversion pressure, the remaining resource requirements would only be around site management and positive incentives to provide ecosystem services – which in the wetland example add up to around US \$3 billion per year on average – a number 11 times smaller than the initial estimate of resource needs. This implies a very strong role for investing in our economic and policy frameworks upfront to help deliver the Aichi Biodiversity Targets in the most cost-effective way we can.

Source: Report of the HP GARISPB, 2013.

A critical domain to better assess these cross-sectoral synergies and trade-offs is the climate-land-energy-water-biodiversity nexus. Decisions taken for energy systems, for agriculture and other types of land use and for freshwater management, have strong impacts on the other sectors in the nexus. Climate change impacts the four other sectors in the nexus (Bazilian et al., 2010). Furthermore, decisions taken in the areas of land, water, biodiversity and energy also impact other natural cycles linked to global planetary limits (Rockström et al., 2009).

Among others, energy policies will have significant implications on land conversation, biodiversity and food security in the course of this century. For example, future energy prices, because they condition the commercial viability of technologies such as second generation biofuels, may affect land use change indirectly through the land requirements needed for those technologies and directly through the price of fertilizers. Energy prices in turn will be affected by changes in production and consumption patterns. Depending on how those evolve, land use patterns could be affected in completely different ways. This case is illustrated by a model developed by Steinbuks and Hertel (2013). Therefore, in order to have a strong basis for decision-making, comprehensive views of the relevant feedbacks across sectors are needed.

At the national level, a recent study on Mauritius (Welsch et al, 2013) shows that the promotion of a local biofuel industry from sugar canes could be economically favorable in the absence of water constraints. At the assumed prices under this scenario, reduced imports of petroleum would reduce energy costs and GHG emissions as well as improve energy security. Biofuels appear as a cost effective solution to leverage private investment to mitigate climate change and achieve national development goals. However, under a water-constrained scenario as a result of climate change, the need for additional energy to expand irrigation to previously rain-fed sugar plantations and to power desalination plants yields the opposite result in terms of GHG emissions and energy costs, making biofuels a sub-optimal option.

Similar synergies and trade-offs impacting the economics and options to leverage private finance can be found in almost every single sector critical to sustainable development.¹² The city level is another critical example where integrated planning and financing are needed if more sustainable outcomes are to be achieved. Integration is needed in terms of, among others, transport, energy systems, buildings, sewage and solid waste, etc. A city's design will also affect transportation demands, which makes it either more or less difficult to implement efficient public transportation, leading in turn to more or less emissions. Design in different sectors will also affect the vulnerability of the city to e.g. flooding and climate change.

It is therefore advocated that such integrated visions and strategies constitute the relevant framework for devising long-term development priorities.¹³ Solutions (in terms of e.g. public and private investment paths and related policies) based on purely internal sector considerations are bound to cause adverse impacts on other sectors. Focusing too much on individual goals, without considering side effects and linkages with other goals, could also lead to missed opportunities and substantially higher costs. By contrast, solutions based on integrated planning and modeling by definition take trade-offs and synergies into account, and are better able to integrate risks, especially when those risks apply to all sectors (climate change being a prominent example).

3.2 Constraints to Financing Integrated Sustainable Development

It is increasingly recognized that integration is a necessary dimension of development visions, strategies and implementation. In theory, integration per se should not necessarily be an issue for financing. Scoping and planning could be done in an integrated manner; when socially adequate solutions are found, the corresponding investment requirements and preferred packages of policies in support of those investment paths could be identified. Investment requirements could in turn be allocated back to their sector of origin, and funding solutions devised based on access to different sector-targeted sources.

Unfortunately, most development plans tend to look at individual sectors in isolation. A wide range of barriers currently discourages the tighter integration of sustainable development efforts.

While some of these barriers are not specific to integrated solutions and have been observed for sector-based projects and programmes as well, others are specific to integrated solutions.

In the first place, development projects tend not to be conceived and designed in an integrated manner, because the institutions that develop those projects are not organized to work like this. Institutional settings at the national and IFI level remains based on sectors. Decisions are made by different communities. These different actors operate across different sectors and on different spatial, temporal and institutional scales. They manage different budgets, and sometimes compete with one another for resources (Glemarec et al, 2009). Examples abound, including projects from the Climate Investments Funds contested for causing adverse environmental impacts (Bretton Woods project, 2013). The allocation of funds by IFIs has largely proceeded along sectoral lines, with integrated and sustainable systemic solutions not

¹² In the context of sustainable development, many such other clusters are of interest because integrated solutions would provide scope for better use of public resources and minimization of adverse trade-offs. For example, there are obvious synergies between forest management and biodiversity conservation. In terms of sustainable consumption and production, the cluster health-education-food has been under-utilized as a relevant pool for public policies. The logic behind the concept of payments for ecosystem services is also based on an essentially integrated logic, where superior social solutions are found by looking across traditional sector boundaries.

¹³ For example, at the Rio+20 conference, the Prime Minister of Mauritius publicly announced that he was making CLEW the national framework for development planning.

being the norm.¹⁴ Silos in IFIs and development institutions stem from different cultures and backgrounds (e.g. environment and urban, agriculture and energy and water), which may be compounded by internal disincentives to cross-sector cooperation and integrated projects. (Box 4).

