

FINANCING CLIMATE ACTIONS IN DEVELOPING COUNTRIES: WHAT ROLE IS THERE FOR NAMAS?

Romain Morel¹ and Anaïs Delbosc²

The Nationally Appropriate Mitigation Actions (NAMAs) framework has emerged as a result of the Copenhagen and Cancún Agreements and is used to encourage developing countries to reduce their greenhouse gas (GHG) emissions. These NAMAs can be part of more comprehensive domestic low-carbon development strategies. However, new projects and policies, eligible to be considered as NAMAs, will only be put in place if adequate financing is provided by developed countries. This new structure could provide the opportunity to restore trust between Annex 1 countries and developing countries.

This Climate Report analyses the difficulties that can arise both during the financing process and the implementation of climate change mitigation measures. The financing issues are related to transparency and the committed and disbursed amounts. The implementation of climate policies in developing countries will require an increase in financing flows. Both the public and private sectors will have to contribute. Whereas the public sector could draw on revenue from new levies, the private sector should be encouraged by acceptable "risk/reward" ratios.

Incentives will also be generated by the implementation of binding global and/or local policies as well as an appropriate governance. This will facilitate private investment both by stabilising the political horizon but also by setting a price for carbon.

This study will also examine in some detail NAMAs, which can be an opportunity to implement new financing systems. Whilst short-term solutions exist, they should not be applied to the detriment of long-term solutions. Thus, institutional capacity-building will be needed if we are to create reliable administrations that encourage investment and the country's independence.

Their implementation will allow broader GHG reduction policies to be financed. They can also make it possible to correct some of the defects in the current mechanisms, such as the unbalanced geographical distribution of the CDM projects or the traceability of the aid given to developing countries. Access to quality information in order to monitor the progress and the results of the measures is also central to the implementation of NAMAs and the search for financing for them.

¹ Romain Morel is a research fellow in the "International carbon markets" research department of CDC Climat. His research focuses on questions relating to financing and new emissions reduction mechanisms. romain.morel@cdcclimat.com

² Anaïs Delbosc heads the "International carbon markets" research department of CDC Climat. Her research focuses on the development of international climate policies. anais.delbosc@cdcclimat.com

ACKNOWLEDGEMENTS

The authors would like to thank all those who helped with preparing this report and in particular Fabrice Cytermann (French ministry of ecology), Guillaume Meyssonier (AFD), Isabelle Vincent (AFD) et Matthieu Wemaëre (IDDRI), as well as their teams for their comments and suggestions extremely relevant on the redaction of this study.

Publication director: Benoît Leguet - ISSN 2101-4663

This publication is fully-funded by Caisse des Dépôts, a public institution. CDC Climat does not contribute to the financing of this research.

Caisse des Dépôts is not liable under any circumstances for the content of this publication.

This publication is not a financial analysis as defined by current regulations.

The dissemination of this document does not amount to (i) the provision of investment or financial advice of any kind, (ii) or of an investment or financial service, (iii) or to an investment or financial proposal of any kind.

There are specific risks linked to the markets and assets treated in this document. Persons to whom this document is directed are advised to request appropriate advice (including financial, legal, and/or tax advice) before making any decision to invest in said markets.

The research presented in this publication was carried out by CDC Climat Research on an independent basis. Organisational measures implemented at CDC Climat have strengthened the operational and financial independence of the research department. The opinions expressed in this publication are therefore those of the employees of CDC Climat Research alone, and are independent of CDC Climat's other departments, and its subsidiaries.

The findings of this research are in no way binding upon, nor do they reflect, the decisions taken by CDC Climat's operational investment and broking services teams, or by its subsidiaries. CDC Climat is not a provider of investment or financial services.

TABLE OF CONTENTS

INTRODUCTION	4
I. ENSURING THE TRANSPARENCY OF INTERNATIONAL CLIMATE FINANCING	4
A. The financing commitments of developed countries	5
B. Ensuring a transparent process for monitoring financing commitments	5
C. Public funding from developed countries will not be sufficient	7
II. WHAT TOOLS CAN BE USED FOR FINANCING CLIMATE POLICIES IN DEVELOPING COUNTRIES?	9
A. Developing public climate financing	10
B. What measures will encourage private financing?	11
C. What role for the Green Climate Fund?	14
III. STRUCTURING NAMAS TO HELP RAISE FUNDS AND FINANCE CLIMATE POLICIES IN DEVELOPING COUNTRIES	14
A. What are NAMAs?	14
B. NAMAs, a new catalyst for finance	16
C. The international challenges of NAMAs	21
CONCLUSION	24
ANNEX I - THE NEW PUBLIC SOURCES OF INCOME FOR CLIMATE FINANCE	26
ANNEX II – EXAMPLES OF INDICATORS DRAWN UP FOR MONITORING A NAMA IN MEXICO	28
LIST OF ACRONYMS	29
REFERENCES	30
THE ‘CLIMATE REPORT’ SERIES FROM CDC CLIMAT RESEARCH	33

INTRODUCTION

The United Nations Framework Convention on Climate Change (UNFCCC) was signed in 1992 and enshrined the principle of countries having “*common but differentiated responsibility*” with regards to climate change. Because of their historical responsibility, developed countries, which are listed in Annex 1 of the Convention, should “*take the lead in combating climate change and the adverse effects thereof*”. The Kyoto Protocol, adopted in 1997, applies this principle by not capping emissions of developing countries for the period 2008-2012. In addition, these countries benefit from investments linked to the Clean Development Mechanism (CDM) and international financing for implementing climate change adaptation measures.

Between 1990 and 2005, emissions from developed countries decreased by 1% whilst those of developing countries rose by more than 60%³. Indeed, developing countries now emit more greenhouse gases than developed countries and this trend will become more pronounced in the years to come. Consequently, the integration of emission limitation initiatives into development policies is now one of the major issues of post-Kyoto international climate commitments.

Symbolic progress has been achieved in the framework of the Copenhagen and Cancún Agreements in respectively 2009 and 2010. Voluntary domestic emissions reduction targets have been proposed by emerging economies; in response and to respect the principle of common but differentiated responsibility, developed countries have collectively promised to provide an enhanced support to the implementation of those NAMAs. In the same way, they have committed to mobilize significant financing by 2020, destined, among others, to support climate policies in developing countries (Delbosch & Jeulin, 2011).

This financing particularly concerns financial but also technical and organisational support for climate action programmes in developing countries, gathered together under the term of Nationally Appropriate Mitigation Actions (NAMAs). The first NAMA projects were launched thanks to the initiative of a number of developing countries and private players. However, the absence of a precise definition and common rules at the international level for implementing and monitoring these initiatives raises a number of questions. For example: how will the financing attributed to NAMAs be integrated into the commitments of developed countries and under what international control? How can NAMAs be structured to build on the existing mechanisms in order to gain in effectiveness, particularly in association with private financing? What are the means available for monitoring them and evaluating their effectiveness?

This report seeks to highlight the issues of financing climate policies in developing countries and the place of NAMA within the solutions that are currently under discussion. The first part of this report will examine the question of the definition and monitoring of quantitative international climate financing commitments. The second part will examine the financing needs of developing countries with regards to existing solutions and will underline the importance of combining public funding with investments from the private sector. Lastly, the third part will specifically look at the new tools that are NAMAs and at the characteristics they should be given if they are to play their part in resolving some of the aforementioned financing issues.

I. ENSURING THE TRANSPARENCY OF INTERNATIONAL CLIMATE FINANCING

International climate financing from developed countries to developing countries has officially formed one of the four pillars of international climate negotiations since the Bali roadmap of 2007⁴. This highly sensitive subject is one of the cornerstones of the entire negotiation process. In particular, commitments regarding reductions in greenhouse gas emissions by developing countries are inextricably related to the financing commitments of developed countries.

³ Source : World Resource Institute - *The Climate Analysis Indicators Tool*

⁴ Alongside emissions reduction, climate change adaptation and technology transfers.

A. The financing commitments of developed countries

“New and additional” commitments

The Cancún Agreements, signed in 2010, provide for two types of financial commitment for developed countries⁵. The first, entitled *Fast-Start Finance*, commits developed countries to providing 30 billion dollars in new and additional funding for the 2010-2012 period. Stasio *et al.* (2011) estimate that on 18 November 2011 the financing pledges had reached 28.22 billion dollars whilst the amount requested and/or budgeted stood at 16.23 billion dollars. However, the actual payment of these sums remains uncertain.

The second financial commitment engages developed countries to “mobilize” 100 billion dollars per year by 2020 in new and additional funding (para. 95 and 98, Cancún Agreements, 2010). After the *Fast-Start Finance*, there is no defined funding pathway to reach 100 billion dollars per year by 2020.

Guaranteeing the predictability of the financing

The Cancún Agreements emphasize the need for financial flows to be predictable (para. 18, Cancún Agreements, 2010). The stability of implemented policies is dependent on the stability of the disbursed funds.

The challenge is twofold: (i) to allow the countries or the multilateral institutions that receive the financing to put in place long-term policies; (ii) to encourage the commitment of the private sector to raise financing and invest in developing countries.

B. Ensuring a transparent process for monitoring financing commitments

Developing countries are sometimes doubtful about the concretisation of financing pledges and about whether they are truly “new and additional”. In the absence of a harmonised common definition, it is indeed difficult to assess the contributions of developed countries who have accepted, within the framework of the Rio Convention, to contribute to the financing of international climate policies⁶.

Work in progress within the UNFCCC

To correct this, the countries have decided to “*enhance the guidelines for (...) the development of common reporting formats and, methodology for finance, in order to ensure that information provided is complete, comparable, transparent and accurate*” (para. 41, Cancún Agreements, 2010).

Thus, in June 2011 the UNFCCC launched the *Finance portal for climate change*⁷, which is responsible for compiling tables that show the information provided by developed countries as part of their national communications. These communications have also been audited by UNFCCC-accredited experts. This first step is in addition to the decision contained in the Cancún Agreements to create a permanent committee in charge of “*improving coherence and coordination in the delivery of climate change financing, rationalization of the financial mechanism, mobilization of financial resources and measurement, reporting and verification of support provided to developing country Parties*” (para. 112 Cancún Agreements, 2010)⁸.

⁵ Annexe II countries of the Rio Framework Convention on Climate Change, i.e. developed countries that are members of the OECD except for economies in transition.

⁶ Financing could be considered as additional if it exceeds a reference scenario. This could, for example, be defined by commitments to Official Development Assistance (0.7% of GDP within the framework of the voluntary commitments of the “Millennium Goals”).

⁷ <http://unfccc.int/financeportal> which was completed during the Durban conference at the end of 2011 by the creation of the *Fast-start finance portal*.

⁸ This Standing Committee was operationalised by the Durban agreements. For more details see Morel *et al.* (2011)

Nevertheless, these efforts seem to be making slow progress within the framework of the UNFCCC and it seems unlikely that a harmonised system will emerge in the coming years. Other initiatives exist, however, for estimating and monitoring international climate financing, in particular the OECD's "Rio Markers" (see Box 1).

Box 1 – Focus on the OECD's "Rio Markers"

Within the framework of the UNFCCC, the OECD Development Assistance Committee (DAC) first established markers to identify measures linked to the reduction of greenhouse gas emissions. In December 2009, markers for climate change adaptation projects were created.

Projects are graded according to whether they address a "principal objective", a "significant objective" or whether climate change issues are "not targeted". This methodology makes it possible to establish rough estimates of financing for climate change mitigation measures.

Between 2008 and 2009, the OECD estimates that only 7.1% of Official Development Assistance from its member countries was principally or significantly destined for climate change mitigation. It is reasonable to think that the inclusion of climate change adaptation actions will increase this percentage. Thus, the portion of the funding from Belgium relating to climate change rose from 7% to 20% by including the adaptation financing for the 2005-2008 period. For 2010, estimates are higher as official climate aid is estimated at 23 billion dollars (15% of ODA), including one third for adaptation measures.

