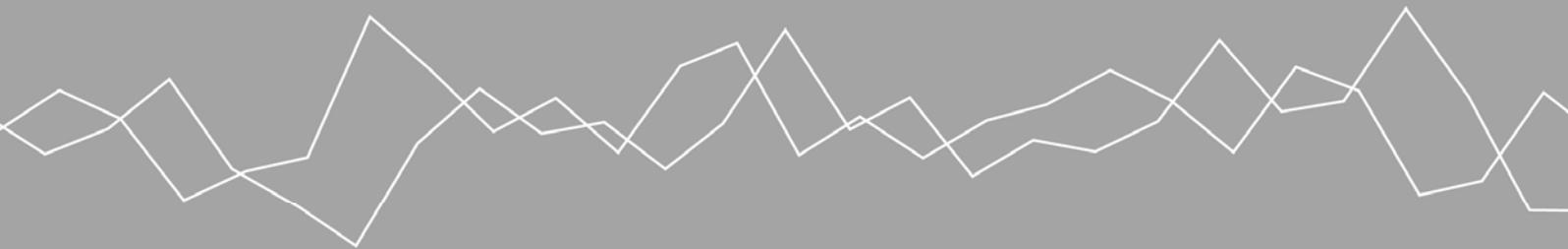


Innovations in Financing Environmental and Social Sustainability



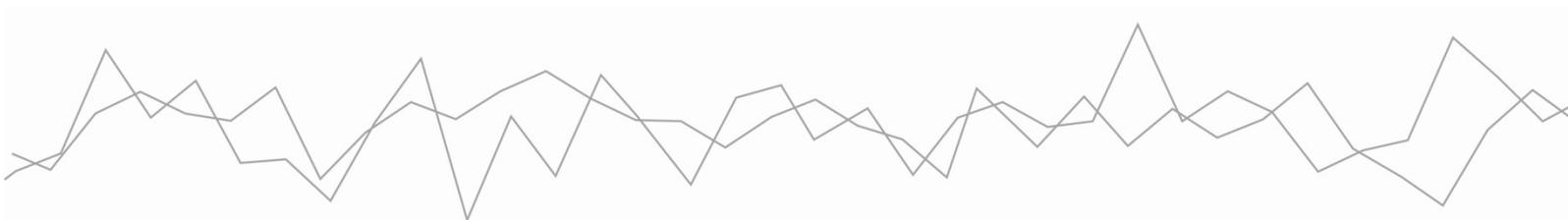
Amsterdam, 31 August 2010
Commissioned by Duisenberg School of Finance and Holland Financial Centre



Innovations in Financing Environmental and Social Sustainability

Literature Overview

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seo economisch onderzoek

SEO Economic Research carries out independent applied economic research on behalf of the government and the private sector. The research of SEO contributes importantly to the decision-making processes of its clients. SEO Economic Research is connected with the Universiteit van Amsterdam, which provides the organization with invaluable insight into the newest scientific methods. Operating on a not-for-profit basis, SEO continually invests in the intellectual capital of its staff by encouraging active career planning, publication of scientific work, and participation in scientific networks and in international conferences.

SEO-report nr. 2010-66

ISBN 978-90-6733-587-4

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Preface

At Duisenberg school of finance, we are committed to providing excellent financial education in order to create the next generation of responsible financial leaders. To achieve this, leading industry practitioners and world-class academics have joined to develop a set of forward-looking financial programmes. These programmes integrate theory and practice, and encourage critical thinking and continuous reflection on the dynamic financial landscape.

The existing set of programmes at Duisenberg school of finance will soon be expanded. With the support of Holland Financial Centre, specifically the Centre for Climate & Sustainability, Duisenberg School is currently developing a Programme on Finance & Sustainability. As part of the Programme, Duisenberg School and Holland Financial Centre intend to offer top-notch education and conduct cutting edge research in the area of finance & sustainability.

While industry practitioners and policymakers around the world are facing the topic of finance & sustainability on a daily basis, academic interest in the topic is relatively recent. In designing a curriculum and a research agenda, therefore, we feel it is important to take into account not only the insights yielded by academic research but also by industry practitioners and policymakers. Accordingly, as a preliminary step, we have asked SEO Economic Research to conduct a broad, high-level literature overview on finance & sustainability.

The survey has resulted in four reports, each providing a literature overview on one aspect of finance & sustainability: (i) financing the transition to sustainable energy; (ii) carbon trading; (iii) innovations in financing environmental and social sustainability; and (iv) sustainable investment. The report you have before you describes the review on 'innovations in financing environmental and social sustainability'.

The survey has been conducted by SEO Economic Research; Duisenberg School has offered suggestions throughout the process. The result should be of use not only to Duisenberg in designing its curriculum and research agenda, but also, we hope, to anyone interested in the increasingly relevant subject of finance & sustainability.

Amsterdam, August 19, 2010

Prof. Noreena Hertz
Chair of Globalisation, Sustainability and Finance

Prof. Dirk Schoemaker
Dean, Duisenberg school of finance

Sjoerd van Keulen
Chairman Holland Financial Centre

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Executive Summary and Further Research

Innovative Finance (IF) was put on the international agenda by the Millennium Development Goals, which are aimed at decreasing poverty and environmental sustainability and require challenging amounts of funding. Its role in achieving these goals was formalized during the International Conference on Financing for Development in 2002.

Being a relatively young (academic) discipline, Innovative Finance lacks an internationally agreed definition. The main three elements generally included are: (i) IF refers to the ‘non-traditional’ use of financial instruments¹; (ii) IF generates additional funds for development; and/or (iii) IF improves the effectiveness of existing funds for development.

Most literature on IF focuses on official flows to developing countries aimed at poverty, health and/or the environment. This report uses a slightly enlarged scope: Innovative Finance, as defined by the three elements above, aimed at providing funds to developing and developed countries for ‘social and environmental development’ by means of official flows and purely private mechanisms^{2,3}.

Many Innovative Finance instruments have not been implemented for long, as yet, or are even still in their design phase. Assessment of the experience so far, in general and certainly within (academic) literature, is still in its infancy. Lessons drawn by literature to date include:

- Effectiveness:
 - Instruments should be employed selectively. Of the many instruments proposed, the aim should be to implement those that are most effective and efficient.
 - Lessons should be learned from instruments that have already been implemented. The relatively extended experience with IF instruments for health development funding could provide a good starting point.
- Assessment
 - IF instruments can help increase development effectiveness. This means development can be improved without having to raise more funds.
 - Transaction costs are an important, albeit frequently overlooked, factor in assessing IF instruments;
 - Expectations of the potential for additional development flows through fund-raising IF instruments should be (more) realistic. They should be viewed as a complement – rather than a substitute – to traditional efforts.
 - More in-depth information is required to assess the net benefits of IF instruments

¹ A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity (IASB Foundation, IAS 32). In terms of Innovation Finance, instruments could include, but are not limited to, cash instruments (such as grants, loans, and securities), risk mitigation instruments (such as guarantees, swaps, hedging products, and derivatives), and advisory services,

² In this report, the definition of IF mechanisms by Girishankar (2009) is used, as described below.

³ Non-private parties are not part of purely private mechanism, they refer to private funds to private parties without intermediation by non-private parties (Girishankar, 2009). Commercial microfinance is an example of this.

- Predictability:
 - Predictability is of great importance to recipients of development funds.
 - Too much dependency on funding from private parties might cause a risk to predictability, as was shown by the financial crisis;
 - Levies on private (or sometimes public) purchases, like air ticket levy schemes, might be less volatile than private investment flows;
- Other improvements might be found in the field of health development funding.
- A well functioning institutional environment and an effective governance regime are preconditions for a successful implementation of IF instruments;

Maybe the most important conclusion so far is that “[i]nnovations need to be tested and evaluated to determine their value-added” (Girishankar, 2009). But just as an international definition is lacking, so is academic consensus on how to assess Innovative Finance instruments. The first part of this report therefore provides a literature overview on the relevant Innovative Finance landscape and, based here on, defines a general framework to describe and analyze Innovative Finance instruments. The framework comprises five steps, in which the following characteristics of the instruments are described:

1. Underlying problem and objectives
2. Structure of the instrument
3. Place of the instrument in the IF landscape
4. Business Case Assessment (before implementation)
5. Impact and Lessons Learned (after implementation)

Step three boils down to a classification of IF instruments. This facilitates understanding and comparison of the vast amount of IF instruments. Together with the objective, it provides a simplified way to characterize an instrument. This report uses the typology of Girishankar (2009). The author defines innovative mechanisms, based on the sources of funding (whether to mobilise public or to leverage private sources) and the uses they support (whether public or private). Figure 1 shows the four resulting mechanisms: Public-Private Partnerships (PPP), Pure Private, Solidarity and Catalytic.

Figure 1 Innovative Finance mechanisms: sources versus uses

		USES OF FUNDING	
		<i>Public</i>	<i>Private</i>
SOURCES OF FUNDING	<i>Leverage private</i>	Public-Private Partnerships (PPP) <i>Private finance for public service delivery and other public functions</i>	Pure Private <i>Private initiative in the market and in civil society</i>
	<i>Mobilize public</i>	Solidarity <i>Public-to-public transfers using concessional flows (ODA)</i>	Catalytic <i>Public support for market creation and development or for promoting private entry into existing markets</i>

Source: Girishankar (2009)

Innovation takes place within each mechanism using financial instruments, products and services. These mechanisms and instruments are either organized as fund-raising efforts or as financial

solutions for operational development challenges ‘on the ground’ - which can be seen as two primary groups of objectives.⁴

Other classification variables that are not included in Girishankar’s classification but will be taken into account in this report are: (i) is the instrument aimed at environmental or social sustainability? (ii) is or can the instrument be used for funding in developed and/or developing countries? (iii) is the instrument part of ‘Compensation schemes’ or ‘Hypothecated finance’?

For most instruments, at least those focused on increasing funding, step five will include an assessment of the (additional) funding generated by or due to the instrument. In order to assess these figures it is of importance to have a clear picture on the total funding through IF as well as through traditional funding instruments. The most recent source coming close to answering these questions is Girishankar (2009), who estimates that IF volume generated via Fund-raising in the period 2000-2008 amounted to approximately US\$ 57 billion, while volume generated to support Financial solutions amounted to approximately US\$ 53 billion. According to the author, the former is 4,5%, the latter 5,7% of total official flows to development countries over the same period 2000-2008. These figures, however, do not include the proceeds from Purely Private IF instruments nor do they include flows towards developed countries.

The second part of this report describes and analyzes a sample of instruments, based on this framework, respectively Green Bonds, Index-Linked Carbon Bonds, Payment for Environmental Services, Kiva, and Gender budgeting.⁵ The applied framework is useful in describing and analyzing instruments, Table 1 illustrates the classification of the instruments analyzed. Also, room for further research per instrument can be identified in a structured manner, the result of which is included in Box 1. The final step, assessing individual instruments and defining success factors requires (i) more experience with the instruments and (ii) a larger sample per category to compare results.

⁴ The author does not specify financial solutions ‘on the ground’. Here, it will be interpreted as referring to solutions for the (process of) funding actual projects, activities and companies, in comparison with activities to spur the required development fund-flow which could eventually be used to do this (i.e., fund-raising).

⁵ Choosing from the vast amount of implemented IF instruments, and those still in their early days of design and development, the relatively small sample attempts to cover a broad scope of instrument types. The sample has been composed in close cooperation with Duisenberg School of Finance.

Table 1 Classification of a sample of IF instruments

	Green Bonds	Index-linked Carbon Bonds	Payment for Environmental services	Kiva	Gender Budgeting
Implemented	Yes	No	Yes	Yes	Yes
Mechanism*	PPP	Catalytic	Catalytic or Pure Private	Pure Private	Solidarity
<i>Fund-raising</i>	X				
<i>Financial solution</i>	X	X	X	X	X
Aimed at					
<i>Environment</i>	X	X	X		
<i>Social</i>			(X)	X	X
Funds to					
<i>Developing</i>	X	X	X	X	X
<i>Developed</i>	X	X	(X)	(X)	X
Schemes					
<i>Compensation</i>			X		
<i>Hypothecated</i>	X		X	X	

Source: SEO Economic Research; mechanism definition from Girishankar (2009); (X): only recently or to a lesser extent; * for definition of mechanisms, see Figure 1

Room for Further Research

This report will be used by Duisenberg school of finance which is currently designing a research agenda for its Programme on Finance & Sustainability. Box 1 hopes to contribute to the efforts of Duisenberg school of finance in this area, by summarizing blind spots in the research areas encountered during the course of writing this report. Some subjects have not been discussed in (academic) literature but are found to merit further research or updating.