Box 4: Disincentives to integrated work in multilateral financing institutions

International financing institutions (IFIs) have been at the forefront of development lending. In terms of sustainable development, since the Earth summit in 1992, IFIs have adjusted their strategies, policies and practices to make them more aligned with sustainable development objectives. For example, IFIs have provided strong support for the achievements of the MDGs, including monitoring and mainstreaming of MDGs in assistance across sectors. In terms of climate finance, the World Bank has piloted innovative financing instruments, effectively playing the role of incubator, for example by hosting and managing the first Carbon Funds on behalf of donors.

However, similar to what is observed at the national level, challenges to thinking and delivering fully integrated projects remain. They can be associated to remaining constraints and obstacles at different levels. At the highest level, the goals and mandates of the institutions may not be fully aligned with sustainable development. At the operational level, the frameworks and mechanisms for assistance delivery may work against integrated solutions, if they promote competition for resources among sectors in the development institutions rather than providing incentives to cooperate and look for better systemic, cross-sectoral solutions (for example payments for ecosystem services that avoid new infrastructure construction). There can also be internal financial disincentives to pursuing integrated projects across sectors, for example when resources available to a sector depend on the amount of lending that the sector does, or when accounting of staff costs within the organization penalizes cross-sectoral collaboration.

In many sectors of intervention and especially in infrastructure projects, environmental and social issues remain peripheral in the internal system of project design, most of them being integrated only as “safeguards” whose actionability is conditioned on project features (e.g. resettlements, environmental impact assessment). Therefore the incentives of staff are to avoid “triggering” safeguards, as those imply additional resources, costs and time. As a consequence environmental and social issues are often largely considered as nuisances to avoid or to address ex post through defensive instruments with little if any impact on project content and design, rather than being fully integrated in project design.

Lastly, lack of mainstreaming of sustainable development thinking and practice within institutions can be an obstacle to dialogue and quest for integrated solutions.

Source: Authors' elaboration.

Second, in many countries capacity for integrated planning at all levels remains limited. At the national level, planning institutions in some developing countries were weakened during the 1980s and 1990s. In Latin America, during the 1990s planning agencies both at the national and sub-national level, curtailed their activity and saw their influence on decision-making considerably reduced. In some cases, the institutions were dismantled and some of their basic functions, such as coordination and evaluation, partially migrated to other public

¹⁴ Current practices may in part result from evaluation of past experience with integrated projects (e.g. rural development projects), which showed limited success, and where it was difficult to measure impacts and outcomes and attribute them to specific project features. Projects with narrower scope, whose impacts may be more readily identifiable, may better match the current drive for result-based lending in development aid.

bodies that carried them out only insofar as necessary for their own purposes, often on a sectoral basis. Integration across sectors was often lost in the process (Leiva Lavalle, 2013). Until recently, there also was a lack of technical tools aimed at examining the impacts of integrated solutions versus “siloe” solutions. Arguably, the need to develop such tools still exists.

Lack of capacity also affects local governments or local branches of the central government. Especially where decentralization is incomplete, local governments may not possess adequate structures and capacities to plan and execute budgets. Other deficiencies include lack of capacity to devise development strategies and action plans as well as to manage and monitor projects, and lack of awareness on environmental issues (Propuesta ciudadana, 2007). Inconsistency between national development plans and actual investments is a widespread concern. Lack of information-sharing and cooperation between sectors and levels of government can reinforce these problems (Kjölllerström and Le Blanc, 2008).

Third, on the project financing side, there are gaps in financial engineering capacity. Lending in banks and other financial institutions is organized in silos, with different business lines having different lending business practices, based on different models. Depending on the country, some business lines for specific actors or sectors may be absent or well developed. This is reinforced by silos in international public financing instruments, which are mostly organized by sector, and present huge differences in terms of eligibility and access criteria (see above section 2). In general, the multiplication of funding channels represents an increasing challenge for financial engineering of projects.

Fourth, the financial system is geared to “mainstream” solutions that privilege known approaches for which risk and return parameters, potential liabilities, etc., are readily known and integrated in internal financial models. There is therefore an “incumbent bias”, which often disadvantages systemic solutions. For example, in many sectors the financing of “green” versions or solutions is implemented as an add-up to the mainstream solution, as long as the “green” version does not become the norm and remains of marginal interest to large investors.

The main issue, therefore, is how to connect the strategic planning level with both project engineering and financial engineering, the latter being able to match needs with sources of funding. The investment flows resulting from integrated solutions (and thus their beneficiaries) may be different from BAU, sector-based solutions. This can substantially alter the political economy of local and national development decision-making processes. It seems clear that: 1) resources may not spontaneously flow to the kind of investments that are needed to support socially superior solutions; therefore investment may have to be oriented or supported in some manner; 2) investment may be more difficult to fund for some sectors or technologies that are part of superior solutions; and 3) financial engineering capacity may lack to fund the projects required, because they are not part of “typical” solutions that have already been put in practice. There is a dearth of studies on this topic.

4) Toward an effective support of private sector investment for sustainable development

Developing countries are facing a three-pronged challenge to finance sustainable development: (i) prioritize the use of public funds to complement private resources in line with national goals; (ii) increase revenue generation through fiscal reforms and innovative sources of finance; and (iii) develop the capacity to access and implement in an integrated manner diversified sources of funds to catalyze private finance. As seen in the previous sections, this will require rebalancing existing public support to leverage private finance from

providing financial incentives to compensating for risks to establishing an enabling policy environment to mitigate risks. It will also require strengthening existing integrated planning institutions and instruments. Last but not least, it will necessitate a sustained investment in sustainable development finance readiness.