Sources: OECD-DAC, (2004), (2011a) and (2011b) and Belgian National Climate Commission (2009).

Establishing a complete and coherent reporting system for financing

There needs to be an effective Monitoring, Reporting and Verification (MRV) system that is applied to the public funding of climate actions, and this must draw on a list of specific information that allows the data to be classified and compared.

We have established five major categories of information needed for this reporting, based on the indicators put forward by Tirpak *et al.* (2010). They are shown in Table 1.

Table 1 – Indicators needed for the traceability of public climate financing

Category of Information	Information requested
Origins of financing	Financing country
	Source of financing (national budget, carbon market, tax, etc.)
Status of financing	Amount pledged, at what date
	Amount budgetised, at what date
	Amount released, at what date
Format of financing	Financial leverage created (how much private funding has been committed to this financing?)
	Distribution of amounts committed in donations, loans, guarantees, export assistance, etc.
Goals of financing	Target country or countries
	Amount of financing for mitigation
	Amount of financing for adaptation
	Amount of financing for capacity-building
	General distribution of project costs (support, etc.)
	Description of project
Financing distribution channels	Amounts attributed to various funds and institutions

Sources: Tirpak *et al.* (2010) and CDC Climat Research.

Any MRV system is incomplete if it is only based on reporting from countries providing finance. There needs to be cross-referencing with data from the countries or institutions that receive it. The UNFCCC therefore asks developing countries to add onto their national communications a report on the international aid they have received.

As this financing can be attributed to multilateral funds, the same reporting requirements also have to be applied to them in order to monitor the whole flows. Multilateral institutions must therefore communicate twice, once as an institution receiving finance and one as a financing institution.

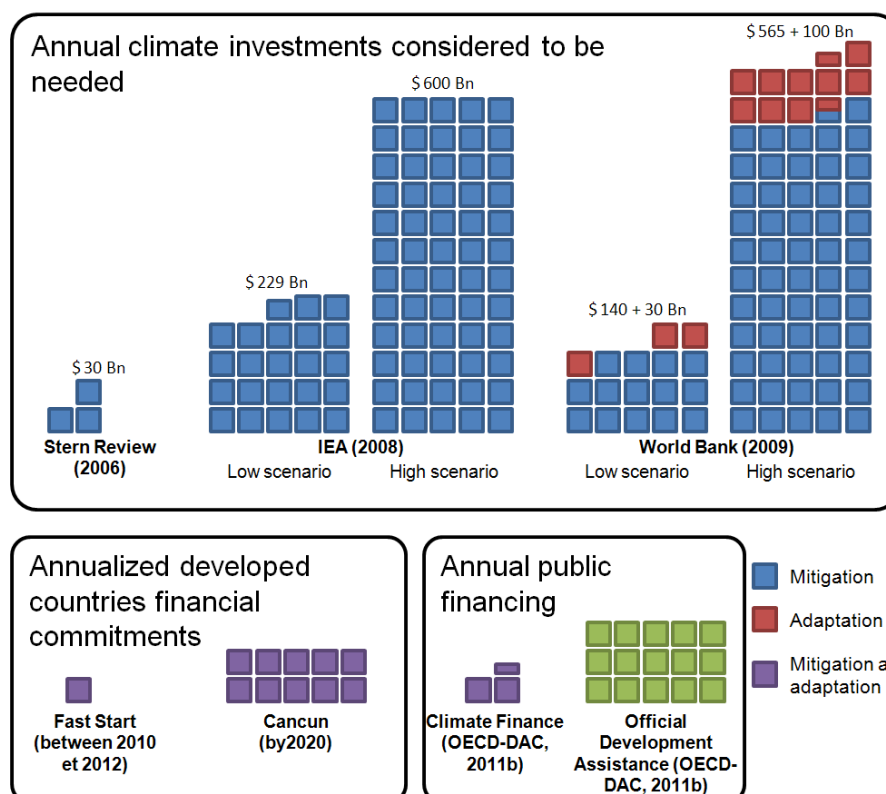
Institutions outside of the UNFCCC are not legally bound to communicate this information at present, but could be encouraged to use the UNFCCC notification formats in the future to allow data to be cross-referenced. It is notably the role of the Standing Committee created in Cancún (para. 112, Cancún Agreements, 2010) and operationalized in Durban.

C. Public funding from developed countries will not be sufficient

What proportion of the financing requirements is covered by the Cancún commitments?

The exercise, that involves estimating the cost of climate action in developing countries, is based on the estimate of future emissions according to a Business As Usual (BAU) scenario, the actual and future costs of emissions reductions for a given objective, as well as the cost of adaptation measures. Figure 1 gives an idea of the scale of the requirements and the existing flows, estimated by different sources⁹. All of these figures are annual and represent aid or investment towards developing countries.

Figure 1 – Needed vs carried out annual climate-related investments in developing countries



Note: Each square represents 10 billion dollars. IEA (2008) calculates the amounts needed by 2050, which we have annualized. Public financing do not take into account private fundings leveraged by multilateral institutions. In that sense, OECD-DAC (2011b) and Buchner et al. (2011) have quite close estimations between 21 and 23 billion dollars for 2010.

Sources: World Bank (2009), IEA (2008), Stern (2006), UNEP (2009), OECD-DAC (2011b) and CDC Climat Research.

⁹ A more comprehensive estimation of international climate finance flows has been suggested by Buchner et al. (2011).

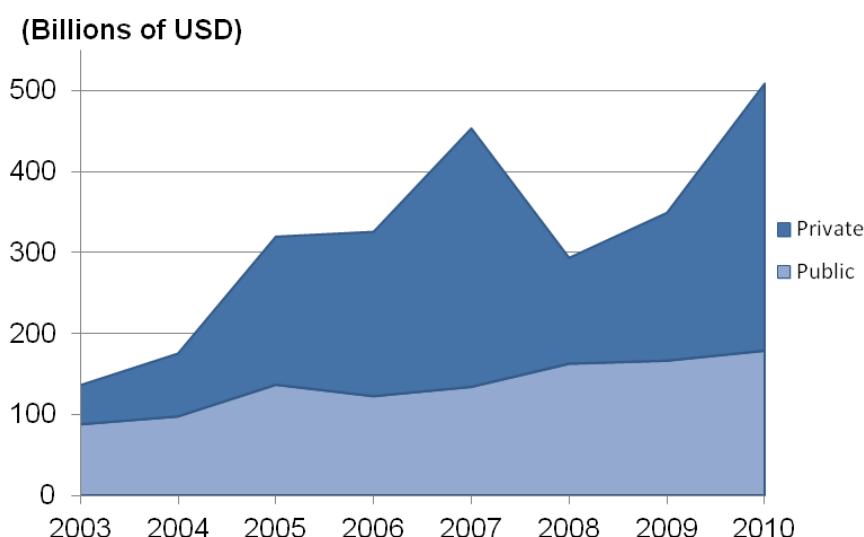
The notable differences between the various needs assessments can be explained by the date at which they were performed, their scope (whether they cover all investments or only the marginal cost¹⁰, whether they include public and/or private investments) and their timeframe, etc.

An increase in both public AND private financing is needed

The 100 billion dollars per year promised by 2020 in the Cancún Agreements will only cover some of the overall financing needed to support developing countries in reducing their emissions and adapting to the impact of climate change. Only a part of it as well as of other complementary climate investments will transit through the UNFCCC.

As Figure 2 shows, Official Development Assistance (ODA) is in the region of 100 billion dollars per year. The World Bank (2009) and the OECD-DAC (2011a) estimate that public climate finance¹¹ represents between 6% and 10% of this figure. If the financial commitments of Cancún were fully provided by developed countries, this would represent a 10-fold increase in the annual amount of public climate financing in less than 10 years. Recent figures from OECD-DAC (2011b), corroborated by Buchner *et al.* (2011), seem to show a sharp increase in official climate assistance lately as it would have reached 15% of ODA in 2010.

Figure 2 – Official Development Assistance and private financial flows towards developing countries



Source: CDC Climat Research based on OECD-DAC.

However as climate financing must be additional, it would have to be added to existing “classic” Official Development Assistance, which would mean doubling ODA, at least. Given the current budgetary capacities of developed countries, their difficulties in meeting their commitments to the *Fast-Start Finance* and their statements about public funding needed to reach the 100 billion dollars, other solutions have to be found, notably those that involve investors from the private sector.

Figure 2 shows that the most important source of financing for developing countries is the private sector, providing twice, or even three times more than the public sector. Even if we considered that the “climate” part of this financing represents the same 6% - 10% range, or even 15% according last estimations, of the total as is the case with the public sector, the sum of 100 billion dollars per year would not be achieved by combining public and private aid.

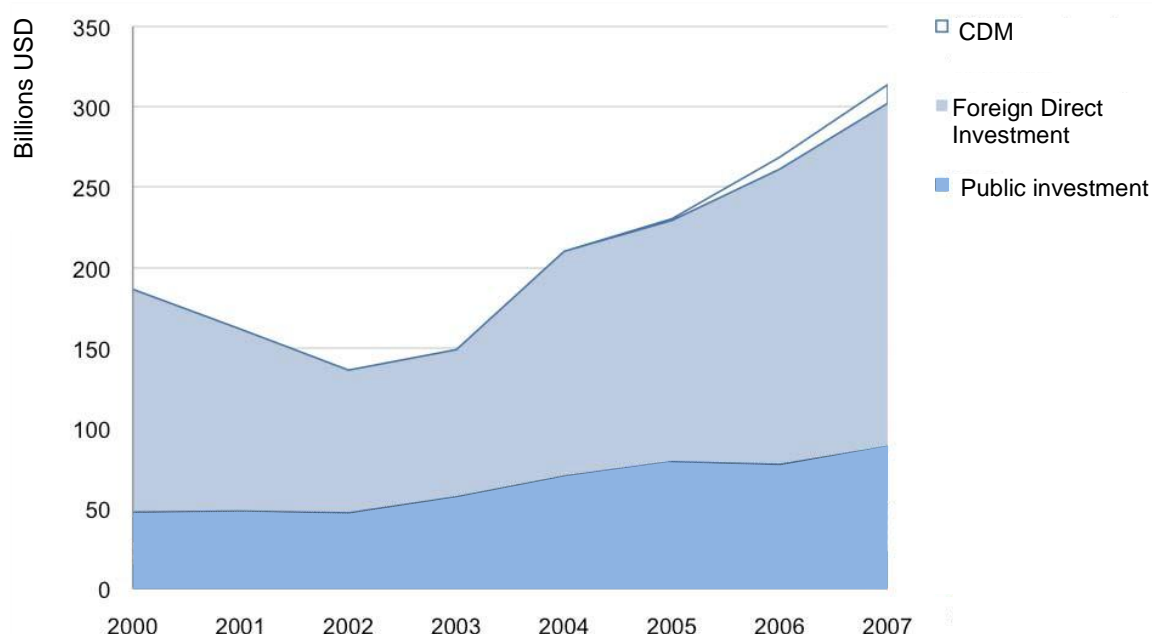
¹⁰ Here, the marginal abatement cost is the additional investment needed to reduce greenhouse gas emissions.

¹¹ ‘Climate financing’ is the term used to describe financing destined to fight climate change. This involves emissions reduction and climate change adaptation.

However, according to Corfee-Morlot *et al.* (2009) a broader interpretation of investments linked to emissions reduction (see Figure 3) leads to an estimate that one quarter of development assistance and almost half of foreign direct investments concern sectors and projects that have an impact – whether positive or negative – on greenhouse gas emissions. In this case, providing that the right tools are found to encourage investments in projects that reduce emissions, the current sectoral flows of private finance would be sufficient in their own right to achieve the target of 100 billion dollars per year by 2020.

We note that private finance is generally less stable than public finance (see Figure 2). A greater use of private finance would therefore have a negative impact on the predictability of financing.

