Climate Investment Funds

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Meeting of the CTF Trust Fund Committee
Istanbul, Turkey
November 3, 2012

Agenda Item 7

INTERACTIONS BETWEEN CIF FINANCING AND CARBON MARKETS

PROPOSED DECISION

The CTF Trust Fund Committee reviewed document CTF/TFC.10/9, *Interactions between CIF Financing and Carbon Markets,* and welcomes the analysis showing that while there are interactions between the CTF and the carbon markets, the small portion of carbon market financing as a percentage of total leveraged finance in CTF-funded projects does not artificially promote carbon finance operations or distort the market. Rather, it appears that CTF projects are operating in sectors and locations that are able to attract commercial finance but that are not business-as-usual CDM operations. The Trust Fund Committee requests the CIF Administrative Unit, working in collaboration with the MDB Committee, to:

a) explore developing procedures to measure, on an ex-post basis, the actual carbon credits issued and the associated revenue streams associated with projects and programs partly financed by CTF; and

b) develop proposals and guidelines for review by the joint meeting of the CTF and SCF Committees for the use of results-based payment instruments in the CTF and other CIF programs.

I. INTRODUCTION

1. At its meeting on May 3, 2012, the Clean Technology Fund (CTF) Trust Fund Committee requested the CIF Administrative Unit to prepare a paper on the interactions between CIF financing and the carbon markets, including the current and expected scale of carbon market co-financing in CIF activities. It was agreed that the paper should discuss the advantages and disadvantages associated with these interactions based on views of Committee members, observers, and other stakeholders.

2. To respond to this request, the CIF Administrative Unit consulted with a range of stakeholders, including carbon finance experts and practitioners from the MDBs. Using the outputs from these consultations, the Administrative Unit has prepared this paper for consideration by the CTF Trust Fund Committee at its November 2012 meeting. This paper outlines the current interactions between the CTF and carbon finance, assesses advantages and disadvantages of current and potential interactions, and outlines possible options for consideration by the Trust Fund Committee. A number of the findings are also relevant for other CIF programs, as discussed in Section V.

II. DEFINITIONS AND BACKGROUND

3. A key aim of the CTF is to avoid and/or reduce GHG emissions by investing in transformational renewable energy, energy efficiency, and transport activities at a programmatic scale. Through concessional resources, the CTF provides investments that go beyond business-as-usual approaches and catalyze significant additional resources in new approaches.

4. One type of finance leveraged is the international carbon market. This is finance generated by registering eligible projects to receive carbon credits—Certified Emission Reductions (CERs) within the Clean Development Mechanism (CDM) and through Joint Implementation (JI)—which are traded and purchased by Annex I countries for compliance with Kyoto Protocol obligations. It may also refer to revenue from Voluntary Emission Reductions (VERs), which are credits traded and purchased for reasons other than compliance with Kyoto Protocol obligations. For the purposes of this paper, discussion is limited to the international carbon market.

5. Carbon financing has a number of specific characteristics from the perspective of project financing. While the CTF provides upfront financing on concessional terms, the carbon market provides a post facto revenue stream that operates on a payment-for-results basis. Carbon finance supports projects through cash-flow improvement rather than favorable upfront financing conditions and can be thought of as performance-based revenue rather than a general source of financing. As a result, there is a degree of uncertainty in volumes of finance a project may receive from carbon finance revenues. This uncertainty often translates into investments in lower risk mitigation projects in terms of scale, technology, and location, which have more predictable emission reduction profiles.

6. Public finance, such as the CTF, can be used to fill this gap and, in doing so, support and catalyze market activities through risk reduction and demonstration of new approaches at scale. Indeed, the CTF can leverage carbon market finance by investing in transformational projects, a key output of which is GHG emission abatement. Elements of these projects can then be

registered through the CDM or JI for carbon crediting, or through the various voluntary crediting systems for VERs. In addition, the CTF can support the development of carbon markets through encouraging private investment in larger-scale, programmatic approaches within developing countries.

