



Encouraging private sector investment in climate-friendly technologies in developing countries

An assessment of policy options for the Dutch government

Prepared for the Netherlands Government Working Group on Future International Climate Change Policy

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Summary

This study aims to explore new or reformed policies to be adopted by the Dutch government to encourage private sector investments in climate-friendly technologies in developing countries. A literature review of barriers to climate-friendly investments and of directions for solutions has been complemented with a number of in-depth interviews with stakeholders representing the major actors involved in investment projects (project sponsors, financing institutions, institutional investors and government). The barrier analysis has resulted in the following list of key obstacles to climate-friendly investments:

1. Lack of a sound, transparent and stable enabling environment for investing in developing countries.
2. Shortage of experienced and creditworthy sponsors.
3. High specific project risks.
4. Overestimation investment risks related to (sustainable) investments in developing countries in general (risk perspective).
5. Additional costs of climate-friendly technologies.
6. Shortage of risk capital.
7. Insufficient guarantee mechanisms.
8. Lack of know-how on public-private partnership structures and on financial design.
9. Lack of insight how corporate social responsibility can be operationalised.

Four main gaps have been identified on the basis of an assessment of current Dutch policies and instruments:

1. Shortage of instruments to directly promote investments.
2. Underdeveloped guarantee instruments.
3. Too restrictive cap on project size in financial schemes.
4. Lack of support in operationalising the concept of corporate social responsibility.

Four areas for new or intensified policies have been identified based on the barrier and gap analysis:

- I. Direct promotion of (potentially large scale) investments, including:
 - a. Supporting (the establishment of) sponsor companies developing sustainable energy projects in developing countries.
 - b. Making risk capital available (“durfkapitaal”).
 - c. Creating investment credit facilities.
 - d. Making development capital in the form of subsidies available for large-scale climate-friendly upfront investments.
 - e. Making the policy of by Atradius DSB more climate-friendly.
- II. Developing new guarantee mechanisms applicable for large scale climate-friendly investments projects.
- III. Facilitating the Dutch private sector with the implementation of corporate social responsibility.
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1. Introduction to the study

1.1. Background to the study

The discussions on future international climate change policies beyond the first commitment period under the Kyoto Protocol is gaining momentum, also in the Netherlands. The government has recently appointed a working group of government officials and external experts to undertake an evaluation of the possibilities for future international action in the area of climate change. The terms of reference include the assessment of the economics of climate change as well as the possible regimes of future international agreements.

Also of importance is the promotion and financing of technological innovation and deployment of climate-friendly technologies, particularly in developing countries. In this area, the question has arisen which policies the government of the Netherlands could deploy to encourage private sector investments in climate-friendly technologies in developing countries. The priority is on the most rapidly growing developing countries, such as China, India, Brazil, Mexico and South Africa. These countries have the largest share of future greenhouse gas emissions from developing countries, while, at the same time, offer the largest potential for emission reduction.

It is unlikely that mechanisms based on the Kyoto Protocol, particularly the Clean Development Mechanism (CDM), will be sufficient to cover the incremental costs of climate-friendly development in these countries. It will, therefore, be necessary to mobilize the resources of the private sector in different ways as well.

This study aims to explore new or revised policies, and the corresponding programmes and financing facilities. The topic is very extensive in terms of the regions, technologies, investment, and financing structures to be considered. Moreover, governmental intervention in the market may have complex direct and indirect impacts. This limited study, therefore, will not address the detailed design of the proposed programmes or financial schemes.

The study is being carried out with support from IBO (Interdepartementaal Beleidsonderzoek).

1.2. Overall objective and focus

The overall objective of this study is as follows:

To gain insight in the potential of new or reformed policies to be implemented by the Netherlands that could make private sector investments in rapidly growing developing countries more climate-friendly, compared to a business-as-usual scenario.

To be able to manage such a complex and extensive issue, additional focus is necessary:

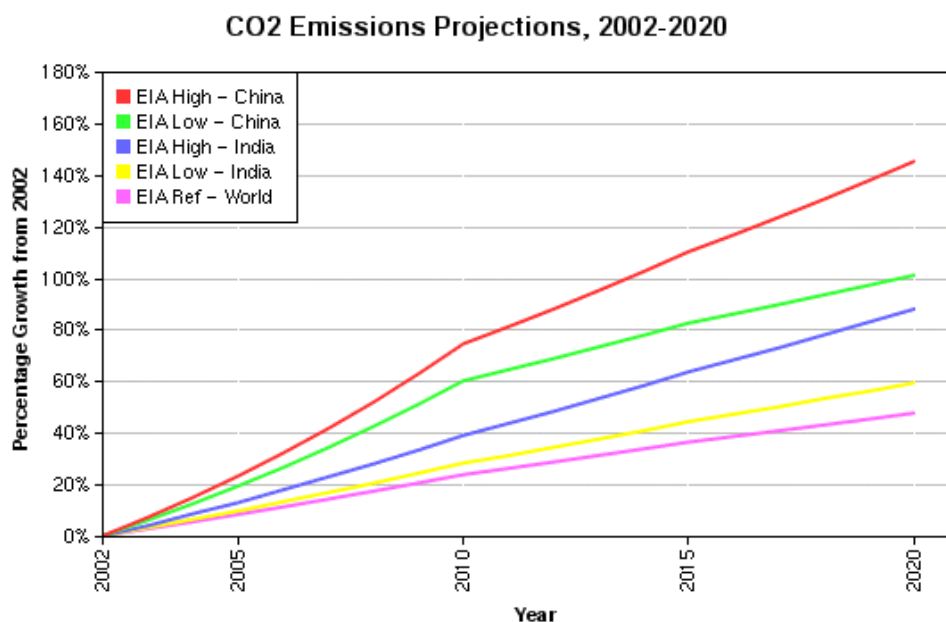
- The scoping and exploratory character of the study allows the proposal of new policies which would differ substantially from current policies adopted by the Dutch government. The focus is on the medium-term (2012-2020) and the new policies should lead to a substantial reduction of greenhouse gas emissions.
- The study will primarily focus on rapidly growing developing countries like China, India, Brazil, Mexico and South Africa. It is expected that investment in climate-friendly technologies in these countries would have a relative high impact.
- The study will look at possibilities for changes of the current private sector flows into a more climate-friendly direction, as well as the generation of new flows into carbon extensive investments (“more and better”).
- The pricing of emission reduction in developing countries through the Clean Development Mechanism is regarded as the main instrument of promoting climate-friendly investment at this moment. The future of CDM beyond 2012 is, however, uncertain. This study looks at alternative or complementary policies, which are not based on carbon financing. Nevertheless, any interaction between the policies proposed in this study and the carbon market should be carefully considered.
- Investing in climate-friendly technology can bring about many other benefits, such as those related to sustainable development. These benefits are not considered explicitly in this study.
- The range of different technologies that can lead to emission reduction is huge. The scope of this study does not allow full consideration of the specific characteristics of individual technologies but aims instead to differentiate between the main technology categories. The study primarily focuses on proven technologies.
- Before any policy is developed, the question should be addressed why it is necessary for governments to intervene in the market. In case of promoting investments in climate-friendly technologies, this study assumes the following rationale for governmental intervention: (1) climate change is seen as a public good which justifies active involvement of national governments, (2) it is the mandate of governments to provide a market structure to serve the (international) policy objectives on climate change, (3) mitigating climate change is an objective shared by the Netherlands and developing countries. Under current market conditions, these objectives are not met, especially under the assumption that carbon pricing under the Kyoto Protocol will not be sufficient, (4) governments can take on more risks than the private sector parties can take on.
- Finally, the study is limited to climate change mitigation through reduction of greenhouse gas emissions. Important it may be, investment in adaptation measures has not been considered. Furthermore, given the nature of the investments, the report will focus on energy related CO₂ emissions. The case of the non-CO₂ greenhouse gas emissions is separately discussed in Annex I to this report.

2. Market trends

As background information, illustrative figures on the Dutch and international trends in public and private financing flows are presented. This study, however, does not include a quantitative analysis.

2.1. GHG emissions in developing countries

The first graph illustrates the importance of China and India when mitigating climate change. The growth in these countries is relatively high compared to a global average. The difference between the high and the low scenario for both countries is partly explained by the large potential for emission reduction in these countries.