Box 1 Subjects for future research

Included in this box are the research recommendations that were encountered when composing this literature overview. The list of research questions is by no means comprehensive, but should offer an interesting starting point to define further research.

- Preparing a definition of Innovative Finance (IF), for which international consensus should be sought
 - It is of importance to define the scope of the definition. This should at least take into account that funding towards developed regions is relevant as well;
 - In view of the different objectives in studying IF, it might be useful to prepare a 'broad' and 'small' definition. The definition should result in a 'measurable' variable.
- Tracking of funding via or resulting from innovative financing
 - Based on a uniform definition, the volume of (additional) funding should be tracked;
 - Categories should be defined and tracked separately, facilitating comparison between IF instrument categories – in order to measure success and define success factors – and with a relevant conventional funding category. Girishankar's exercise (2009) could be a good starting point for this.
- Assessing IF instruments
 - Evaluate the assumptions underlying the five step framework, used in this report, as well as its value in assessing IF instruments;
 - Determine whether classification variables such as 'Compensation schemes' and Hypothecated finance', which are used in this report, add value in assessing IF instruments and/or whether other variables could add additional value;
 - Determine whether private flows can somehow evolve in directions that can be of more help to development.
 - Define pros and cons of Hypothecation finance.
- Green Bonds (GB)
 - Provide an overview of the structure of all issued GB so far, including which investors are targeted, and of the funds obtained by the bonds (as a degree for success). Comparison should result in increased understanding of success or failure and possibly success factors;
 - Assess potential for GB when included in 'green indexes'.
- Index-linked Carbon Bonds
 - Market research on potential market supply and demand.
- Payment for Ecosystem Services
 - Further research on the methodologies used to assess effectiveness and efficiency;
 - Evaluations on a less detailed level in order to come to generalized conclusions;
 - Additional insights into the role of PES on fighting poverty.
- Kiva
 - Benefits of non-profit P2P compared to commercial P2P;
 - Consequences of lenders being donors instead of investors;
 - Impact of altruistic P2P on fighting poverty, compared to e.g., conventional microfinance;
 - Assess whether the success factors Kiva uses are good proxies for success and what 'satisfactory' values would be (information might be found in the charity sector);
- Gender budgeting
 - Classification within gender budgeting to allow for structured assessment;
 - Assessment of 'stylized' approach, used in some business cases;
 - Assessment of particular GRB initiatives, identifying which models are most productive;
 - Interrogating the rhetoric of GRB and the actual policy implications;
 - Investigation of other areas where gender meets finance, for example: finance and gender discrimination, specific financial tools and products for women, the relationship between women, finance and poverty, and the relationship between gender, climate change and finance.

Source: SEO Economic Research

1 Introduction

As recognized today by leading CEOs and leading thinkers, ‘sustainability’ is a key issue for business leaders to understand and manage. Whilst the term ‘sustainability’ is being used to mean different things by different parties, this paper will follow the extended WCED definition of sustainability incorporating both environmental and human rights objectives, based on the Three-Dimension Concept of the ‘Declaration of Rio on Environment and Development’. The World Commission on Environment and Development (1987) defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The ‘Declaration of Rio on Environment and Development’ recognized that sustainable development is a balance of three dimensions: environmental protection, economic growth and social development (United Nations Conference on Environment and Development, 1992).⁶ Research on finance & sustainability is still very much an emergent field. At the request of Duisenberg school of finance, SEO Economic Research has surveyed the literature on finance & sustainability. This has resulted in four reports, each providing a literature overview of one aspect of finance & sustainability:

- Financing the transition to sustainable energy;
- Carbon trading;
- Innovations in financing environmental and social sustainability; and
- Sustainable investment and reporting.

Each report provides comprehensive insights on a major topic within the field of finance & sustainability. Based on our findings from (academic) literature and relevant policy discussions, key topics per subject are identified and discussed. Moreover, areas where it is felt that the literature is underdeveloped have been identified in order to contribute to Duisenberg school of finance’s overall thinking about research objectives for its Programme on Finance & Sustainability. The topics as well as the broader scope and focus points of each topic, have been defined in close cooperation with Duisenberg school of finance.

This report highlights leading literature and empirical research on ‘innovations in financing environmental and social sustainability’. Given the extensive body of literature in the field it is not meant to be all-encompassing, but is meant to provide the reader with a strong base from which to carry out further research and investigation.

Even more so than for the other three topics mentioned above, academic interest in this topic is fairly young. So far, academic consensus on how to assess Innovative Finance instruments in this field is lacking. And this, in a time concerns on social and environmental development are taken more and more seriously and new funding ideas seem to emerge every day. The first part of this report (chapter 2) therefore provides a literature overview on the relevant Innovative Finance landscape and, based here on, defines a general framework to describe and analyze Innovative

⁶ In practical terms, the UN Global Compact – a framework for the development, implementation, and disclosure of sustainability policies and practices – has translated this into ten principles in the areas of human rights, labour, the environment and anti-corruption. These principles enjoy universal consensus (www.unglobalcompact.org).

Finance instruments. The second part of this report (chapters 3 to 7) does just that for a sample of instruments, respectively Green Bonds, Index-Linked Carbon Bonds, Payment for Environmental Services, Kiva, and Gender budgeting.⁷

⁷ Choosing from the vast amount of implemented IF instruments, and those still in their early days of design and development, the relatively small sample attempts to cover a broad scope of instrument types. The sample has been composed in close cooperation with Duisenberg School of Finance.

2 Innovative Finance

2.1 Definition and scope

Innovative financing (IF)⁸ is often used in the context of the Millennium Development Goals⁹, as being aimed at finding alternative sources of Official Development Assistance (ODA) to finance the achievement of the Millennium Goals. During the International Conference on Financing for Development in 2002 the international community explicitly recognized the value of exploring innovative sources of finance.

As yet, there is no internationally agreed definition of IF (Sandor, Scott, & Benn, 2009). Definitions by authorities in the field include:

- World Bank Group (2010, p. 1) defines IF as financing approaches that “[g]enerate additional development funds by tapping new funding sources...or by engaging new partners...”, that “[e]nhance the efficiency of financial flows, by reducing delivery time and/or costs...” or that “[m]ake financial flows more results-oriented”;
- Girishankar (2009, pp. 3-4) defines IF as non-traditional applications of mechanisms that “(i) support fundraising by tapping new sources and engaging investors beyond the financial dimension of transactions, as partners and stakeholders in development; or (ii) deliver financial solutions to development problems on the ground”;
- In its Issue Brief on IF, OECD (Sandor et al., 2009, p. 3) considers IF to comprise “mechanisms of raising funds or stimulating actions in support of international development that go beyond traditional spending approaches by either the official or private sectors” but excludes “innovative uses of traditional development finance, such as counter-cyclical lending, debt swaps...” as well as “innovative delivery mechanisms, such as results-based aid”.

Although not explicitly addressed in the definitions as such, all three focus on IF aimed at aiding developing countries (‘development’). Because many elements in terms of social and environmental sustainability can be of importance in developed countries as well, this report does not preclude these countries from the IF definition. In addition, all three definitions seem primarily focused on mobilizing or deploying official flows (primarily ODA) in one way or the other. This does not mean private flows are not of importance. Yet, “the bulk of [private flows] goes to just the most attractive countries and sectors. They typically have not done much for crucial areas for development that do not provide attractive financial returns” (De Ferranti, 2006, p.3) and effective use of private flows – in terms of sustainability – will normally require (public) leveraging effort. Still, this report does not preclude purely private IF instruments. That is not to

⁸ Also referred to as: Innovative financing for development.

⁹ “In September 2000, building upon a decade of major United Nations conferences and summits, world leaders came together at United Nations Headquarters in New York to adopt the United Nations Millennium Declaration, committing their nations to a new global partnership to reduce extreme poverty and setting out a series of time-bound targets - with a deadline of 2015 - that have become known as the Millennium Development Goals”. See www.un.org/millenniumgoals.

say literature does not cover IF instruments aimed at developed countries or purely private initiatives in other ways.¹⁰ Both are therefore included in the scope of this report.

2.2 Classification of the IF landscape

In order to improve understanding of the vast amount of IF initiatives, their background, development, interrelations and (most importantly) their success, some kind of a structure is needed.

Many sources use either the type of underlying financial instrument or the objective as starting point to categorize IF. For example: WEF (2006) discusses innovations in debt financing, credit guarantees and private equity investing; World Bank Group (2010) distinguishes three areas of IF: generating additional funds, enhancing the efficiency of financial flows, and linking financial flows to results; Sandor et al. (2009) reports examples divided in IF Agencies and IF Mechanisms, the latter further divided in revenue raising, bonds, voluntary contributions and guarantees. As most other, these papers do not aim to provide a structure for IF as such, but rather to categorize the examples they intent to discuss in a logical manner.

De Ferranti (2006), on the other hand, explicitly tries to “make sense of [the] heterogeneous multitude of proposals”. The author considers the use of the underlying objectives to structure IF, defining objectives in terms of (i) the problem being addressed (e.g., a disease or the effect of natural disasters) and (ii) the related financing opportunity (e.g., a debt to be repaid in the case of debt buydowns or the terms of lending in the case of local currency lending). In addition, the author proposes to look at the sources and destinations of the financial flows. He defines IF options within a matrix of sources and destinations (e.g., public sector, financial sector, and corporate sector). For example, funds from the public sector to civil society (NGO and the like) might be channelled via Debt Buydowns. According to the author, this exercise is mainly of importance for the attention it draws to the tendency to “focus on one’s own backyard”, that is channelling funds from public to public, from corporate to corporate et cetera.

Meijerink et al. (2008)¹¹ divide IF mechanisms in four categories, based on the source of funding (private or public) and the mechanism (market-based or non-market based):

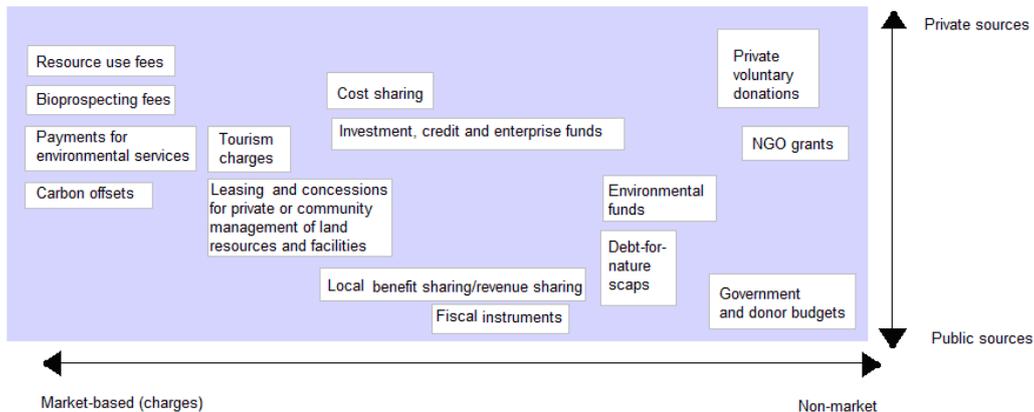
- Self organized private market arrangements;
- Voluntary private, non-market funding mechanisms;
- Government supported market creation;
- Government run financing mechanisms but also the creation of an enabling environment.

Figure 2 shows examples of mechanisms per category. Although illustrative, the use of market versus non-market based mechanisms does not provide clear distinction in instruments, as can be seen in the figure.

¹⁰ See for instance the vast literature on (commercial) microfinance.

¹¹ Based on Emerton et al. (2006).