4.1) Rebalancing public support to leverage private finance

It is clear that priorities from national governments, the international community and investors intersect in a number of areas. However, the fact that objectives of the three communities differ also means that “spontaneous” provision of private finance is unlikely to cover exactly the priorities of national governments or those of the international community. Investment in environmental sectors, including global commons, tends to be “naturally” underserved by private sector investment and finance (see chapter 2).

A key challenge for decision-makers becomes the prioritization of public resources to complement potential private sector investment. So far, the bulk of international public funds have been used to provide subsidies to the private sector through concessional loans or grants to increase investment reward. In parallel, substantial portions of the risks have been transferred to the public sector. While this approach has proven effective to demonstrate green technologies and encourage early entrant investors in the presence of adverse conditions for investment, it is not sustainable over the longer term and cannot promote investment at scale.

It is far more efficient, from the point of view of long-term impacts of public funding, to reduce risks affecting investment in specific sectors in a structural manner by adjusting the relevant policy framework. Notably, international public finance should be primarily used to put in place a strong enabling policy environment to reduce investment risks and help transform markets to catalyze investment at scale.

This often involves addressing a range of constraints. Common sources of undeveloped formal finance for a sector include the ones presented in Table 5.¹⁵

¹⁵ In some cases, profitability may not be a critical issue and lack of access to affordable finance may not be the binding constraint. In such cases, financial support (tax incentives, subsidies) may not be the most effective way to catalyze change, especially at the user level. For example, the main obstacle preventing the greening of office buildings in many developed countries lies not in access to technologies or finance, but in split incentives along the delivery chain. In such cases, regulation may be the most effective way of addressing the issue, for example by making certain standards mandatory.

Table 5: Typical bottlenecks to affordable finance in developing countries

Sources of lack of access to affordable finance	Example of sector / country where the constraint may be binding	Possible way to address the constraint
Poor market outlook: uncertainty regarding government policy and risks of policy reversal, lack of market access and price uncertainty, market distortions.	Lack of fair playing field for clean energy technologies in oil producing countries due to energy technologies clean fossil fuels	Subsidy reforms/fiscal reforms.
Poor regulatory framework	Corruption or labor-intensive, complex and long licensing processes	Streamlining of licensing processes and regulatory reforms
Social and political resistance	Noise and visual pollution concerns leading to political resistance to wind development in OECD countries	Awareness Raising, participatory policy formulation, access and benefit sharing
Country risks: uncertainty due to war, civil disturbance, and macro-economic conditions	Political instability	Hedging instruments
Limited local supply of expertise	Reliance on expensive expatriate workforce for project commissioning and O&M	Local skill development
High macro-level interest rates	Brazil, housing and infrastructure	Few finance-based solutions. Provide loans at low rates (only available at limited scale).
Insufficient returns/ cash flows	Solar technology.	Concessional finance-based solutions. Subsidies needed.
High market rates due to lack of creditworthiness	Municipalities in many countries for infrastructure projects (e.g. transport)	Liquidity facility/ channelling of resources backed by IFIs or other structures with access to cheap funds.
Low incomes/capacity to pay	Access to clean energy for cooking, developing countries for some segments of the population	Direct provision or direct subsidies (possibly outside finance channels).
Lack of structured demand “pipeline”	SMEs, small-scale renewable energy	An intermediary institution organizes the matching of demand and supply.
High individual transaction costs	Improving energy efficiency in municipal public buildings	Pooling demand to propose higher volume contracts
Gaps in financial intermediation for specific lending business lines	energy efficiency for housing, public buildings; small projects in general	Capacity building in the domestic banking sector. Supporting the interface between demand and supply (e.g. to pool demand, raise awareness, build capacity of municipalities).

Source: Author’s elaboration.

The array of instruments that governments can mobilize is very wide, ranging from broad level legal, regulatory, fiscal, tax, and accounting rules, to the mandates and operating rules of publicly controlled institutions. A cost effective and successful market transformation to remove investment barriers and associated risks typically requires simultaneous application of a combination of many policy instruments, covering different sectors and sub-sectors, consumption and production sides, etc. (see table 6).

Table 6: Summary of model inputs, outputs and ex-post interpretations of IIASA's GEA scenarios

Goals	Targets	Pathway characteristics	Policies and actions
Improve energy access	Universal access to electricity and modern cooking fuels by 2030	Diffusion of clean and efficient cooking appliances. Extension of high voltage electricity grids and decentralized micro-grids. Increased financial assistance from industrialized countries to support clean energy infrastructure.	Micro-creditors/grants for low emission biomass and LPG stoves in combination with LPG/kerosene subsidies for low income populations Grants for high voltage grid extensions and decentralized micro-grids
Improve energy security	Limit energy trade, increase diversity and resilience of energy supply by 2050	Increase in local energy supply options (e.g., renewables to provide 40-70% of primary energy by 2050). Increase in diversity of imported fuels and reduce dependency (e.g., reduce share of oil in imports in primary energy by 30-80% by 2050 compared to 2000). Infrastructure expansion and upgrades to support interconnections and back-up, including increased capacity reserves and stockpiles.	Public procurement strategies and regulations to support local supplies (e.g., renewable obligations). Interconnection and back-up agreements between energy network operators. Stockpiling of critical energy resources for coordinated release during acute market shortages.
Reduce air pollution and improve human health	Reduce premature deaths due to air pollution by 50% by 2030	Tightening of technology standards across transportation and industrial sectors (e.g., vehicles, shipping, power generation, industrial processes). Combined emissions pricing and quantity caps (with trading). Fuel switching from traditional biomass to modern energy forms for cooking in developing countries.	Vehicles: Euro 5-6 standards for vehicles in developing countries by 2030 (e.g., -70% NO _x , PM by 2030) Shipping: Revised MARPOL Annex VI and NO _x Technical Code 2008 (-80% SO _x , NO _x by 2030) Industry/Power: Rapid desulfurization, De NO _x and PM control across the world by 2030.
Avoid dangerous climate change	Limit global average temperature change to 2C above pre-industrial levels with a likelihood of >50% by 2050, 2100.	Widespread diffusion of zero and low-carbon energy supply technologies, with substantial reductions in energy intensity. Global CO ₂ emissions peak by 2020 and are reduced to 35-75% by 2050 on 2000 levels. Globally comprehensive mitigation efforts covering all major emitters. Financial transfers from industrial countries to support decarbonisation.	Combination of cap-and-trade and carbon taxes (with initial carbon price of >30 \$/tCO ₂ , increasing over time). Technology standards