7. Guided by paragraph 28 of its investment criteria (see Section III below), the CTF provides concessional financing along with other leveraged multilateral, bilateral, and private resources, to encourage new carbon market activities that are more innovative than business-as-usual activities; this can include new scales, technologies, locations, or other innovative approaches. This type of interaction offers significant opportunities for the CTF to leverage additional resources as well as engage a long-term revenue stream after initial CTF investments have been made.

8. At its May 2012 meeting the CTF Trust Fund Committee requested the CIF Administrative Unit to prepare a paper describing *current* and *planned* interactions between the CTF and the carbon market. This paper responds to this request. It aims is to take stock of CTF activities that leverage carbon market financing, assess the advantages and disadvantages of such interactions, and suggests options to further enhance synergies between the CTF and both carbon markets and carbon finance more widely. It draws on endorsed investment plans, as these represent the more comprehensive view of both current and planned interactions.

9. The current state of the carbon market provides important context for this analysis. The extremely low carbon price at present, with little clarity on future market conditions, has dramatically reduced the market interest in providing upfront capital for projects to be registered under the CDM/JI. At present it is estimated that international carbon markets provide only 2% of climate finance flows observed[1]. This lack of market activity significantly reduces the potential overlaps between the CTF and crediting systems and instead suggests a broad role for the CTF in promoting well-functioning carbon markets through catalyzing market activity at scale and supporting projects outside those typical to the CDM/JI pipeline.

10. In addition, and by extension, an important caveat for this paper is the difficulty in assessing financing leveraged from a future revenue stream for which the majority of CTF projects are not yet registered under and for which price uncertainty of the potential crediting period is high. As such, the majority of analysis in this paper relies on predicted carbon market revenues based on investment plans/project proposals rather than on registration and crediting data. The Trust Fund Committee may therefore wish to revisit this issue as implementation of CTF projects proceeds.

III. CTF INTERACTIONS WITH CARBON MARKETS

11. CTF Investment Plans endorsed as of June 2012 (included both current and planned projects[2]) projected a total of US$1.02 billion leveraged finance from the carbon market (Table

[1] Climate Policy Initiative (2011), The Landscape of Climate Finance

[2] For Phase II countries not all projects are yet in the CTF pipeline but instead are planned CTF activities; they are included here based on the request of the CTF Trust Fund Committee for both current and planned interactions.

1[3]), with a number of other countries expressing interest in access carbon market revenues later in the project cycle. Among those countries that quantified the revenue, projected leverage is spread across five investment plans (Colombia, Mexico, Thailand, Viet Nam, and India[4]) and twelve projects. All would be eligible under the CDM rather than JI and none engage with voluntary markets. Within these projects, CDM revenues make up 5.7% of all leveraged resources. This represents slightly less than the total CTF financing itself (CTF-carbon market ratio is 1:0.92).

12. Four of the twelve projects have been approved. These projects aim to leverage US$332.5 million of carbon market financing in total. The remaining eight projects are in preparation and plan to leverage US$688.8 million of carbon finance. The ratio of this leverage remains relatively even over the lifespan of the CTF to date, with some of the earliest and newest investment plans including it.

13. At present, none of the approved projects in Table 1 have been registered under the CDM[5]. Therefore, the projected leverage across all projects is subject to change as individual projects move into implementation based on factors including carbon prices, precise project design, and implementation progress.

14. In addition, a number of other countries noted their intention to mobilize carbon finance once projects were under implementation. For example, Ukraine's Investment Plan notes that carbon market registration may be sought, in this case under Joint Implementation. Similarly, Nigeria's Investment Plan notes that "While it is expected that several projects identified under the CTF Investment Plan will also seek carbon market financing, it is unclear at this stage which ones will be eligible, pending post-2012 international negotiations. Nevertheless, the MDB team noted that several stakeholders, including those in the upstream and downstream energy sector, requested the assistance of the MDBs to access the global carbon market". It is therefore possible that the total volume of carbon finance leveraged through the CTF may increase above current projections as projects move into implementation.