Figure 2 Innovative Finance mechanisms: (non-)market versus (non-)private



Source: Emerton et al. (2006)

The idea of structuring IF by means of sources and destinations, as suggested by De Ferranti, is further expanded by Girishankar (2009). An important part of the author’s definition of IF (see above) is the identification of innovative mechanisms, based on the sources of funding (whether to mobilise public or to leverage private sources) and the uses they support (whether public or private). Figure shows the four resulting mechanisms: Public-Private Partnerships (PPP), Pure Private, Solidarity and Catalytic.¹²

Figure 3 Innovative Finance mechanisms: sources versus uses

		<u>USES OF FUNDING</u>	
		<i>Public</i>	<i>Private</i>
<u>SOURCES OF FUNDING</u>	<i>Leverage private</i>	Public-Private Partnerships (PPP) <i>Private finance for public service delivery and other public functions</i>	Pure Private <i>Private initiative in the market and in civil society</i>
	<i>Mobilize public</i>	Solidarity <i>Public-to-public transfers using concessional flows (ODA)</i>	Catalytic <i>Public support for market creation and development or for promoting private entry into existing markets</i>

Source: Girishankar (2009)

Innovation takes place within each mechanism using financial instruments, products and services (hereafter: financial instruments or instruments¹³). IF instruments could include, but are not limited to, cash instruments (such as grants, loans, and securities), risk mitigation instruments (such as guarantees, swaps, hedging products, and derivatives) and advisory services¹⁴ (Girishankar, 2009).

¹² Importantly, the author does not include Pure Private mechanisms in his definition of IF.
¹³ A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity (IASC Foundation, IAS 32).
¹⁴ The inclusion of advisory services points to a somewhat broader scope for financial instruments than in the IASC definition.

These mechanisms and instruments are either organized as fund-raising efforts or as financial solutions for operational development challenges ‘on the ground’ - which can be seen as two primary groups of objectives.¹⁵ Table provides an overview of IF instruments per mechanism and objective.

Table 2 Instruments in the IF landscape

<i>Mechanism</i>	<i>Objective</i> Fund-raising	Financial solution (‘on the ground’)
Solidarity	<ul style="list-style-type: none"> • ODA financed by budget outlays from emerging sovereign donors • Global solidarity levies (such as airline ticket tax, Adaptation Fund) • National lotteries • Stolen Asset Recovery 	<ul style="list-style-type: none"> • Counter-cyclical lending • Debt swaps for results
PPS	<ul style="list-style-type: none"> • Joint financing with private donors • New bonds (those in local currencies or those targeting sustainable investors) • Sovereign catastrophe risk (incl. derivatives, currency swaps) • Frontloading ODA 	<ul style="list-style-type: none"> • Private participation in social sectors and infrastructure (incl. through guarantees, OBA) • Sovereign catastrophe risk finance (through derivative and hedging, deferred drawdown options or DDOs)
Catalytic	<ul style="list-style-type: none"> • Carbon Funds 	<ul style="list-style-type: none"> • Leveraging private investment in the financial and productive sectors (through local currency lending, guarantees, risk-sharing facilities) • Creating private insurance markets (through insurance pools and DDOs) • Advance market commitments • Copayment schemes

Source: SEO Economic Research, based on Girishankar (2009)

This report will follow the definition of IF mechanisms, instruments and objectives as used by Girishankar (2009). Most definitions (see chapter 2.1) and classifications of IF implicitly or explicitly focus on IF instruments aimed at developing countries and official flows. As said, both are included in the scope of this report. This means classification of IF, as it is interpreted in this report, should also include the difference between IF instruments aimed at developing and developed countries and the difference between purely private initiatives and initiatives requiring some sort of public support.

In addition, two elements not directly encountered in the described classifications are worth mentioning. First, a large part of IF instruments focuses on internalizing positive and/or negative externalities.¹⁶ IF instrument might be aimed at compensating for these benefits (make the beneficiary pay) or costs (make the ‘polluter’ pay). Here, these instruments will be referred to as ‘Compensation schemes’.¹⁷ Second, the funds raised or the financial solutions targeted – to stick

¹⁵ For example: an airline ticket tax is evidently aimed at *raising funds*. Because it mobilizes *public* funds to be used for *public* functions of government it is a *Solidarity mechanism*. Guarantees provided by governments are a *financial solution* aimed at decreasing risks which pose barriers to funding ‘on the ground’. Because it mobilizes *public* funds to promote *private* funding, it is a *Catalytic mechanism*. The author does not specify financial solutions ‘on the ground’. Here, it will be interpreted as referring to solutions for the (process of) funding actual projects, activities and companies, in comparison with activities to spur the required development fund-flow which could eventually be used to do this (i.e., fund-raising).

¹⁶ Benefits respectively costs resulting from transactions which are not internalized in decision making.

¹⁷ Various terms are used in this regard. A large part of these instruments is aimed at decreasing negative impact on ecosystems. Therefore, ‘Payment for Environmental Services’ (PES) is often used as the

to Girishankar's terminology – may be earmarked (or: ring fenced) for specific purposes. Whether it is clear to which end funds will be used, may impact on the success of obtaining funding. These schemes will be referred to as 'Hypothecated finance'. These two classification characteristics are taken into account in addition to the IF mechanism discussed above.¹⁸

2.3 Measuring Funds Generated by IF Instruments

Measuring the impact of IF in terms of financial flows is not an easy task. Macro-data is generally focused on IF to developing countries. The OECD's Development Assistance Committee (DAC), for instance, collects and publish statistics on aid flow. Even in terms of funds to developing countries, they can only provide a partial picture of innovative financing, for instance because they only record official, so no private, contributions and measure flows on a cash bases thereby neglecting pledges and guarantees (Sandor et al., 2009).

The most recent and extensive overview is provided by Girishankar (2009). Table 3 and Table 4 provide a quick scan of the development funds generated globally via Fund-raising respectively to support Financial solutions 'on the ground', both per IF mechanism as defined in paragraph 2.2.

Table 3 IF volume generated via Fund-raising (US\$ million)

Mechanism	2000-2005	2006	2007	2008	Total
Solidarity	7,080	3,045	1,104	485	11,713
Catalytic	112	154	681	668	1,615
PPP	14,390	7,034	10,977	11,352	43,754
Total	21,582	10,233	12,763	12,505	57,082

Table 4 IF volume generated to support Financial solutions 'on the ground' (US\$ million)

Mechanism	2000-2005	2006	2007	2008	Unspecified	Total
Solidarity	74		66			140
Catalytic	23,602	5,734	7,138	1,192	1,688	39,355
PPP	7,745	761	1,067	464	3,190	13,227
Total	31,423	6,495	8,271	1,656	4,879	52,723

Source: SEO Economic Research, adapted from Girishankar (2009); figures refer to (international) official flows to developing countries and exclude flows from Purely Private IF instruments¹⁹

Girishankar (2009) estimates that for the period 2000-2008, international efforts in innovative fund-raising generated around US\$ 57 billion, while international efforts to support innovative financial solutions on the ground generated around US\$ 53 billion. To put these figures in

overall term, or 'Conservation Finance'. This seems somewhat out of tune with the broad scope often applied, including instruments varying from Carbon Trading to Revenue from tourism. The writers of this report are of the opinion that 'Compensation schemes' is appropriate as overall term as it focuses on the mechanism – compensating positive or negative externalities – and not on a specific (though key) objective. See for instance WWF (2009) for an overview of instruments. Payment for Ecosystem Services is discussed in chapter 5.

¹⁸ These two have resulted from discussions with DSF. Evidently, (many) other classification characteristics are possible and experience and further research will have to determine which characteristics have greatest value in assessing IF instruments.

¹⁹ For data sources and methods, see Girishnakar (2009, pp. 38-39).

perspective, they amount to 4,5% respectively 5,7% of total official flows to development countries over the period 2000-2008 Girishankar (2009).

These figures do not include the proceeds from Purely Private IF instruments, like commercial microfinance, nor do they include flows towards developed countries, like from emission reduction projects as part of EU ETS.²⁰ More work is needed to complete the picture of the flows resulting from IF.

2.4 Choosing and Evaluating IF Mechanisms

The number of IF mechanisms is enormous. New ideas are generated every day. This merits the questions which IF mechanisms are interesting enough to analyse (and possibly implement) and how they should be judged. A logical starting point is the objective: without a clear objective judgement is impossible. Additional variables to assess when choosing between projects include public and private costs and benefits, what would happen if no action is taken, institutional and political feasibility and the time and supporting actions required necessary for the mechanism to become effective (De Ferranti, 2006). According to Girishankar (2009, pp. 4-5) innovative fund-raising mechanisms should be evaluated in terms of the “ability to mobilize adequate and predictable resources from a given source at the minimum cost and risk”, while financial solutions ‘on the ground’ should be evaluated in terms of the “ability to efficiently and effectively deliver development results or maximize net development benefit”. The risk profile should be taken into account when assessing both types of schemes.

In terms of finance, the (potential) importance and success of an instrument is primarily determined by the money (investment) flow it establishes towards the stated objective, in absolute terms and in terms of leveraging effects. (The World Bank, 2010, p. 3) concludes “compared to [ODA] and traditional private-capital flows to developing countries, the funding from IF instruments is as yet very small”.

2.5 Experience so far: Lessons Learned

Many Innovative Finance instruments have not been implemented very long as yet or are even still in their design phase. Assessment of the experience so far, in general and certainly within (academic) literature, is still in its infancy. Below some lessons drawn by literature to date are described.

The International Conference on Financing for Development in 2002, the ‘political’ start of the international search for Innovative Finance mechanisms and instruments seemed to have come at a perfect moment. Interest rate premiums were low, banks leveraged their equity capital as never before and credit volume grew beyond imagination between 2003 and 2007. A favourable time to fund investments, and also for development flows. As a result, development countries experienced an investment boom (The World Bank, 2010). The financial crisis ended this development and highlighted the importance of timely and predictable development resources

²⁰ The proceeds stemming from emission reduction projects in developing countries as part of EU ETS – the value of Certified Emission Rights – are included in the figures.

and the challenge for “healthy aid levels in [an] uncertain environment” (The World Bank, 2010). This might point at a risk of dependency on private capital – which did not end up to be very predictable. At the same time, as De Ferranti (2006, pp. 2-3) notes, official flows are expected to drift downward rather than upward. This causes the author to ask “whether private flows can somehow evolve in directions that can be of more help to development”.

An interesting set of innovations in this regard evolves around levies on private (or sometimes public) purchases, like air ticket levy schemes. The risk with private investment capital towards development is that it might change quite rapidly from great highs, like before the financial crisis, to great lows as was evidenced during the crisis. Although levies will also be impacted by the economic cycle, because purchases fluctuate with market development, they will do so in a less shock-like way. It is therefore no coincidence that the financial crisis has increased interest in levy-based schemes (Sandor et al., 2009).

International conferences, like the G8 in 2009, repeatedly point to the importance of exploring the potential for new IF mechanisms and, indeed, many new innovations are emerging (Sandor et al., 2009). This development of striving for new instruments, however, comes with a risk. The aim should be to implement those instruments that are most effective and efficient. It does not seem plausible that more instruments will always result in more funds for social and environmental development. In this regard, Girishankar (2009) points to the necessity to employ instruments selectively.

Lessons should be learned from instruments that have already been implemented. With the first IF instruments focused on combining public and private sources to meet health challenges, this could be an area for specific attention. Fryatt et al. (2010) summarise the key challenges faced by the High Level Taskforce on Innovative International Financing for Health System, created in 2008. Aside from health-specific conclusions the paper points to the need for (i) research on where investments have the biggest impact; (ii) combining the many ideas on new ways to raise and using funding with more research on what works in different situations; (iii) more impartial assessments amidst of governments having invested in their own innovations; (iv) long term predictability of funds (v) improved accountability from governments and donors to stakeholders. Improvements in the health sector, like increasing predictability through the International Finance Facility for Immunisation (IFFIm)²¹, might be used for other development areas.

Meijerink et al. (2008) point to an effective governance regime and a well-functioning institutional environment as pre-conditions for innovative finance mechanisms.²² This is especially true for funding of Ecosystem services, i.e., the benefits people obtain from the ecosystem (Engel, Pagiola, & Wunder, 2008), where it is vital that property right structures, laws on ecosystem protection and definitions of rights and responsibilities are clear and can be legally enforced. In addition, he concludes transaction costs are an important, albeit frequently overlooked, factor in assessing IF instruments.

²¹ For more on the role of IF for improving health aid predictability, see for instance Lane et al. (2008).

²² He especially focuses on mechanisms for Ecosystem services.