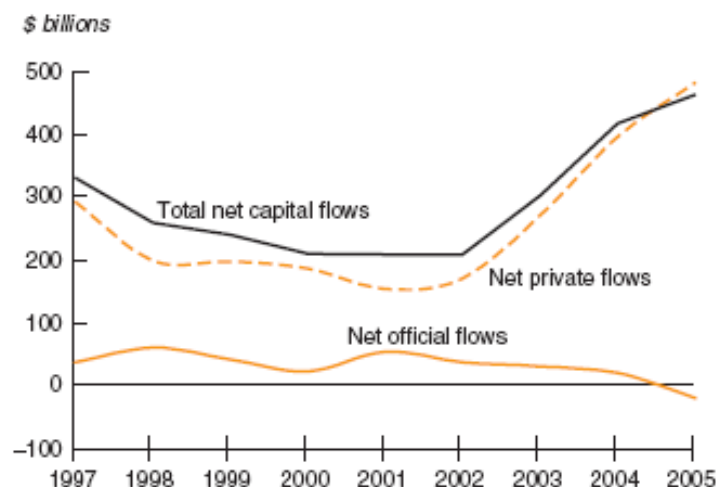


Graph 2.1 Relative GHG emission growth China, India and the World

Source: Analysis Indicators Tool (CAIT) Version 3.0. Washington, DC: World Resources Institute, 2006

2.2. Overall capital flows to developing countries

Graph 2.2 shows the development of total private and official capital flows to developing countries reaching almost \$ 500 billion in 2005. The larger share of this investment inflow benefits only a few developing countries: China, Brazil, Mexico, Singapore, Thailand, Argentina, South Korea, Chile, and Venezuela.



Graph 2.2 Financial flows to developing countries

Source: IBRD/WB, 2006

Compared to the private sector flows, Official Development Assistance (ODA) is relatively modest. In 2004 the total global ODA flows amounted to app. \$ 80 billion. According to the OECD DAC estimates, the ODA flows will increase up to \$ 128 billion in 2010.

Looking more closely to the energy sector, a significant growth of Foreign Direct Investment (FDI) flows to developing countries in the 1990s can be witnessed. After the financial crisis, however, flows to the power sector declined from \$ 46 billion in 1997 to less than \$ 15 billion in 1999, and \$ 12 billion in 2004. Most of the private investment in the energy sector goes to Argentina, Brazil, China, India and the Philippines. (Hoven, 2006; Global Development Finance, 2006)

2.3. Climate-sensitivity of finance

The table below presents an estimate of the share in ODA, FDI and Gross Domestic Investment that is “climate sensitive”. In these sectors, e.g. the energy and land use sector, changes in investments and allocation of funds may lead to emission reductions or increased resilience to climate change. The climate-sensitive share in ODA is substantially larger than in FDI.

Table 2.1 Climate sensitive share

	Total	Climate sensitive share
ODA and concessional finance	\$ 100 billion	40%
FDI	\$ 106 billion	10%
Gross Domestic Investment	\$ 1500 billion	2-10%

Source: Worldbank, 2006

Compared to overall ODA and FDI volumes, the financial resources which directly aim at mitigating climate change are small. The most important sources are the Global Environmental Fund (GEF) and the Clean Development Mechanism. Since 1991, GEF

has co-financed 200 projects with a total support of \$ 1.5 billion. Moreover, since 2004, more than thousand projects have been developed under the CDM (of which several hundred have been registered). The total value of carbon credits related to the CDM project pipeline amounts to \$ 16 billion and is still growing. Total investments flows are estimated to be 4 to 6 times higher.¹

2.4. Additional costs of climate-friendly development paths

The incremental costs of mitigating greenhouse gas emissions depend on development paths, the stabilization target and technological developments. No precise estimates of the level of the annual costs of mitigation are available. The IPCC estimated that the costs of stabilizing at 450 ppm, 550 ppm and 650 ppm, ranges from less than 40 billion per year up to 180 billion per year; less than 10 billion per year up to 80 billion per year; and close to zero and up to 40 billion per year respectively (Worldbank, 2006).

An estimate of the financing required to significantly decarbonise the power production in developing countries amount to \$30 billion per year (Miller, 2006). These costs are partly determined by differences in power generation costs (see Table 2.2).

Table 2.2 Indicative power generation costs (US 2000 \$ cents per kWh)

Technology	2005		2010		2020	
	Low	High	Low	High	Low	High
Large hydro	2	8	2	7	2	7
Wind	3	10	3	7	3	6
Modern biomass	5	15	5	14	5	12
Solar thermal	12	18	10	16	7	12
Nuclear	1.2	5	1	5	1	4
Coal	2	7	2	7	2	6
CCGT	3	10	3	10	3	12

Source: REN21, 2006

2.5. Investment gap in the energy sector

The financial needs to deal with the challenge of mitigating climate change (see section 2.4) can not be seen separately from the significant capital needs for the energy sector in developing countries to meet with their current and future energy demand. The IEA estimates a total capital investment of \$ 8 trillion is needed for the developing and transition economies to meet their energy needs, of which electricity comprises roughly 73 percent, oil 12 percent, natural gas 12 percent and coal 3 percent. This is equivalent to an average of \$ 300 billion per year in the period 2003 to 2030 (World Bank 2006).

The current investments in the electricity sector cover with \$ 80 billion a year, about 50% of the needs (World Bank, 2006).

¹ Figures presented by Jose Miguez, chair CDM Executive Board, at the Workshop Development and Climate, 20-22 September 2006, Paris.

Renewable energy investments rapidly growing

Increasingly, the private sector is allocating resources for investments in renewable energy. In 2004, investments in renewable energy amounted to \$ 30 billion (excluding \$ 20-25 billion for large hydropower). Compared to the yearly investments in conventional power (\$ 110 to 150 billion) these figures are significant (corresponding to 20 to 25% of global power sector investment). The current renewable energy power capacity is, however, relatively small (160 GW, 4% of total capacity, excl. large hydro). The current renewable energy capacity saves 1.2 billion CO₂ emissions annually.

About \$ 500 million in public finance goes to renewable energy projects in developing countries. Most of these sources are used for non-investment activities such as training, project development, policy development and market facilitation. The three largest sources are the German Development Finance Group KfW (\$ 100 million), the World Bank (\$ 110 million) and the GEF (\$ 100 million). Additionally, several agencies and governments are providing aid for renewable energy in the range of \$ 5 – 25 million per year, including ADB, EBRD, IDB, UNDP, UNEP, UNIDO, Denmark, France, Germany, Italy, Japan and Sweden. Other donors support on an annual basis, including FAO, Australia, Canada, the Netherlands (Novem), Switzerland and the UK.

Local financing sources for renewable energy in developing countries are growing. Many local banks or agencies provide (micro) loans for renewables. Some are supported by donor agencies. As an example, the Triodos Bank's 'Renewable Energy for Development Fund' provides seed capital, loans and business development support for renewable energy entrepreneurs in Asia and Africa.

The newly established renewable energy policy targets of developing countries are a large stimulus to the growth of the renewable energy market comes from countries like China, Indian. Brazil and South Africa have set national renewable electricity targets.

Source: REN21, 2005.

2.6. Trends in the Netherlands

Table 2.3 summarises the Dutch financial flows to developing countries. In the year 2004, total ODA was roughly 4 billion US\$, while the private sector flows were estimated at 9.3 billion US\$.

Compared to other DAC countries, the bilateral aid flows of the Netherlands to the energy sector are relatively low (3.7% compared to the DAC average of 7.9%). A relatively large share of the Dutch flows is allocated for least developed countries (53.6% compared to 43% average), especially for Sub-Saharan Africa (49.1% compared to 35.8% DAC average).