Figure 3 – Estimate of investment flows from developed countries towards developing countries linked to or specifically for mitigation between 2000 and 2007 (in constant 2007 USD)



Note: This figure includes both specific financing and financing related to emissions reduction. The “public” category includes Official Development Assistance, funds managed by multilateral development banks, the Global Environment Fund and export credits.

Source: Adapted from Corfee-Morlot et al. (2009).

II. WHAT TOOLS CAN BE USED FOR FINANCING CLIMATE POLICIES IN DEVELOPING COUNTRIES?

International climate financing has to increase whilst the indebtedness of developed countries will slow the release of new public financing. New sources of financing therefore have to be found. It is often suggested that public funds should be better used to attract private investments via suitable structures.

The High-Level Advisory Group on Climate Change Financing, established by the United Nations Secretary-General Ban Ki-Moon in 2010 (UN-AGF, 2010) identified two particular issues with meeting the commitments of Copenhagen and Cancún:

- (i) Increasing the resources that can be mobilised by the public sector by creating new levies, and
- (ii) Increasing the contributions of private investors by using public funds as guarantees and thus giving public financing more leverage.

A. Developing public climate financing

Firstly, countries can implement new levies, and commit to using some of the expected revenue for climate actions¹². For example, the European Union Emissions Trading System (EU-ETS) (European Union, 2009) encourages Member States to use at least half the revenue from allowance auctions from 2013 for the financing of climate change mitigation measures. To date, Germany is the only country to have applied this optional provision (BMU, 2010), although there will be an opportunity for this to change after 2012, when a much larger share of allowances will be auctioned by Member States.

Another example is the 2006 launch of UNITAID¹³, mostly funded by a tax on airline tickets that has been instigated by some countries (UNITAID, 2011). This demonstrates that other revenue can also be directed to an international agency, as with the financing of the Adaption Fund, where a major source of the financing is from the 2% tax on CER (Certified Emission Reductions) credits issued as part of the Clean Development Mechanism (CDM).

Whilst it can often be difficult to put these new levies in place, compensation can be implemented for the sectors and businesses that are affected by them. For example, it is often suggested that some of the revenue raised by a carbon tax or a carbon market should be used to reduce distortive taxes such as taxes on employment.

At an international level, the possibility of taxing financial transactions in order to provide a new source of climate financing has been raised. Other mechanisms could be put in place unilaterally, following the example of the European Union mentioned above. In the latter case, there is little doubt that each country concerned will manage the revenue raised and will choose whether or not to allocate it to international climate financing.

An overview of the new sources of financing under consideration

The reports by the UN-AGF (2010) and Bowen (2011) offer an overview of possible solutions for expanding public climate resources, and examine their respective advantages.

Three categories of major revenue streams were identified (see Annex 1 for more details):

- Those related to existing carbon markets, such as the auctioning of allowances. In certain cases, the impact on incentives may seem counter-intuitive, particularly when carbon credits issued for emissions reductions are then taxed, as is currently the case with the CDM to provide resources for the Adaption Fund.
- More generally, those linked to GHG-emitting activities: taxing those emissions at the national or sectoral level, or reducing the tax breaks for fossil fuels may make it possible to reduce emissions whilst releasing revenue that can be used, at least in part, to reduce other forms of taxation ("double-dividend").
- Those relating to other measures, such as taxes on other "bad" practices which are not covered by levies, such as arms trading, rights to geostationary orbits, etc. (Bowen, 2011)).

The difficult creation of new sources of public financing

In addition to the current budget context, the implementation of new sources of international public climate financing is littered with a number of obstacles. The first is that a new levy will modify a balanced complex system. It remains difficult to plan and quantify all the effects, including interactions with existing policies. For example, quantifying the prejudice for developing countries of a tax on international transport is a

¹² However, it is generally impossible to legislate over the attribution of revenue from a levy. So, attributing a sum equivalent to a proportion of the amount raised to climate actions is, in the majority of cases, a moral commitment on the part of countries (Bowen, 2011).

¹³ UNITAID is the international institution charged with improving access to treatment in the fight against HIV/AIDS, TB and Malaria.

delicate task, as it must also take into account the economic development policies of these countries. To avoid excessive upheaval, there is a preference for low rates of levy and a large tax base, as is the case for the tax on financial transactions.

The uncertainty regarding the results in terms of emissions or economic development is coupled with a question mark over the expected revenue from the instruments that have been implemented. For example, the auctioning of carbon credits does not always generate the expected results, due to poor knowledge of the price elasticity of demand.

In addition, use and distribution of the revenue can be problematic when the objectives are very different. Thus in August 2011, the French and German governments called for the implementation of a tax on financial transactions. The revenue this raises should make it possible to finance both deficit reduction in developed countries and Official Development Assistance, which includes climate action. The boundary between the various objectives remains subject to political arbitrations. In November 2011, G20 countries pledged to “move forward” concerning innovation development and climate financing.

Just as important is the idea of the carbon price, as the forecasted revenue from these new levies is often based on a carbon price of between 20 and 30 dollars per ton of CO₂. Not only does this require there to be one or more carbon markets internationally, but also that they be sufficiently binding as to raise the price of carbon to this level.

The introduction of new levies will therefore require certain obstacles to be overcome if they are to succeed at an international level. Without this, avoidance tactics may occur which would have a negative effect on the impact of policies that are restricted to a limited area¹⁴.

Co-benefits for developed countries?

Whilst some developed countries have been known to consider official aid to developing countries as a political tool, it can also be considered as an economic tool.

For example, Japan has implemented bilateral mechanisms that result in the production of carbon credits that can be used on the Japanese market. The use of Japanese technology in these bilateral mechanisms can bring definite benefits to a country's economy. The fact that the Japanese Ministry of Economy, Trade and Industry considers these mechanisms as a tool for domestic growth is further proof that it is possible to look for economic co-benefits.

By considering public climate aid as a lever for growth rather than a burden on budgets, there is increased acceptance of such spending. However, these transfers must respect the interests of developing countries. For example, the aim is not to make a developing country dependent on a specific technology and therefore to create a captive market or one subject to a monopoly.

B. What measures will encourage private financing?

Despite the opposition of certain developing countries, the inclusion of private financing to achieve the objective of 100 billion dollars per year by 2020 seems inevitable. The major challenge of public climate financing could be to attract existing private financing in developing countries and direct it towards low-carbon investments.

The "risk" factor of the private investor equation

Private investment can only be mobilised when the risk/reward ratio is considered to be sufficiently low compared to competing investments. Each type of investor has a different acceptability threshold. For example, institutional investors such as pension funds or sovereign wealth funds, which hold very substantial assets (more than 28,000 billion dollars of assets according to Della Croce *et al.*, 2011) have a very low tolerance of risk but may accept low yields for low-risk investments. On the contrary, venture

¹⁴ This is particularly the case of “carbon leakage” during the creation of a regional emissions-trading market.

capitalists are prepared to take greater risks against higher expected gains. In terms of climate investments, other players may also be mobilised, particularly industrial groups and suppliers of technology or services relating to emissions reduction or climate change adaptation. Climate investments present the whole range of risk profiles and could therefore interest a variety of financial players (Della Croce *et al.*, 2011).

Climate investments in developing countries already exist but remain marginal compared to all the foreign direct investment (FDI) that has been granted.¹⁵ The risks facing climate investments in developing countries include:

- Country risk in the general sense, i.e. the risks related to the country's geopolitical situation;
- The risk of low carbon policies being short-lived, which can lead to market risks;
- Currency risks;
- The liquidity risk of projects and credits;
- The operational risks of the project (implementation, technology used, etc);
- Various risks that are difficult to measure within an acceptable time span¹⁶.

Mechanisms to encourage existing private investment

If used in an optimal manner, public climate financing could reduce these risks, particularly by guaranteeing private investments. Developing countries which implement policies that reduce the risk for the private investor and/or increase its reward for effective emissions reductions would benefit from greater private investment (WBCSD, 2011).

This observation has resulted in the development of a number of tools which target pure financial investors and industrial investors.

The experience of multilateral development banks: Green Bonds and other bonds

Multilateral development banks have recognised experience in raising private capital to finance development assistance. According to the UN-AGF (2010), multilateral development banks manage to raise 3 to 4 euros of private financing for every euro of public funding.

Thus, in 2008, the World Bank launched "Green Bonds" destined to finance climate actions. The World Bank uses public money as a guarantee and finances the costs of issuing the bonds. Almost three billion dollars have been raised. The majority of the investors are pension funds and portfolio managers. These bonds are considered to be relatively safe and offer either fixed rates or rates that are indexed to the LIBOR¹⁷. In addition they have the same financial rating as the World Bank, AAA. This helps to reassure investors who have little or no knowledge of this market.

In return, the World Bank commits to select the projects to be financed from those which reduce greenhouse gas emissions or participate in climate change adaptation (World Bank 2011). The investor does not have to bear the risks associated with the project. These are centralised and taken by the World Bank. The investor takes two risks. The first is the risk of default by the World Bank, which is very unlikely. The second is currency-related, in the case where the issuing currency of the Green Bond is different to that of the reference currency. This "classic" risk is easy to hedge.

Ultimately, with these Green Bonds it is possible to offer a standardised product, reducing the risk to investors.

¹⁵ Mechanisms like the CDM exist to encourage private investment in emissions reduction programmes. Investment in CDMs represents less than 5% of the amount of FDI.

¹⁶ For example, this concerns anything that could make an emissions reduction policy fail, such as the degree to which a regulatory measure is respected, the availability of raw materials, climate issues, etc. For more information, see UNEP (2009).

¹⁷ Monetary market index (currency market).

Regional development banks such as the Asian Development Bank (ADB) also have recognised experience in the management of financial instruments. ADB has two bonds in particular: Water Bonds and Clean Energy Bonds which, as their names suggest, are used to finance actions relating to water access and the production of clean energy, respectively.

Multilateral development banks can also offer reduced rate loans to the private sector. In certain cases, this access to low-cost credit can be enough to compensate for the additional investment needed to use low-carbon technology (WEF, 2011). In total, the OECD estimates that more than 6 billion dollars of green bonds have been issued by multilateral development banks since 2006 (Della Croce *et al.*, 2011).

Credit insurance and international trade guarantees

Export credits are a type of credit insurance specific to exports. Credit insurance guarantees creditors that they will be reimbursed. This guarantee can be offered by either the private sector (bank or insurance company) or by the public sector¹⁸.

Generally, export-credit agencies offer a variety of products, ranging from simple guarantees for certain risks to factoring via debt management. These can also cover classic risks such as country risk or currency risks. These products make it possible to limit the risks of an international business relationship. They can therefore encourage foreign investment. They also provide a means for industrial groups to have access to more advantageous loans, as national agencies provide guarantees.

Using this type of product it would be possible to encourage technology transfer and FDI for climate projects. There are two possibilities: either the insurance is conditioned by environmental criteria, or insurance packages specifically covering climate projects specific risks are created. Regarding this last point, CDM projects have allowed a private insurance market to emerge covering their specific characteristics, including guarantees on the sale or emission of allowances, of the political risks linked to the Kyoto Protocol, etc.

The idea would be to offer public insurance only where the private sector does not do so under acceptable conditions. This would make it possible to reduce the risks of the investor without directly drawing on public resources as, in theory, only a public guarantee is required. Within the framework of the negotiations on a market mechanism for deforestation (REDD+¹⁹), insurance projects or government guarantees are thus being studied (Olander *et al.*, 2011).

For developed countries, export credits are also a means of favouring their own industries. Generally speaking, the use of public guarantees as a lever for private financing are being applied more and more widely to the financing raised by nation states and bilateral or multilateral institutions.

