Project Funded by
the European Union

POLICY BRIEF: MITIGATION BONDS AND MITIGATION LOANS

Prepared by Casper Van der Tak
ClimaSouth climate finance and mitigation expert
March 2017

INTRODUCTION

Developing countries needs finance to meet their national climate change goals, as was recently again confirmed through a UNFCCC survey. Provision of finance is an obligation of developed countries under the UNFCCC and its Paris Agreement. A straightforward climate finance deal might seem possible, however, in practice climate finance has been slow in coming. A recent study of the ClimaSouth[1] project (http://www.climasouth.eu/), an EU funded development cooperation project building climate change in North Africa (Algeria, Egypt, Libya, Morocco, Tunisia) and the Middle East (Israel, Jordan, Lebanon, Palestine) has proposed a new climate finance instrument, **mitigation bonds & mitigation loans**, to fill part of this gap. This policy brief introduces the mitigation bonds and mitigation loans concept, and proposes a test of the concept in the ClimaSouth region of North Africa and the Middle East.

MITIGATION BONDS AND MITIGATION LOANS

Mitigation loans are zero- or very-low-interest loans invested in mitigation projects and programs in developing countries, which, instead of yielding interest, provide as a return on the investment a share in the mitigation results obtained, transferred to the investors as internationally transferred mitigation outcomes (ITMOs).[2] Mitigation loan borrowers will typically be private sector entities, or in any case, nons-vereign borrowers. Mitigation bonds are zero- or very-low interest rate bonds, and the proceeds of their issue are invested in mitigation loans. Like mitigation loans, mitigation bonds provide as a return on the investment a share in the mitigation results obtained, transferred as ITMOs.

Specific examples with the effective yields on such mitigation loans have been included in Appendix 2 to this policy brief. We conclude that for developing countries, the mitigation loans provide a cheap and much needed source of finance to green the energy sectors and implement nationally determined contributions (NDCs). For developed countries, investment in mitigation bonds means fulfilling their climate finance obligations and achieving greenhouse gas emission reductions at low cost while contributing to key national development plans of developing countries.

TARGETED INVESTORS

The targeted investors are initially (but see below) governments, and for the first regional test, we would be focusing on EU member states' governments. The choice to target governments as investors is logical, because only for governments ITMOs would have a clear and direct value. If there is not sufficient demand and/or there would be significant investor interest from outside the EU, then there is nothing in principle against opening the concept up for investors from outside the EU. However, the initial indications are that there is demand for this concept.

---

1 Formally named "*Climate Change Mitigation and Adaptation in the ENPI South Region*".

2 The possibility of ITMOs has been foreseen in the Paris Agreement. See Article 6, clauses 2 and 3, replicated in Appendix 1.

MITIGATION BONDS AND LOANS VS. GRANTS AND CONCESSIONAL LOANS

Why would investor governments not just provide a grant or conditional loan (leading to ITMOs)? Let's start by emphasizing that grants are not really a full solution, because the borrowing private sector parties would still need to find other sources of finance. The projects are, after all, not going to be fully grant financed. In the case of concessional loans, governments would face the obstacle that they are ill-equipped to provide international concessional loans to private sector parties. They would need to find an intermediary in any case to source and evaluate projects, conduct due diligence, monitor implementation and emission reductions, report on emission reductions, manage the sharing of ITMOs, etc. Usually a government would request a national development bank or similar agency to implement concessional loans.

While capacity constraints provide one argument against governments providing a grant or concessional loans for ITMOs, there is an additional risk diversification argument and economies of scale argument as well for the proposal, based on the bundling of financial resources from various investors. The bond/loan concept makes things much more straightforward for all sides, with one standardized contract and monitoring process, instead of a bunch of different contracts and procedures. Finally, IFIs would be able to blend in other sources of finance when necessary.

ROLE OF IFIS AS MANAGING ENTITIES

Especially in the first test, it would be important to have one or more reputed organizations managing the mitigation bonds and loans. IFIs would fit the needs. The role of the IFI(s) (such as EIB and/or IFC) would be to manage the bond issue process, to source projects, to evaluate the projects and conduct due diligence, and to manage the process of disbursement, collect repayment of principal, monitor the emission reductions, report, and manage the sharing of ITMOs. The IFIs would be collecting a management fee and an interest rate mark-up commensurate with the risks and efforts put in.

NORTH AFRICA AND THE MIDDLE EAST

The developing countries of North Africa and the Middle East have attractive mitigation opportunities, yet financial constraints severely restrict what can be achieved using domestic resources. Given these constraints and the proximity of the region to the EU, as well as the importance of the region as a climate hot spot and the history of the concept, it is proposed that a first mitigation bond & mitigation loan program be tested in North Africa and the Middle East. This furthermore makes it possible to build on the political structure of the Union for the Mediterranean (UfM), as described below.

ORGANIZATIONAL ASPECTS

We propose that the mitigation bonds & mitigation loans issue can be tested in the developing countries of the UfM and that this activity might be UfM-labeled to indicate wide regional support. EU member states' governments would be the most logical investors in the mitigation bond given the history of the concept; UfM developing countries and in particular private enterprises within these countries could the borrowers of the mitigation loans, and the European Investment Bank or multilateral development banks could be the institution responsible for the launch of the mitigation bond and the origination of mitigation projects and management of the mitigation loans. ClimaSouth could have a role in the identification of project opportunities and preparation of documentation.