IV. ANALYSIS OF INTERACTIONS

15. The numbers presented in Section III illustrate significant interactions between the CTF and carbon markets. Analysis of these interactions is guided by the CTF's Investment Criteria on these interactions, which state:

> "…The CTF should aim to go beyond the scope of the CDM, whilst remaining open to co-supporting eligible projects and technologies. In practice this means that the CTF would not fund projects that would be routinely financed by CDM. Rather the CTF could fund technologies that CDM is failing to deploy at scale or where CDM is unable to provide support – such as financing long distance transmission and many cases of buildings or transport energy efficiency. The key decision criterion is whether carbon

[3] For consistency in data, figures have been drawn directly from investment plans as reported by CTF countries. However, it is important to note that the accounting of carbon finance leverage, and the precise definitions of which project elements are generating which types of finance, may vary between investment plans.
[4] Not all projects identified in India's investment plan are yet in the CTF pipeline but instead are planned CTF activities; they are included here based on the request of the CTF Trust Fund Committee for both current and planned interactions.
[5] Based on UNFCCC CDM registry as of 20 September 2012

finance is an insufficient incentive to deploy the low carbon technology at scale in the recipient country" (Paragraph 28, CTF Investment Criteria, February 2009).

16. The interactions between the current and planned CTF portfolio and carbon markets can be analyzed against these criteria. There are a number of variables that denote whether the CTF is funding technologies that CDM is failing to deploy at scale or where CDM is unable to provide support (see Table 2 for supporting data).

Share of carbon finance in CTF projects

17. While leveraged carbon market finance totals over US$1billion within both current and planned CTF activities, this equates to just 5.7% of total leveraged finance (much of which is on commercial terms) across the twelve projects in question (Figure 1). This small portion of carbon finance suggests that concessional CTF finance does not artificially promote carbon finance operations or distort the market; rather it indicates that CTF projects are operating in sectors and locations that are able to attract commercial finance but that are not business-as-usual CDM operations and so are not attracting a high proportion of carbon finance. As noted above, carbon finance is usually obtained by project sponsors after the commercial operations or a project, whereas CTF financing is providing upfront to fill a funding gap required for capital expenditures.

18. This is supported by analysis of the nature of CTF projects in which carbon finance is leveraged (a-e below):

a) **Sector of intervention:** This is supported by comparing the sectors in which CTF projects are operating with those traditionally funded within the CDM. Annex 1 compares the sector of intervention for CTF projects[6] with the total CDM portfolio[7]. This data illustrates that CTF projects are not operating in sectors usually supported by the CDM. Within Viet Nam, for example, there are no registered CDM projects focused on energy efficiency; the CTF project will catalyze the first carbon finance in this area in the country.

b) **Scale:** In countries where there is more significant overlap between thematic CTF projects and the CDM portfolio, the *scale* of CTF activities puts projects beyond the realm of traditional CDM activities. This principally applies to Thailand's Private Sector Renewable Energy Program, which covers solar, wind, and waste-to-energy themes, where the CTF is promoting regulatory and incentive changes to promote greater private sector investments at a sectoral-scale. While solar, wind, and waste-to-energy account for 27.4% of Thailand's registered CDM projects, these activities are focused on specific installations rather than promoting investment changes at an economy-wide scale as in the CTF project.

c) **Technology choice:** The specific technology choices within CTF projects suggests that the CTF is not only operating beyond the parameters of standard

[6] Those projects that are leveraging carbon finance
[7] Registered projects

CDM projects but actually leveraging carbon finance in new technologies (Table 2). For example, Table 2 shows that India's solar park projects (a mix of both CSP and PV) overlap with just 0.93% of registered CDM projects in India.

d) **Location of activities:** CTF activities that leverage carbon finance are largely operating outside those areas where registered CDM projects are clustered. Within Colombia (which already only accounts for 0.93% of registered CDM projects), CTF support for Bus Rapid Transit activities is focused in Bogota where only 2.44% of CDM Colombia's CDM portfolio is present. This includes just one other registered CDM project on mass transit, registered in 2006 when projected carbon revenues were significantly higher and so investor risks were significantly lower.