The Kyoto Protocol project-based mechanisms or how to increase rewards

The flexible mechanisms of the Kyoto Protocol offer the public and private sectors the opportunity of investing in emissions reduction projects in return for the awarding of carbon credits. The public authorities give value to these credits by guaranteeing their use on regulated markets such as the EU ETS.

Since June 2007, the CDM has made it possible to adopt a programme-based approach (PoA for Programmes of Activities). A global PoA can include a multitude of smaller instances of implementation of the emissions reduction method (*CPA for CDM Programme Activities*). Therefore, the aim of the PoA is to increase the replicability of a project and thus the wide-scale implementation of a reduction technology (Beaurain and Schmidt-Traub, 2010).

Amongst the PoAs being proposed we find, for example, the use of renewable energies such as solar water heaters (in Tunisia and South Africa) and the capture and flaring of methane from farms, particularly in Brazil (UNEP-Risoe, 2011a).

¹⁸ This is the case with the NEXI – Nippon Export and Investment Insurance – in Japan for example. In France, the COFACE manages both state guarantees and private guarantees.

¹⁹ Reducing Emissions from Deforestation and Forest Degradation plus the enhancement of forest carbon stocks.

C. What role for the Green Climate Fund?

In the current economic situation, increasing public climate finance means looking for new levies. Taxes on international transport and on financial transactions have the advantage of applying low rates to large taxation bases. However the need for an international consensus is currently slowing their implementation.

If the private sector has to contribute, it will do so via instruments which chiefly allow it to reduce its risk. Solutions exist at both the local and international level. Within this framework, the Green Climate Fund (GCF) can take on the role of coordinating their implementation (see p.19). This aspect has been widely integrated into the negotiations regarding the Transitional Committee that was created following the Cancún agreements.

The GCF could provide guarantees and insurance, raise funds on the financial markets and support the carbon markets. It could also be the recipient of the planned international levies. Generally speaking, tools proposed by GCF will have to adapt to the existing supply of already established multilateral institutions. If the GCF was particularly designed based on the experience of multilateral development banks, some uncertainty about their exact roles remains.

III. STRUCTURING NAMAS TO HELP RAISE FUNDS AND FINANCE CLIMATE POLICIES IN DEVELOPING COUNTRIES

New mechanisms of regulatory frameworks are being discussed within the UNFCCC to improve the raising of and access to international climate finance. These include Nationally Appropriate Mitigation Actions (NAMAs), whose implementation characteristics can have a major impact on the sources of financing available.

A. What are NAMAs?

The signatory countries of the Cancún Agreements of 2010, agreed “*that developing country Parties will take nationally appropriate mitigation actions in the context of sustainable development, supported and enabled by technology, financing and capacity-building, aimed at achieving a deviation in emissions relative to ‘business as usual’ emissions in 2020*” (para. 48, Cancún Agreements, 2010). Beyond this declaration of principle, a number of points remain to be clarified.

A means of engaging developing countries on a voluntary basis...

For developing countries, defining a NAMA is an acceptable way to formalise mitigation actions at the international level as they were provided for by the article 4.1 of the UNFCCC. Indeed, under the Kyoto Protocol, these countries are not committed to targets for limiting or reducing their emissions. This commitment remains voluntary and is part of a so-called “bottom-up” approach, where the countries in question retain the initiative.

Following the Copenhagen and Cancún Agreements, 48 developing countries have informed the UNFCCC of their intention to reduce greenhouse gas emissions by using NAMAs. In conjunction with developed countries, these represent more than 80% of worldwide emissions. However, the information provided by these countries is very uneven²⁰. It ranges from a simple commitment to implement emission-monitoring instruments, to the setting of a reduction target by 2020, via the communication of their possible, probable or underway policies for reducing GHG emissions²¹.

²⁰ Following the Cancún Agreements, workshops have been held in 2011 to clarify and better understand the diversity of proposals of NAMAs.

²¹ For more detail see (UNFCCC 2011a) and the submissions from the parties themselves, available from <http://unfccc.int/home/items/5265.php>. The cases of Georgia and Afghanistan should be added; as a result of local political contexts, these countries have only been able to think about possible policies and put in place emissions monitoring instruments. See Casella et al. (2010) for an analysis of emissions commitments.

...but a definition in need of more clarity

Categorised according to the origin of the financing...

The proposals from developing countries do not allow a single definition of a NAMA, concerning their object, their nature or their form, to be identified. Nevertheless, there appears to be a consensus about categorising NAMAs according to the origins of their financing. We can therefore identify three general types of NAMAs:

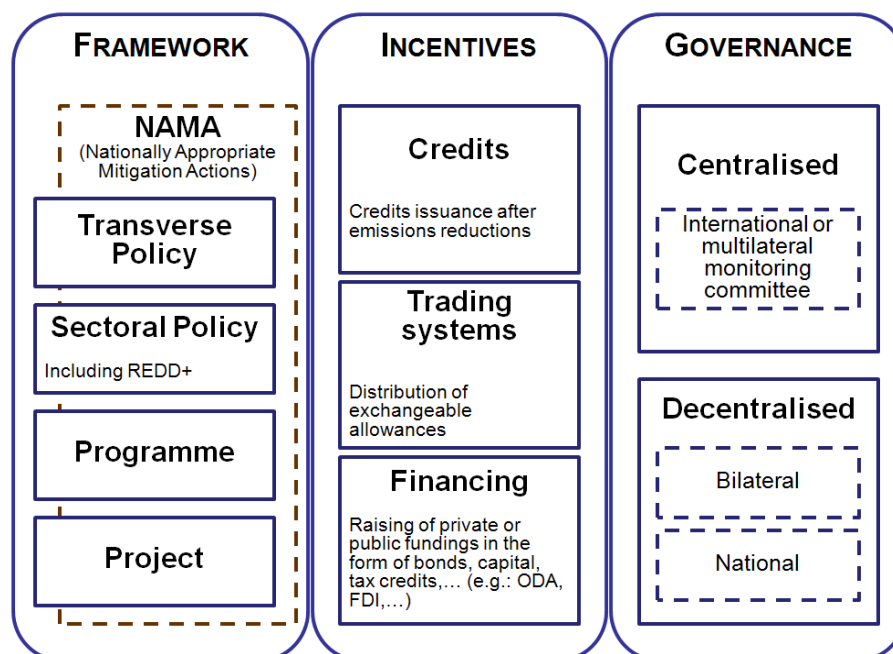
- Unilateral, where they are financed entirely by the host country;
- Supported, where they are financed at least in part by developed countries and/or international financing;
- Crediting, where all or a part of the emission reduction benefits from the issue of a corresponding carbon credit.

According to the origin of the financing, the need for clarification and transparency regarding the objectives announced for each NAMA could be more or less important and will need more or less advanced formalisation, particularly in terms of Monitoring, Reporting and Verification (MRV). We could therefore see a certain “natural selection” appear in favour of countries putting in place policies associated with credible and quantified objectives and an MRV programme.

...but where the scope remains unclear

A consensus seems to have been reached that the policies and measures included in an NAMA are decided nationally – or at least are led by the developing country. In theory, there is no restriction in terms of size or sector. A NAMA can therefore theoretically concern both a vast national policy to develop renewable energies, a programme-based project such as the installation of solar panels on the roofs of all the schools in a region, or a single wind-farm project. NAMAs can also be part of a more comprehensive strategy like low-carbon development strategies (LCDS). As Figure 4 shows, to this choice of scope can be added a number of possibilities in terms of financing mechanisms and international governance.

Figure 4 – Options for the structure of emissions reductions mechanisms post-Kyoto



Notes: All post-Kyoto mechanisms will have to respect a regulatory framework (options in the first column), plus incentive mechanisms (2nd column) and be integrated into a centralised or decentralised governance framework (3rd column). It should be noted that emissions reduction systems are not required to take the form of a NAMA if this formalization brings more constraints than benefits for a country. For example, an international sectoral agreement like REDD+ (relating to avoided deforestation) could be put in place independently of the NAMA of developing countries. Most combinations are possible, but certain seem less probable than others.

Source: CDC Climat Research based on IGES (2011).

Objectives in terms of emissions but also in terms of increased capacity

NAMAs currently correspond to a flexible package of emissions reductions policies and actions and can therefore easily be integrated into the development priorities of a country. In certain cases, they can also allow projects to be carried out more quickly, by improving access to sources of finance.

Beyond the emissions objectives, NAMAs could also help to develop technology transfers and to increase the capacity of a country to put in place and monitor their climate policies. NAMAs can therefore be considered a development tool which plays a part in capacity-building in developing countries.

Given all these challenges, the current absence of precise rules can permit a certain flexibility which allows innovative mechanisms to be tested. But there must nevertheless be a minimum amount of control over the quality and effectiveness of the actions put in place.

Indeed the risk is that as a NAMA is potentially eligible for all types of public climate financing, it would be in the interest of a developing country to present NAMAs in order to capture some of the currently available international financing. This competition for access for finance can lead, in the absence of clearly and officially defined financing criteria, to only identifying NAMA projects with the most advantageous revenue/investment cost ratios. This is in addition to the various political considerations for development that may occur in the choice of financed countries.

Some examples of NAMAs

Although the majority of developing countries made NAMA proposals during 2010, only a few of them have already resulted in precise projects. Initiatives such as those of Ecofys (2011) and UNEP-Risoe (2011b) seek to list all the NAMAs that are being implemented. The projects that have made the most progress concern a wide variety of sectors including transport, waste, energy, the cement industry and building. They include both national policies and local projects, often with a much larger scope than those seen up until now as part of the CDM.

Ecofys (2011) has listed 13 countries that have already proposed concrete NAMA projects or concepts. These actions can be found in Africa, Central and South America, Asia and Europe. Many countries have asked for international support, whether financial or technical, but some are planning to finance a part of their project themselves.

To date, the first NAMAs have concerned rather ambitious and targeted projects, politically supported by the governments of the country, usually in collaboration with international entities. The international exposure to which the first projects tend to be subjected may explain the limited number of projects by country, at least initially. This seems to be a somewhat encouraging aspect, as it strengthens the credibility of the system by avoiding high-profile announcements.

B. NAMAs, a new catalyst for finance

In the short term, NAMAs will draw on existing financial mechanisms, but could also be used to test other innovative mechanisms that favour private investment.

Widen the scope of existing financial instruments by adjoining them to NAMAs

Associating public finance and carbon credits, as is currently the case with the CDM

The flexible mechanisms of the Kyoto Protocol make it possible to request public climate aid. This involves “rewarding” the financial commitment in developing countries with a loosening of the requirement to reduce emissions in developed countries, via the CDM.

Based on this model, NAMAs could result in the award of carbon credits. In particular it is possible that, under certain conditions, CDM projects could be integrated into NAMAs. This type of structure would be particularly pertinent for PoAs, which are well adapted to the implementation of “top-down” programmes at the national emissions reduction level. This would make it possible to design NAMAs that issue allowances, based on existing mechanisms. This kind of support shall be debated in the framework of the

new market-based mechanism defined during the Durban conference in 2011. Thus, this shall be more generally a part of the international negotiations of the Durban platform to be decided by 2015 (Morel *et al.*, 2011).

Box 2 – Tunisia and Mexico, examples of the diversity of NAMAs

Tunisia initially sought to implement small-scale projects without using international financing (unilateral NAMA). As part of the Tunisian solar energy programme for example, projects for energy production from renewable sources, such as the sun, wind and others were implemented, and energy efficiency measures were put in place. Of the 40 projects put forward, 1.5 billion euros (including 1.4 billion from the private sector) was raised, which represents 80% of the total financing requirement. The country asked for international support to finance the remainder, of around 350 – 400 million euros.

The project is led by the Ministry of Environment and Sustainable Development and supported by many international organisations. Emissions reductions are forecast to reach around 1.5 million tons of CO₂ equivalent, just for the solar programme. Other sectors, particularly the waste management sector, are also expected to include a NAMA.

Source: Tunisian Ministry of the Environment and Sustainable Development (2010).