With a focus on developing countries, Girishankar (2009) describes various lessons based on the experience so far. First, the author concludes IF instruments can help increase development effectiveness. Without having to increase public funds as such, Multilateral Development Banks could provide risk management services (e.g. customizing risk decreasing instruments in areas like country and currency risk to the specific needs of developing countries– which they are in grave need for²³) and official flows could be channelled more systematically through Catalytic and PPP mechanisms to leverage funds. Another point, is that expectations of the potential for additional development flows through fund-raising IF instruments should be (more) realistic. They should be viewed as a complement – rather than a substitute – to traditional efforts. New instruments, such as debt offerings in local currency, show potential but are modest compared to traditional efforts. This also strengthens the importance of the first point. Finally, and maybe most importantly, more in-depth information is required to assess the net benefits of IF instruments. The author (p.36) concludes “[i]nnovations need to be tested and evaluated to determine their value-added”.²⁴

2.6 Describing and Analyzing IF Instruments

The remainder of this report describes and analyzes a sample of IF instruments. Based on the literature on IF (instruments) discussed in this chapter, a high-level and transparent 5-step framework has been designed. Each instrument is described and analyzed in identical steps in order to structure the different angles and approaches used by the literature to cover the various types of instruments and to provide a framework for further research:

1. Underlying problem and objectives

The five step framework assumes that, for individual IF instruments to be effective, they must target clear problems and objectives. A description of objectives would facilitate measuring and assessing effectiveness. Moreover, those instruments targeting identical problems could be compared: are they complementary or does the sum equal less than one alone?

2. Structure

In addition, the five step framework assumes that the structure of an instrument, i.e., how it works, determines to a large part how the underlying problem is challenged and whether objectives are met. Instruments with identical objectives might have a different structure in order to approach the underlying problem in a different manner. Insight in the structure might therefore explain differences in success and thereby facilitate identification of critical success factors.

3. Place in IF landscape

Classification of instruments facilitates understanding and comparison of the vast amount of IF instruments. Together with the objective, it provides a simplified way to characterize an instrument. The typology in IF mechanisms based on Girishankar (2009) described in paragraph 2.2 will be used as guideline for classification. Other classification variables that will be taken into

²³ See for instance: UNEP et al. (2009).

²⁴ In this regard, Girishankar (2009) sees an important role for agencies like the World Bank Group: they should monitor the impact of innovative financing and determine success factors; and this information should be shared.

account are: (i) is the instrument aimed at environmental or social sustainability? (ii) is or can the instrument be used for funding in developed and/or developing countries? (iii) is the instrument part of ‘Compensation schemes’ or ‘Hypothecated finance’?

4. Business Case Assessment

The first step towards implementation is assessing whether the proposed IF instrument is expected to be effective and efficient and why (and when not), which potential challenges may be encountered et cetera. Relevant questions include: Is the structure really designed to target the underlying problem and meet the defined objectives? What are the (financial and social) costs and benefits? What will happen if the instrument is not implemented? Does it interfere with other instruments and are these other instruments expected to deliver higher or lower net benefits?

5. Impact and Lessons Learned

For instruments that have been implemented, the impact should be measured and assessed. The main question is whether objectives are actually being met and why (not yet). The analysis should focus on lessons learned, for both the instrument being analysed as for other instruments.

The following instruments will be discussed and analysed based on the above 5-step approach: Green Bonds, Index-Linked Carbon Bonds, Payment for Environmental Services, Kiva, and Gender budgeting.²⁵ Strictly based on existing literature and limited to a relatively low number of IF instruments, this will primarily be a first step to gain further insights in the critical success factors of IF instruments, provide starting points for lessons learned and for further research.

Box 2 Some other authors discussing a sample of IF instruments

- World Bank Group (2010) shortly discusses, amongst other instruments, the Adaptation Fund, the International Financing Facility for Immunization, Local currency bonds, the Advance Market Commitments, Results-based financing
- Kethar et al. (2009) are editors of a book discussing Future-flow securitization, Diaspora bonds, GDP-indexed bonds, partial guarantees provided by multilateral agencies, and the International Financing Facility for Immunization.
- Girishankar (2009) provides an extensive overview of IF instruments with a short description of and related literature for each.
- WWF (2009) discusses various conservation finance innovations.
- Meijerink et al. (2008) discuss several instruments aimed at sustainable ecosystem management.
- De Ferranti (2006) discusses Results-based sequencing of loans and grants, Global development bonds and Investing in grassroots business organizations.

²⁵ Choosing from the vast amount of implemented IF instruments, and those still in their early days of design and development, the relatively small sample attempts to cover a broad scope of instrument types. The sample has been composed in close cooperation with Duisenberg School of Finance.

3 Green Bonds

This chapter, and each of the following chapters, describes an IF instrument based on the five step framework defined in chapter 2.6:

- Step 1 – Underlying problems and objectives: introduces the problem(s) the instrument aims to solve and summarizes its objectives;
- Step 2 – Structure: defines the instrument and explains how it works;
- Step 3 – Place in the IF landscape: categorizes the instrument based on a fixed set of characteristics;
- Step 4 – Business Case Assessment: assesses whether and why the instrument is (or might not be) expected to be effective and/or efficient;
- Step 5 – Impact and Lessons learned: evaluates experience in case the instrument has been implemented and identifies what lessons can be learned.

3.1 Underlying Problem and Objectives

Step 1 – introduce the problem(s) the instrument aims to solve and summarize its objectives

The concept of Green Bonds starts from the notion that Climate Change is too great a challenge to be covered by government resources alone. The vast amount of finance needed to fund required investments will have to come, in the largest part, from private sources. More specifically, given the scale of funds needed, funds will have to be generated from global markets and institutional investors in particular. So far, however, private funding is far from sufficient.²⁶ Equity from private parties – that is: private equity and equity from public markets – has characteristics that prevent it from being exploited in sufficiently large volumes to fund sustainable energy investments. Private equity lacks liquidity and requires high upfront due diligence costs, while public equity market activity is focused on big companies (not so much on a sector comprising of many business opportunities, like SE) and is especially challenging in times of economic recession. Based on this conclusion, IF instruments could be designed to offer the right financial incentives to attract private debt, preferably from institutional investors, while using public credit efficiently (Reichelt, 2010).

At the same time, borrowers face a high risk premium in interest rates due to the (perceived) high risk character of most low-carbon technologies. This might prevent them from borrowing money to invest in these type of assets or projects and focus on traditional fossil-fuel technologies (or other investments) instead (Fine, Madison, Paddon, Sniderman, & Rand, 2009). In order to persuade them to invest in low-carbon technologies, IF instruments might be designed to decrease the cost of debt.

²⁶ For an analysis of required and actual funding in view of the transition to sustainable energy, see Kerste et al. (2010).

Green Bonds (GB)²⁷ are aimed at increasing funding resources for low-carbon investments by creating a financial instrument that appeals to the debt market, especially institutional investors, and at increasing low-carbon investments by decreasing debt risk premia for this type of projects and activities.

3.2 Structure

Step 2 – define the instrument and explain how it works

There is no single definition for the structure of GB. Ideas on GB and actually issued GB do share some common characteristics:

- a conventional, simple structure, comparable with other ‘plain vanilla’ bonds;
- fixed income to investors in the bond²⁸;
- obtained funds are ring fenced to (be lent to) specified low-carbon projects and/or assets, whether or not via a specific Fund;
- bond obligations are (partly) guaranteed, lowering credit risk;
- lending is done based on favourable terms, with a margin covering overhead and an interest rate reflecting the low risk of the bonds.

A structure of a Green Bond includes many other characteristics, which might differ between individual issuances. Examples include: the creation of a separate institution to issue and manage the bond (like a Green Bank), the role and responsibilities of fund management versus the guarantor (governance), the guaranteeing party and the level of the guarantee, and the targeted investors (only institutional investors or also retail).²⁹

Box 3 provides three examples of GB issued by the World Bank.

²⁷ Green Bonds are also referred to as Climate Bonds, although some authors mean different things with these two terms. On Climatebonds.net the following definitions are provided: Green Bonds are issued to raise the finance for an environmental project; Climate Bonds are issued to raise finance for investments in emission reduction or climate change adaptation. This report does not differentiate between the two.

²⁸ Fine et al (2009) propose a variable rate of return, noting that “[t]he reason for the variable upper rate is to attract large institutional investors”. In the presented Case Study, however, a fixed interest rate is applied. Reichelt (2010) seems to exclude bond schemes from her definition of Green bonds if they do not apply to the fixed income criterion (for instance Eco Notes and Cool Bonds, issued by the World Bank in 2007 respectively 2008). The reason is that these are “not designed for institutional investors’ fixed-income allocations”. In Cameron et al. (2009) and Holmes et al. (2009) a fixed interest rate is also seen as a required design element.

²⁹ Fine et al. (2009) presents a proposal for a Canadian Green Bond, including an extensive description of design elements to be taken into account.

Box 3 Examples of Green Bonds issues by the World Bank

Eco notes

total USDeq 390 million, in three transactions: September and December 2007, and February 2008

Eco notes are six-year euro-denominated notes with a coupon of 3 percent, plus a potential additional return linked to an ABN-Amro index of “green” equities. The notes raised funds for International Bank for Reconstruction and Development (IBRD)* at attractive rates, while raising awareness for funding “green” activities, at the same time that the hedging activities of IBRD’s swap counterparties also supported capital available to companies in the index. ABN-Amro and Fortis Bank distributed the notes in the Netherlands, Switzerland, and Belgium, primarily to retail investors. Proceeds were used in the general operations of IBRD.

Cool bonds

total USDeq 31.5 million to-date in two transactions, June and September 2008

Cool Bonds are five-year, USD-denominated notes paying a coupon of 3 percent for an initial period, and a variable coupon amount for the remaining maturity of the note tied CERs generated by specified greenhouse gas (GHG)-reducing projects in China and Malaysia. Hedging exposure to CERs by IBRD counterparties contributes to expansion of this market as well. Daiwa Securities and Mitsubishi UFJ Securities distributed the notes to Japanese investors. Proceeds were used in the general operations of IBRD.

World Bank Green bonds

USDeq 350 million, October 2008

World Bank Green bonds are 6-year, Swedish kronor notes paying investors a 3.5 percent annual interest rate and raising funds at a spread of 0.25 percent over comparable maturity Swedish government paper. They enabled IBRD to raise funds at an attractive cost despite the challenging market environment. Skandinaviska Enskilda Banken (SEB) underwrote the issue and distributed mainly to Scandinavian institutional investors, who were attracted to the investment because the proceeds would be credited to a special account at IBRD that supports World Bank loan disbursements on qualifying climate change mitigation and adaptation projects.

*The IBRD aims to reduce poverty in middle-income and creditworthy poorer countries by promoting sustainable development through loans, guarantees, risk management products, and analytical and advisory services (www.worldbank.org)

Source: Girishankar (2009), based on IBRD

3.3 Place in IF Landscape

*Step 3 – categorize the instrument based on a fixed set of characteristics*³⁰

Girishankar (2009) includes GB in the category of fundraising *Public-Private Partnerships*. Bonds, (partly) guaranteed by government and aimed at obtaining loans from private parties, are issued by private financial institutions or multilateral agencies in order to finance (country level) development efforts. In other words, private sources are leveraged by means of public instruments (guarantees) to support public service delivery. This point of view seems mostly focused on the objective to increase the level of debt (from institutional investors), which indeed points to fund raising efforts. The objective to reduce borrowing rates seems to point more in the direction of a financial solution ‘on the ground’.

GB are aimed at financing *environmental development*. Proceeds are ring fenced and the instrument is therefore a *Hypothecated Finance* scheme. The ring fencing refers to the type of project that is to be funded – low-carbon project – and not to the region. Proceeds can be used for investments in both *developed and developing countries*.

³⁰ For definitions, see chapter 2.2.

3.4 Business Case Assessment

Step 4 – assess whether and why the instrument is (or might not be) expected to be effective and/or efficient

The issue of attracting institutional investors is indeed seen as an important, albeit challenging, opportunity to increase investments in low-carbon activities (UNEP, 2009; WEF, 2009). Green Bonds target this type of investors via bonds combined with a guarantee and fixed income to reduce risks and comply with institutional investors' preferences. According to Reichelt (2010) this would have benefits over using equity instruments (as discussed in paragraph 3.1). London School of Economics (LSE, 2009) and World Economic Forum (WEF, 2009), however, point to two other instruments – Low-carbon challenge funds and Low-carbon cornerstone funds – aimed at the same objective: targeting institutional investors to increase scale.³¹ These instruments do not focus on debt, but combine equity, leveraging debt and the use of a set of public finance mechanisms³² to address specific barriers. In addition to targeting equity instead of only debt, an important difference is that barriers preventing institutional investors from investing in low-carbon activities are more specifically addressed. Green Bonds depend on guaranteeing bond obligations as a mechanism to decrease risks. But different kinds of risk could call for different kinds of mechanisms. Risks of a specific set of activities might more effectively be decreased via a country risk cover or a subordinated equity position than a guarantee – making the Green Bond a less effective instrument. Although no direct comparison is made with Green Bonds, it seems there are other instruments aiming at the same objective offering potential added value. More research is necessary on the effectiveness of Green Bonds compared to other instruments, on whether these instruments are complementary to Green Bonds et cetera.