Source: Roehrl (2012), adapted from Riahi et al. (2012).

A nomenclature of risks and a systematic method to address them through policy instruments have been identified in UNDP's work (Glemarec et al., 2011, Wassbein et al., 2013). UNDP has also developed practical tools that enable the quantification of the importance of various risks and the share they take in observed debt and equity premiums for energy projects (Wassbein et al., 2013). This approach has been tested in many developing countries.

Given the political, institutional, and technical complexity of market transformation efforts, funds required to design and implement an adequate policy infrastructure should not be

under-estimated. The unmet demand for financial resources from GEF and other global funds reveals a substantial funding gap for policy formulation and implementation and financial engineering for public-private partnerships.

In any country, improvement of structural conditions for investment usually takes time – one or two decades, both on the financial and capital market side in general (Perry, 2011), and in specific sectors such as renewable energy, infrastructure, or pollution control (UNDP-GEF, 2012, Hudson and Glemarec, 2012). While efforts should be focused on long-term improvements of the legal and regulatory environments, it may be desirable, in order to spur private investment during the transition period, to compensate private investors for extra risks or lower returns compared to other investment opportunities. This however, has to be done with the objective of eventually phasing out support and with clear criteria to assess compliance to certain goals and standards.

Subsidies or premium tariffs should be deployed last, only to compensate the private sector for above-average residual risks. In terms of environmentally-friendly investment, an important message that emerges from an analysis by sub-sectors is that the “burden” of greening investment (additional cost compared to BAU solution), may in some cases be negative (investments pay off by themselves in a few years). More importantly, they may be negligible compared to other implicit subsidies embedded in the tax treatment or the accounting system that apply to different segments of the market.¹⁶

4.2) Capacity building for sustainable development finance

Capacity building appears as a recurrent need at different levels, highlighting the importance of an increased focus on building and strengthening national systems so they are “ready” to use sustainable development finance effectively in ways that promote transformations in production and consumption patterns at the national level. This focus is embodied in the concept of “readiness” put forward in recent international and national policy discussions on climate change (UNDP, 2012a).¹⁷

The tasks faced by governments in shaping and planning sustainable development paths systems has become not only more technically complex, but also more demanding politically. The process of building long-term visions and strategies for example, involves great technical complexity as it must address the multiple dimensions of sustainable development. But as important are the components of participation in the elaboration of visions and strategies, institutional development and political leadership to achieve agreements that endure over time.

At the broadest level, the complexity of synergies and trade-offs across areas and sectors relevant to sustainable development implies the need for renewed efforts to reinforce government institutions in charge of integrated planning. Integrated planning should be systematically articulated around three core activities: i) elaboration of visions, strategies and

¹⁶ For example, commercial building units may be eligible to accelerated depreciation, or benefit from various forms of tax rebates from different government levels (e.g. as part of investment promotion strategies by municipalities or regions to attract investment in certain zones). In such cases, it would make sense to condition favorable tax treatments to the adoption of high energy efficiency standards. The same applies in the collective residential sector, where rules may be in place to allow for the tax deduction of upgrading or maintenance work from the taxable incomes of co-owners. Therefore, the “costs” of “greening” (in this particular case) have to be considered in the context of the whole picture of accounting, tax, and other rules applying to the different segments.

¹⁷ Notably, the term is specifically referred to within the governing instrument of the Green Climate Fund (GCF), which states that “The Fund [GCF] will provide resources for readiness and preparatory activities and technical assistance”.

action plans to move from the current situation to socially desirable futures; ii) coordination of activities and orientation of actors in support of implementation, and iii) continuous monitoring and evaluation, in order to provide feedback to the process.

Second, financial planning—that is, planning for the supply, management, and use of financial resources to fulfill a given aim—is a fundamental step in ensuring the effective, efficient, and equitable use of sustainable development finance. Planning allows decision-makers to articulate their priorities and the financial resources required to meet them. Planning also includes assessments of existing finance flows, allowing policy-makers to match their priorities with potentially available resources, and thus plan how to integrate resources and sequence them over time. Building and strengthening national, sectoral, and local financial planning capacities ensures the integration of sustainable development finance within national development and budgetary processes.

The variety of options for accessing climate finance has increased over recent years, particularly for public finance from multilateral sources within which the concepts of “direct access” and now “enhanced access” have emerged.¹⁸ These modalities require specific and complex financial and programming systems at the national level and are therefore a key issue when considering readiness. Use of direct access modalities—such as those under the Adaptation Fund and as anticipated for the future Green Climate Fund—requires national or sub-regional entities to undergo an accreditation assessment that requires strong fiduciary capacities, compliance with environmental and social safeguards, as well as capacities associated with the roles and functions of an implementing entity. Strong demand for assistance to build these capacities underscores the limited capacity and the importance of readiness activities in this area (UNDP, 2012a).