Mexico has proposed a number of NAMAs. The project which has gone the furthest is the improvement of energy efficiency in residential buildings. This would involve providing both the financial means for the owner to build more efficient constructions, and the tightening of building regulations. In particular, “green” loans have been envisaged.

The project can be scaled up or down according to the funding that is obtained. The introduction of an *ad hoc* financial structure is being examined. According to the various scenarios, 5.5 to 27 million tons of CO₂ equivalents could be avoided by 2020. Financing requirements range from 2 to 7.4 billion dollars. The project could be considered as a “total” NAMA where certain actions will be financed unilaterally by Mexico and others will call for international financiers who could obtain credits in exchange. The project is also trying to consider requirements in terms of capacity-building. On the Mexican side, this project is supported by the Environment and Natural Resources Secretariat and also by the national housing agency.

Source: Point Carbon (2010).

Nevertheless, this could create certain problems, particularly when a number of actions are carried out simultaneously in the same sector. The results of a PoA designed to improve building insulation would, for example, be difficult to dissociate from the effect of a government campaign encouraging the population not to overheat their homes. We must therefore interpret actions that generate credits separately from unilateral or supported actions. Otherwise, we would lose the additionality criterion of the PoA. This is why it is essential that the PoA bring together projects where reductions are independently measurable, and will not be substantially altered by the success or failure of related policies, which can sometimes be difficult to prove.

The question of the attribution in developing countries of emissions reductions financed by developed countries could also pose a problem. Developing countries see the financial undertakings of the Cancún Agreements as an addition to emissions reduction commitments. Therefore, the emission reductions generated by funding from developed countries should not be included in their own performance in terms of emissions. They should be allocated to developing countries. Moreover, in case these emission reductions result in credits for compliance of developed countries, one must ensure that there is no double counting in order to avoid entering into a zero-sum game: either emission reductions are allocated to a funded country, or to the donor country, not both.

One of the proposed approaches is to consider that the actions designed to issue credits will act as a support for unilateral policies by amplifying their impact (European Commission, 2009).

My NAMA's Bond: Using Green Bonds to finance NAMAs.

Certain existing instruments favouring private investment can be applicable to NAMAs. Take Green Bonds for example. As things currently stand, these bonds could already finance NAMAs. We can also imagine more specific 'NAMA bonds'. In the same way, credit insurance linked to the implementation of NAMAs could be envisaged.

These bonds could be issued by a variety of national or multinational structures. Other financial products could even allow investors to cover themselves against certain risks. For example, if an investor carries out a project that is strongly dependent on the carbon price, he will want to be covered financially against the risk of that price being low. The institution could therefore offer financial instruments that are indexed to the carbon price²². Romani and Pourarkin (2009) even suggest indexing bonds to the success of the policies that are implemented. This would make it possible to cover oneself against political risk and would encourage private investors to commit to certain NAMAs.

Bonds could also be created by the countries themselves. In the United States, it is estimated that 2.4 billion dollars of zero-interest green bonds have been raised by local authorities from financiers, who benefit from federal tax credits in exchange (Della Croce *et al.*, 2011).

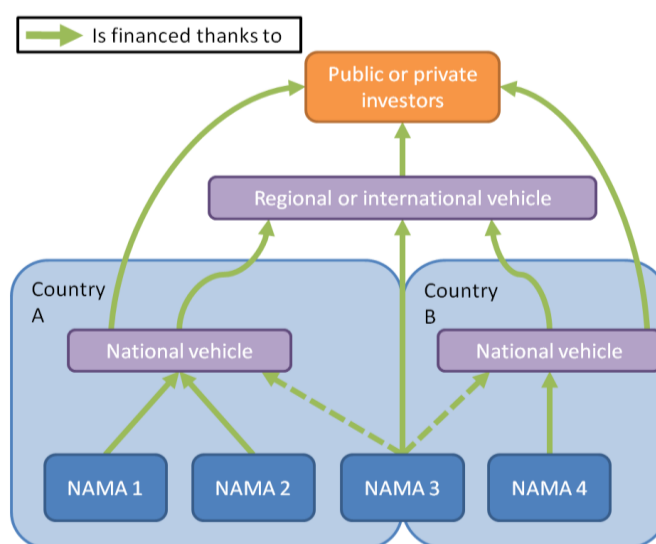
The financial structure that is used will determine the capacity to raise capital

The relative uncertainty surrounding the rules of NAMAs suggests there is a certain liberty in terms of their financial structure, which could help to raise capital from the private sector, if the public sector sets the wheels in motion.

An institution that acts as an interface between financiers and developing countries

The perception of risk by private investors is linked to the available information, amongst other factors. Any investment in a new structure is assimilated with a greater risk. This explains why it is useful to be able to draw on the guarantee of well-known institutions such as the World Bank, or even individual countries, to manage the international climate funds.

Figure 5 – Possible structures for the financing of NAMA thanks to the various vehicles²³



Notes: NAMA 3 is a NAMA spread over a number of countries. It could be financed by the national vehicles in question. In theory, private financial investors should prefer regional or international vehicles whilst public investors should be split between national and regional vehicles, as is already the case in bilateral versus multilateral aid.

Source: CDC Climat Research.

²² The current low prices make it is very unlikely that any development of this type of tool will occur in the near future.

²³ The term "vehicle" should be understood from a financial point of view. It refers to a legal and financial structure.

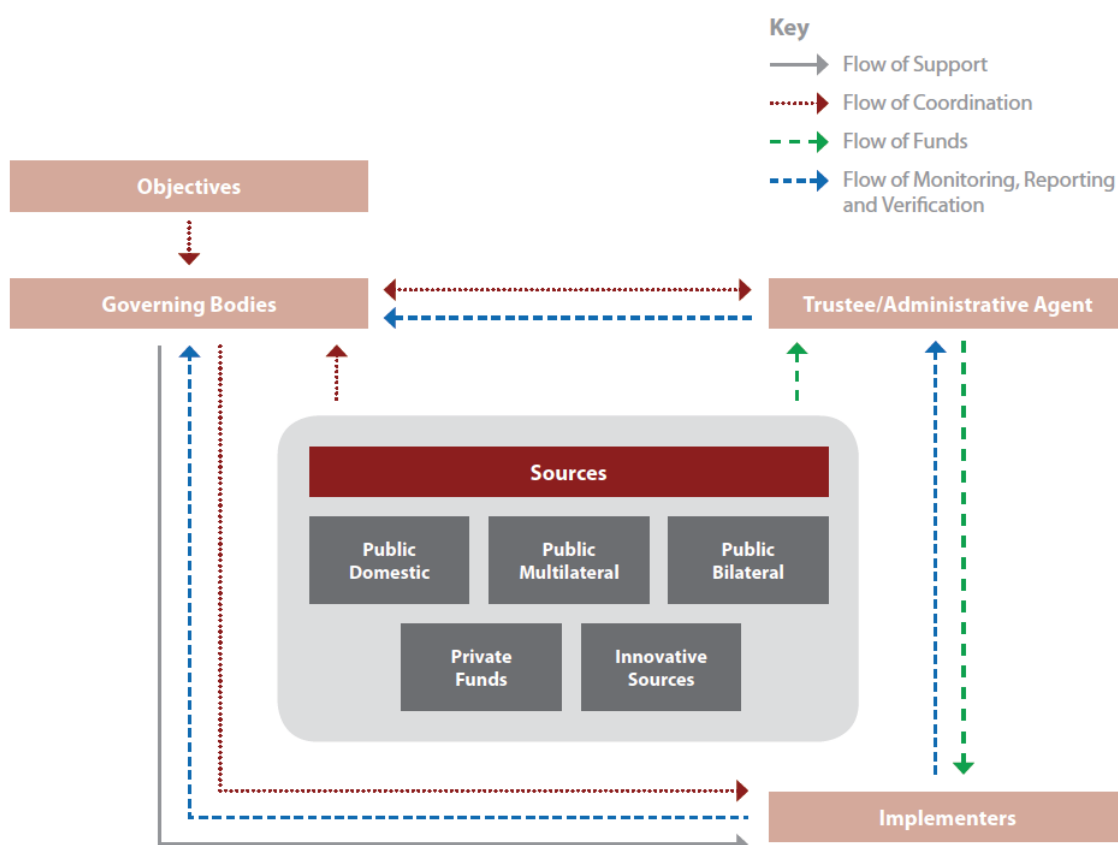
An international, regional or national institution could play the role of an interface between the financial flows and the project owners (see Figure 5). This type of institution²⁴ makes it possible to reduce the number and diversity of rewards but also to offer a diversification that can reduce risk. Investors are no longer invited to invest in a specific project but in a standardised product.

The Green Climate Fund could be part of this type of structure. Investors would no longer invest in a specific project or NAMA; they would invest in the GCF. Given that the GCF would bring together a variety of projects and NAMA in a number of countries, it could apply an investment diversification strategy which would allow it to control its exposure to risk²⁵.

This could also allow it to reach critical sizes that are better adapted to the financial markets. In this way, smaller projects could indirectly benefit from financing that was originally destined for larger projects. Indeed, given the amounts they managed, many pension funds, for example, will not invest below a certain sum. This also makes it possible to reduce transaction costs per project for the investor.

Similarly, the UNDP (2011) invites developing countries to put in place national climate funds. These funds could call on different sources of financing and use existing structures. Their integration is shown in Figure 6.

Figure 6 – Governance of a national climate fund



Source: UNDP (2011).

In 2008 for example, Brazil created the Amazon Fund. The Brazilian development bank (or BNDES for *Banco Nacional de Desenvolvimento Econômico e Social*) is responsible for raising finance to fund projects to reduce deforestation in the Amazon. In exchange, emissions reduction certificates can be delivered to the funder (Amazon Fund, 2010).

²⁴ Detailed proposals can be found in Point Carbon (2010) and KPMG (2010).

²⁵ This process is similar to the diversification of a financial portfolio.

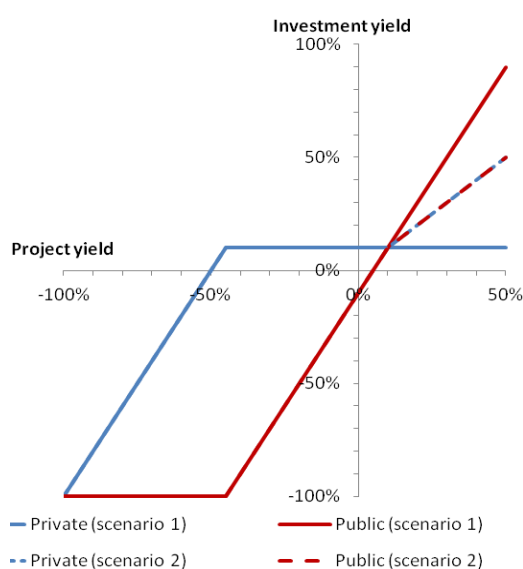
The guarantee from states or international organisations could also make it possible to greatly reduce risk, which will allow borrowing at a low rate. A national fund would be closely related to the role played by a National Implementing Entity within the framework of an Adaptation Fund.

Towards a new distribution of risks between public and private financiers

As with classic projects, we can imagine a NAMA being financed by both public and private investors. This raises the question of how to distribute any profits that may be generated²⁶. For example, Point Carbon (2010) presented the case of a NAMA where green loans are awarded to improve the energy efficiency of homes, and in exchange homeowners can reimburse the loans thanks to save money on their energy bills.

If the risk/reward ratio of the project is too high, the public investor can suggest that the private investor be the first to recover the money²⁷. A distribution offering to ensure as far as it is possible the capital and the expected return to the private sector is detailed in Figure 7.

Figure 7 – Scenarii for the distribution of project profits by diminishing the risk of the private investor



Notes: Scenario 1 corresponds to a scenario where the private investor has priority but there is a cap on yield set at 10 %. Scenario 2 is an alternative where there is an equal distribution of additional profits.