According to Fine et al. (2009), private parties should control and manage proceeds of the bond (hereafter: the fund). Incentives in the private sector, contrary to those in the public sector, will be aimed at efficient management of the fund. Moreover, the private sector has ample experience in performing the required due diligences to chose projects to be funded, while this experience is mostly not available within governmental institutions. These arguments are in line with minimizing operational respectively default costs of the instrument.

3.5 Impact and Lessons Learned

Step 5 – evaluate experience in case the instrument has been implemented and identify what lessons can be learned

The World Bank played an important role in development and uptake of the GB instrument. It issued its first GB in 2007 and 2008 – 'Eco Notes' respectively 'Cool Bonds'. The bonds met investors' interest but amounts raised were relatively low. The schemes were targeted at individual investors (retail investors) and not so much at institutional investors at large (Reichelt,

³¹ For a full description of these two instruments, see London School of Economics (LSE, 2009) and World Economic Forum (WEF, 2009). These papers focus on funding to developing countries.

³² Defined as "financial commitments made by the public sector which alter the risk-reward balance of private sector investments" (UNEP, 2009). They include for instance grants, risk mitigation instruments, governmental loans and (subordinated) equity positions. The guarantee included in Green Bonds, from the issuer which could be a government but also a Multilateral Development Bank like the World Bank, can essentially be seen as a public finance mechanism.

2010).³³ Thereafter, it issued several GB aimed at institutional investors. Buyers of the bonds included a Swedish life insurance provider and the California State Teachers' Retirement System. One bond issue was totally absorbed by the State of California. Other examples of bonds issued are presented in Table .

Table 5 **Examples of Issued Green Bonds**

Issued by	Year	Interest	Amount
World Bank	2007-2008 (in 3 tranches)	Index-linked	\$390mio
	2008 (in 2 tranches)	Fixed + coupon linked to CER price	\$31,5mio
	2008	Fixed	\$350mio
	2009	Fixed	
	2009	Floating	\$300mio
	2009	Fixed	\$130mio
European Investment Bank	2007	Zero coupon	EUR600mio
US Government	2009	Paid in tax credits	\$2,2billion

Source: Climate Bonds³³

Recently, GB have been mentioned by the UK government as a means of funding for the Green Investment Bank initiative (Green Investment Bank Commission, 2010). Many other institutions are advocating the use of GB, including the Climate Change Capital (advocating bonds to be issued by the OECD) and the influential Canadian group PowerUP Canada (advocating bonds to be issued by Canada). Still, Reichelt (2010) concludes “funds generated from green bonds so far are small, relative to the estimated amounts needed to fill the climate change funding gap”. The author does imply room for improvement whether in the exact form of GB or another fixed-income debt instrument. An important point for improvement is to design the bonds in such a (standardized) way that helps index providers to include them in the ‘Green Index’, so that index-investor automatically include the bonds in their investment portfolio.³⁴

Expected amounts to be raised via Low-carbon challenge funds and Low-carbon cornerstone funds, instruments with identical objectives as Green Bonds (see paragraph 3.4), amount to US\$10 billion respectively US\$ 50-75 billion (WEF, 2009).³⁵ This greatly exceeds the amounts mentioned in the table above. First, these are expected amounts and second, these include leverage potential. More research is needed to compare the instruments.

³³ See also: <http://climatebonds.net/>.

³⁴ The research for this report has not resulted in a clear picture of the regional focus of the proceeds: developed or developing countries. This could be an interesting subject for further research. The outcome might impact, for instance, risk profile of projects and therefore the costs of the guarantee en possibly the appeal to both issuers and investors.

³⁵ The instruments are focused on regions. The amounts are per region and for a three year period (WEF, 2009).

4 Index Linked Carbon Bonds

4.1 Underlying Problem and Objectives

Step 1 – introduce the problem(s) the instrument aims to solve and summarize its objectives

In order for low-carbon investments to become financially attractive, public policy aims to influence returns and risks and to decrease potential funding barriers (Kerste & Weda, 2010). With investor return depending for an important part on public policy, regulatory risk is an important factor in business case decisions. The lower the confidence in governments keeping their promises, the higher the risk premium factored into the cost of capital. Regulatory risk can therefore be a major obstacle for low-carbon investments.

Index linked carbon bond (ILCB) are aimed at increasing low-carbon investments by decreasing regulatory risk.

4.2 Structure

Step 2 – define the instrument and explain how it works

Index linked carbon bonds (ILCB) are government issued bonds, with interest payments linked to the (measurable) outcome of public policy. ILCB in their simplest form link the return of the bond to the actual greenhouse gas (GHG) emissions of the issuing country against published targets, with higher GHG emissions resulting in a higher interest rate to be paid by the issuing country. By linking the return of the bond to the extent governments keep their promises on low-carbon policies – e.g. the promise to decrease GHG emissions to a certain level – ILCB create a hedge for regulatory risk (Mainelli, Onstwedder, Parker, & Fischer, 2009; Onstwedder & Mainelli, 2010).

The primary design elements of ILCB are:

- bonds issued by governments (or multilateral agencies);
- the interest rate depends on a specific (published) index which reflects whether the issuing government keeps certain environmental promises, for example an index of the:
 - level of GHG emissions;
 - level of feed-in-tariffs for renewable energy;
 - percentage of renewable energy in overall energy supply;
 - price of emission (reduction) certificates in a trading system;
 - level of taxes on fossil fuels or fossil fuel end-user price (Onstwedder & Mainelli, 2010).
- the investor receives an excess return if the chosen index of the issuing government exceeds a predetermined level;

In practical terms: an investor buys a government bond – the ILCB – *and* invests in a low-carbon project of choice. The financial return of the low-carbon project will depend on government

keeping its promise on e.g., the level of the feed-in tariff. If the government fails to do so, the return of the project will decrease, but the interest received on the bond will increase.

If and when these bonds are actively traded, financial markets could provide further elements to the scheme increasing its effectiveness. For example, derivatives would allow the possibility to hedge risk without actually having to buy the bond.³⁶

4.3 Place in IF Landscape

*Step 3 – categorize the instrument based on a fixed set of characteristics*³⁷

IILCB can be grouped under *Catalytic* financial solutions.³⁸ Although seemingly in the same field as Green Bonds (classified under PPP), the proceeds of IILCB will not (necessarily) be used to finance (country level) development efforts as is the case for Green Bonds. It is the characteristics of the IILCB (see further below) that turns it into a hedging instrument for the private investor. Therefore, it mobilizes public sources (in terms of a risk instrument) to promote private entry into existing markets.

IILCB are aimed at financing *environmental development*. The instrument catalyzes funding in the region in which the linked index (reflecting regulation risk) is applicable; this might be a region of *developed and developing* countries. Although the instrument is obviously aimed at a specific objective, increasing funds to low-carbon investments, the proceeds of the instrument are not earmarked. They can be used by the issuing party for whatever cause seemed fit.³⁹

4.4 Business Case Assessment

Step 4 – assess whether and why the instrument is (or might not be) expected to be effective and/or efficient

IILCB provide a hedge against regulatory risk, one of *the* risk categories posing a barrier for low-carbon investments. They facilitate hedging against various kinds of regulatory risk by means of different indexes, thereby providing hedges for different kinds of projects. Still, some limits to the number of underlying indexes would facilitate standardisation and market-liquidity which is important for further development.

By providing a hedge against regulatory risk, investors will become more inclined to fund low-carbon projects and activities. Importantly, though, it would require investors to buy a bond – the IILCB. The funds used to buy the bond cannot be used for other investments. Assuming an investment budget that has limits, money available for low-carbon projects decreases. Moreover,

³⁶ For background on this, and other options, see Mainelli et al (2009) and Onstwedder et al. (2010).

³⁷ For definitions, see chapter 2.2.

³⁸ Girishankar (2009) does not include IILCB in its overview of instruments, most probably because these instruments are not specifically focused on developing countries.

³⁹ Although not specifically addressed by the literature on the structure of IILCB the possibility of ring fencing the proceeds for the issuer to low-carbon projects does not seem attractive for the issuer as it would add to the risk. If regulatory promises are not met, not only would the issuer have to pay a higher interest rate it would also face default risk because the underlying projects will suffer from the deviation from regulatory promises.

it impacts on the total project return profile: the return on government bonds is low compared to (required) return for low-carbon projects.⁴⁰ This issue is partly mitigated by the fact that the project does not have to be hedged on a 1 to 1 basis, i.e. an investment of, say, \$1million does not require buying ILCB for the same amount. This ‘hedge ratio’ is primarily determined by the dependence of the project’s return on the specific regulatory risk – for example the carbon price – but also on the level of trust in governments promises (City of London, The London Accord, & CEAG Ltd, 2009). The higher the impact of the risk and the lower the level of trust, the higher the required hedge ratio.

Box 4 Business Case Index-linked Carbon Bond

For example, consider a complex, long-term investment in a tidal barrage scheme. Such schemes have characteristically huge capital costs, low costs of operation once installed and long lifetimes (around 200 years). This means they are difficult to value using conventional discounted cash flow methods.

Let us assume that a 4 km barrage costing €1.5bn producing 2.75 terawatt hours of electricity per year needs carbon prices of €40/tonne CO₂e to give a payback period of around 80 years and a price of €60/tonne for a payback of 30 years. The effect of a high carbon price is to raise the wholesale costs of electricity produced by conventional means. These costs are passed on to the consumer thereby raising electricity prices, including the price that can be charged by the barrage scheme generator, which does not have to buy carbon allowances in order to generate. If the price of carbon is low, the barrage generator will lose this competitive advantage over fossil fuel generators.

The investor may buy a bond with the following characteristics:

- The base yield is 4% per annum;
- The base yield is indexed to a carbon price of €60/tonne and the bond is slightly leveraged:
 - above €60, the interest rate falls by 1% for every €20 increase in carbon;
 - below €60 the interest rate increases by 1% for every €5 decrease in the carbon price; and,
 - below €40 the rate increases by 1% for every €2.5 decrease.

The impact of such an instrument is to significantly reduce the investors’ carbon price risk. When the carbon price is low the barrage generator receives additional interest from the bond to compensate it for the loss of competitive advantage.

The investor does not have to hedge the entire capital sum of €1.5 (\$2.2) billion. Buying bonds of 10% of the project capital (€150million), i.e. a ‘hedge ratio’ of 10%, is sufficient in this case to hedge against a fall in the carbon price to €30/tonne. Without the bond the payback period for the project at this €30 price is 450 years (longer than its expected lifetime) while with the bond, its payback is 70 years.

Source: City of London et al. (2009)

City of London et al. (2009) point to other instruments to hedge regulatory risks. Regulatory risks depending on actively traded indexes, such as the price of European Unit Allowances⁴¹, might preferably be hedged on one of the relevant (EUA) markets. Still, there remain ample examples of regulatory risk which are not hedgeable by conventional financial instruments.

The primary objective of ILCB is to provide a hedge for investors facing regulatory risk. The issuing government provides the market with a hedge-instrument *and* receives the proceeds of the bonds as is the case for a regular government bond. Part of the appeal of this instrument, however, is that it has some beneficial side-effect for the issuing government. For one, they will pay low interest rates on their bonds if they meet their stated objectives. Moreover, they will have

⁴⁰ Of course risk of government bonds is also lower. But many investors have general minimum return targets or even internal guidelines specifically excluding low-risk/government bonds from the investment opportunities. On the other hand, exactly this element might appeal to institutional investors like pension funds, who want to invest in renewable projects/funds. A part of their funds is invested in government bonds anyway. With ILCB they can invest in bonds, which at the same time facilitates investing in ‘green’ projects.