Blending resources requires development of financial capacities both at the public and financial institutions level. Resources must be held on an entity’s balance sheet together and, depending on the nature of the blending, may be supported by different financial instruments with terms subject to renegotiation (e.g. lowering interest rates or extending the repayment period for a loan). This requires banking functions and thus restricts the type of institutions that can be involved. Building and strengthening these systems— such as National Climate Funds— can require adequate legal status, fund management capacities, and the formal cooperation of Ministries of Finance in the case where sovereign guarantees are needed for non-grant resources in the fund. Each of these elements is an important part of building and strengthening country systems to manage climate finance in particular and other types of sustainable development finance (UNDP, 2012a).

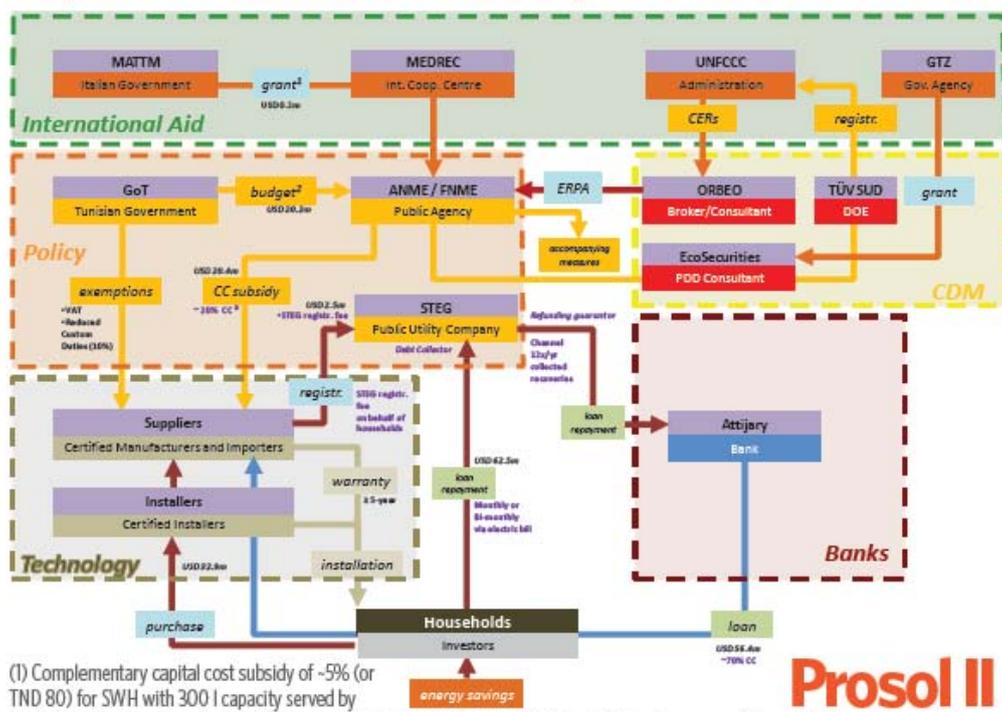
Building the capacity-building of the public and private actors involved in partnerships is critical. Typical blended financing projects will involve many stakeholders, including technology suppliers, international finance providers, financial intermediaries e.g. for CDM credits, banks, and end consumers. Enabling all actors to devise and become part of complex financial and information circuits is important, as it will not happen spontaneously. A lesson from successful market transformation attempts is that such attempts will take time, typically decades, to fully succeed. Because each country and sector faces their idiosyncratic features and policy environment, trial and error is likely to be the mode through which learning occurs, highlighting the importance of capacity building as an enabler for such efforts. As an illustration, Figure 14 below shows the financial flows among the various stakeholders in the project PROSOL in Tunisia, which aimed at promoting the use of solar water heaters at scale.

¹⁸ “Direct access” refers to the option for developing countries to access multilateral public climate finance through an accredited national or sub-regional entity. These entities take on implementing agency functions (financial oversight and responsibility) and contract executing entities to programme resources. “Enhanced access” refers to the same modality plus a delegation of decision-making power from global funds to national entities, such as national climate funds.

The current version of the project constitutes the third attempt from the government to change markets in that direction, illustrating the time dimension mentioned above.

Finally, capacity building is also an issue at the sectoral level. Important lessons can be drawn in this respect from the experience of changes in regulation implemented in many countries during the 1980s and 1990s. Lack of capacity has affected newly created independent regulation agencies that were put in place to oversee sectors such as water, electricity, and other public services. In many countries it has been found that these agencies do not have the financial, legal and technical resources to deal on a fair basis with powerful companies, especially multinational companies (MNCs). Documented cases in developing countries have covered a wide range of sectors, from mining to water provision. This is of special concern for public-private partnerships and more broadly for projects that involve private sector participation.

Figure 14: Policy and finance flows among main stakeholders for the PROSOL II solar water heater project in Tunisia.



(1) Complementary capital cost subsidy of ~5% (or TND 80) for SWH with 300 l capacity served by MATTM until exhaustion of funds. (2) Funds raised by the GoT via the FNME Fund. Notes: Decree no. 362 modified the GoT capital cost subsidy, establishing a fixed amount of between USD 153 and USD 306 (200 and 400 TND) varying according to SWHs' surface area. Financial flows represent the sum of flows for the year 2007-2010, actualized to USD 2007. Source: CPI elaboration based on various sources (see Reference section). CC = Capital Cost; IR = Interest Rate.