Table 2.3 Financial resources of the Netherlands to developing countries and multilateral organizations (million \$)

	1993-94	2001	2004
I. Official Development Assistance (ODA)	2 521	3 172	4 204
<i>ODA as % of GNI</i>	<i>0.79</i>	<i>0.82</i>	<i>0.73</i>
II. Other Official Flows (OOF) net	73	42	151
III. Grants by Private Voluntary Agencies	269	240	412
IV. Private Flows at Market Terms (long-term)	2 246	-6 886	9 339
1. Direct investment	1 509	2 526	1 986

	1993-94	2001	2004
2. Private export credits	- 40	182	3 708
3. Securities of multilateral agencies	- 110	-1 133	559
4. Bilateral portfolio investment	886	-8 462	3 086
V. Total Resource Flows (long-term) (I to IV)	5 108	-3 432	14 106
<i>Total Resource Flows as a % of GNI</i>	<i>1.60</i>	<i>-0.89</i>	<i>2.46</i>

Source: OECD DAC (2006)

Tables 2.4 and 2.5 present a breakdown of Dutch direct investments flows and stocks. The figures differ from those presented in Table 2.1, because different definitions are used. The tables show that FDI flows to developing countries are relatively modest compared to the total FDI flows from the Netherlands. Secondly, the yearly fluctuations are large. Of the three continents, Latin America is by far the most important investing country, followed by Africa. Direct investments in South East Asia have been relatively modest.

Table 2.4 Dutch Direct Investment (DI) in developing countries (flows, € million)

	1982	1995	2003	2005
Total DI	-3,127	-14,697	-39,146	-97,162
<i>Latin America</i>	<i>-142</i>	<i>-822</i>	<i>-1,764</i>	<i>469</i>
Brazil	-61	156	-947	330
Mexico	-7	-171	-163	-171
<i>South east Asia</i>	<i>-17</i>	<i>146</i>	<i>-269</i>	<i>-687</i>
China	0	-85	134	-282
India	0	-24	-229	25
<i>Africa</i>	<i>-99</i>	<i>-130</i>	<i>-760</i>	<i>-971</i>
South Africa	17	-43	-147	-67
Total DI in DC	-258	-806	-2,793	-1,189
% of total DI	8.3%	5.5%	7.1%	1.2%

Source: DNB (2006)

Table 2.5 Dutch Direct Investment (DI) in developing countries (stocks, € million)

	1982	1995	2003	2005
Total DI	64,075	125,713	420,547	561,521
<i>Latin America</i>	<i>1,765</i>	<i>3,893</i>	<i>11,399</i>	<i>15,359</i>
Brazil	926	1,621	4,807	7,531
Mexico	90	199	3,814	4,488
<i>South east Asia</i>	<i>520</i>	<i>2,102</i>	<i>4,484</i>	<i>4,566</i>
China	0	394	1,762	1,789
India	50	149	721	1,056
<i>Africa</i>	<i>1,237</i>	<i>1,315</i>	<i>5,505</i>	<i>7,361</i>
South Africa	154	166	719	750
Total DI in DC	3,522	7,310	21,388	27,286
% of total DI	5.5%	5.8%	5.1%	4.9%

Source: DNB (2006)

3. Conceptual framework and research method

3.1. Conceptual framework

A conceptual model of an investment, its driving factors and the stakeholders involved is depicted in Figure 3.1 below. The simplified model presented reflects the character of this exploratory and scoping study and its short duration. It assumes that investments in climate-friendly technologies are being driven by four main factors, which can be, positively or negatively, influenced by policies of national governments, like the Netherlands, and international organizations, such as the European Union and the World Bank.

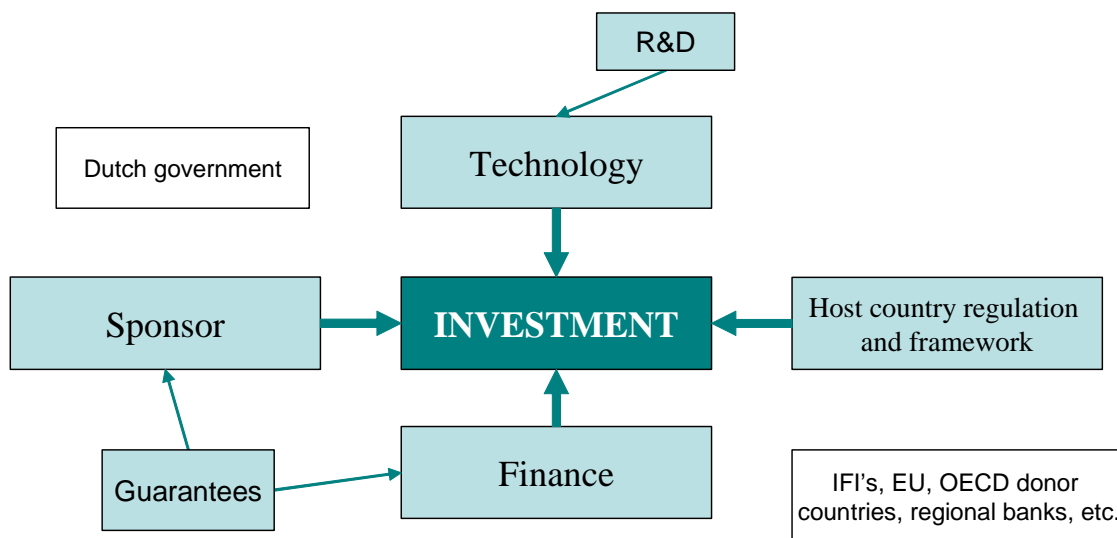


Figure 3.1 Conceptual framework

Investment. No singly investment will be similar to another. From the perspective of the sponsor, an investment varies in terms of capital intensity, upfront costs, cash flows, commercial, technology and host country risks, side effects and complementary benefits, use of proven or new technology, scale of investment, transaction costs, etc. Compare, for instance, an investment in a clean fossil fuel plant in China with an investment in a production facility for energy efficient refrigerators in South Africa.

Project sponsor. The project sponsor is the party developing the project and the main driver behind the project. The objectives and motivation of the sponsor are, therefore, key to the success.

Technology. The range of different technologies that can lead to emission reduction is huge. The scope of this study does not allow full consideration of the specifics of individual technologies but aims instead to differentiate between the following main categories:

- (1) End use energy efficiency (buildings, appliances, transport, industry).
- (2) Renewable energy.
- (3) Energy supply (fuel switch to gas, refurbishment, energy efficiency, biofuels).
- (4) Clean coal technologies, including CO₂ capture and storage.
- (5) Non-CO₂ greenhouse gases (see Annex I).

Finance. Project financing uses the project's assets and future revenues as a basis for raising funds. It can take on many different forms, depending on the availability of finance, the characteristics of the project and project partners, and the risk profile of the project. Choices are between public/private finance, debt/equity finance, national/international finance, etc. The provided guarantees are, especially in high-risk projects, an important component of the financing package.

3.2. Research methodology

A combination of literature research complemented with a number of in-depth interviews is the most suitable approach in addressing the research questions within the short duration of the study.

The collective experience with regard to investing in developing countries and the related barriers is substantial. The experiences with investing in climate-friendly technology is, however, less extensive. A literature review has identified the key barriers and general directions for solutions.

Public and private stakeholders in the Netherlands have been asked to substantiate the main conclusions from literature on barriers to investments, as well as to assess the current and future policies in the Netherlands. Stakeholders have been selected to cover all main actors in an investment (project sponsors, project developers, financing institutions, export credit agencies (ECAs)). See Annex II for the list of stakeholders consulted.

4. Barriers to private sector investments

This chapter looks into the barriers which hinder private sector investment in climate-friendly technologies in developing countries. These barriers are related to private sector investments in general, as well as to investments in climate-friendly technologies in particular. The barriers have been analyzed through a literature survey as well as interviews with Dutch stakeholders from the government, sponsors and financial sector, which will be firstly discussed.

4.1. Perspectives of Dutch stakeholders

Interviews with Dutch public and private stakeholders (see Annex II) give insight in the barriers which may hinder the involvement of the Dutch private sector in climate-friendly investments in developing countries. The stakeholders include project sponsors, banks, export credit agencies, and large investment funds. The table below structures the most important barriers mentioned by the stakeholders and quotes as an illustration.