⁴¹ The trading unit within the EU ETS.

a way to differentiate their bond issues in an overcrowded bond market⁴², targeting specific investor groups. At the same time, governments can signal their commitment to environmental regulation, providing trust to the market.

Academics from London School of Economics (LSE, 2009) conclude ILCB are “emerging as one of the most promising instruments for raising finance on the capital markets, since they provide for genuine government commitment that directly addresses the primary concern of private sector investors”.

4.5 Impact and Lessons Learned

Step 5 – evaluate experience in case the instrument has been implemented and identify what lessons can be learned

So far, Index Linked Carbon Bonds have not been issued. The idea of index-linked carbon bonds has emerged from discussions with participants in the London Accord community. It has been presented to the World Bank in 2009 and discussed with government debt offices and Treasuries. According to sources from within or close by the London Accord community governments as well as investors have shown interest. As a next step, further market research on supply and demand is required (Mainelli et al., 2009). In terms of financial flow potential, City of London et al. (2009, p. 19) note “[t]he scale of the potential market in [ILCB] is limited only by government deficits and borrowing needs”. This seems rather optimistic, as it will also depend on uptake by investors – and the type of investors that will be attracted.

⁴² The crisis has, generally, resulted in high government debt.

5 Payment for Environmental Services

5.1 Underlying Problem and Objectives

Step 1 – introduce the problem(s) the instrument aims to solve and summarize its objectives

Deforestation and use of land for pasture imply *benefits* for the land users and *costs* to other. As ecosystems provide benefits to ‘outsiders’ (e.g., water services and biodiversity), the use of land (e.g. deforestation) provides a cost. The benefits of ecosystems for ‘outsiders’ are called positive externalities and – mirrored – the costs of land use are called negative externalities. The land use benefits typically outweigh the benefits of land conservation because the negative nor the positive externalities are taken into account in the decision making process by land users/owners. All in all, there are incentives for deforestation and use of land for pasture and there is a lack of incentives for land conservation (Mayrand & Paquin, 2004; Pagiola, 2003).

As a result, environmental (or ecosystem) services (ES) are becoming increasingly threatened. Since 1961, tropical countries have lost over 500 million hectares of forest cover, the consumption of forest products has risen by 50 percent worldwide, and nearly two thirds of global ecosystem services are in decline (Engel et al., 2008; Mayrand & Paquin, 2004). This leads to the loss of environmental services such as carbon sequestration and storage, biodiversity protection, watershed protection, and landscape/scenic beauty.

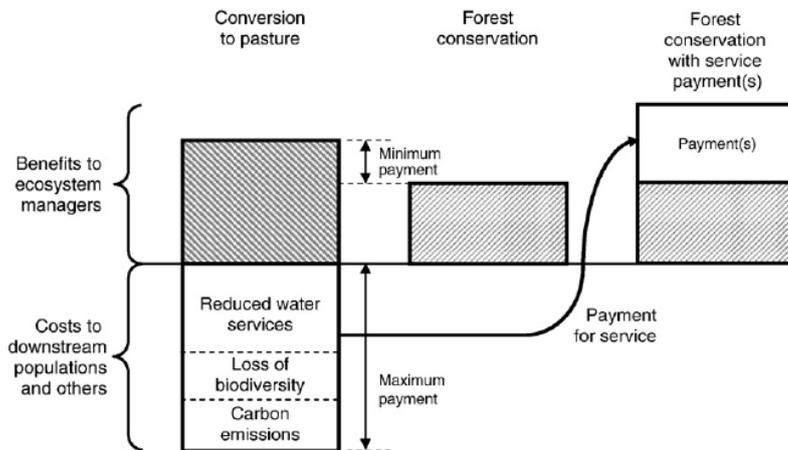
5.2 Structure

Step 2 – define the instrument and explain how it works

Payments for Environmental Services (hereafter: PES) try to correct the market failure mentioned above, by bridging the interests of landowners and outsiders. They seek to reconcile conflicting interests through compensation; PES schemes are intended “to support positive environmental externalities through the transfer of financial resources from beneficiaries of certain environmental services to those who provide these services or are fiduciaries of environmental resources” (Mayrand & Paquin, 2004). The goal of PES programs is to make privately unprofitable but socially-desirable practices profitable to individual land users, thus leading them to adopt them (Engel et al., 2008).

The principle behind PES is that the users of resources and the communities that are in a position to provide ES, should be compensated for the costs of their provision, and that those who benefit from these services, should pay for them, thereby internalizing these benefits and offering incentives to farmers or landowners to provide ES in exchange for managing their land (Figure). In other words, it is based on the ‘beneficiary-pays principle’ (rather than the ‘polluter-pays principle’, as is the case in for example carbon trading), thereby making it attractive in settings where ES providers are poor, marginalized landholders or powerful groups of actors (Engel et al., 2008; Mayrand & Paquin, 2004; USAID PES Sourcebook, 2007).

Figure 4 The Logic of PES



Source: Engel et al. (2008, p. 665)

In short, a PES is (Wunder, 2005):

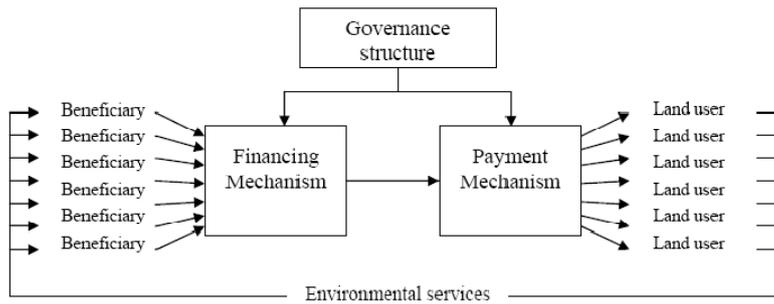
1. a *voluntary* transaction where
2. a *well-defined* ES (or a land-use likely to secure that service)
3. is being 'bought' by a (minimum one) ES *buyer*
4. from a (minimum one) ES *provider*
5. if and only if the ES provider secures ES provision (*conditionality*).

There is great diversity of existing PES models (and therefore a great variation of what is regarded as being 'PES'), though they all "share the objective of providing environmental services that are undersupplied due to the lack of compensatory mechanism, and to provide a mechanism by which services can be provided in a cost efficient manner over the long run" (Mayrand & Paquin, 2004, p. 6).

In a 'user-financed' PES program, the ES *buyers* are the actual users (e.g., a hydroelectric power producer pays upstream land users to conserve the watershed above its plant). In a 'government-financed' PES program, the ES *buyers* are a third party acting on behalf of service users, typically a government agency. ES *sellers* are those who are in a position to safeguard the delivery of the ES. This generally means that the potential sellers are landholders, and the vast majority of PES programs is aimed at private landholders (Engel et al., 2008).

Figure illustrates the structure of PES mechanisms:

Figure 5 Structure of PES mechanisms



Source: Pagiola (2003)

Illustrations of PES schemes include (Wunder, 2005):

- Carbon sequestration and storage: a Western electricity company paying farmers in the tropics for planting and maintaining additional trees;
- Biodiversity protection: conservation donors paying local people for setting aside or naturally restoring areas to create a biological corridor;
- Watershed protection: downstream water users paying upstream farmers for adopting land uses that limit deforestation, soil erosion, flooding risks, etc.;
- Landscape/scenic beauty: a tourism operator paying a local community not to hunt in a forest being used for tourists' wildlife viewing.

5.3 Place in IF Landscape

*Step 3 – categorize the instrument based on a fixed set of characteristics*⁴³

There are many forms of PES schemes. As the instrument targets a market imperfection, it would seem highly likely that government has to perform a catalyzing role. Still, there are examples of self-regulation – like the example given of the Western electricity company paying farmers for planting additional trees. The instrument therefore seems to fit within *Catalytic or Pure Private* mechanisms.

PES is aimed at financing *environmental development*, i.e. to fund (the preservation of) environmental services by making users pay for them.⁴⁴ More and more, however, there is attention being put on the possibility to use PES to finance *social development* (i.e., benefiting the poor) as evidenced by the increasing (empirical) literature on this option (see paragraph 5.5). Especially PES aimed at environmental development can be used in both developed and developing countries, although literature seems to *focus on developing countries*. The latter is especially true for PES aimed at decreasing poverty. PES is clearly a *Compensation Scheme*. As payments are directly made for environmental services, the proceeds are earmarked and the instrument can be categorized under *Hypothecated Finance scheme*.

⁴³ For definitions, see chapter 2.2.

⁴⁴ For all clarity: PES is not a funding instrument in the sense of a direct provision of equity or loans.

5.4 Business Case Assessment

Step 4 – assess whether and why the instrument is (or might not be) expected to be effective and/or efficient

Success Drivers

In theory, PES works best when the value of ES (i.e., the positive externality) is high and the costs of providing ES is low. The high value of the ES implies a high willingness to pay for it. The (relatively) low cost of providing the ES tilts the cost-benefit scale for land owners in the direction of environmental conservation (Mayrand & Paquin, 2004).

There are various success drivers for PES schemes. They tend to work best when (Mayrand & Paquin, 2004):

- they are based on clear and consensual scientific evidence linking land uses to the provision of services;
- they clearly define environmental services to be provided;
- their contracts and payments are flexible, ongoing and open-ended;
- their transaction costs do not exceed potential benefits;
- they rely on multiple sources of revenues delivering money flows that are sufficient and sustainable in time;
- compliance, land use changes, and the provision of services are closely monitored; and
- they are flexible enough to allow adjustments to improve their effectiveness and efficiency and to adapt to changing conditions.

Furthermore, success depends greatly on pre-existing conditions: PES systems work best when services are visible and beneficiaries are well organized (reducing transaction costs), and when land user communities are well structured, have clear and secure property rights, strong legal frameworks, and are relatively wealthy or have access to resources.

According to Mayrand & Paquin (2004), there also appears to be a trade-off between cost-efficiency and effectiveness. Cost-efficiency is highest when transaction costs are lowest, and thus PES schemes seek to minimize those costs. On the other hand payments under PES schemes are more effective when they are targeted and involve detailed management requirements, which entails higher transaction costs.

Income Distribution Implications of PES

Although PES was primarily intended to improve the efficiency of natural resource management, many have assumed that PES will contribute to poverty reduction by making payments to poor land users. Of course, potential distributional impacts of PES programs will only be experienced by those who participate.

There are two major obstacles for 'pro-poor PES'. The first is insecure land tenure – PES is easier to implement when land is securely held by the ES providers, thus, by definition it is less applicable to land held communally or without a legal title. Secondly, pro-poor PES implies dealing with a large number of poor people each delivering a small service entailing high transaction costs (e.g., search and information costs, contracting costs and monitoring costs).

Buyers therefore prefer to deal with single providers representing large bundles of resources rather than a large many poor people (Thuy, Ha, & Campbell, 2008).

Until recently, there was little empirical verification of the pro-poor PES hypothesis, and available evidence on participation of the poor was said to be mixed (Engel et al., 2008). More recent empirical seems to point to positive impact, as is discussed in the next paragraph.

5.5 Impact and Lessons Learned

Step 5 – evaluate experience in case the instrument has been implemented and identify what lessons can be learned

Measuring PES Impact

There are several ways to measure the success of PES schemes. Mayrand & Paquin (2004) suggest the following success indicators:

- number of participants (both beneficiaries and land users);
- land area that is included under the PES scheme;
- extent to which PES scheme is generating land use changes;
- net additional revenues that a PES scheme brings to land users;
- distributional impacts of PES schemes (e.g., impact on poor or traditional communities);
- long-run financial sustainability of the system;
- extent to which the system is generating environmental services;
- transfer efficiency of the system (net percentage of revenues that end up as net income gains for land users); and
- cost-effectiveness of PES schemes compared to alternatives.

USAID (USAID PES Sourcebook, 2007) proposes a treatment versus control group type of measurement, comparing PES programs with otherwise comparable non-PES projects. They do not, however, provide empirical application of this themselves. A similar approach is the use of counterfactual ES baselines, whereby one considers what would hypothetically happen without the PES scheme (Wunder, 2005). Both methodologies (treatment-control group and a baseline approach) use a counterfactual to evaluate PES effectiveness and efficiency. They provide an interesting venue for further research.