The location of some CTF activities that leverage carbon finance are also taking a programmatic approach—something still evolving under the UNFCCC framework. In Mexico, for example, CTF activities will operate as a program of activities across multiple locations—going beyond the project-level approach of the majority of CDM activities.

e) **Policy Dialogue and Capacity Building:** Through investment plan preparation and project implementation a number of MDBs are providing capacity building and technical assistance to recipient countries, both to facilitate access to international carbon markets and to support the development of domestic markets.

19. The rationale for CTF financing over carbon finance is presented in investment plans and provides additional qualitative details to the quantitative analysis above:

"Carbon finance can provide some financial support, but this is not sufficient to overcome the cost and risk barriers... CTF can provide a catalytic role in reducing or eliminating first moved risk for utility-scale RE projects, and foster accelerated replication and scale-up in the near term" (Thailand Private Sector RE Development Project, Annex I to revised Investment Plan, February 2012)

"CTF funding, structured appropriately, [is] still required for projects that are expected to receive carbon revenues, both in situations when (i) carbon revenues are not sufficient to make the project feasible, and (ii) when the risks of receiving such revenues is perceived to be excessively high so as to prevent a project from taking place" (Colombia Investment Plan, March 2010)

"Carbon finance can provide some financial support, but is not sufficient to overcome the cost and risk barriers noted above… CTF can support reduction or elimination of the technical risk associated with the operation of unprecedented scale of capacity addition of renewable power generation (nearly 4,000 MW of solar and wind is expected to be evacuated from the renewable energy hotspot in Rajasthan)" (India Investment Plan, November 2011)

20. Overall, the CTF appears to be striking a good balance between moving beyond the realm of CDM while at the same time encouraging some carbon market investment in new technologies or scales. The CTF is promoting activities that are:

a) at a greater scale than average CDM projects;

b) in sectors not traditionally financed by carbon finance;

c) promoting technologies that are not common in most CDM projects; and

d) in locations within countries that are not benefitting from carbon financing.

21. Analysis therefore suggests that the CTF is operating in line with its investment criteria and that projects are operating outside the traditional CDM portfolio. Moreover, in some cases the CTF is actually providing finance that absorbs sufficient risk and thus catalyzes new carbon finance.

V. CROSS-CUTTING ISSUES AND RECOMMENDATIONS

22. This section builds on the analysis in Section IV and considers the interactions between the CTF and international carbon markets in terms of wider policy and strategic questions:

a) **Risk of over-subsidy:** Based on the activities outlined in the five investment plans in question, as well as initial figures from approved projects, there is little evidence of over-subsidy of the market. Moreover, additionality rules within the CDM itself would preclude the registration of these projects if it was found that they were taking place regardless of the market. As such, there is a double check on over-subsidy, both with the CTF and CDM criteria. The weak carbon prices at present further reduce risks that CTF finance is distorting markets.

b) **Dilution of Mitigation Impacts**[8]: Given that the many CTF projects are not yet registered under the CDM/JI it is difficult to assess the extent to which dilution may be occurring. However, because CTF is an input to the financing of the project, whereas CDM relate to carbon credits that are being generated on the basis of the project's operations (e.g. electricity generation over time), the two finance streams are therefore not directly related. Moreover, for JI (such as the case of Ukraine), projects do reduce GHG emissions even if credits from them are sold, as the participating countries in JI are subject to Kyoto Protocol targets, whereas host countries within the CDM (non-Annex I countries) are not. Therefore by selling a JI credit, the recipient country is lowering its own emission allowance by one credit.

c) **Difficulties in Carbon Accounting:** Accounting and attribution of carbon reductions from projects remains a challenge. This relates to both CTF projects in

[8] Dilution of impacts refers to a scenario where public finance is used to finance projects that generate carbon credits, and where these credits are then purchased by a company within an Annex I party to the Kyoto Protocol to increase their emission allowance, thereby reducing mitigation impacts.