In this structure, private and public investors have released the same sum. The private investor is looking for a yield of 10 %. Whilst the project yield is over a threshold, here set at -45 %, the private investor is ensured to recover its capital as well as the expected return. Whilst the project yield is below +5 % (e.g. whilst equal distribution of income corresponds to the private investor expected return), the public investor accept losses on invested capital for the private investor does not see his performance penalised. Whilst the project yield exceeds the expected return of the private investor, here +10 %, the additional profits can be distributed differently.

This is a very risky architecture for the public investor and should be reserved for strategic investments less attractive to the private sector.

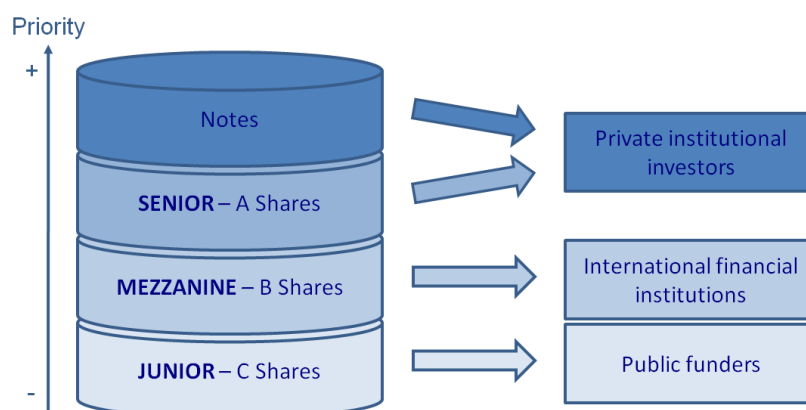
Source: CDC Climat Research.

This sort of structure makes it possible to reduce the risks for the investor. It must, however, be compatible with the level of exposure to risk that can be tolerated by public institutions.

The *Green for Growth Fund* uses the principle of seniority. This is a closed-end investment company. Its liabilities are made up of bonds and shareholder equity with three levels of priority (Figure 8). It is therefore public donors who take priority in bearing these losses.

²⁶ The capacity to give financial value to the gains created by these actions is not systematic.

²⁷ For an overview of the various proposals from the private sector, see WBCSC (2011).

Figure 8 – Capital structure of Green for Growth Fund

Source: GGF (2011).

As a general rule, private donors tend to be reassured by the commitment of public donors.

Public-private partnerships (PPP) can lead to the guarantee of a fixed income for the private investor. Generally, this consists in offering a private player the management of an infrastructure for a number of years and offering a rent payment in exchange for financing the initial investment, at least partially.

In the case of climate projects, it is possible to imagine the construction of a waste methanisation plant in a developing country, built as part of a PPP²⁸. By guaranteeing rent for the investor, the only risks that are taken are linked to the typical risks of any project, such as eventual overruns on construction costs or currency risks. The risks linked to emissions reduction policies are avoided.

A long-term vision is essential

To invest, the private sector generally requires a stable political and regulatory context. To reduce the perception of risk, the uncertainty regarding political and regulatory contexts has to be reduced. One of the means available to governments is to invest alongside the private investor. For example, this is the approach that was chosen in the case of bilateral Japanese agreements, where the Japanese government invested alongside Japanese companies in the context of an agreement with the partner government.

More marginally, countries can also show their commitment by offering hedging tools that are indexed against the implementation of policies, which can commit them over the long term. In this scenario, it is possible to imagine bonds indexed to the carbon price or to the country achieving their emissions reduction targets.

NAMA can be the means of providing a stable framework for private investors. If, in addition, they are partially funded by developed countries, private investors will expect that the subsequent monitoring will mean that the policy or project will be successfully implemented. In this way, a country which, for example, imposed fuel consumption standards for cars could, at a lower cost, encourage the private sector to invest in the research and development of low-carbon technologies. The insertion of a NAMA in an LCDS may also reduce the perception of risk for investors by 'reassuring' him on the political will to implement policies.

C. The international challenges of NAMAs

To be put in place, some NAMAs will call for external financing, from both the public and private sectors. This financing will only be accessible if the credibility of the project is verifiable. This is why the importance of access to information and monitoring of NAMAs has been underlined during international negotiations and particularly in the Cancún Agreements, which include the creation of a registry and MRV procedures.

²⁸ For more precisions on the sharing of risks in a PPP, see Teichmann (2010).

These procedures are qualitative – describing the actions implemented – rather like the five-year national communications from Annex 1 countries, and quantitative – measuring the emissions reductions that are achieved – similar to the annual GHG audits of Annex I countries. The implementation of these procedures and of NAMA in general should be accompanied by capacity-building.

A registry to centralise information

In order to obtain more transparent and detailed information, the idea of a registry listing NAMAs was put forward and then included in the Cancún Agreements (para. 53, Cancún Agreements, 2010). This registry would be used to list actions that are both forecast or have been undertaken by developing countries, and also show the financing that is pledged or provided in exchange by developed countries.

The Cancún Agreements only impose a registry for NAMA that receive international support. At this stage, unilateral NAMA would therefore only be included in the registry on a voluntary basis, as certain developing countries refuse any assessment or international control over their national policies carried out using domestic financing. The Durban agreements have confirmed the separation of unilateral NAMA by creating them a dedicated registry (Morel *et al.*, 2011).

The objective of this type of registry is to offer easy access to information on actions carried out worldwide. The creation of the registry would also make it possible to improve the information available about funding that has been released by developed countries, in a framework that is similar to their evaluation under the UNFCCC. The registry could therefore improve quality and structuration of the information. For fundings, for example, requested information could be close to those listed in the Table 1 (p. 6).

The MRV procedure for effective monitoring

The Cancún Agreements specify that all NAMAs must be “*measured, reported and verified domestically*” and that internationally supported mitigation actions will also be subject to “*international measurement, reporting and verification in accordance with guidelines to be developed under the Convention*” (para. 61 and 62, Cancún Agreements, 2010).

The credibility of the NAMAs therefore depends on a common and transparent Monitoring, Reporting and Verification procedure which allows a common framework for these procedures to be established. In particular, this means that indicators will have to be created that permit an acceptable evaluation of the results of NAMA, are easy to apply to all countries and are stable over time.

Without a reliable MRV procedure, it is likely that certain NAMA projects may never be implemented because they cannot justify the use of the financing they are requesting.

Finding simple and applicable indicators for assessing the policies in place

An emissions reduction policy must give rise to an evaluation of its results and the way it has been run. The difficulty lies in drawing up quantitative and/or qualitative criteria. These criteria can reflect the stages of a project (Point Carbon, 2010) by covering:

- The efforts made to implement the project (means made available, regulations created within the agreed timeframe);
- Intermediate results (penetration rate of a technology, percentage of households that have followed the new regulations, new distribution of the energy mix, etc.); and
- The final results in terms of reduction in GHG emissions.

The chosen indicators are closely related to the aptitude of the host country to put them in place (Neuhoff *et al.*, 2009). Indeed the challenge is to find a compromise between precision and ease of implementation, with strong emphasis placed on criteria that are easy to check. An example of monitoring indicators for a NAMA is shown in Annex 2.

Create a more complete MRV procedure in developing countries

Table 2 shows the current rules relating to emissions reporting that are common to both developed and developing countries.

Table 2 – Comparison of GHG emissions reporting requirements

	Annex I countries	Other countries
Standards and indicators	GIEC Methodology and UNFCCC guidelines <i>(Article 5 of Kyoto Protocol)</i>	No predefined methodology
Monitoring	Annual controls by independent experts <i>(Article 8 of Kyoto Protocol)</i>	No international review Since Cancún, international consultants and analyses of reports "that are non-intrusive, non-punitive and respectful of national sovereignty"
Frequency of communications	Yearly <i>(Article 7 of Kyoto Protocol)</i>	During national communications (frequency not defined before Cancún; now 4 years). Since Cancún, updated every two years in biannual report. "with additional flexibility to be given to the least developed country Parties and small island developing states"

Source: UNFCCC.

The Cancún Agreements represent significant progress in the reporting procedures for developing countries by creating biennial update reports, and setting a four-year time period between two national communications, where possible (para. 60, Cancún Agreements). This effort on national MRV procedures could have beneficial consequences on NAMA procedures.

A NAMA issuing credits logically requires a stricter and more restrictive MRV procedure, closer to that of developed countries or CDM projects. Nevertheless, we can imagine that in certain cases the obligation of means prevails upon the obligation of results. In this case, the MRV procedure will be less restrictive.

An additional difficulty lies in the evaluation of the indirect effects of the implementation of a NAMA. This concerns both carbon leakage as well as double-counting with any other actions or policies that are being applied concurrently.

The choice of financing that will be used could also have a particular importance. The challenges will come from both the capacity to finance these activities but also the monitoring of them and ensuring simple, transparent and complete access to the information.

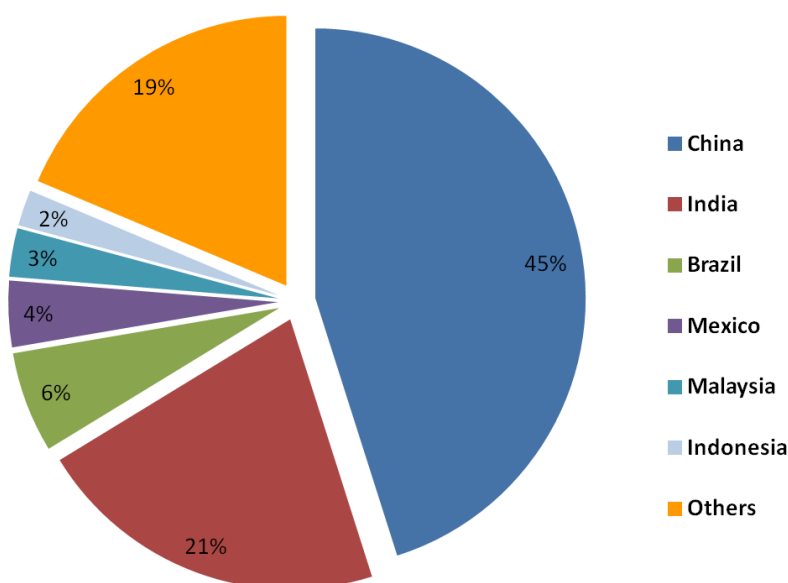
Capacity-building to facilitate the implementation

Developing countries will need capacity building support in order to establish and evaluate their climate policies. There is a certain inequality between developing countries with regards to their institutional capacity. This is very clearly reflected in the distribution of countries that host CDM projects (see Figure 9) or in the country-by-country analysis of the risk of non-delivery of CDM allowances (Cormier and Bellassen, 2011).

The predominance of China and India is often explained by their capacity to create an environment that encourages investment (Talberg and Nielson, 2009). One example of this is the creation of institutions

that facilitate the project validation process. This point applies to both public and private financing; the latter see the absence of a reliable administration as an important factor of risk.

Figure 9 – Distribution by country of the number of CDM projects approved by 1st January 2012



Source: UNEP Risoe (2011a).

Whilst this distribution is the partial reflection of greenhouse gas emissions, it does not necessarily reflect the levels of development and therefore the needs for external finance. To ensure that these inequalities are not repeated with the implementation of NAMAs, programmes of assistance exist for developing countries and particularly the least developed countries²⁹.

Take for example the Mitigation Action Implementation Network, implemented by the Center for Clean Air Policy, the World Bank Institute and the INCAE Business School. This initiative consists in helping developing countries to design and implement NAMA and low-carbon development strategies.

This type of initiative can also exist thanks to bilateral agreements such as those made by the German Environment Ministry (BMU) via its Transfer Renewable Energy and Efficiency (TREE) project (BMU, 2009).

In time, this capacity-building can make it possible to clarify the regulatory context and reassure investors, offering important leverage in terms of financing.

