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Concept Note

# Boosting climate action through innovative debt instruments

Combining debt for climate swaps and climate policy performance bonds

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## Key messages

- In order to reach the ambition level of the Paris Agreement, increased climate finance flows from North to South driven by innovative instruments are required
  - “Debt for Climate Swaps“ offer the double benefit of reducing countries’ debt while at the same time freeing capital for mitigation/adaptation activities.
  - Climate Policy Performance Bonds provide a financial incentive to governments to achieve the mitigation contributions set out in the Nationally Determined Contributions.
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# Executive Summary

In the historic Paris Agreement which was adopted in December 2015, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed to the goal to limit the average global temperature increase to well below 2°C and to conduct efforts to remain below a 1.5°C temperature increase (Art. 2.1 Paris Agreement). Considering the current emission trends, this requires a significant increase in mitigation ambition. To achieve mitigation of the necessary scale, massive investment in low-carbon and climate resilient infrastructure beyond the current investments needs to take place.

In this context, the development of new financial instruments is crucial to create investment incentives and trigger new financial flows to bring economies on low greenhouse gas and climate resilient development pathways. This concept note assesses two innovative instruments, namely “Debt for Climate Swaps” and “Climate Policy Performance Bonds” (CPPB). While debt for climate swaps are building on the debt for nature swap concept that has been applied for over 20 years as an instrument to relieve countries burdened by high amounts of debt, CPPBs are a new idea to incentivize governments to adhere to stringent emissions commitments. The potential of these two instruments to mobilize resources for climate change mitigation and adaptation projects is illustrated in this concept note.

Moreover, we introduce the concept of “Debt for Climate Policy Performance Swaps” (DCPPS) - an innovative combination of the features of the two debt instruments climate swaps and CPPBs. Here, the bond’s interest rate depends on the achievement of a national greenhouse gas emission target, e.g. the target specified in a country’s Nationally Determined Contribution (NDC) under the Paris Agreement. If the target is achieved, the interest rate will decrease, while it will increase if the target is missed. In combination, the two concepts can become a highly effective way to tackle debt burdens of highly indebted countries while at the same time incentivizing governments to promote climate change mitigation.

## Debt for Climate Swaps

The concept of debt for climate swaps is based on the principle that government bonds trading at deep discounts to their face value are bought up. The debtor on the other hand commits to invest a defined amount of local currency into mitigation and/or adaptation activities that exceeds the market value of the acquired bonds but remains below their face value. A double benefit is achieved as finance is flowing into mitigation/adaptation projects while at the same time the debt of a country is reduced (Figure 1). These swaps involve at least a creditor and a debtor but have in the past often involved a third party, such as a non-governmental organization (NGO), supporting the agreement (Thapa, 1988, p. 254; Warland and Michaelowa, 2015, p.5).

Due to the debt relief effect, the instrument becomes particularly relevant when considering countries with a high ratio of debt to GDP. Low income and middle income countries had in 2014 an average ratio of debt to GDP of 44% – reaching even 57% for Small Island Developing States (SIDS). Compared to 2006, the overall ratio has substantially decreased in 2014 in both groups, yet, since 2011 trends have tended towards an increase again (Hurley,

2015, Warland and Michaelowa, 2015, p.5). In their debt risk analysis, the World Bank and IMF (2015) use a sustainability threshold for public debts at 18-22% of government revenues. Thus, it becomes evident that many countries are highly indebted.