general as well as those with carbon market leveraged finance[9]. In projects where carbon markets are leveraged, carbon market investors may register the entire project under the CDM for CER issuance, while CTF results frameworks may simultaneously monitor and report the same reductions, thus causing a risk of double counting. However, within the CDM there are specific guidelines that determine the use of Official Development Assistance (ODA) in projects, mainly related to ensuring the additionality of CDM projects. Moreover, from the perspective of ODA policy-makers, the OECD-DAC has developed detailed guidelines on the role of ODA within the CDM. These guidelines should avoid double counting and should be used when accounting for emission reductions under the CTF.

d) **Getting the Best Mix of Upfront and Performance-based Finance:** At present the CTF does not employ carbon payment instruments, such as payment-for-results programs. The efficiency of CTF financing may be increased if payment-for-results instruments were available to support specific types of activities that are better suited to post facto finance but not suited to CDM financing (e.g. activities for which the carbon price is too low to incentivize upfront capital investments).

23. In response to these points, the CTF Trust Fund Committee may wish to consider a number of further actions:

a) **Further work on accounting of carbon finance:** As the CTF moves to implementation, procedures to measure the actual carbon credits issued (and the associated revenue stream) within projects partly financed by CTF, may be worthwhile to explore developing. However, in some cases this may be complicated (e.g. guarantees to the private sector) and in others this information may be confidential. This might also improve overall results monitoring from CTF investments.

b) **Use of public performance-based instruments:** Guidelines could be developed for CTF financing to be used for program-for-results (or payment-for-results, results-based payments) instruments in public sector projects. To develop such an approach, the CIF could draw on the accounting and methodological approaches from carbon finance (e.g. baseline assessments, permanence measurements, etc) to provide resources against agreed results, such as GHG reductions. Such guidelines should strive to facilitate an efficient combination of up-front and performance-based financing while still moving beyond the activities financed by the CDM. A variation of this approach could be to use a "buyer of last resort" approach, underlining the additionality to any available carbon markets.

The CTF Trust Fund Committee could consider some general recommendations to guide the most effective combination of program-for-results instruments with up-front financing.

[9] At present there are no harmonized MDB guidelines on the accounting of GHG reductions from CTF projects; however, an MDB working group is to define such an approach.

VI. EMERGING OPPORTUNITIES

24. There are a number of areas across other parts of the CIF where similar linkages could be elaborated in the context of discussions on the future of the CIF:

a) **Forestry**: the use of program-for-results instruments for REDD+ offer significant opportunities to scale up the impact of the FIP. FIP Investment Plans already envisage large-scale investments in reduced deforestation; results-based payments schemes, such as those that will be provided by the Forest Carbon Partnership Facility (FCPF), could replicate early-stage activities in pilot countries and build on readiness activities already contained within investment plans. Such activities offer a potentially high leverage effect given the large scale bilateral pilots schemes currently planned.

b) **Low Income Countries**: there is an increasing focus on promoting carbon market activities in low incomes countries. In particular, the European Union will only buy CERs from CDM projects in Least Developed Countries (LDCs) moving forward. Within SREP, which is focused on low income countries, three participating countries (Ethiopia, Kenya, Mali) have stated within investment plans their intention to explore leveraging finance from carbon markets. Pilot countries plan to conduct feasibility assessments and preparation activities to facilitate CDM accreditation of projects in the future.

c) **Domestic Markets**: a number of CIF participating countries have established or plan to establish varying forms of domestic markets. CIF resources can support these domestic approaches through pilot activities, as well as a range of financial instruments for private sector developers. Some of these more advanced proposals also plan to take advantage of the new market mechanisms currently under development within the UNFCCC. Existing facilities, such as the Partnership for Market Readiness at the World Bank, are making plans to pilot these new instruments. A potential area for CIF investment support to nascent domestic markets is through use of Advanced Market Commitments to provide price security for credits until a new global market is established with a floating price.