Table 4.1 Barriers to investments – the perspective of Dutch stakeholders

<p>Barrier: stakeholders show a very consistent view on the main barriers to investments. The most frequently mentioned barrier is the lack of experienced and credible sponsors:</p>
<p>“There is no shortage of finance; the key problem is the shortage of sponsors.”</p> <p>“The Netherlands has no cowboys who are able and willing to take the risks.”</p> <p>“It is a human capital problem. We have a shortage of experience people who can develop projects in developing countries. But we also lack experienced people at our own government as well as at local governments. Also local partners often lack experience and know-how.”</p> <p>“Money is not the problem, it is all about the human factor.”</p> <p>“We need power developers to get sustainable investments off the ground.”</p> <p>“The Dutch energy sector is not capable of investing in developing countries.”</p>
<p>Barrier: although stakeholders mention the significant amounts of available finance, most of them see the risk related aspects as second major barrier to allocating resources to climate-friendly investments. Most stakeholders emphasise the investments risks, the risk perspectives, the lack of risk capital (“durfkapitaal”) and insufficient guarantee mechanisms:</p>
<p>“There is a shortage of risk capital.”</p>

“The key investors of the nineties, mainly the large energy companies in the OECD, have all withdrawn. Not because of the IRR, but because shareholders respond in a negative way to investments in developing countries. Your share prices go down, even when the project is profitable.”

“The Dutch market has never been as liquid as it is now. Margins on finance are extremely low. Still we do not go for biomass projects in India, even when our return will be 20 times higher. It has all to do with the risk perspective.”

“Although institutional investors show interest in sustainable investments, there are major internal forces against this. Sustainability is still seen as contradictory to profits.”

Barrier: concerns about the additional costs of climate-friendly technologies, especially for clean coal technologies:

“Integrated coal gasification combined cycle technologies are 20% more expensive compared to conventional coal. Without subsidies or local regulation clean coal technologies are not applied. China builds such plant every week. So after 5 weeks, the budget is gone. This is not a sustainable route.”

“Governments can go for the Bush route by allocating large funds for the additional costs of clean coal technologies. With the \$ 1 billion from the Energy Act, the additional costs of five 550 MW plants can be financed.”

Barrier: host country conditions as bottlenecks to investments:

“Our biggest risk is that we do not get our money back. Local governments and local power companies are not creditworthy.”

“Host country governments are not familiar with project finance and public-private partnerships. There is a huge knowledge gap. Besides, the private sector is often seen as the enemy. Governments are suspicious. This increases bureaucracy.”

“Even an official concession by the Chinese government does not fit with the guarantees we look for as international project financiers. The legal framework, especially the issue of ownership, is too weak and uncertain. This increases our transaction costs too much. So we step aside.”

“There is a shortage of professionals, both in governments and in the private sector. This is actually not only the case in developing countries.”

Barrier: different stakeholders mention the role of Corporate Social Responsibility

(CSR). Although the concept is at its early stage of development, most stakeholders consider it as a potential driving force:

“CSR has gained much attention during the last years. Banks have signed the Equator Principles and most institutional investors have signed the Principles of Sustainable Investments. But it seems very difficult to translate all these principles into action.”

“Pension funds are getting more interested in sustainable investments in the developing world, but in general there is a gap in awareness and in knowledge. They are also slow and conventional, so do not expect quick changes.”

4.2. Summary of barriers

Over the last decade, many studies have looked into the factors which hinder investments in developing countries (see f.e. Monterrey Consensus (2002), Kok et al (2004), Sonntag-O'Brien, V., and Usher, E. (2004), IEA clean coal centre (2006)). The barrier analysis on the basis of international literature has proven consistent with the assessment of Dutch stakeholders. In summary, the following main obstacles can be derived from literature as well as from interviews with Dutch stakeholders:

1. Lack of a sound, transparent and stable enabling environment in developing countries, including low quality of financial markets and domestic banking systems; lack of transparent macro economic, fiscal and energy policies; perverse energy subsidies; and varying political policies with respect to the environment.
2. Shortage of experienced and creditworthy sponsors.
3. High specific project risks, especially the repayment by governments with low creditworthiness and the local legal framework (ownership, unexpected changes).
4. Overestimation of risks related to sustainable investments (partly driven by technological uncertainty) as well as investments in developing countries in general.
5. Additional costs of climate-friendly technology compared to conventional technology, combined with a lack of incentives for more expensive, less polluting technologies.
6. Shortage of risk capital.
7. Insufficient guarantee mechanisms.
8. Lack of know-how on public-private partnership structures and on financial design.
9. Lack of insight how corporate social responsibility can be operationalised.

5. Current Dutch policies and programmes promoting climate-friendly private sector investments

This chapter presents an overview of the current Dutch programmes and financing facilities promoting climate-friendly private sector investments in developing countries. The programmes and financing facilities are described according to the organizations that manage them (see section 5.2). An evaluation and a gap analysis are given in section 5.3. First, the chapter will give a brief overview of the main characteristics of the Dutch policies towards the promotion of climate-friendly private sector investments in developing countries.

5.1. Policy on promoting climate-friendly investments in developing countries²

At the moment the Dutch government has no comprehensive common policy on promoting climate-friendly investments in developing countries. The three core ministries, The Ministry of VROM, the Ministry of Economic Affairs and the Ministry of Foreign Affairs, have different perspectives on this topic, but some initiatives have been taken recently to harmonise and strengthen the policies and programmes. The core policy documents are briefly discussed below.

The Ministry of VROM

The 'Environmental Agenda of the Future' outlines the commitments of the Dutch government to facilitate developing sustainable and reliable energy supply in developing countries, by (1) more effective use of the financial instruments of the World Bank; and (2) Dutch financial instruments targeting the energy sector in developing countries. According to this Agenda, more attention will be paid to increased access to sustainable energy.

The Ministry of Economic Affairs

The Dutch energy policy, coordinated by the Ministry of Economic Affairs, emphasizes the importance of energy security. Energy efficiency and renewable energy are seen as important core stones as they contribute to a lower dependency on energy of other EU countries. This philosophy is also incorporated into the policy towards developing countries, especially those with emerging economies. An efficient and sustainable energy system is seen as a core pillar generating economic growth, while at the same time minimising the impact of climate change and local air pollution. The policy of the Dutch government is therefore to shape financial instruments for the energy sector in such a way that mitigation of climate change is taken into account. The second objective of the Ministry of Economic Affairs in this respect is to facilitate Dutch industry in developing markets abroad.

² Adapted from: Ministerie van VROM (2006), Notitie Nederlands Financieel Instrumentarium gericht op de BRICS-landen.

The Ministry of Foreign Affairs/Directorate-General for International Cooperation
The Cooperation Programme for China states that the Dutch government will support Dutch industry and research institutes in the area of energy, not only by the traditional trade support, but also by the financial-economic instruments such as ORET, PESP and PSOM, which should become more focused on this area.

Additionally, the 2006 budget of the Ministry of Foreign Affairs stresses the increased importance of Dutch support to energy security in developing countries by sustainable energy and energy efficiency.

As follow-up of the Energy for Development conference in 2005, Minister van Ardenne and Secretary of State van Geel, decided to further investigate if and how the Dutch financial instruments could be used for sustainable energy investments in developing countries. The aim would be to increase access to energy by sustainable energy sources. A dialogue with the private sector is foreseen.

Policies of the three ministries are implemented through the programmes and financing facilities described in the following section. Most of the programmes are managed by FMO, the EVD and Atradius DSB.

5.2. Dutch programmes and financing facilities³

Agency for International Business and Cooperation EVD

The Agency for International Business and Cooperation (EVD) is part of the Dutch Ministry of Economic Affairs. The EVD runs a wide range of programmes to promote international business development. The two most important export related programmes are the Programme for Economic Cooperation in Projects (PESP) and the Programme for Cooperation with Emerging Markets (PSOM).

PESP, financed by the Ministry of Economic Affairs, financially supports feasibility studies for exports up to a maximum of €135.000. The budget for 2006 amounts to €7 million. The PSOM budget is much larger (€15 million (Ministry of Economic Affairs), €6 million (Ministry of VROM) and €50 million (Ministry of Foreign Affairs) (VROM, 2006)). PSOM supports 50% of export related investments with a maximum of €750.000.

Both PESP and PSOM can be used for exports or export related investments of climate-friendly technologies. Since 1987 PESP has supported several feasibility studies to assess the potential for climate-friendly exports to developing countries. Examples are: CNG filling stations China, car LPG systems India, and energy saving building sector South Africa.

³ Information presented in this section was collected from the websites of the respective programmes (see Annex III) (downloads like annual reports are not separately listed) together with interviews with programme managers (see Annex II).