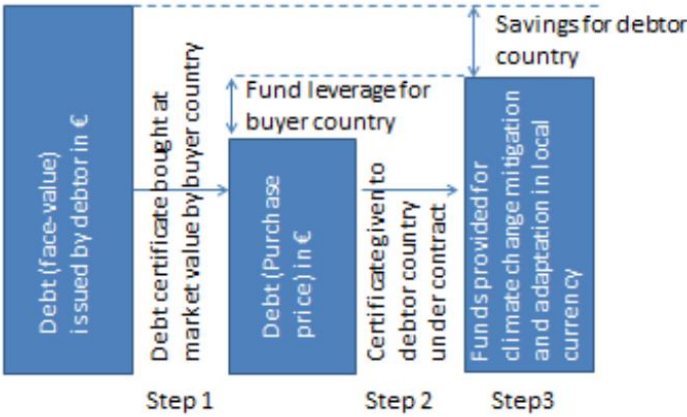


Figure 1: Debt for climate swaps reduce countries’ debt while delivering capital for mitigation/adaptation activities.

Debt for climate swaps have actually been derived from the earlier debt for nature swaps, which have been used to finance environmental projects particularly in the area of forestry for several decades<sup>1</sup>. According to estimations by the OECD, almost USD 1.1 billion have been generated for conservation measures through debt for nature swaps during the period from 1991-2003 that arise from swaps with face value volumes of almost USD 3.6 billion (OECD, 2007; Warland and Michaelowa, 2015). As debt for climate swaps are similar to debt for nature swaps apart from their specific target activity, the advantages and challenges that are being identified for debt for nature swaps do apply (see table 1).

Table 1: Advantages and challenges of debt for climate swaps<sup>2</sup>

Benefits	Challenges
Mobilization of new resources for climate change mitigation or adaptation	Potential inverse relation between debt for climate swap potential and governance quality ( <b>moral hazard</b> )
Financial benefits for indebted countries	Risk for “crowding out” national funds for mitigation/adaptation ( <b>moral hazard</b> )
Poverty reduction and co-benefits	High transaction costs since the instrument has not been broadly used yet
Predictability of climate funding and potential to attract further funding from other sources	Perceived sovereignty issues when financing mitigation/adaptation projects

Particular key challenges are the inverse relationship between debt for climate swap potential and governance quality and the problem of moral hazard. The most attractive target countries for this instrument are countries with a high level of indebtedness, which is often linked to a low quality of governance (Warland and Michaelowa, 2015, p.7).

Furthermore there is risk for moral hazard, since governments could assume that debt will again be bought out cheaply in the future (see also Thapa, 1998). The problem is illustrated

<sup>1</sup> For further reading on debt for nature swaps please refer to Thapa et al., 1998.  
<sup>2</sup> For a more detailed discussion of advantages and challenges refer to Perspectives, 2015.

by the results of different debt relief initiatives, such as the Highly Indebted Poor Countries Initiative (HIPC) or the Multilateral Debt Relief Initiative (MDRI) that have been undertaken since the 1980s. A recent study by Hurley (2015) shows that for some SIDS who participated in debt relief initiatives, i.e. São Tomé and Príncipe (MDRI and HIPC) or Guinea-Bissau (HIPC), a significant debt reduction could be achieved in the year of completion of the initiative. However, the debt levels increased again within the first three years afterwards. Moreover, poor governance questions the efficient use of the money allocated to mitigation and adaptation activities. In non-ideal situations countries may also use the money for mitigation/adaptation projects and cut back their own spending for the respective fields (Cassimon et al. 2009, see also Warland and Michaelowa, 2015).

This shows how important it is to incentivize political decision makers to actually engage in climate change mitigation and adaptation projects and not just “skim off” funding from industrialized countries. Despite these challenges, the UN Secretary recently suggested that debt for climate swaps could be a key solution to the challenge of climate change mitigation and adaptation (The Independent, 2016). Thus, we suggest developing the instrument in a way that allows channelling green finance to vulnerable countries more effectively while taking into account improvements of governance. For example, eligibility for debt for climate swaps could be made contingent on a sustained improvement in governance over a period of several years.

In the following we propose another innovative instrument that provides incentives for good governance and avoids the moral hazard problems identified for debt for climate swaps.