LONGER TERM PERSPECTIVE

Once the concept of mitigation bonds and loans has been tested, a more prominent role for the private sector could be envisaged. The necessary conditions for private sector investors buying the mitigation bond would be 2: 1) Some country would need to authorize them to receive ITMOs and 2) A country would need to give a commitment to off-take ITMOs obtained from mitigation loans/bonds at a certain price (essentially, give the investors a put option). Such a take-off commitment could leverage a multiple of 4-5 in private sector investments. Under these conditions, the private sector investors could be interested in investing in mitigation bonds, because they would be assured that the ITMOs could be turned into value.

NEXT STEPS

Proposed next steps are to discuss the concept with the relevant DGs of the EU, UfM, and selected IFIs / MDBs to check initial interest and design a plan of action. The first step of a plan of action would be to discuss interest among EU member states' governments.

REFERENCES

ClimaSouth Policy Series, Paper N.3, 2017. Israel and international climate finance. Prepared by Casper Van der Tak.

United Nations Framework Convention on Climate Change (UNFCCC). 2015. Paris Agreement. FCCC/CP/2015/L.9/Rev.1.

St George Regional Collaboration Centre (RCC). 2016. Report on the nationally determined contributions survey conducted by the Nairobi Framework Partnership in 2016: Summary report

APPENDIX 1. ITMO-SHARING ENABLING CLAUSES OF THE PARIS AGREEMENT

The ITMO-sharing enabling clauses can be found in Article 6, clauses 2 and 3 of the Paris Agreement. The relevant clauses read:

> "(…)
> *2. Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.*
> *3. The use of internationally transferred mitigation outcomes to achieve nationally determined contributions under this Agreement shall be voluntary and authorized by participating Parties.*
> (…)"

APPENDIX 2. EXAMPLES OF MITIGATION LOANS IN ACTION

To illustrate the mitigation loans, we have created two pro forma investments in mitigation loans, and calculate the returns for the investor (Table 1) on the basis of 3 CO2-price scenarios. The three price scenarios are:

- Scenario I: A flat carbon price of 15 EUR/tCO2e
- Scenario II: A carbon price equal to half of the social cost of carbon as reported in USAG (2016),[3] converted to EUR, and changed the real figure into a nominal value by applying a 2% inflation rate.
- Scenario III: A carbon price increasing from 50% of the social cost of carbon in 2016 to 100% of the social cost of carbon in 2040, using the social cost of carbon as reported in USAG (2016), converted to EUR, and changed the real figure into a nominal value by applying a 2% inflation rate.

Table 1. Pro forma mitigation loan investments

Windpark (renewable energy)				**Lignite-fired Boiler replacement (energy efficiency)**			
Capacity:	50MW			Capacity:	1MWth		
Investment cost:	1.2 EUR/W			Investment cost:	90,000 EUR		
Debt finance (mitigation loan):	70%			Debt finance (mitigation loan):	70%		
Equity:	30%			Equity:	30%		
Power tariff:	0.075 EUR/kWh			Efficiency old boiler:	50%		
O&M costs:	0.005 EUR/kWh			Efficiency new boiler:	80%		
Operating hours:	2500			Operating hours:	4500		
Grid emission factor:	0.8 tCO2e/MWh			Lignite costs:	25 EUR/t		
Loan interest rate:	0%			Loan interest rate:	0%		
Loan duration:	6 year			Loan duration:	6 year		
Project duration:	20 year			Project duration:	10 year		
Sharing of ITMOs	50%			Sharing of ITMOs:	50%		
				NCV:	3300 kcal/kg		
Scenario	**I**	**II**	**III**	**Scenario**	**I**	**II**	**III**
Implied rate of return:	***4.50%***	***6.92%***	***9.08%***	***Implied rate of return:***	***18.65%***	***44.52%***	***53.16%***

[3] In all cases, we use the average cost estimate at a 3% discount rate, which is reported in real 2007 USD.

In scenario II and III, the logic applied is that international mitigation efforts are lacking behind, so that the social cost of carbon (as measured per tCO2) exceeds the marginal cost of mitigating carbon emissions (as measured per tCO2). In the third scenario, we gradually approach the optimum in which the social cost of carbon and the marginal mitigation cost are set equal to each other. Thus Scenario I is the least aggressive, and Scenario II the most aggressive.

In all cases, we have assumed that the agreed sharing ratio is assumed fixed at 50% (different sharing arrangements can obviously be negotiated, for example the first X emission reductions generated by the project, or the first XX emission reductions generated each year) and have assumed that all emission reductions over the full lifetime of the project will be shared. We have calculated the shortest loan duration consistent with the first carbon price scenario, and have kept this fixed throughout all scenarios.

In all cases, the mitigation provides a low cost source for the financing of the mitigation project, while taking into account the value of the shared ITMOs, the returns for the investor are quite acceptable to high, especially for the energy efficiency project. Also, note that the more aggressive the mitigation scenario, the higher the return to the investor.

These calculations show that the novel instrument of mitigation bonds used to finance mitigation loans may be attractive for both the investors and the countries / entities taking out the mitigation loans.

References

USA Government (USAG) 2016. Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866. Interagency Working Group on Social Cost of Greenhouse Gases, United States Government.