Empirical Findings

Since PES is an relatively young instrument for environmental protection, it is still early to assess its overall effectiveness and efficiency (Mayrand & Paquin, 2004). Furthermore, few PES mechanisms have been carefully documented (Engel et al., 2008), many impact studies are either anecdotal or based on a small sample size, and studies that only include PES participants in their sample tend to suffer from selection bias (USAID PES Sourcebook, 2007). Or as Wunder (2008, p. 293) puts it: “empirical evidence on welfare impacts of PES in developing countries remains sketchy, both because many schemes are still young and because little systematic ‘with and without PES’ welfare data have been gathered”. Moreover, recent empirical studies tend to evaluate PES schemes only at a very detailed level, making it impossible to reach generalized conclusions.⁴⁵

⁴⁵ See, for instance, Bulte et al. (2008), Graff-Zivin & Lipper (2008), Horan et al. (2008)

Much of recent empirical literature is focused on the linkage between poor people's benefits of PES programs:

- Wunder (2008) concludes that poor people can widely participate in PES schemes and that this participation usually makes them better off – albeit seldom yielding huge gains.
- Antle & Stoorvogel (2008) offer three case studies (in Kenya, Peru, and Senegal) and find that carbon payments (payments for agricultural soil carbon sequestration) could have a positive impact on the sustainability of production systems while also reducing poverty.
- Alix-Garcia et al. (2008) conclude that capped flat PES payments are more egalitarian than risk-targeted payments and that risk-weighted scheme results in more payments to poor communities.
- Pagiola et al. (2008) show that poorer households are in fact able to participate, and that – by some measures – they participated to a greater extent than better-off households.

6 Kiva

6.1 Underlying Problem and Objectives

Step 1 – introduce the problem(s) the IF instrument aims to solve and summarize its objectives

Equity and corporate debt is primarily accessible for large-scale, mature borrowers. Microfinance, as a solution for smaller companies and entrepreneurs has grown considerably, with annual growth at 30% since the early 70s. Still, “the vast majority of the poor are still underserved. Moreover, most of them are being served at interest rates significantly over commercial lending rates, owing to small loan sizes leading to high transaction costs.” (Ashta & Assadi, 2009, p. 3). The authors conclude that Peer to Peer (P2P) online lending could provide a solution.

Kiva is a (non-commercial) P2P lending mechanism aimed at providing funds to small firms and entrepreneurs, in both developing and developed countries.

6.2 Structure

Step 2 – define the instrument and explain how it works

Started by Matt Flannery, his wife and Moses Onyango in 2005, Kiva is an online lending platform that allows individuals to loan to small businesspeople. As a P2P lending mechanism it aims to directly link borrower and lender. As primary difference with commercial P2P, Kiva offers zero interest to the lender. It is a non-profit organisation, with lenders donating money. They can get their money back at the end of the loan term (but often invest it in a new project) but do not receive interest on their loan.

Lenders chose a borrower from the site to provide lending to. Kiva arranges that money is directed to the borrower via microfinance institutions (MFIs) in more than 40 countries. The MFI, also called ‘field-partners’, themselves channel the funds from lenders to borrowers.

Initially a loan was directly channelled from a lender to a borrower. As Kiva grew, it began to work with larger MFIs and larger fund flows – and thus more borrowers would have to go through the screening and administrative processes – which caused MFIs to sometimes pre-disburse funds to borrowers. Instead of telling the borrower to wait, pending on lenders choosing them as a borrower, MFIs provided the funding in anticipation of this to happen. Although this was addressed on the Kiva-site, it was not very clear to all lenders. During the course of 2009 this was ‘made public’ by a blogger starting a discussion, with large media-coverage, on the lack of transparency of Kiva. The founder of Kiva, Matt Flannery, explained the situation on the blog and promised more clarity on the site. This discussion on a potentially sensitive subject has not caused much damage to the image, nor to the fund flow – on the contrary.⁴⁶

⁴⁶ See Roodman’s blog page (http://blogs.cgdev.org/open_book/2009/10/kiva-is-not-quite-what-it-seems.php), including Flannery’s reaction, and for instance *Confusion on where money lent via Kiva goes*, New York Times, November 9, 2009.

On the website the borrowers and the project, business or activity to be funded are presented, most times including pictures and other background information. In addition MFIs are categorized based on a risk rating system. Riskier MFIs are generally smaller and newer. In this way, lenders can choose borrowers via MFIs corresponding to their risk tolerance and other preferences.

Kiva has local staff to perform due diligences on the MFIs. In addition, it teams up with external companies, like Ernst and Young, to use their expertise in the evaluation process.

At the start, the mechanism facilitated funds from developed countries to developing countries. Since 2009 the site was opened to borrowers from the USA. Kiva CEO Premal Shah summarized the vision behind this, by some criticized, decision as follows “[m]ore than 10 million US business owners face difficulty obtaining capital – even before the credit crisis and economic slowdown which made lending tight...[t]here is nothing wrong with giving US lenders the opportunity to boost entrepreneurship at home, especially at a time where jobs created by small business can help lift the economy out of a recession” (Rao, 2010).⁴⁷

6.3 Place in IF Landscape

*Step 3 – categorize the instrument based on a fixed set of characteristics*⁴⁸

Kiva leverages private sources to private initiatives, providing a market-based solution for a market imperfection in the financial sector – the negligence of small borrowers by financial intermediaries. It is therefore a *Pure Private* instrument aimed at financial solutions ‘on the ground’.

Kiva is aimed at *financing social development*. It falls within the range of *Hypothecated finance*, as it ring-fences lender funds to low-income entrepreneurs, mostly referring to small-sized companies or projects. Although started as an initiative focused on borrowers in *developing countries*, with the inclusion of the US market the developed world has entered the scope as well.

6.4 Business Case Assessment

Step 4 – assess whether and why the instrument is (or might not be) expected to be effective and/or efficient

Pope et al. (2010, p. 1) define P2P as “an alternative credit market that allows individual borrowers and lenders to engage in credit transactions without traditional banking intermediaries...[while they] aggregate small amounts of money provided by a number of individual lenders to create moderately-sized, uncollateralized loans to individual borrowers”. Web-based P2P lending markets have grown excessively, with e.g., the well-known P2P company Prosper having provided funding amounting to \$179 million between 2006-2009 (Hartley, 2010). The uncollateralized nature of P2P is an important element for its success: it offers debt

⁴⁷ Critics claim that Kiva deviates from its core, “small impactful contributions to entrepreneurs in impoverished situations in developing countries” (Rao, 2010).

⁴⁸ For definitions, see chapter 2.2.

opportunities for small borrowers without collateral to offer.⁴⁹ This is especially important in times of a tightening credit market, like is the case with the current credit crunch. Banks are more critical in lending money, especially hitting smaller borrowers. “To fill this financing gap, an increasing number of borrowers are turning to “peer to peer” networks that connect individual borrowers directly to lenders, cutting out the banking middleman” (Fisman, 2009). According to Ashta et al. (2009) P2P lending has value-add compared to traditional microfinance as it facilitates even smaller participation levels – there is practically no minimal lending amount. Moreover, borrowing participation might also increase as internet lending implies smaller transaction costs and thus potentially lower interest rates. Finally the authors state P2P provides “an increased outreach to people living in isolated rural areas. This increased outreach would further reduce both transaction costs from economies of scale and financing costs through larger loan negotiations”.

A large part of P2P initiatives is commercial in nature and designed as an alternative to other investments: it provides for investments with interest rates to investors’ liking, while allowing them to provide funding to borrowers in need. Companies like Prosper and LendingClub are commercial and facilitate a specific type of investments, i.e., investments with a social character.

Kiva’s aims to “connect people through lending for the sake of alleviating poverty” (www.kiva.org). This is in line with the benefits commercial P2P (aim to) offer. The difference between Kiva and this type of companies mainly lies in the lack of commercial incentives – Kiva is a non-profit and lenders are essentially donors.^{50, 51} A first advantage which would come to mind is that the lack of interest to lenders implies lower interest rates offered to borrowers. This appears not to be the case. Ashta et al. (2007) conclude “It is found that the second intermediary, the local MFI has new transaction costs with this type of financing, which are the costs of writing and uploading biographies of poor people onto websites. These costs compensate for the interest free loans that they get from Kiva. As a result, no extra lowering of interest cost goes to the borrower”. But they offer some relief “The social surplus lost by the Kiva lender (who lends interest free) is captured by the MFI or the people who are free lance writers. Therefore, to some extent, employment may go up in a poor country”.

Kiva founder Matt Flannery points out “[t]he main constraint to our growth is user lending” (Flannery, 2009, p. 32), implying that number of lenders (and the amounts lent) might pose a limitation to further growth and not so much the availability of projects and entrepreneurs seeking for funds. At the same time, the benefit of Kiva might well be found (in part) on this side of the equation, the lender-side. More specifically, the ‘donor’-character might attract a different type of lender compared to commercial microfinance, thereby increasing lending base.⁵² More research is necessary in this field.

⁴⁹ Based on amongst others Stiglitz and Weiss (1981) and Ang et al. (1995, 1998), Iyer et al. (2009) conclude that there is ample theoretical and empirical evidence that banks rely strongly on collateral when funding small companies, thereby limiting possibilities for otherwise creditworthy borrowers.

⁵⁰ In terms of not receiving interest on their loans.

⁵¹ For literature on charitable giving, see for instance Andreoni et al. (2006) and Rose-Ackerman (1996).

⁵² No literature was found on this point.

6.5 Impact and Lessons Learned

Step 5 – evaluate experience in case the instrument has been implemented and identify what lessons can be learned

Kiva is generally seen as a success. It has received lots of media attention and has thereby drawn attention to the importance of this type of finance and fighting poverty in general. Between 2007 and 2009 cumulative volume has grown from \$6 million to \$60 million (Flannery, 2009). The only problems it appears to have faced so far has been the criticism on pre-disbursement and lack of transparency (as discussed above). This however did not have grave consequences.

In 2008 \$36 million was lent to low-income entrepreneurs via Kiva (Flannery, 2009). Whether this is ‘high’, ‘good’ or even ‘good enough’ is hard to assess. Comparing it with the funding between 2006-2008 by Prosper of \$179 million, this seems at least not bad for a donor-based mechanism – which would normally attract less funding than an investor-based principle. Compared to required needs, it might never be enough. More research is required to assess whether potential is met and whether altruistic P2P microfinance schemes like Kiva have specific impact on fighting poverty – compared to e.g., mainstream microfinance.

Kiva itself uses two measures for its ‘sustainability-rate’ (Flannery, 2009). First, it measures income to costs, or ‘Operational Self Sufficiency’ (OSS). Income refers to revenues to cover Kiva’s overhead - so not including the loans provided by lenders. The primary source of revenue is voluntary transaction fees.⁵³ Lenders are asked to donate an additional 10% on top of their loan for Kiva to cover its overhead. In 2008 OSS amounted to 67%, coming from 100% in the early years. The deficit is covered by grants from several foundations. The difficulty with the OSS-ratio is that it is more a reflection of strategy than performance as such. More specifically, the ratio reflects the extent to which the organization chooses to depend on grants. The lower the ratio, the higher the gap between Cost and Income and the more grants are needed to cover that gap. But success in obtaining these grants is not known upfront and dependence therefore implies a ‘business’ risk. On the other hand, eliminating this risk by setting an OSS goal of 100% - every dollar spent on overhead must be covered by a dollar in revenues – may limit loan provision because a growing loan base would require in higher overhead thereby lowering OSS.

A second measure is the leverage ratio, which is defined as the money sent to low-income entrepreneurs as a factor of costs. This measures how much overhead is needed to achieve the company’s goal and is thus an indication for efficiency. Kiva’s leverage ratio has never been below eight – every dollar spent by Kiva on its organization and operational activities results in a minimum of eight dollars worth of loans – causing Flannery (2009, p. 40) to conclude that “a donation to Kiva’s operational expenses generates real returns in the form of dollars being spent to the poor”. This, however, would technically be true for any value above one. The question remains whether altruistic P2P microfinance, as an IF mechanism, adds value in terms of cost and benefits compared to alternatives and the concept could be further improved. Although Kiva is usually discussed in a microfinance or P2P context, assessment of these kind of performance indicators could most probably benefit from comparison with charity organizations.

⁵³ As explained, Kiva does not charge interest to lenders.