Figures on actual exports initiated by these feasibility studies are not available. In 2005, the share of environmental and energy projects of the total PESP portfolio amounted to 6.3% and 5.7% (VROM, 2006).

Additionally, in the period 2004-2006 the PSOM programme supported energy related investments in developing countries, among others: retail solar home systems Indonesia, biomass electricity production from fuel wood, joint venture wind turbine tower production Colombia.

PSOM has a specific tender for environment. This tender is, however, only open for selected countries in Central and Eastern Europe. In 2005, approximately €8 million of the PSOM-EZ budget and €16.5 million of the PSOM-OS was allocated to environmental and energy projects (VROM, 2006).

Export credit agency Atradius Dutch State Business

The Dutch export credit agency Atradius DSB insures the commercial and political risks related to exports to and investments in (mostly) non Western countries by credit and investment insurances.

Atradius DSB runs four facilities for the Dutch government:

- EKV (regular export credit insurance).
- SENO (export credit insurance of countries in Central and Eastern Europe).
- GOM (insurance of ORET transactions (see FMO section below)).
- RHI (investment insurance, yearly maximum of €454 million).

The export credit insurance (EKV) is by far the largest product of Atradius DSB. Through the recently adopted annex to the OECD Arrangement on Officially Supported Export Credits on Renewable Energy, Atradius DSB can provide longer credit periods for the exports of certain renewable energy technologies (up to 15 years). Atradius DSB provides neither guarantees (100% coverage) nor loans itself.

Netherlands Development Finance Company FMO

FMO offers a set of financial instruments to support private companies and financial institutions in developing countries. In addition, FMO runs the Development Related Export Transaction Programme (ORET) which supports exports of capital goods and services to the Least Developed Countries (LDCs). Approximately 15% of the ORET budget of 2005 and 2006 (app. €100 million annual budget) was allocated to energy related projects (VROM, 2006). The total portfolio of FMO amounts to over €2 billion. The power and water sector accounts for 10% of the total exposure.

Project examples are: commercial exploitation of gas field in Tanzania (\$ 17 million loan, Globeleq); 290 MW gas fired power station Nigeria (\$ 17.5 million loan, Africa Merchant Bank); participation in cleantech investment fund for small-scale clean energy projects in Latin America (\$ 3.7 million); renovation of diesel-powered energy plants in Indonesia (€3.9 million ORET grant, total costs €11.1 million, Wärtsilä Nederland BV).

Ministry of VROM/SenterNovem: Green Fund Scheme

The Dutch government introduced the Green Fund Scheme in 1995, which is currently administered by SenterNovem. The objective of the scheme is to encourage environmental investments by the private sector through fiscal incentives. In the current fiscal system, a tax advantage of 2.5% is given. In 2005 the amount of green capital available amounted to over €5 billion.

Since 2002 the Green Fund Scheme has been extended to support environmental investments abroad as well. The maximum project size amounts to €9 million. The Ministry of VROM coordinates the green funds scheme international. So far, very few international projects have been implemented under this scheme.

Ministry of Foreign Affairs: Social-Ethical Fund

In line with the Green Fund Scheme, the social-ethical fund was established in 2004. The scheme aims to support entrepreneurs in developing countries. A similar tax advantage of 2.5% can be obtained. The Ministry of Foreign Affairs coordinates the fund. So far ASN Bank, Oikocredit and Triodos Bank are running social-ethical funds with a total fund size of approximately €100 million. In most cases credits are provided to microfinance institutions in developing countries. Apart from an energy efficient lighting project in Honduras, climate-friendly technologies have not been financed through this scheme.

Ministry of Economic Affairs: Corporate Social Responsibility

The Dutch government undertakes different initiatives to support corporate social responsibility of the private sector. The Ministry of Economic Affairs coordinates these.

Following the SER-advice “The Profits of Values” of 2000, the government main objective is to bring parties together, to generate and disseminate knowledge and to encourage transparency in order to facilitate stakeholders in making their decisions regarding CSR. As an example, the Ministry of Economic Affairs has initiated and supported the establishment of the platform mvonderland.nl.

The programme “corporate social responsibility in international context” was carried out by the Dutch National Initiative for Sustainable Development in the period 2003-2005, (NIDO). The objective of the programme was to show, in cooperation with 20 Dutch companies, how companies could put social responsibility into practice in an international context. The programme resulted in a set of publications.

5.3. Evaluation and gap analysis

In this section the current Dutch programmes and financing facilities for the promotion of investment in developing countries are evaluated. First, Table 5.1 presents a selection of quotes of the stakeholders interviewed.

Table 5.1 Evaluation of programmes and financing facilities – perspective of Dutch stakeholders

<p>Stakeholders stress the imbalance between the needs of the private sector investing in climate-friendly technologies in developing countries on the one hand, and Dutch policies on the other hand:</p> <p>“Compared to other countries we have an advanced and generous export policy. You get 50% of the investment and you need not pay anything back. We are, however, behind with our investment and insurance policies. We could learn from other countries.”</p> <p>“The EVD is an export-oriented agency. The Dutch do not like promoting investments. We have the old-fashioned idea that promoting investment would harm employment within the Netherlands. Parliament does not approve such policy.”</p> <p>“For debt providers, international projects are only feasible above €100 million (100 MW energy). The 9 million project cap of the green fund scheme international is killing. No one can develop an international project at this size.”</p> <p>“We do not need adjustments of the current policy. This would not help. Changes would be marginal. We need new policies developed from a totally different perspective.”</p>
<p>Stakeholders mention the unused potential of CSR:</p> <p>“The Netherlands is ahead with CSR compared to other OECD countries. The Dutch private sector is always the first to commit to international principles. It is, however, difficult to use them in practice. The guidance from the government is limited.”</p>

Based on the description of policies and programmes and the remarks of the Dutch stakeholders, the following observations can be made:

- Apart from the purchasing of emission reduction credits through Clean Development Mechanism, which falls out of the scope of this study, the Netherlands has not a dedicated programme or financing scheme that primarily aims at the promotion of climate-friendly investments in developing countries.
- The current set of available financial programmes and financing facilities is diverse, is designed from different perspectives and serves different target groups.
- Climate change is no specific issue, apart from the notion that activities financed by the respective programmes, should be ‘sustainable’ in terms of not hindering the development of future generations.
- The Netherlands has a strong focus on promoting exports of Dutch goods and services while policies to promote investments are underdeveloped.
- Despite the available export programmes, climate-friendly exports and export related investments to developing countries have been limited.

- Most programmes seem too small to serve the projects envisaged in this study. Most striking is the maximum budget of the green fund scheme international. But also the PSOM and ORET budgets do not fit with the financing needs of climate-friendly technologies in developing countries which aim at a significant reduction of greenhouse gasses.

Based on the analysis presented in this chapter, the following four main gaps of the current Dutch policies are defined:

1. Shortage of instruments to directly promote investments.
2. Underdeveloped guarantee instruments.
3. Too restrictive cap on project size in financial schemes.
4. Lack of support in operationalising the concept of Corporate Social Responsibility.

6. Options for new policies on promoting climate-friendly private sector investments in developing countries

This chapter addresses options for new policies that could be implemented by the Dutch government to support the investment of climate-friendly private sector investments in developing countries. The key barriers of Chapter 4 and the key gaps of the current policies, presented in Chapter 5, are taken as point of departure. Based on these barriers and gaps four areas for new policies have been formulated:

- I. Direct promotion of investments (section 6.1).
- II. Developing guarantee mechanisms (section 6.2).
- III. Promoting corporate social responsibility (section 6.3).
- IV. Improving the enabling environment (section 6.4).

Figure 6.1 illustrates the link between the investment barriers, the policy gaps and the new policy options.