Source: Trabacchi et al., 2012.

4.3) Specific considerations for international public finance in support of private sector investment

In using scarce international public financial resources to support private investment, appropriate criteria for assessing alternative uses of public funds have to be found.¹⁹ This is all the more important as past practices in blended financing have aroused a number of concerns, as outlined in section 1. A minimal list of criteria would include the following.

¹⁹ This would also be helpful for the implementation of the investment support initiatives foreseen in the Istanbul Programme of Action for LDCs (A/CONF.219/7, paragraph 122, 3 (a)).

Respect of aid effectiveness principles, including country ownership. As discussed in chapter 2, donor governments subscribe to internationally agreed objectives and international rules and guidelines for development assistance. In particular, OECD members subscribe to aid effectiveness principles including the Paris Declaration and the Accra Plan of Action, as well as the Busan Partnership for Effective Development Co-operation. Among other things, these principles emphasize country ownership and alignment of aid with national priorities and development plans, and the need to further untie aid resources.

Transparency and accountability. As discussed in chapter 2, donor governments are responsible for the use of public resources to taxpayers. Those may expect the same degree of transparency and accountability on the use of blended funds as that that exists for traditional aid resources, including through monitoring and reporting tools that respect minimal standards.

Financial and development additionality. The concept of additionality is closely linked to the notion of leverage. Financial additionality refers to public resources mobilizing additional private resources – that is, resources that would not have been invested were the public resources absent. Development additionality refers to the added development impact that public participation in projects or investments result in. Among other things, this is dependent on how much public institutions are able to influence project design to reflect development objectives.

Opportunity costs. Public resources invested in specific projects are not invested elsewhere. The opportunity cost is a measure of the impacts and results of alternative used of public funds, compared to their actual use. These opportunity costs may be particularly important in certain countries or sectors where the need for straightforward public investment – for example in climate adaptation, healthcare, education, infrastructure or environmental protection – may be very high.

Transfer of risks between the public and private sectors. Public backing of private projects results in risks being transferred between the private to the public sector. Many of the methods currently used imply both actual and potential transfer of risk to public institutions – which may be questioned on a number of grounds. Fiscal sustainability impacts of international blended finance for development on recipient governments should be a key concern, and in particular the impact of contingent liabilities on government's and public sector corporations' balance sheets.

To these principles, one could add an umbrella “Do no harm” principle. According to such a principle, the international community should not support the financing of projects that jeopardize the economy or social fabric of recipient countries.

References

Action Aid, Bretton Woods Project, Christian aid, Eurodad, Campagna per la riforma della Banca Mondiale, Third World network, 2010, *Bottom Lines, Better Lives. Rethinking Multilateral Financing to the Private Sector in Developing Countries*, March, <http://www.brettonwoodsproject.org/doc/private/privatesector.pdf>.

ACPC, (2011). Integrating renewable energy and climate change policies: Exploring policy options for Africa. United Nations Economic Commission for Africa, African Climate Policy Centre, Working Paper 10.

Bayliss, Kate and Terry McKinley, "Privatising basic utilities in Sub-Saharan Africa, the MDG impact". UNDP International Poverty Center, 2007.

Bazilian, M., H. Rogner, M. Howells, S. Hermann, D. Arent, D. Gielen, P. Steduto, A. Mueller, P. Komor, R. Tol, K. Yumkella, 2011, Considering the energy, water and food nexus: Towards an integrated modeling approach, *Energy Policy*, 39, 12, December.

Bloomberg New Energy Finance, Frankfurt School-UNEP Center, 2013, *Global Trends in Renewable energy investment 2013*, UNEP, Nairobi.

Booz & Company/New York Times (12 November 2011): A Gold Rush of Subsidies in Clean Energy Search, New York Times, USA.

Bretton Woods Project, 2012a, *Leveraging' private sector finance: How does it work and what are the risks*, working paper, April, <http://www.brettonwoodsproject.org/doc/private/leveraging.pdf>.

Bretton Woods Project, 2012b, Infrastructure as an asset class: Financing development or developing finance?, http://www.brettonwoodsproject.org/update/81/bwupdt81_ai.pdf.

Bretton Woods Project, 2013, Climate Investment Funds Monitor, 7, April, <http://www.brettonwoodsproject.org/doc/env/cifmonitor7.pdf>.

Bretton Woods Project and CAFOD, 2013, The private sector and climate change adaptation: International Finance Corporation investments under the Pilot Program for Climate Resilience, Working Paper, April.

Buchner, B., A. Falconer, A., M. H.-Mignucci, C. Trabacchi, M. Brinkman, 2011, The landscape of climate finance, *CPI Report*, Climate Policy Initiative, Venice, October.

Brown, J., 2011, *Improving the effectiveness of climate finance: A survey of leveraging methodologies*, ODI, Climate Policy Initiative, Environmental Defense Fund, Brookings, December.

Dlamini, C. (2010), *Towards sustainable financing of protected areas: A case study of the Swaziland National Trust Commission*, Masters research report, University of Stellenbosch Business School. South Africa.

Dlamini C., M. Masuku, 2013, Towards sustainable financing of protected areas: A brief overview of pertinent issues, *International Journal of Biodiversity and Conservation*, South Africa.

Ecosystem Marketplace, 2012, Innovative markets and market-like instruments for ecosystem services, The Matrix 2012, http://moderncms.ecosystemmarketplace.com/repository/moderncms_documents/the_matrix_5-9-12.1.pdf.