## Climate Policy Performance Bonds

Over the recent years several new instruments have been introduced to unlock and channel capital to promote the low-carbon transition of countries. Green bonds for example emerged in 2007 and started to gain momentum in over the past few years. 2015 constituted the fourth consecutive record issuance year, with green bonds of a total value of over USD 45 billion being issued (Bloomberg, 2016).

But this impressive growth story raised some challenges linked to transparency of green bonds and “green washing” risks, as the market is not transparent regarding what constitutes the “green” quality of a bond.

In contrast to Green Bonds we propose the new bond concept of Climate Policy Performance Bonds (CPPB) as an innovative asset class with the potential to mobilize significant resources for climate change mitigation projects on the ground while tackling the challenges that green bonds are encountering (Bouzidi and Mainelli, 2015). They are inspired by Social Impact Bonds, Inflation Bonds and GDP-indexed Bonds. In their simplest terms, CPPBs are issued by a government and pay an interest coupon based on the issuing government’s climate policy performance. This policy performance could for instance be assessed on the basis of national or sector-wide greenhouse gas (GHG) emissions reductions compared to a credible baseline or an increase of the share of renewable energy in total energy production.

An example would be a country with an objective to increase its renewable energy production by a 2% per year until 2030. The country raises funds itself on financial markets at a 4% interest rate for duration of 2030. Such a country might issue a CPPB paying an

interest of 3% (therefore reducing the interest rate by 1%) if the renewable energy target is achieved, and 5% if not (therefore increasing the interest rate by 1%). In the financial world, this kind of structure is called a 'Pay-For-Failure' feature and it incentivizes governments to moving from promises to actions on the ground.

Issuing a CPPB is a simple and effective way for governments to enhance their funding, provided they engage in emissions reductions or increase renewable energy generation. It could also allow them to diversify their investor base by attracting sustainable and long-term investors. While so far no country has yet issued a bond with an environmental component, not even a green bond, a CPPB issuance would be a very strong signal to investors about a government commitment to its climate policy thus promoting private finance for to mitigation projects.

Depending on the kind of investor, CPPBs may provide various benefits (see table 2). Insurance companies may for instance be particularly interested in hedging their exposure to climate risk. Due to progressing climate change and the associated increase in extreme weather events their assets are likely to generate lower returns over time. CPPBs can offset this tendency by providing a higher return if the issuer fails to implement sufficient measures against climate change. Sovereign funds for example may be especially interested to decarbonize their portfolio due to new investment regulations.

Table 2: Advantages for CPPB investors

Investor type	Advantages
Insurance companies	Hedging climate risk
State pension funds	Portfolio diversification
Development banks	Generating co-benefits from climate change mitigation
Sovereign funds	Decarbonizing portfolio/support climate policy

Contrary to green bonds with a fixed coupon, there is a clear incentive for the issuer to reduce GHG emissions especially if the CPPB is directly linked to a GHG target. Thus, the risk of “green washing”, which is undermining the credibility of the growing green bond market (I4CE, 2016), is greatly reduced. Instead the transparency and quality of the bond is enhanced. The issuer no longer needs to demonstrate that proceeds are used for the declared mitigation investment, since the payoff formula ensures that issuers will do what it takes to attain the emissions target<sup>3</sup>. Thus, CPPBs are tools that could facilitate better capital allocation towards renewable production over traditional fossil-based production, thanks to lower funding costs.

The main challenges of CPPBs today are liquidity issues and the pricing of the instrument. Similar to the introduction of other financial innovations, there are uncertainties in the potential liquidity of the market and appetite of investors at the beginning. Governments will most likely not leapfrog into this new area as the concept needs to be tested first. The challenge, however, might be mitigated by the combination of CPPBs with debt for climate swaps.

<sup>3</sup> Third parties/external auditors would need to guarantee that the CO2 reduction levels.



# Debt for Climate Policy Performance Swaps

So far we introduced debt for climate swaps and CPPBs – two instruments with their own unique challenges and potentials. While debt for climate swaps can efficiently relieve indebted countries from their burden and mobilize resources for climate projects, they confront creditor countries with incentive challenges from the debtor side (moral hazard). CPPBs on the other hand can incentivize governments to enforce strict governance in favor of climate change mitigation and adaptation projects.