CONCLUSION

The implementation of climate change mitigation policies in developing countries will involve the use of suitable funding from public and private sources: with 8 billion dollars per year budgeted as part of the Fast-Start Finance programme and the risks of non-concretisation, public funding alone will not be enough to meet the commitments of Copenhagen, nor will it come close to the levels needed to achieve the ultimate goal of the UNFCCC.

To achieve the financing objectives of Cancún, the use of public resources could be optimised by a leverage effect, such as making the risk-reward ratio of climate projects attractive to private investors.

Questions have to be asked about how best to strike a balance between short-term and long-term programmes. The private sector encourages both approaches (WBCSD, 2011).

²⁹ This institutional support also existed for the design of *National Adaptation Programmes of Action (NAPA)* in least developed countries (UNFCCC 2011b).

One solution could be to develop NAMAs. This tool has relatively poorly-defined boundaries but currently takes the form of a national agglomeration of public policies, formalised in a top-down manner at the national level by countries in the hope of financing all or some of the proposed actions. Under certain conditions, developing countries are now ready to put in place greenhouse gas emissions mitigation actions. But there are three major challenges to be met.

Firstly: it is important to have reliable and transparent information on the financial commitment of developed countries. This requires the harmonisation of both qualitative and quantitative MRV processes, and a clarification of accounting rules. Establishing the “new and additional” character of the funding is a key issue for developing countries.

Secondly: the implementation of NAMAs in developing countries must enable the gaps in existing programmes to be filled. We should see national or sectoral policies start to emerge that are supported by the international public and private sectors. This would also make it possible to recognise the action of the developing country. More importantly, these actions should take place within the framework of climate-compatible development strategies. One of the challenges will lie in providing long-term support to all developing countries.

Thirdly: the volume of financing that is raised should enable both the commitments of developed countries and the needs of developing countries to be met. The private sector should be encouraged to contribute through the use of a variety of instruments: *Green bonds* issued by multilateral banks, project mechanisms like the CDM, insurance that limit losses, and more. Confidence in the progress of the international negotiations process would create a momentum that would help the financing targets to be met.

The response to these problems will require the implementation of new structures. The GCF can be one, at the international level. It could make it possible to develop suitable national structures in developing countries. These new financing structures should also help to no longer only fund projects but to have a broader-based ‘transformational’ impact by supporting new low-carbon development policies.

ANNEX I - THE NEW PUBLIC SOURCES OF INCOME FOR CLIMATE FINANCE

Table 3 – Some new public sources of revenue for climate finance

New sources	Estimated income* in 2020	Advantages	Disadvantages	Comments
Auction of some of the AAU	Between 2 and 70 billion dollars or between 14 and 25 billion dollars	<ul style="list-style-type: none"> - Does not penalise developing countries - Genuinely new and additional source - Allows a carbon price signal to be given to Annex B countries 	<ul style="list-style-type: none"> - Uncertainty on the price and the revenue generated - Presence of <i>hot air</i> - Need to put in place international governance - Possible need to renegotiate the effort sharing decision in the Kyoto Protocol - May play the role of a conformity mechanism and be a direct competitor to the CDM 	<i>The auction could involve between 2% and 10% of allocated AAU. As a general rule, we can study the auctioning of emission allowances irrespective of their type.</i>
Tax on carbon credits	Between 500 million and 15 billion dollars or between 500 million and 10 billion dollars	<ul style="list-style-type: none"> - Already exists as part of the Adaptation Fund (2% on CERs) - Surcharge could in theory be supported by the final buyer with specific measures - Possibility of extending the concept to other carbon credits 	<ul style="list-style-type: none"> - Involves taxing an activity that we are trying to develop - May reduce the number of profitable projects - Very uncertain income, linked to the price of the credit market 	<i>This mainly involves taking a percentage of the credits that have been issued. According to how the market operates, either the supply will determine the price of the credit and will therefore include the tax, or the demand will limit the price to the cost of domestic reduction and this price will not include the tax.</i>
Carbon tax	Between 10 billion dollars and 265 billion dollars for an international tax	<ul style="list-style-type: none"> - Contributes to the reduction of GHG emissions - Has already been implemented by numerous countries such as Scandinavia and Switzerland for example - Gives a price signal 	<ul style="list-style-type: none"> - Uncertainty over the amount of revenue - Coordination with carbon markets needs to be studied. Possibility of contradictory price signals - Problem of national sovereignty in terms of raising taxes in the case of an international tax - Each country that implements it must have adequate institutional structures 	<i>A number of propositions exist. For example, Switzerland proposes that a \$2/t tax is levied for emissions in excess of 1.5t eqCO₂/person. This can also be presented as a tax on fossil fuels.</i>

New sources	Estimated income* in 2020	Advantages	Disadvantages	Comments
End to subsidies on fossil fuels	Between 3 and 8 billion dollars	<ul style="list-style-type: none"> - Helps to reduce fossil fuel consumption and therefore reduce GHG emissions - Encourages the development of alternative technologies - Easy to apply 	<ul style="list-style-type: none"> - Involves reorganising the distribution of climate change mitigation efforts - Potentially significant political opposition, particularly from fossil fuel-producing countries and consumers - Important social and economic costs of an intensive energy transition - Impossible to oblige countries to reserve the savings made for climate change mitigation efforts 	<i>We can also consider the use of royalties produced by the extraction of fossil fuels.</i>
Tax on international transport (maritime and aviation)	Between 3 and 25 billion dollars	<ul style="list-style-type: none"> - Could make it possible to directly reduce emissions (double dividend) - Makes it possible to reach a sector that is not covered by the Kyoto Protocol 	<ul style="list-style-type: none"> - Possible negative impact on the economies of developing countries - A compensation scheme for developing countries would need to be designed - Need an international agreement combining ICAO** and IMO*** - Coordination with domestic measures must be carefully studied - May be raised by the countries themselves (problem of reserving revenue for a specific cause) 	<i>The tax can apply to estimated emissions (tax or allowances) or the sale of fuel or even be a lump sum. The choice of format will determine certain positive or negative consequences.</i>
International tax on financial transactions	Between 3 and 27 billion dollars or between 15 and 28 billion dollars	<ul style="list-style-type: none"> - Can make it possible to reduce speculation and the volatility of financial markets - Worldwide application is possible - Seen as fair by the population - Very low rate and very large base 	<ul style="list-style-type: none"> - Needs coordination between countries to get internationally similar implementation in order to avoid market distortions - May limit the liquidity of markets - Real impact on markets is unknown - May be raised by the countries themselves (problem of reserving revenue for a specific cause) 	<i>The tax involves levying a low rate (from 0.01% to 0.1%) on the value of financial transactions.</i>

- Sources related to the carbon markets
- Sources related to GHG emitting activities
- Other sources

Notes: * The figures in blue come from UN-AGF (2010) and the figures in brown from Bowen (2011). The hypotheses are shown in detail in the two documents. ** The International Civil Aviation Organization is a UN agency in charge of civil air transport.

*** The International Maritime Organization is a UN agency in charge of maritime transport.

Source: CDC Climat Research based on UN-AGF (2010) and Bowen (2011).

ANNEX II – EXAMPLES OF INDICATORS DRAWN UP FOR MONITORING A NAMA IN MEXICO

For a NAMA relating to energy efficiency in Mexico, Point Carbon (2010) suggested the following indicators.

Table 4 – Suggested indicators for monitoring a NAMA related to energy efficiency in Mexico

	Quantitative Indicators	Qualitative indicators
Input	<ul style="list-style-type: none"> - Amount of funding provided - Number of staff allocated 	<ul style="list-style-type: none"> - Building code introduced and adopted - Responsible institution appointed
Intermediate output	<ul style="list-style-type: none"> - Number of houses built and related floor area according to minimum performance standards (building code) - Energy performance / demand of houses (according to type and climate zone) - Investment in green housing leveraged (total amount of loans, subsidies, tax breaks) - Number of capacity building workshops conducted - Number of professionals in the building sector trained (e.g. with certification) 	<ul style="list-style-type: none"> - Implementation system of the building code in place - Information material published and distributed
GHG mitigation outcome	<ul style="list-style-type: none"> - Amount of emission reductions 	- N/A

Source: Point Carbon (2010).

A list like this could be freely adapted to suit the financiers of NAMAs by finding a compromise between reliability and ease of implementation. A programme with indicators that are too complicated or too numerous runs the risk of being difficult to put in place. A too-restrictive MRV procedure could make any monitoring impossible.

The quantified mitigation objectives of the NAMAs differ according to the country. Each type of objective requires a very specific MRV procedure (Sterk, 2010). The type of data required varies according to whether the country makes an absolute commitment relating to Gross Domestic Product (GDP) or a BAU scenario.

With regards to problems relating to situations that are constantly evolving, the greatest difficulty lies in deciding on the various projections. This difficulty in making forecasts is exacerbated in countries undergoing rapid change. Thus in 2000, the International Energy Authority (IEA) forecast that Chinese electricity production would reach 1.5 TWh, when the Chinese five-year plan forecast 2.0 TWh. In fact, China has produced more than 2.5 TWh (Scheider and Cames, 2009). We can therefore see that the scale of the uncertainty can be quite significant.

LIST OF ACRONYMS

ADB	– Asian Development Bank
BAU	– Business as usual
BMU	– German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety or <i>Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit</i>
CDM	– Clean Development Mechanism
CER	– Certified Emission Reduction
COP	– Conference of the parties
CPA	– <i>CDM Programme activities</i>
DAC	– Development Co-operation Directorate (from OECD)
EU-ETS	– European Union Emissions Trading System
FDI	– Foreign Direct Investment
GCF	– Green Climate Fund
GHG	– Greenhouse Gas
LCDS	– Low-Carbon Development Strategy
MDB	– Multilateral Development Bank
MRV	– Monitoring, reporting and verification
NAMA	– Nationally appropriate mitigation action
ODA	– Official Development Assistance
OECD	– Organisation for Economic Co-operation and Development
PoA	– Programme of actions
PPP	– Public-Private Partnership
UN	– United Nations
UNDP	– United Nations Development Programme
UNEP	– United Nations Environment Programme
UNFCCC	– United Nations Framework Convention on Climate Change
USD	– United States dollars

