

# CLIMATE INVESTMENT FUNDS

June 7, 2010

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**CLEAN TECHNOLOGY FUND – INVESTMENT PLAN FOR VIETNAM**

**SUPPLEMENTAL NOTE**

DATE: May 28, 2010

## Clean Technology Fund – Investment Plan for Vietnam

### Supplementary Note

1. The CTF Trust Fund Committee, on 2nd December 2009, endorsed the Vietnam Investment Plan, and requested the submission of a supplemental note which should (a) review the allocation of CTF resources and prioritize; and (b) respond to the questions from Committee members:

"Noting the reservations of several Members on the use of CTF resources for certain components of the investment plan, the Trust Fund Committee requests the Government of Vietnam and the MDBs to prepare a supplemental document addressing the questions and concerns of the Members. The Government and MDBs are also requested, taking into account the investment criteria of the CTF, to begin a process of reviewing the allocation of the CTF resources to the proposed components of the plan and providing further analysis on the prioritization of activities and to elaborate upon the process in the supplemental document so as to ensure that priorities consistent with CTF criteria are agreed before any projects are submitted to the Committee for approval."

2. The participating MDBs appreciate the Committee's guidance and herewith submit the requested supplemental document.

#### **I. Prioritization and reallocation of CTF resources**

3. The CTF investment plan for Vietnam, as initially proposed, allocated US\$150 million to three ADB projects: industrial energy efficiency (\$50m), high voltage transmission (\$50) and urban transport (\$50). Taking into account the review comments from the CTF trust fund committee members, the ADB – in consultation with the Government of Vietnam – has concluded that while the proposed new conductor technology for high voltage transmission does have a system loss reduction potential for Vietnam's power sector, more analytical work is needed to confirm the advantages of the technology and consistency with CTF investment criteria. Therefore, the ADB proposes to undertake further analysis and pursue this project with an alternative funding at a later stage.

4. ADB proposes to reprioritize the CTF funding for Vietnam and reallocate the US\$50 million from the transmission line project to urban transport activity. With this reallocation, the urban transport activity will now receive US\$ 100 million. This reallocation also addresses the comment from Germany which suggested that the urban activity was under-funded and could benefit from additional funds.

5. The increase of \$50 million of CTF financing for support to urban transport will allow both (i) new measures and expansion of existing measures for HCMC MRT, and (ii) application of some similar measures for Hanoi metro. For HCMC, the extent of the proposed bus system improvements (route planning, management and operation improvements, bus priority measures, fuel efficient buses), MRT feeder routes extension and station exchange facilities can be extended to cover the MRT Line 1 project

(that is being implemented on about the same schedule as MRT Line 2). In addition, new measures could be introduced in HCMC to support development of sustainable urban transport policies and extension of the ticketing system to buses. For Hanoi, the additional financing can be used for implementation of bus system, MRT feeder routes and some station exchange facilities for both Line 3 (ADB funded) and Line 1 (Japan funded) which are due to commence construction in 2011.

6. The IBRD and IFC projects are unaffected by this amendment of the investment plan. A revised financing plan (Table 12 of the Investment Plan) for the Vietnam investment plan is given below.

Table 12: Project Financing Plan (indicative, US\$ million)

Financing Source	Proposed Programs and Projects				
	Industrial Energy Efficiency (ADB Annex 1)	Urban Transport (ADB Annex 3)	Smart Grid Technology (IBRD Annex 4)	Clean Energy Financing Facility (IFC Annex 5)	Total
MDBs	40	500	180	200	920
GOV	25	100	100	0	225
CTF	50	100	30	70	250
GEF	0	0	0	0	0
Carbon Finance	10	0	0	0	10
Other Co-financing	40	500	0	0	540
Private Sector	100	0	0	900	1,000
TOTAL	265	1,200	310	1,170	2,945

Part II of this document provides answers to related questions from CTF Committee members.

## **II. Answers to the Committee's questions**

7. The attached table contains the responses that were prepared by the participating MDBs and the Government of Vietnam regarding their respective investment proposals. The table does not include responses regarding the high voltage transmission project since this project is no longer being considered for this investment plan.