Ethan Zindler (27 November 2012): North-South clean energy investment flows: an \$8bn step to a \$100bn goal Bloomberg-New Energy Finance

Eurodad, 2011, *Exporting goods or exporting debts? Export credit agencies and the roots of developing country debt*, December.

Falconer, A., G. Frisari, 2012, San Giorgio Group Case Study: Ouarzazate I CSP, *CPI Report*, Climate Policy Initiative, August.

Fischedick, M., R. Schaeffer, A. Adedoyin, M. Akai, T. Bruckner, L. Clarke, V. Krey, I. Savolainen, S. Teske, D. Urge-Vorsatz, R. Wright, 2011, Mitigation Potential and Costs, in IPCC Special report on Renewable Energy sources and climate Change Mitigation, Cambridge University Press, Cambridge, UK, and New York, USA.

GEF Secretariat (2013): DRAFT STRATEGIC POSITIONING FOR THE GEF, First Meeting for the Sixth Replenishment of the GEF Trust Fund April 3 - 4, 2013 Paris, France

D. Giovannucci, S. Scherr, D. Nierenberg, C. Hebebrand, J. Shapiro, J. Milder, and K. Wheeler. 2012, *Food and Agriculture: the future of sustainability*, Sustainable Development in the 21st century (SD21), New York: United Nations Department of Economic and Social Affairs.

Glemarec, Y., et al (2009): Charting a New Low-Carbon Route to Development: A Primer on Integrated Climate Change Planning for Regional Governments, United Nations Development Programme, New York, NY, USA.

Glemarec, Yannick, 2011, Catalyzing Climate Finance: A Guidebook on Policy and Financing Options to Support Green, Low-Emission and Climate-Resilient Development. United Nations Development Programme, New York, NY, USA.

Glemarec, Y., W. Rickerson, O. Wassbein, 2011, *Transforming On-Grid renewable Energy markets*, UNDP-GEF, New York, USA.

Greenhill, R., A. Prizzon, A. Rogerson (2013): The age of choice- How are developing countries managing the new aid landscape? ODI, UK, March.

Greenhill, R., A. Ali (2013): Paying for progress: how will emerging post-2015 goals be financed in the new aid landscape?, *ODI Working Paper* 366, UK.

Grübler, A., C. Wilson, 2011, Lessons from the history of technological change for clean energy scenarios and policies, *Natural Resources Forum*, 35, 3, 165–184, August.

Hagen-Zanker, J., A. McCord, 2011, The feasibility of financing sectoral development targets, ODI Briefing, 55, March, available at <http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6325.pdf>.

Hertel Thomas (April 25, 2013): Global Change and the Challenges of Sustainably Feeding a Growing Planet Purdue University (personal communication)

Hertel Thomas (June 2013): Land, environment and climate-Contributing to the global public good, WIDER Working Paper No. 2013/x

Howells, M., S. Hermann, M. Welsch, R.E. Segerström, H. Rogner, T. Alfstad, et al., Integrated analysis for climate change, land-use, energy and water strategies. *Nature Climate Change*, 3, 621-626 doi:10.1038/nclimate1789,

Hermann, S. M.Welsch, R. Segerstrom, M. Howells, C. Young, T. Alfstad, H. Rogner, P. Steduto, 2012b, Climate, land, energy and water (CLEW) interlinkages in Burkina Faso: An analysis of agricultural intensification and bioenergy production, *Natural Resources Forum*, 36,4, November.

Hudson, A., A. Duda, Y. Jiang, P. Nugent, A. Ross, B. Hanchard, J. Matheickal, 2012, Catalyzing ocean finance, volume 2, Methodology and case studies, UNDP-GEF, September.,

IAASTD (2008), Agriculture at a Crossroads: Global Report.

IEA (International Energy Agency), 2009. *World Energy Outlook 2009*, Paris: IEA.

IFC, 2011, *International Finance Institutions and development through the private sector*, A joint Report of 31 Multilateral and Bilateral Development Finance institutions, Washington, DC.

IFC (2013): A Dialogue Platform for Inclusive Green Growth Investment: An expanded Stocktaking for the G-20 Development Working Group, Washington DC, USA.

Independent Evaluation Group (IEG), 2011a, *Assessing the IFC's Poverty Focus and Results*, World Bank, Washington, DC.

Independent Evaluation Group (IEG), 2011b, Trust Fund Support for Development, an Evaluation of the World Bank's Trust Fund Portfolio, World Bank, Washington, DC.

Independent Evaluation Group (IEG), 2011c, *Adapting to Climate Change: Assessing World Bank Group Experience*, World Bank, Washington, DC.

International Monetary Fund, 2012, *Global Economic Outlook*, Washington, DC.

Kjöllerström, M., D. Le Blanc, 2008, Using non-renewable resource revenues for sustainable local development, *Sustainable Development Innovation Brief*, 6, UN Division for Sustainable Development, New York, October.

Kwakkenbos, J., 2012, Public profit for public good? Can investing in private companies deliver for the poor?, Eurodad, May.

Leiva Lavallo, J., 2013, Instituciones e instrumentos para el planeamiento gubernamental en América Latina, *Textos para discussao CEPA IPEA*, report LC/BRS/R.237, Santiago.

Liebreich, Michael (25 June 2009): Feed-In Tariffs-Solution or Time-Bomb, New Energy Finance.

Liebreich, Michael (25 June 2013): Europe Risks Losing the High Ground on Clean Energy, VIP Comment, Bloomberg-New Energy Finance.