REFERENCES

- Amazon Fund (2010). *The Amazon Fund's annual report 2009*. http://www.amazonfund.gov.br/FundoAmazonia/export/sites/default/site_en/Galerias/Arquivos/Boletins/Rafa_2009_versxo_final_inglxs.pdf
- Beaurain, F. and Schmidt-Traub, G. (2010). *PoA – Developing CDM Programmes of Activities: a Guidebook*. South Pole. www.southpolecarbon.com/downloads/PoA_Guidebook_SouthPole.pdf
- Belgian National Climate Commission (2009). *Belgium's fifth national communication on climate change under the UNFCCC*. http://unfccc.int/resource/docs/natc/bel_nc5_en_final.pdf
- BMU – German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2009). *Federal Environment Ministry promotes capacity building for sustainable energy supply*. Press Release. http://www.bmu.de/english/press_releases/archive/16th_legislative_period/pm/43263.php
- BMU – German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2010). *The international climate initiative of the Federal Republic of Germany*. http://www.bmu-klimaschutzinitiative.de/files/The_International_Climate_Initiative-05-2010_441.pdf
- Bowen, A. (2011). *Raising finance to support developing country action: some economic considerations*. Centre for Climate Change Economics and Policy. Working Paper No 46. [http://eprints.lse.ac.uk/37572/1/Raising_finance_to_support_developing_country\(Isero\).pdf](http://eprints.lse.ac.uk/37572/1/Raising_finance_to_support_developing_country(Isero).pdf)
- Buchner, B., Falconer, A., Hervé-Mignucci, M., Trabacchi, C. and Brinkman, M. (2011). *The Landscape of Climate Finance. A CPI Report*. Climate Policy Initiative. <http://climatepolicyinitiative.org/wp-content/uploads/2011/10/The-Landscape-of-Climate-Finance-120120.pdf>
- Cancún Agreements (2010). <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>
- Corfee-Morlot, J., Guay, B. and Larsen, K. - M. (2009). *Financing climate change mitigation: Towards a framework for measurement, reporting and verification*. OECD. <http://www.oecd.org/dataoecd/0/60/44019962.pdf>
- Cormier, A. and Bellassen, V. (2011). *The risks of CDM projects: how did only 30% of expected credits come through?* Working paper, CDC Climat Research. <http://www.cdclimat.com/The-risks-of-CDM-projects-how-did-only-30-of-expected-credits-come-through.900.html>
- Delbosq, A. and Jeulin, M. (2011) *What should we take away from Cancún?* Climate Brief n°3. CDC Climat Research. <http://www.cdclimat.com/Climate-Brief-no3-What-should-we.html?lang=en>
- Della Croce, R., Kaminker, C. and Stewart, F. (2011). *The role of pension funds in financing green growth initiatives*. OECD. http://www.oecd-ilibrary.org/finance-and-investment/the-role-of-pension-funds-in-financing-green-growth-initiatives_5kg58j1lwdjd-en
- Ecofys (2011). *NAMA Database*. <http://www.nama-database.org/nama-database/>
- Ellerman D. (2007). *Helping self-help: The fundamental conundrum of development assistance*. The Journal of Socio-Economics 36 (2007) 561–577. <http://www.ellerman.org/Davids-Stuff/Dev-Theory/JS-E-Self-Help-reprint.pdf>
- European Commission (2009). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Towards a comprehensive climate change agreement in Copenhagen*. COM(2009) 39/3 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0039:FIN:EN:PDF>
- GGF – Green for growth fund - Southeast Europe (2011). *Investing in energy efficiency and renewable energy*. <http://www.ggf.lu/media/public/pdfs/downloads/brochures/2011/ggf-general-brochure-2011.pdf>

- IEA – International Energy Agency (2008). *Energy technology perspectives 2008*. <http://www.iea.org/textbase/nppdf/free/2008/etp2008.pdf>
- IGES – Institute for Global Environment Strategies (2011). *New market mechanisms in CHARTS*. http://enviroscope.iges.or.jp/modules/envirolib/upload/3352/attach/new_mech_charts.pdf
- KPMG (2010). *Financing low-carbon investment in developing countries. Public-private partnerships for implementation of Nationally Appropriate Mitigation Actions*. <http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/Documents/financing-low-carbon-investment-dec-2010.pdf>
- Morel, R., Bellassen, V., Deheza, M., Delbosc, A. and Leguet, B. (2011). *Durban: one small promising step for climate... by 2020*. Climate Brief n°10. CDC Climat Research. <http://www.cdclimat.com/Climate-Brief-no10-Durban-one-small-promising-step-for-climate-by-2020.html?lang=en>
- Neuhoff, K., Fankhauseur, S., Guerin, E., Hourcade, J.-C., Jackson H., Rajan, R. and Ward, J. (2009) *Structuring international financial support to support domestic climate change mitigation in developing countries*. Climate Strategies. <http://www.climatestrategies.org/research/our-reports/category/43/218.html>
- OECD-DAC (2004). *Reporting directives for the creditor reporting system – Addendum. RIO markers*. www.oecd.org/dataoecd/44/46/35646074.pdf
- OECD-DAC (2011a). *Tracking aid in support of climate change mitigation and adaptation in developing countries*. <http://www.oecd.org/dataoecd/33/60/45906157.pdf>
- OECD-DAC (2011b). *Environment: Climate change aid up to USD 22.9 billion in 2010, says OECD's Gurría*. http://www.oecd.org/document/4/0,3746,en_21571361_44315115_49170628_1_1_1_1,00.html
- Olander, J., Seifert-Granzin, J., Chiagas, T., Streck, C. and O'Sullivan, R. (2011) *Nested Approaches to REDD+. An Overview of Issues and Options*. Climate Focus and Forest Trends. <http://www.forest-trends.org/documents/index.php?pubID=2762>
- Point Carbon Global Advisory Services (2010). *Working Paper. Supported NAMA design concept for energy-efficiency measures in the Mexican residential building sector*. http://www.perspectives.cc/home/groups/7/Publications/NAMA_Design_Mexico_Working_Paper.pdf
- Romani, M. and Pourarkin, L. (2009). *Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries. Section 3 – Raising finance*. www2.lse.ac.uk/GranthamInstitute/publications/Other/Leveragedfunds/sectionthree.pdf
- Schneider, L. and Cames M. (2009): *A Framework for a Sectoral Crediting Mechanism in a Post-2012 Climate Regime. Report for the Global Wind Energy Council*. Berlin: Öko-Institut. <http://www.oeko.de/oekodoc/904/2009-022-en.pdf>
- Stasio, K., Polycarp, C., Ballesteros, A. and Easton, C. (2011). *Summary of Developed Country Fast-Start Climate Finance Pledges*. Version of 23rd November 2011. World Resources Institute. http://pdf.wri.org/climate_finance_pledges_2011-11-18.pdf
- Sterk W. (2010). JIKO Policy Paper 2/2010. *Nationally Appropriate Mitigation Actions: Definitions, Issues and Options*. Wuppertal Institute. <http://www.jiko-bmu.de/files/basisinformationen/application/download/pp-namas-fin.pdf>
- Stern, N. (2006). *The economics of climate change. The Stern Review. Executive summary*. http://www.hm-treasury.gov.uk/d/Executive_Summary.pdf
- Talberg, A. and Nielson, L. (2009). *The Kyoto Protocol's Clean Development Mechanism*. Background note. Parliament of Australia. http://www.aph.gov.au/Library/pubs/BN/2008-09/KyotoProtocol_CDM.pdf
- Teichmann, D. (2010). *Public and private risk sharing in the financing of low-emitting urban infrastructure projects: the case of CDM projects in the waste sector*. Working Paper. CDC Climat Research. <http://www.cdclimat.com/Public-and-private-risk-sharing-in,534.html?lang=en>

- Tirpak, D., Ballesteros, A., Stasio, K. and McGray H. (2010). *Guidelines for reporting information on public climate finance*. World Resources Institute Issue Brief. http://pdf.wri.org/guidelines_for_reporting_information_on_public_climate_finance_2010-12.pdf
- Tunisian Ministry of the Environment and Sustainable Development (2010) *Tunisian “Nationally Appropriate Mitigation Action” – NAMAs – Preliminary Proposals*. http://www.iiko-bmu.de/files/basisinformationen/application/pdf/nama_proposals_tunisia.pdf
- UN-AGF (2010). *Report of the UN Secretary-General’s High-level Advisory Group on Climate Change Financing*. http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGF_reports/AGF%20Report.pdf
- UNDP – United Nations Development Programme (2011). *Blending climate finance through national climate funds*. http://www.beta.undp.org/content/dam/undp/library/Environment%20and%20Energy/Climate%20Change/Capacity%20Development/Blending_Climate_Finance_Through_National_Climate_Funds.pdf
- UNEP – United Nations Environment Programme (2009). *Catalysing low-carbon growth in developing economies*. Finance Initiative. http://www.unepfi.org/fileadmin/documents/catalysing_lowcarbon_growth.pdf
- UNEP-Risoe (2011a). *CDM Pipeline*. 1st January 2012. <http://cdmpipeline.org/publications/CDMpipeline.xlsx>
- UNEP-Risoe (2011b). *NAMA Pipeline*. 1st November 2011. <http://namapipeline.org/Publications/NAMApipeline.xlsx>
- UNFCCC – United Nations Framework Convention on Climate Change (2011a). *Compilation of information on nationally appropriate mitigation actions to be implemented by Parties not included in Annex I to the Convention*. Version of 18th March 2011. <http://www.unfccc.int/resource/docs/2011/awglca14/eng/inf01.pdf>
- UNFCCC – United Nations Framework Convention on Climate Change (2011b). *National Adaptation Programmes of Action (NAPAs)*. http://unfccc.int/national_reports/napa/items/2719.php
- European Union, the European parliament and the council for the European Union. *Directive 2009/29/EC amending directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community*. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:EN:PDF>
- UNITAID (2011). *Annual report 2010*. http://www.unitaid.eu/images/NewWeb/documents/AR10/unitaid_ar2010_web.pdf
- WBCSD – World Business Council for Sustainable Development (2011). *World Business Council for Sustainable Development: Scaling up low-carbon investment through the UNFCCC*. <http://unfccc.int/resource/docs/2011/smsn/ngo/242.pdf>
- WEF – World Economic Forum (2011). *The Green Investing 2011: Reducing the Cost of Financing*. Publication réalisée en partenariat avec Bloomberg New Energy Finance. http://www3.weforum.org/docs/WEF_IV_GreenInvesting_Report_2011.pdf
- World Bank (2009). *World development report 2010. Development and climate change*. <http://siteresources.worldbank.org/INTWDR2010/Resources/5287678-1226014527953/WDR10-Full-Text.pdf>
- World Bank (2011). *Green Bond. Fact sheet*. Updated version of 26 July 2011. http://treasury.worldbank.org/cmd/pdf/WorldBank_GreenBondFactsheet.pdf

All the links were checked on 20th January 2012

THE 'CLIMATE REPORT' SERIES FROM CDC CLIMAT RESEARCH

- N° 31 **Carbon offset projects in the agricultural sector**
CLAUDINE FOUCHEROT & VALENTIN BELLASSEN - December 2011
- N° 30 **The role of sub-national authorities in public support for renewable energies: Examples in Europe and France**
MARION JEULIN & ANAÏS DELBOSC - November 2011
- N° 29 **Voluntary carbon offsetting by local authorities: Practices and lessons**
AMADOU KEBE, VALENTIN BELLASSEN & ALEXIA LESEUR - September 2011
- N° 28 **Design of multi-sector emissions trading systems: A comparison of European and American experiences**
CECILE GOUBET & ANAÏS DELBOSC - May 2011
- N° 27 **Drawing up a national climate change adaptation policy: Feedback from five European case studies**
GASPARD DUMOLLARD & ALEXIA LESEUR - February 2011
- N° 26 **Tackling forestry & agriculture emissions in New Zealand's new carbon market**
OLIVER SARTOR, MARIANA DEHEZA, MARK BELTON - November 2010
- N° 25 **United States regulating greenhouse gases under the direction of the Environmental Protection Agency (EPA)**
CÉCILE GOUBET - November 2010
- N°24 **Cancún: Year one of the post-Copenhagen era**
HENRI CASELLA, ANAÏS DELBOSC & CHRISTIAN DE PERTHUIS - October 2010
- N°23 **Carbon funds in 2010: Investment in Kyoto credits and emission reductions**
EMILIE ALBEROLA & NICOLAS STEPHAN - May 2010
- N°22 **Infrastructures in the face of climate change, the response of long term investors**
AUDREY HOLM - May 2010
- N°21 **The challenges of adapting to climate change**
MARIA MANSANET-BATALLER - April 2010
- N°20 **Getting carbon value out of the forestry and wood sector in annex I countries: The French example and the methodology annex**
MARIANA DEHEZA & VALENTIN BELLASSEN - April 2010
- N°19 **Climate change policy in Australia: Towards a cap-&-trade market for greenhouse gases**
OLIVER SARTOR - February 2010
- N°18 **Climate change vulnerabilities and adaptation possibilities for transport infrastructures in France**
IAN THOMAS COCHRAN - September 2009
- N°17 **Financing adaptation to climate change – What the United Nations Framework Convention on Climate provides for**
ANITA DROUET - April 2009
- N°16 **Development of renewable energies: What contribution from the carbon market?**
CÉCILE BORDIER - December 2008

All CDC Climat Research publications are available from:

<http://www.cdclimat.com>