Thus, we suggest combining both concepts and creating “Debt for Climate Policy Performance Swaps” (DCPPS). By requiring governments to achieve a GHG mitigation target, e.g. the target of the NDC, the problem of moral hazard is mitigated, as the government has an incentive to meet its green target and apply strict governance. The advantage for the CBBP concept, on the other hand, would be the potential to showcase the new concept on a small pilot scale.

## DCPPS example<sup>4</sup>

To illustrate the concept of DCPPS, suppose that the British government holds a USD 100 million debt in the form of a classic 5 year bonds issued by Mauritius. The interest rate linked to the debt is USD 7 million per year (corresponding to a 7% fixed interest rate).

The British and Mauritian governments decide to enter into a DCPPS. The interest rate is set at 5% conditional on an annual CO<sub>2</sub> reduction of 1%. If Mauritius fails to achieve this target, the interest rates will be set at 6%. The achievement of the target is checked through audit by an independent third party.

Another DCPPS form is illustrated by a decrease of the debt volume if the GHG mitigation target is achieved. In the example above, the USD 100 million could be reduced to 90 million.

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<sup>4</sup> This example serves just as illustration and does not represent a real case



## References

- Bloomberg (2016): Bond Market Asking 'What Is Green?' Curbs Climate-Friendly Debt; <http://www.bloomberg.com/news/articles/2016-03-07/bond-market-asking-what-is-green-curbs-climate-friendly-debt>; (accessed on 02.08.2016)
- Bouzidi, A. and Mainelli, M. (2015): Environmental Policy Performance Bonds, in: *Climate 2020*, p. 152-153
- Bouzidi, A. (2016): Discounting for future generations, in: *Environmental Finance*
- Cassimon, Danny; Prowse, Martin; Essers, Dennis (2011): The pitfalls and potential of debt-for-nature swaps: A US-Indonesian case study, in: *Global Environmental Change*, 21, p. 93-102
- FOSDEH (no date): Changing the rules for external debt, retrieved from: [http://www.thinktankinitiative.org/sites/default/files/FOSDEH%20Changing%20the%20rules%20for%20external%20debt\\_0.pdf](http://www.thinktankinitiative.org/sites/default/files/FOSDEH%20Changing%20the%20rules%20for%20external%20debt_0.pdf), (download: 24.09.2015)
- Hurley, Gail (2015): Financing for development and small island developing states: a snapshot and ways forward, UNDO & UN-OHRLS discussion paper
- OECD (2007): *Lessons Learnt from Experience with Debt-for-Environment Swaps in Economies in Transition*, Paris
- OECD (2015), "Climate finance in 2013-14 and the USD 100 billion goal", a report by the Organisation for Economic Co-operation and Development (OECD) in collaboration with Climate Policy Initiative (CPI).
- Thapa, Brihesh (1998): Debt-for nature swaps, an overview, in: *International Journal for Sustainable Development and World Ecology*, 5, p. 249-262
- UNFCCC (2010): *The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention*, Decision 1/CP.16, FCCC/CP/2010/7/Add.1
- Warland, L. and Michaelowa, A. (2015): Can debt for climate swaps be a promising climate finance instrument? Lessons from the past and recommendations for the future, retrieved from [http://www.perspectives.cc/fileadmin/Reports/2015\\_Perspectives\\_Debt\\_for\\_climate\\_swaps.pdf](http://www.perspectives.cc/fileadmin/Reports/2015_Perspectives_Debt_for_climate_swaps.pdf) (download: 20.07.2016)
- World Bank/IMF (2015): *The Joint World Bank–IMF Debt Sustainability Framework for Low-Income Countries*, retrieved from: <https://www.imf.org/external/np/exr/facts/jdsf.htm> (download: 18.09.2015)

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