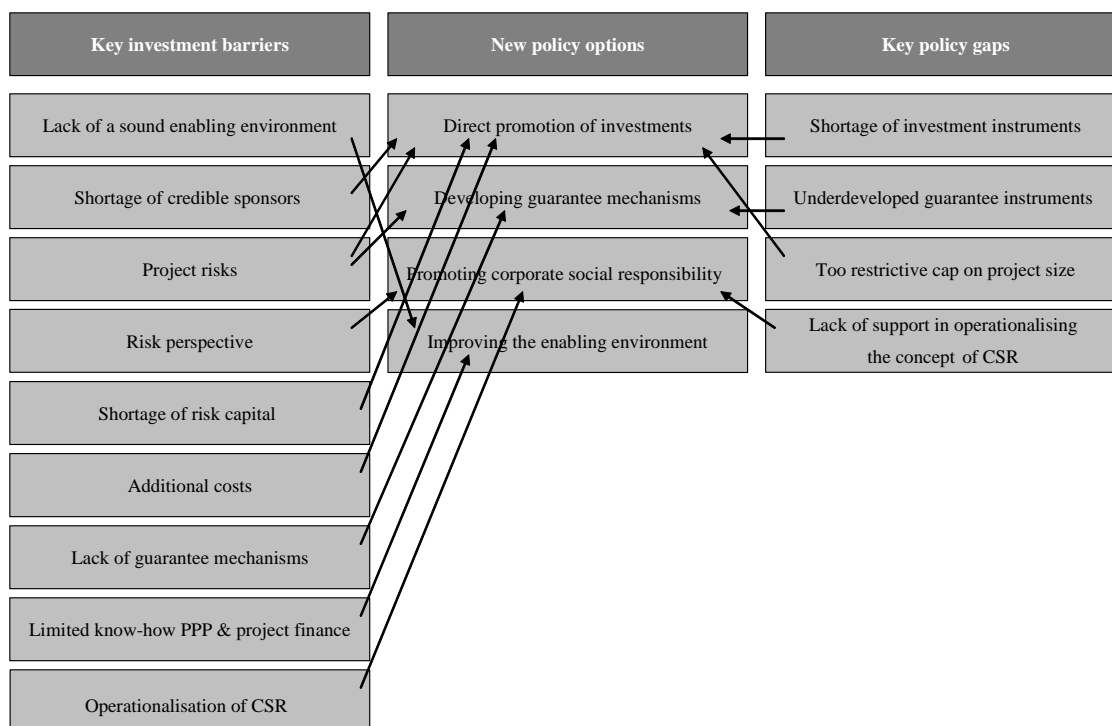


Figure 6.1 Four areas for adjusted and new policies

6.1. Option I. Direct promotion of investments

6.1.1. Summary of barriers and solution

The gap analysis has shown that the Netherlands is behind with its instruments to promote investments in developing countries. In case the Dutch government decides to develop such instruments, the following barriers should be addressed: the shortage of

credible sponsors, the high project risks, the additional costs, the shortage of risk capital and the restrictive project cap.

6.1.2. Possible role of government

The Dutch government has different options to directly promote (potentially large scale) investments:

1. Supporting (the establishment of) sponsor companies developing sustainable energy projects in developing countries
2. Making risk capital available (“durfkapitaal”)
3. Creating investment credit facilities
4. Making development capital in the form of subsidies available for large-scale climate-friendly upfront investments
5. Making the policy of by Atradius DSB more climate-friendly

6.1.3. Options for implementation⁴

1. Supporting sponsor companies

- Option 1.A: support the establishment of a sponsor company, following the UK concept (see below)
- Option 1.B: further support existing sponsor companies, e.g. by providing loans for a renewable energy project window

2. Risk capital

- Option 2.A: become a launching investor and secure additional private equity investments into the fund
- Option 2.B: establish funds in cooperation with other EU countries with similar policy objectives
- Option 2.C: work with the European Investment Bank or other IFIs to establish new risk capital funds targeting climate-friendly investments in developing countries

3. Credit facilities

- Option 3.A: reform current grant structure into low interest loan facilities
- Option 3.B: extend tasks of Atradius DSB as debt provider offering concessional financing (e.g. low interest loans) to reduce the risks of a new technology⁵ or develop special lending provision for climate-friendly projects, such as lower interest rates and longer payback periods⁶

⁴ See also Chapter 7 on the further development of new policy options.

⁵ Policy option suggested by the Policy Discussion Paper for the Ministerial Indaba on climate change action, South Africa, 18 to 21 June 2006.

⁶ Policy option suggested by Sussman and Helme, CCAP, 2004.

4. *Development capital*

- Option: allocate development capital in the form of subsidies (with minimal market distortions) which could be used as upfront payment for developing climate-friendly investment project in developing countries⁷

5. *Atradius DSB*⁸

- Option 5.A: financial set-asides for climate-friendly portions of the export credit agency portfolio, i.e. requiring a certain dollar percentage of an ECA's energy (or total) portfolio to be climate-friendly projects
- Option 5.B: climate-friendly portfolio standards for ECA projects, i.e. requiring ECA power projects to include a minimum percentage of power from climate-friendly technologies, with an option for the project to pay a charge or purchase climate-friendly power to meet its requirement

6.1.4. **Examples from other countries**

1. *Supporting sponsor companies*

In 2002, the UK development finance company CDC supported (with app. 500 million pounds) the establishment of Globeleq. Globeleq acts as an operating power company solely focusing on the emerging markets of Africa, the Americas, and Asia. Their objectives are to safely provide clean, reliable and affordable electricity, creating sustainable returns and supporting the development of the electric power sector in the emerging markets.

Similarly, in 2004, the energy company Aldwych International was established, with investments of FMO and Shell Foundations. Aldwych develops power generation, transmission and distribution projects in emerging economies, primarily in Africa and Asia.

2. *Risk capital*

The Irish seed and venture capital programme has invested over €350 million in venture capital funds since the year 2001. The foreseen leverage factor is app. 5. Although the objective of this program was not related to climate-friendly investments in developing countries, this example shows that national governments can play a role as launching investor to generate risk capital.

Another example concerns the Asia-Swiss technology venture capital fund India. The fund was sponsored by the Swiss State Secretariat of Economic Affairs. The initial capital injection amounted \$ 12 million. With additional resources of Swiss institutional and private investors the total fund size is \$ 60 million.

⁷ Stakeholder estimates: €5 to 10 million needed for a €100 million investment.

⁸ Policy options suggested by Sussman and Helme, CCAP, 2004.

3. Credit facilities

The Swiss Organization for Facilitating Investments (Sofi) runs a start-up lending fund. This credit facility aims to share the costs and risks of private sector investments with the investor. Both the preparation of the investments (feasibility) as well as the national investments (land, buildings, equipment, materials) can be financed.

Another example comes from the ECAs. The Canadian Export Development Corporation (EDC) is one of the ECAs operating as direct lender. They provide credit lines against favorable conditions.

4. Development capital in the form of subsidies

The USA provides subsidies to cover the additional costs of clean coal technologies. With the allocated 1 billion \$, five 550 MW plants can receive a grant of €200 million each.

The three largest sources of public funds for renewable energy sources in developing countries are the German Development Finance Group (KfW) (\$100 million public funds), the World Bank (\$110 million), the GEF (\$100 million)⁹. A share of these funds is used for co-financing renewable energy projects.

6.2. Option II. Developing guarantee mechanisms

6.2.1. Summary of barriers and solution

Private sector investments often involve risks which are a fundamental part of the investing climate of a country. They cannot be mitigated by a single developer or investor. The most important risks mentioned by the Dutch stakeholders are the lack in repayment discipline of local governments or other local public entities, as well as the fragile and volatile legal, investment and fiscal framework. Private sector investments, therefore, would benefit by further development of the Dutch guarantee mechanisms.

6.2.2. Possible role of government

The Dutch government could increase private sector investments by developing its current, mainly export related, guarantee mechanisms. These new or adjusted mechanisms should be designed in such a way that they can be used for large investments or large project finance structures. Additionally, they should be tailor-made, meaning that the guarantee should be adjusted to the project circumstances.

6.2.3. Options for implementation

New different new guarantee mechanisms can be developed taking the experience in other countries into account.

⁹ REN, Renewables 2005, Global Status Report.

6.2.4. Examples from other countries

The Swedish International Development Cooperation Agency SIDA has developed a range of guarantees which are used in developing countries. The credit enhancement guarantee, for example, can be used to raise the creditworthiness of local power companies, often the weakest chain in securing project finance. Next, the performance guarantee reduces the risks related with deficiencies in laws and regulations. SIDA provides no standard but tailor made guarantees. Guarantees are specially designed for the specific project it will be used for.