Table 1: Estimated Carbon Market Revenues within Endorsed CTF Investment Plans that Quantify Carbon Market Leverage

Investment Plan	Project	Endorsed /Approved	Sector	MDB	Total CTF Finance (USD millions)	Expected Total Leverage (USD millions)	Expected Carbon Finance Leverage (USD millions)
Colombia		Mar 10					
	Sustainable Transport System(SITP)	Pending	Transport	IBRD	40	1,265.8	15
	Sustainable Transport System (Bogota)	Pending	Transport	IDB	40	960.0	15
Mexico		Jan 09					
	Urban Transportation Project	Oct 09	Transport	IBRD	200	2,200	50
	Efficient Lighting & Appliance Project	Sept 10	Energy Efficiency	IBRD	50	600	150
	Energy Efficiency Program (#1)	May 11	Energy Efficiency	IDB	24.40	109.5	32.5
	Public Sector Energy Efficiency	Pending	Energy Efficiency	IDB	51.6	231.5	68.8
Thailand		Dec 09					
	Private Sector Renewable Energy Program	May 12	Renewable Energy	ADB	100	1,420	100
Viet Nam		Dec 09					
	Industrial Energy Efficiency	Pending	Energy Efficiency	ADB	50	215	10
India		Nov 11					
	Rajasthan Solar Park	Pending	Renewable Energy	ADB	200	4,750	260
	Gujarat Solar Park	Pending	Renewable Energy	ADB	150	2,900	150
	Maharashtra Solar Park	Pending	Renewable Energy	ADB	150	2,900	150
	Integrated Solar Hybrid Project	Pending	Renewable Energy	ADB	50	400	20
Total							1,021.3

Figure 1: Expected Carbon Market Resources within Endorsed CTF Investment Plans By Project (USD millions)