Essentially, lenders decide who get money. This might be based on a variety of variables, not necessarily including the ‘business quality’ or risk of the borrower, potentially undermining the effectiveness of the mechanism. Also, discrimination – e.g., in terms of gender, age or appearance – might be a potential risk. Ly et al. (2010) find this the first hypothesis is not true for Kiva lenders. Their empirical results suggests rational variables such as the likelihood of repayment, the constraints faced by borrowers and the borrower needs (e.g., education or health projects) are taken into account when choosing borrowers. The authors conclude that “the selection criteria of individual lenders are partly aligned with the broader goals of poverty alleviation and financial sustainability advanced by the microfinance sector”. In terms of discrimination, Ravina (2008) and Pope et al. (2010) find evidence that variables such as race and beauty influence lenders decisions. Although this is not based on Kiva-data, but on data from Prosper.com, it might indicate discrimination influences lender decisions.

7 Gender Budgeting

7.1 Underlying Problem and Objectives

Step 1 – introduce the problem(s) the IF instrument aims to solve and summarize its objectives

As has already been identified, sustainability is not only about the environment or the alleviation of poverty. As defined by UN Global Compact (2010), thinking about sustainability must also include consideration of achievement of human right goals. Gender equity is a key element of these goals. As part of the broader field of research in view of gender equity, gender finance refers to how finance can contribute to achieving gender equity, which is an important element of Finance & Sustainability. This report will be focusing in on one narrow aspect of this wide field – Gender Responsive Budgeting. However, other possible areas to focus on in future research include finance and gender discrimination, specific financial tools and products for women, the relationship between women, finance and poverty and the relationship between gender, climate change and finance..

According to Schneider (2007) empirical findings show that government budgets are not gender-neutral: expenditures and revenues do not have the same impact on gender. Often the expenditure patterns and the way governments raise revenues, have a negative impact on women and girls, compared to men and boys. This difference in impact is caused by the different social roles of women and men, the gendered division of labour, different responsibilities and capabilities and the different constraints.⁵⁴ More specifically, Schneider (2007) mentions the following aspects of government budget that may cause gender inequality:

- A large part of the government expenditure is spent on public employment. If women are not employed as civil servants to the same extent as men, this type of government spending has higher benefits for men than it has for women;
- In terms of publicly funded services, women may have different needs and priorities than men, because of their different social role and responsibilities. A government should target these needs and may need to adjust its budget to increase equality;
- Households receive transfers in the form of pensions, social security payments, relief payments after natural disasters, et cetera. Women may have different entitlements to these payments than men;
- The extent to which women are in budget decision-making positions might be lower than for men, possibly preventing their priorities to be taken into account.

Gender responsive budgeting (GRB), also called gender-sensitive budgeting and women's budgeting, aims to increase gender equality within and stemming from government budgeting. Its objectives are to: (1) draw attention to gender differentiated effects and impacts of budgetary policies and create awareness for gender specific impacts of public expenditure and revenue (2) make governments accountable for their commitments to gender equality (3) aim at changes of

⁵⁴ In addition, the author states “[e]mpirical studies from several countries clearly show that women tend to spend money on their families’ and children’s welfare (nutrition, clothes, education) while men tend to spend on their own leisure activities. It therefore makes a difference whether public expenditures are targeted at women or men, or if revenue-raising fall predominantly on women or men”.

policies and budgets that would raise the social and economic status of women and further gender equality (Klatzer, 2008; Sharp, 2003).

7.2 Structure

Step 2 – define the instrument and explain how it works

In general, GRB is aimed at transforming policies and processes to level the impact that men and women face from government budgets and thereby improving gender equality.⁵⁵ GRB is characterized as a repeating process of consultation, participation, planning, implementation and evaluation with a set of objectives, indicators and benchmarks (Klatzer, 2008). The regular review of these objectives, indicators and benchmarks “based on emerging experiences” constitutes the “critical factor in improving the design and implementation of the programme and strengthening its impacts.” (Hewitt & Mukhopadhyay, 2002). Elements of GRB might include:

- sensitization about gender impacts of budgetary and economic policies within government, administration and the public at large. The objective is an improved use of public resources in the light of achieving gender equality (Klatzer, 2008);
- organizing budgeting in such a way that decisions about the compilation and use of budgets are democratized and especially the concerns of women are articulated to a larger extent (Elson & Young, 2002);
- creation of fiscal democracy, a system in which budget processes are transparent, accountable and participatory; and in which every type of citizen had equal voice (Elson, 2004).

Two aspects are relevant when applying gender budgeting, the content of budgetary policies and the budgetary processes. For the content of policies, the main objectives are patterns of public expenditure and revenue which promote gender equality. Concerning processes, the objective is transparency offering entry point for influencing budget priorities (Klatzer, 2008).

In terms of practical steps, the literature has developed a somewhat stylized approach. Based on several authors, Stotsky (2006b) describes this approach as follows⁵⁶:

- “Undertake a policy appraisal, to identify gender issues and resource allocations, and how policies will affect existing inequalities.
- Evaluate the beneficiaries of policies, using survey and other techniques.
- Evaluate public expenditure incidence, using cost data and numbers of beneficiaries.
- Similarly, evaluate tax incidence.
- Examine the impact of the budget on time use and the care (or reproductive economy).
- Examine the medium term and how these considerations change the macroeconomic framework and projections.
- Prepare a budget statement or means to disseminate the results.”

⁵⁵ Importantly, this does not imply the need for two separate budgets, one for men and one for women, but that the budget is broken down according to the impact it has on men and women (Budlender, Sharp & Allen, 1998).

⁵⁶ The approach has been applied in a number of actual gender budgeting exercises (Stotsky, 2006a).

There are different actors within and outside the government that should engage in mainstreaming gender equality into public finance. The Ministry of Finance or, in some countries, the Ministry of Planning and Development publishes budget statements, approves the format for them, checks the submissions of other ministries and might influence the content of budgets. Therefore, this Ministry can play a central role in including GRB in budget processes and content. An option is to establish a gender unit in the Ministry to closely monitor processes on GRB aspects. Other ministries submit their budget to the Ministry of Finance and may prepare the budget in accordance with gender responsive budgeting. Statisticians are needed to analyze the policies and gather reliable sex-disaggregated data and other gender-relevant statistics. Outside the government, civil society organizations may put pressure on the government by lobbying and advocating for more gender-equitable budgets. Lastly, parliamentarians should screen the proposed budget from a gender perspective before approving it.

7.3 Place in IF Landscape

*Step 3 – categorize the instrument based on a fixed set of characteristics*⁵⁷

Gender budgeting can be seen as an instrument mobilizing public sources to public uses, targeted at an operational equality issue. It can therefore be categorized as a *Solidarity mechanism* for a financial solution ‘on the ground’

GRB is focused on *social sustainability*. The instrument can and is used in both *developing and developed* countries. GRB might seem as an instrument ringfencing public means to a specific target, the position of women, but this conclusion misses a subtle but important point. The primary focus is on gender equality, not on setting specific goals for spending on women-related objectives (Stotsky, 2006b).

7.4 Business Case evaluation

Step 4 – assess whether and why the instrument is (or might not be) expected to be effective and/or efficient

According to economic theory, GRB can be justified by the concept of positive externalities.⁵⁸ The private market, when left to itself, does not fully take the benefits into account of improving women’s opportunities for health care, education, and employment (Stotsky, 2006b). A survey study by Stotsky (2006a) indicates that lowering inequality of women can be linked to higher economic growth and greater economic stability for society at large.

GRB represents an approach which is focusing on strategic policy planning as well as policy outcomes and results (Klatzer, 2008) and provides “a means for determining the effect of government revenue and expenditure policies on women and men” (Budlender, Elson, Hewitt, & Mukhopadhyay, 2002). As a repeating process of consultation, participation, planning,

⁵⁷ For definitions, see chapter 2.2.

⁵⁸ “Externalities (or spillovers) are costs and benefits resulting from economic activities (either consumption or production) that are not taken into account by the market...Activities that cause negative externalities are undertaken in excess and those that cause positive externalities are undertaken insufficiently” (2006b, p. 13).

implementation and evaluation it can be seen as a process towards improvement of gender equality in government budgeting.

Next to the benefits it can have on equality, GRB is also a tool that can be used to achieve other government objectives. It enhances transparency, efficiency and accountability since by adjusting the budget according to GRB, a country fulfills the national and international commitments to human rights while working towards “consolidating the effectiveness of public policies and economic growth by reducing inequalities in the distribution and impact of public resources” (Villagomez & Consultant, 2004). The effectiveness of public policies can be enhanced by GRB by ensuring that public money is better targeted and spent (Womens budget group, 2010).

7.5 Impact and Lessons Learned

Step 5 – evaluate experience in case the instrument has been implemented and identify what lessons can be learned

Since the mid 1990s GBR has been spread around the world. Especially the Fourth World Conference on Women, held in Beijing in 1995, was important in this process, as it called for ensuring the integration of a gender perspective in budgetary policies and programs.

Innumerable initiatives have been implemented around the world, in many shapes and forms. Budlender et al. (2002) provide a comprehensive survey on gender budgeting initiatives. In a more recent working paper, Stotsky (Stotsky, 2006b) provides a (short) descriptions of initiatives. The author draws several lessons from the experience up to that point:

- “Gender budgeting should be incorporated into standard budget processes and fully institutionalized (see below). It should not be seen as something to be done in addition to the standard budget process, though elements of it, such as an analysis of benefit or tax incidence, may require periodic special efforts.
- It should address specific and identifiable goals, such as reducing the inequality in educational attainment, that have clear benefits and that can be measured, even with somewhat crude tools and data.
- It should draw upon civil society for support and assistance in the more research-oriented aspects, and apply to subnational levels of government, where relevant.
- It should be comprehensive and include considerations of all aspects of the budget, not only spending, where it is most often applied.
- Gender budgeting should not as a rule set specific goals for spending on women-related objectives, unless budgets are severely constrained and such spending is well below what an unconstrained budget would otherwise choose, since this tends to introduce inflexibilities and hence inefficiencies in the budget process.
- Several existing models are producing useful results, including the work in some parts of the European Union, most notably the Nordic countries and some provinces in Spain, and many useful models can be drawn from past and ongoing experiences elsewhere, in both developed and developing countries.”

The first GRB initiatives were undertaken in Australia and South Africa, but these eventually did not result in institutionalization of GRB. Nordic countries are making progress with gender budgeting in practice. “In Finland, Norway, and Sweden, the budget will contain an assessment

of the distribution of financial resources between men and women. In Denmark, this analysis will be undertaken with regard to elderly care, and in Iceland, with regard to disability payments. All the countries are attempting to improve the collection of gender disaggregated statistics. The Swedish government has committed itself to integrate gender into the budgetary process” (Stotsky, 2006b). In Spain, based on law 30/2003, all governmental projects and rules require a report on the gender impact of the measures undertaken. In the European Union, a front runner in gender equality according to Stotsky, equalizing opportunities for men and women has resulted in adaptation of instruments related to GRB but the author does not mention institutionalization of specific GRB measures. Schneider (2007) concludes “gender budgeting work in many countries remained a one-off activity (e.g. sensitization workshops, trainings, analyses) and was not institutionalized”.

According to Schneider (2007) most initiatives focus on government expenditure while a minority focused on government revenues (e.g. taxes). The author signals the following results of GRB initiatives:

- more capacity to analyse budgets by taking GRB into account;
- women and girls gaining higher priorities in budget allocations;
- changes in budget guidelines and formats;
- mentioning of gender issues in parliament and budget speeches;
- increased transparency in budget processes;
- increased participation of lobby groups in the budgetary process;
- increased public awareness that budgetary decisions might impact gender relations and gender equality.

Notwithstanding these results, the author claims that, in many countries, the impact of gender budgeting work was minimal. As discussed, gender budgeting was mostly not institutionalized and was often based on the ‘stylized approach’ defined above with standards not necessarily suiting the specific country system.

Klatzer (2008) states the GRB initiatives “consist of different components and differentiate according to country and region depending on their specific social and political contexts as well as due to different types of institutions which promote the implementation of [GRB]. This results in a heterogeneous understanding of [GBR].”.

However, despite the author’s concerns, in a 2008 paper presented at the Public Budgeting Responsible To Gender Equality conference in Bilbao, the author calls GRB a “revolutionary concept in public finance”. This claim seems warranted given the limited acknowledgement before introduction of the GRB-concept that budgets do impact men and women differently. Further research is clearly needed however in assessing particular GRB initiatives, identifying which models are most productive, interrogating the rhetoric of GRB and the actual policy implications etc.

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