6.3. Option III. Promoting corporate social responsibility

6.3.1. Summary of barriers and solution

The awareness of corporate social responsibility among the Dutch private sector increased rapidly during the recent years. Still CSR has not yet been fully incorporated into business objectives and actions. Stakeholders mentioned the difficulties in making the concepts operational. This is partly caused by the fact that knowledge on sustainable investments (in developing countries) is still too low. Raising the awareness levels would not only help the operationalisation of CSR. It is expected that it will also help reducing the high-risk perspective on climate-friendly investments in developing countries.

6.3.2. Possible role of government

The government could enhance CSR by more intensive dialogues with the financial sector, taking the principles committed to by financing institutions (Equator Principles) and institutional investors (Principles of Sustainable Investments) as guidance. To be effective such dialogue should be high level and long term.

The Dutch government might be more demanding towards the governmental pension fund ABP. The large amounts of public capital managed by ABP, may justify an active attitude of the Dutch government towards the investment policy of ABP and its private equity investment company AlpInvest.

6.3.3. Options for implementation

High-level longer-term dialogue structures can be set up with different subsectors (e.g. international operating banks, large pension funds, insurance companies).

6.4. Option IV. Improving the enabling environment

6.4.1. Summary of barriers and solution

As indicated in Chapter 4, investments need a sound enabling environment. This is a broad term, covering macro economic policies, the capital market, fiscal regimes, the regulatory framework, etc. Many donor countries and organizations, including DGIS, have taken initiatives in this field. In 2005, DGIS e.g. supported the establishment of the Netherlands Financial Sector Development Exchange (NFX), a public-private partnership of the Dutch banking sector and the Dutch government. NFX promotes financial sector development in developing countries. In addition to all past and ongoing efforts, two

areas of further action could be considered: (1) increasing know-how on project finance and financial structures under public-private partnerships (PPPs); (2) sharing the Dutch success stories with energy and environmental policies with other countries. The latter might facilitate local governments in shaping policy instruments such as environmental regulation or renewable energy tax incentives. This would help addressing the barrier of the additional environmental costs.

6.4.2. Possible role of government

Technical assistance can be provided to developing countries targeting increased private sector investments in climate-friendly technologies.

6.4.3. Options for implementation

- Option A: support local governments with setting up PPP financial structures
- Option B: supporting local energy and environmental policies by exporting expertise. Some of the success stories which could be exported are:
 - Public-private covenants on energy efficiency
 - Energy efficiency measuring tools
 - Fiscal instruments like green fund scheme, EIA, VAMIL and MIA
 - Non-CO₂ approach (see also Annex I)

6.4.4. Examples from other countries

The Swiss Agency for development and cooperation (SDC), the Swiss State Secretariat for Economic Affairs (SECO) and Swiss re (risk expertise), have developed a framework, for encouraging PPPs for water supply and sanitation in developing countries. Such initiative can be seen as an initial step of a donor country developing its policy on PPPs.

6.5. Policies targeting specific climate-friendly technologies

Although it has not been possible in this study to fully distinguish between the main technology categories, Table 6.1 presents some general simplified conclusions for the main technology categories. Each category comprises of a range of different technologies, which can be further distinguished based on their level of penetration in the market.

The table provides a tentative overview the possible policy actions of the Dutch government in the respective technology areas. The Dutch government could primarily focus on 'soft policies' when targeting investments energy efficiency and non-CO₂ greenhouse gases. Investments in renewable energy and energy supply could be targeted with a more extended mix of policies. Finally, given the scope of the clean coal technologies and carbon capture and storage, this option might be better dealt with in a wider policy context, such as the EU.

Table 6.1 Possible policy actions for each technology category

	Main investment barriers	Key issues	Involvement of Dutch government
End use energy efficiency	Regulatory framework, subsidized energy prices, ownership, upfront costs	Improving the local framework (restructuring of energy sector, price setting, EE policies) Making more credit lines available	Technical assistance: transfer know how on EE policies and practices Dialogue CSR
Renewable energy	Lack of sponsors, lack of risk capital, risk perception, new technologies, upfront costs, additional costs	Improving local RES policies (feed in tariffs, production targets) Secure continuation of ongoing market growth	Support sponsors Risk & development capital Credit facilities Guarantees ECA policy Technical assistance: PPP structures Dialogue CSR
Energy supply	Lack of sponsors, lack of risk capital, additional costs	Find sponsors willing to invest	Support sponsors Risk & development capital Credit facilities Guarantees ECA policy Technical assistance: PPP structures Dialogue CSR
Clean coal technologies, CO ₂ capture and storage	High additional costs (CCT: 20 % higher investments; CCS: app. 40-70 \$ per ton CO ₂), unproven technologies	R&D (reduce costs) Developing local framework (environmental policy) Seeking for subsidies	Together with EU
Non-CO ₂ greenhouse gases	Additional costs (limited), environmental policy framework	Developing the local framework Further CSR actions by multinationals (covenants)	Technical assistance: transfer know how ROB programme

7. Further development of new policy options

The previous chapter lists four new policy options which could be used by the Dutch government to increase climate-friendly private sector investments in developing countries. The next step is to develop efficient and effective new programmes or to adapt existing programmes. This chapter outlines, for each of the four areas described in Chapter 6, the initial actions which could be taken.

7.1. Option I. Direct promotion of investments

The first set of new policy instruments directly targets climate-friendly investments in developing countries. This category of instruments is new to the Netherlands. In fact, the Netherlands does not foresee in instruments which could be used to promote climate-friendly technologies in developing countries, at a significant scale at the moment. Developing the options mentioned under this first category (see Table 7.1), would, therefore, have significant impact in terms of policy design and implementation.

Barriers to overcome:

- Shortage of credible sponsors
- Project risks
- Shortage of risk capital
- Additional costs

Policy gaps to overcome:

- Shortage of investments instruments
- Restrictive cap on project size

For each of the five options presented in the table below, the following actions can be taken:

1. Further assessment of the experience in other countries.
2. Further assessment of the interests and views of private sector stakeholders.
3. Elaboration of options with ‘governmental’ stakeholders: the respective ministries, Atradius DSB, FMO, EVD, EIB.

Table 7.1 Instruments to promote investments

1. Supporting (the establishment of) sponsor companies developing sustainable energy projects in developing countries	Option 1.A: support the establishment of a sponsor company
	Option 1.B: further support existing sponsor companies, e.g. by providing loans for a renewable energy project window
2. Making risk capital (“durfkapitaal”) available	Option 2.A: become a launching investor and secure additional private equity investments into the fund
	Option 2.B: establish funds in cooperation with other EU countries with similar policy objectives
	Option 2.C: work with the European Investment Bank or other IFIs to establish new risk capital funds targeting climate-friendly investments in developing countries
3. Creating investment credit facilities	Option 3.A: reform current grant structure into low interest loan facilities

	Option 3.B: extend the tasks of Atradius DSB as debt provider offering concessional financing (e.g. low interest loans) to reduce the risks of a new technology or develop special lending provision for climate-friendly projects, such as lower interest rates and longer payback periods
4. Making development capital available in the form of subsidies for large-scale climate-friendly upfront investments	Option: allocate development capital in the form of subsidies (with minimal market distortions) which could be used as upfront payment for developing climate-friendly investment project in developing countries
5. Making the policy of by Atradius DSB more climate-friendly	Option 5.A: financial set-asides for climate-friendly portions of the ECA portfolio, i.e. requiring a certain dollar percentage of an ECA's energy (or total) portfolio to be climate-friendly projects
	Option 5.B: climate-friendly portfolio standards for ECA projects, i.e. requiring ECA power projects to include a minimum percentage of power from climate-friendly technologies, with an option for the project to pay a charge or purchase climate-friendly power to meet its requirement

7.2. Option II. Developing guarantee mechanisms

Development of new or adjusted guarantee mechanisms to be used for large climate-friendly investments or large climate-friendly project finance structures would first of all require further policy research. Worldwide, guarantee mechanisms for climate-friendly investments, especially those who require a complex PPP financial structure, are at an early stage of development. As guarantees provided by national governments may have a disturbing impact on markets, they should be carefully designed.