McKinsey (2013): China's next chapter-China rising stature in global finance. McKinsey Quarterly Special Edition on China

Moody's Investors Service, 2012, International Finance Corporation, November, http://www1.ifc.org/wps/wcm/connect/9fabfc004e259bb1a7b9af7a9dd66321/Moody's+-+IFC_Nov_2012_Moodys.pdf?MOD=AJPERES

Nelson, D., B. Pierpont, 2013, The challenge of institutional investment in renewable energy, *CPI Report*, Climate Policy Initiative, March.

Núñez Ferrar, Jorge, Arno Behrens, 2011, Innovative Approaches to EU Blending Mechanisms for Development Finance, CEPS Special Report, May.

OECD, 2013, A post-2015 information system for international development and climate finance, background paper for the High-level Panel on a post-2015 development agenda, paper prepared by the Development Cooperation directorate, May.

OECD, 2012, The Role of Institutional Investors in Financing Clean Energy, Paris, August.

Overseas Development Institute (ODI), 2012, *Ten things to know about climate finance in 2012*, <http://www.odi.org.uk/publications/6975-ten-things-know-about-climate-finance-2012>

Perry, Guillermo, 2011, *Growing Business or Development Priority? Multilateral Development Banks' Direct Support to Private Firms*, Center for Global Development, April.

Pielbags, A., 2013, Sources, volumes and volatility of development finance, *High-level Panel Working Paper Series*, Prepared for the fourth HLP meeting in Bali, Indonesia, 24-27 March 2013.

Propuesta Ciudadana, 2007, *Vigilancia de las industrias extractivas*, Reporte Nacional No.5 - Balance 2004-2006, Lima, Perú, June.

Riahi, K., et al. (2012). Energy Pathways for Sustainable Development (Chapter 17), in *Global energy assessment*, Cambridge University Press.

REN 21, 2013, Renewables 2013: Global Status Report.

Rockström, J., W. Steffen, K. Noone, Å. Persson, F. Chapin, E. Lambin, T. Lenton, M. Scheffer, C. Folke, H. J. Schellnhuber, B. Nykvist, C. de Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P. Snyder, R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R. Corell, V. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen, J. Foley, 2009, A safe operating space for humanity, *Nature* 461, 472-475.

Roehrl, R.A. (2012), *Sustainable development scenarios for Rio+20*. A Component of the Sustainable Development in the 21st Century (SD21) project, United Nations Department of Economic and Social Affairs, Division for Sustainable Development, New York, USA.

Swedish International Water Institute (2010), *The Impact of the Global Financial Crisis on Financial Flows to the Water Sector in Sub-Saharan Africa*, Report, Sweden.

Swedish National Audit Office (2009), "Swedfund International AB and its commission to society", http://www.riksrevisionen.se/PageFiles/13789/summary_rir_2009_4.pdf

Stockholm Environment Institute, 2012, Energy for a Shared Development Agenda: Global Scenarios and Governance Implications, June, Stockholm Sweden.

Taipale, K., 2010, Buildings and construction as tools for promoting more sustainable patterns of consumption and production, *Sustainable Development Innovation Brief*, UN Division for Sustainable Development, 9, New York, March.

Trabacchi, C., V. Micale, G. Fridari, 2012, San Giorgio Group Case Study: Prosol Tunisia, *CPI Report*, Climate Policy Initiative, June.

UNCBD (2012b), Resourcing the Aichi Biodiversity Targets: A first assessment of the resources required for implementing the strategic plan for biodiversity 2011-2020, Report of the High-level Panel on Global Assessment of Resources for Implementing the Strategic Plan for Biodiversity 2011-2020.

<http://www.cbd.int/doc/meetings/fin/hlpgar-sp-01/official/hlpgar-sp-01-01-report-en.pdf>

UNDP, 2012a, Readiness for Climate Finance, a framework for understanding what it means to be ready to use climate finance, UNDP, March.

UNDP, 2012b, *Catalyzing ocean finance, volume 1, Transforming markets to restore and protect the Global ocean*, UNDP-GEF, September.

UNDP (2013): Raising Resources to finance the post-2015 development agenda: synthesis of the Johannesburg Roundtable of Expert, UNDP, South Africa.

UN Water, 2012, *Status Report on the Application of Integrated Approaches to Water Resources Management*, UN Water report, 2012.

Waldron, Anthony et al. (2013) Targeting global conservation funding to limit immediate biodiversity declines. Proceedings of the National Academy of Sciences of the United States of America; Published online before print July 1, 2013, doi:10.1073/pnas.1221370110

Wassbein, O., Y. Glemarec, H. Bayraktar, T.S. Schmidt, 2013, Derisking Renewable Energy investment. A Framework to Support Policymakers in Selecting Public instruments to Promote Renewable energy Investment in Developing Countries, United Nations Development Programme, New York, NY, USA.

Welsch, M., Hermann S., Howells M., Rogner H.H., Young C., Ramma I., et al. Adding Value with CLEWS – Modelling the Energy System and its Interdependencies for Mauritius. *Applied Energy*, forthcoming.

World Bank, 2013: Mapping Carbon Pricing Initiatives Developments and Prospects, Washington DC.

World Bank, 2012, Private Participation in Infrastructure (PPI) Project Database.

World Bank and IMF, 2011, Mobilizing Climate Finance: A Paper prepared at the request of G20 Finance Ministers, World Bank and International Monetary Fund, Washington, DC. Available at: www.imf.org/external/np/g20/pdf/110411c.pdf.