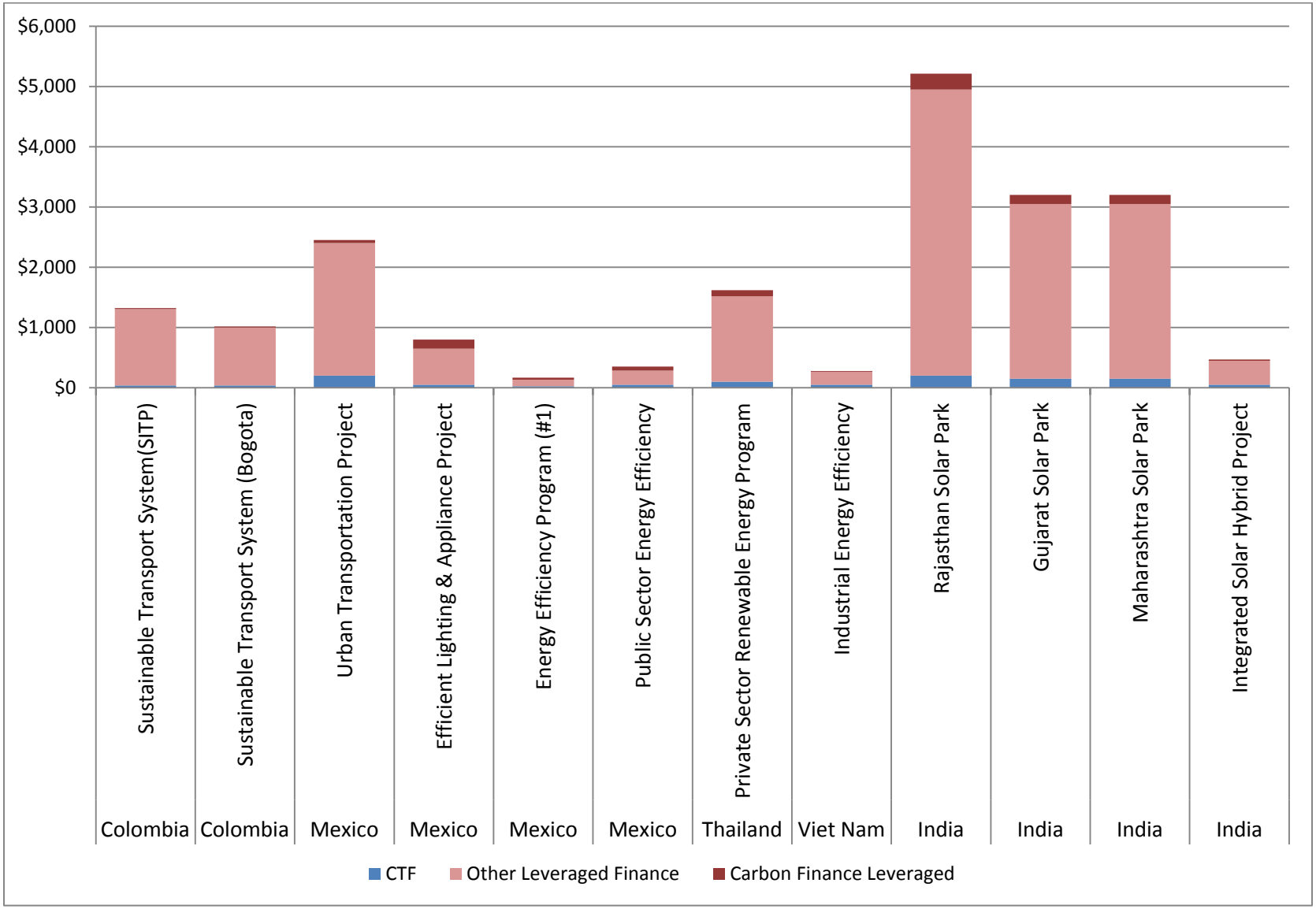

Table 2: Comparison of CTF projects with CDM Pipeline

(Data drawn from endorsed CTF investment plans and UNEP Risoe CDM Pipeline database August 1 2012 version: http://www.cdmpipeline.org/)

Investment Plan	Project	CTF Sector	Total CTF Finance (USD millions)	Total Leverage (USD millions)	Carbon Finance Leveraged (USD millions)	# of Registered CDM projects in country		CDM Sector		CDM Technology/Subsector		Location
						Total	% of total CDM	CDM Sector	% of CDM projects in country		% of CDM projects in country	% of country's CDM projects in same location
Colombia												
	Sustainable Transport System(SITP)	Transport	40	1,265.80	15	41	0.93%	Transport	12.20%	Bus Rapid Transit	9.76%	N/A
	Sustainable Transport System (Bogota)	Transport	40	960	15	41	0.93%	Transport	12.20%	Bus Rapid Transit	9.76%	2.44%
Mexico												
	Urban Transportation Project	Transport	200	2,200	50	142	3.24%	Transport	2.11%	Bus Rapid Transit	2.11%	N/A
	Efficient Lighting & Appliance Project	Energy Efficiency	50	600	150	142	3.24%	Energy Efficiency	2.82%	Appliances	0.00%	0.00%
	Energy Efficiency Program (#1)	Energy Efficiency	24.4	109.5	32.5	142	3.24%	Energy Efficiency	2.82%	Various	2.82%	N/A
	Public Sector Energy Efficiency	Energy Efficiency	51.6	231.5	68.8	142	3.24%	Energy Efficiency	2.82%	Various	2.82%	N/A
Thailand												
	Private Sector Renewable Energy Program	Renewable Energy	100	1,420	100	73	1.66%	Solar, Wind, WTE	27.40%	Solar, Wind, WTE	27.40%	N/A
Viet Nam												
	Industrial Energy Efficiency	Energy Efficiency	50	215	10	130	2.96%	Energy Efficiency	0.00%	Various	0.00%	N/A
India												
	Rajasthan Solar Park	Renewable Energy	200	4,750	260	858	19.56%	Solar	1.63%	PV	0.93%	0.23%
	Gujarat Solar Park	Renewable Energy	150	2,900	150	858	19.56%	Solar	1.63%	PV	0.93%	0.12%
	Maharashtra Solar Park	Renewable Energy	150	2,900	150	858	19.56%	Solar	1.63%	PV	0.93%	0.00%
	Integrated Solar Hybrid Project	Renewable Energy	50	400	20	858	19.56%	Solar	1.63%	PV	0.93%	N/A