Barriers to overcome:

- Project risks
- Lack of guarantee mechanisms

Policy gaps to overcome:

- Underdeveloped guarantee mechanisms

7.3. Option III. Promoting corporate social responsibility

The Dutch government is already active in promoting corporate social responsibility. To enhance the effectiveness, governmental support could, however, become much more targeted and intensive. Stakeholder consultations could be set-up, especially with the financial sector and institutional investors.

Barriers to overcome:

- Risk perspective
- Operationalisation of CSR

Policy gaps to overcome:

- Lack of support in operationalising the concept of CSR

These consultations are preferably long-term and at a high-level. First, the Dutch government should develop a clear picture what CSR would imply. More explicitly, how Dutch policy objectives with respect to climate-friendly investments in developing

countries could be translated into concrete actions of financial institutes and institutional investors under the umbrella of CSR.

The government could opt for consultations bringing stakeholders of a certain subsector together, or having direct consultations with a specific (large) organization. Especially in the case of ABP, and its private equity investor AlpInvest, one could prefer the latter option.

7.4. Option IV. Improving the enabling environment

The Dutch government has extensive experience in providing technical assistance to developing countries. To enhance climate-friendly private sector investments, technical assistance could be reshaped in such a way that investment related aspects would get more attention.

Barriers to overcome:

- Lack of a sound enabling environment
- Limited know-how PPP and project finance

The Dutch government and its implementing agencies could further extend the technical assistance programmes in targeting the issues suggested in Table 7.2.

Table 7.2 Enabling environment

Providing technical assistance to developing countries targeting increased private sector investments in climate-friendly technologies	Option A: support local governments with setting up PPP financial structures
	Option B: supporting local energy and environmental policies by exporting expertise. Some of the success stories which could be exported are: Public-private covenants on energy efficiency Energy efficiency measuring tools Fiscal instruments like green fund scheme, EIA, VAMIL and MIA Non-CO2 approach (see also Annex I)

7.5. The international perspective of this policy preparatory work

This study primarily looked at the scope of new policy instruments for increased private sector investments in developing countries which could be implemented by the Dutch government. Several of the identified options, however, could also be further developed in cooperation with other countries, within the framework of the EU, or by the International Financial Institution (IFIs) like the World Bank.

7.6. Budget requirements

The implementation of the proposed policy options would require either an increase in allocated governmental budget or a shift in allocation of existing budget. At this preliminary stage in policy development it is not yet possible to estimate the governmental budgets needed to implement the proposed new or revised policies in detail. Only some general remarks can be made.

First, on the financial barriers, Chapter 2 has indicated the absence of reliable figures on the additional costs for mitigation of climate change. As the development paths of developing countries are not known, these figures are difficult to estimate. An assessment of rough data indicates that a leverage of public funding of at least 10% may be needed to substantially reduce the carbon intensity of the energy structure of developing countries (300 billion annually needed for energy investment in developing countries and countries in transition versus 30 billion annually needed for decarbonising the power production). Figures on the additional costs of clean coal technologies range from 15 to 20% compared to conventional technologies. Although the figures presented should be interpreted with caution, it can be noted that without legislation or other provisions these additional costs will not likely be (fully) compensated by the private sector. Second, as shown in Chapter 4, many of the barriers hindering private sector investments in climate-friendly technologies are non-financial. These barriers call for policies other than funding the non-viable part of the investment. Developing such instruments would, not necessarily, imply an extra burden on the national budget, compared to the current situation. Reshaping grants into credit or guarantee mechanisms could, for example, even reduce the financial burden. The estimation of public and private budget requirements could be addressed in the design of the policy options proposed in Chapter 7.

All in all, it is certain that large volumes of capital will be needed to develop the economies of developing countries in a sustainable way. As becomes clear from the current developments in the renewable energy sector, the private sector can play a crucial role in this (see box Chapter 2). Such developments are more driven by smart (local) policies and private sector risk perspectives, rather than by the availability of large amounts of public financial resources.

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Annex I The case of non-CO₂ Greenhouse Gases¹⁰

The reduction on non-CO₂ gases requires a different approach compared to the reduction of CO₂ emissions, since the emissions occur in very specific sectors and applications, and cost structures differ from CO₂ reduction measures. Also, the global warming potential of these gases is (much) higher than CO₂. In this Annex, a brief assessment is given of the policy options which could stimulate private sector investments in technologies reducing non-CO₂ gases in developing countries.

In the programme ROB International, the Dutch government cooperates with other countries to reduce non-CO₂ greenhouse gases¹¹. ROB international is based on the national ROB programme managed by SenterNovem. The aim of the ROB international is to share knowledge on possible reduction measures.

The programme covers the reduction of greenhouse gases in the following fields:

- Agriculture (N₂O and CH₄)
- Aluminum production (PFC)
- Cooling sector ((H)CFCs)
- Electric power and distribution sector (SF₆)
- Landfill sites (CH₄)
- Oil and gas industries (CH₄)
- Production of HCFCs (HFC) and nitric acid (N₂O)
- Semiconductor industry (SF₆ and PFC)

Policy option 1: technical assistance to get the framework conditions right

The ROB programme shows that in most cases non-CO₂ greenhouse gases can be reduced against relatively low costs per ton CO₂ equivalent. This conclusion might also be drawn from the fact that a large share of the emission reduction of current Joint Implementation and CDM projects concern non-CO₂ sources. Reducing non-CO₂ emissions in developing countries seems, therefore, more a matter of getting the local framework conditions right (reliable inventory tools, stakeholder consultations, inventory of options, developing regulation and other policy instruments). Through technical assistance, the Dutch government could assist governments of developing countries in shaping such framework. Since the reduction of non-CO₂ greenhouse gases has low priority in developing countries, such assistance should take local motivation factors, such as reduced accidents and better working conditions through less mine fires or increased yields by improved agricultural production processes, as point of departure.

Policy option 2: encourage CSR actions by industry

Secondly, further actions might be expected through corporate social responsibility of industry. This could be operationalised by multinationals like Philips, Shell, DSM and

¹⁰ This Annex is based on information gathered during an interview with SenterNovem (Erik ter Avest, RoB International and Theo Leupen, Manager National Climate Policy) and the website <http://www.robklimaat.nl/>.

¹¹ Reduction Other Greenhouse Gases.

AKZO, using similar production and process standards across the world. Also international covenants, such as the agreed voluntary PFC reduction targets by the global semiconductor industry, could be further encouraged by the Dutch government.

Annex II Interviews

Dutch government or implementing agencies

Atradius Dutch State Business (Dutch Export Credit Agency)

Bert de Jongh, International Relations and Insurance Specialist

David Vinco, Manager International Relations and Development

EVD

Gerda van Groesen, Account Manager Environment and Energy

Mike Timmermans, Unitmanager TIO

Henk Galestien, PSOM

FMO

Frederik Jan van de Bosch, Manager Business Development ORET Program

Magchiel Groot, Manager Business Development Asia

Bernhard van Meeteren, Senior Investment Officer, Africa Department

SenterNovem

Erik ter Avest, RoB International

Anton Duijnhoven, Green Investment Scheme

Monique Jonker, MIA/VAMIL

Theo Leupen, Manager National Climate Policy

Johannes van Steenis, EIA

VROM

Rutger Pol, Green Fund Scheme International

Sponsors

Akzo Nobel

Hans Feenstra, Energy B.V.

Shell Gas & Power International B.V.

Nicolás Bruidegom, GM Clean Coal Energy Europe

Finance

ABN AMRO

Klaas Berkhout, Green Finance

ABP

Rob Bauer, Head of Investment Research

ASN

Dorien Putman-Devilee, Green Fund

ING

Diederik van den Berg, International Project Finance (Power)

Richard Paardekooper, Green Finance

Oikocredit

Ben Simmers, Social-Ethical Fund

Rabobank

Albert Jochems, Project Finance

Trees for Travel Foundation

Sjaak de Ligt, Programme Manager

Vereniging van Beleggers voor Duurzame Ontwikkeling VBDO

Piet Sprengers, Managing Director

Annex III Websites

<http://aldwych-international.com/>

<http://www.dnb.nl/>

<http://www.eib.europa.eu/>

<http://www.enterprise-ireland.com/>

<http://www.evd.nl/>

<http://www.fmo.nl/>

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<http://www.robklimaat.nl/>

<http://www.senternovem.nl/groenbeleggen/>

<http://www.sofi.ch/>