Project and Questions	Response
Industrial Energy Efficiency Project (ADB)	
The EE and ESCO activity is not reported to lead to any emissions reductions. Please clarify. (Australia)	Paragraph 46 and Table 6 of the Investment Plan (IP) note that "direct" funding for industrial EE is expected to achieve 1.8 MtCO <sub>2</sub> e/y reductions; replication and scale up are expected to achieve an additional 7.8 MtCO <sub>2</sub> e/y in the cement industry, and the ESCO components are expected to achieve an additional 10 MtCO <sub>2</sub> e/y.
Waste heat recovery and other conservation measures in ten cement enterprise – the payback period for such projects is very short and hence it is recommended that such projects being financed by commercial banks rather than using CTF funds. (Germany)	<p>Experience from around the world and throughout Asia have shown that while waste heat recovery and similar conservation projects may have short financial payback periods, they continue to face several barriers that prevent them from obtaining the requisite finance. This is particularly true in Viet Nam. Project owners often have limited financial resources and prefer to deploy internal resources to finance expansion efforts which typically have higher rates of return. Financial institutions often are unfamiliar with EE projects, and are discouraged by the lack of "assets" and a "direct" revenue stream, both of which result in their attributing a higher risk profile to such projects. In many cases, the EE equipment suppliers are hesitant to provide performance guarantees citing their lack of involvement in refurbishment of the rest of the plant, or control over ongoing operations and maintenance. Further, a lack of mid to large-sized ESCOs that have the technical capability and the financial resources to undertake BOO or BOT projects further impedes the implementation of such projects. In Vietnam, commercial banks are currently not financing EE projects due to the above mentioned concerns.</p> <p>Experience from WB-supported projects in Eastern Europe, China and India have shown that TA, concessional debt (e.g. dedicated lines of credit) and credit guarantees can help support the development of a competitive ESCO market, while helping to quickly scale-up conservation-related investments in specific sectors. For example, in India, the Indian Renewable Energy Development Agency (IREDA) was able to access a line of credit from the World Bank to develop a series of EE projects involving waste heat recovery in the sponge iron sector.</p>
The demonstration potential of the energy efficiency measures is relatively small since it is focused only on one segment. Why not tap into	Industrial EE opportunities are being evaluated under ADB TA 7024-VIE. Similarly, the World Bank Carbon Finance Assistance Program has also evaluated opportunities in the energy, industrial and transport sectors. Both the ADB and WB have independently concluded that the energy savings potential is highest in the

Project and Questions	Response
<p>other segments and industries as well. Also, how will the potential in the remaining 75% of the cement sector be addressed? Clearer articulation of the transformational potential of the industrial EE component. Please provide additional detail on the rationale for this investment moving beyond BAU given likely rates of return and how this will result in industry-wide scale up of measures. (Germany)</p>	<p>cement sector. For example, results of a survey undertaken under ADB TA 7024-VIE across the steel, chemical, plastic, and food and beverage sectors, concluded that the cement sector in Viet Nam is highly energy intensive when compared to global benchmarks (4.6 GJ/T versus 3.4 GJ/T). ADB therefore proposes to initially focus on this sector using cement industry to establish a business model.</p> <p>The proposed activity will rapidly achieve a critical mass within the sector (10 plants totaling 25 percent of the total cement production). The financing mechanisms(s) are to be determined during the detailed project preparation stage. It is likely that in the case of the larger plants, financial intermediation would be necessary and would involve credit enhancement (e.g. partial credit guarantee or risk-sharing facility) instruments that will catalyze commercial bank financing. In the case of smaller cement plants; ESCOs may utilize a turnkey implementation approach to undertake energy efficiency projects. These ESCOs, however, would need financing assistance from the EE Fund or other sources.</p> <p>As suggested, ADB will consider inclusion of other segments and industries when developing the project proposal for CTF consideration.</p>
<p>The IP would benefit from a more clear strategy for using funding through ESCOs. (United States)</p>	<p>Viet Nam is developing a strategy to support ESCOs under its draft energy efficiency and savings (EES) law. The ESCO industry in Viet Nam is in its infancy. Existing firms mostly offer technical design services and/or sell equipment (acting as agents for several brands). A detailed set of interventions to support the development and scale-up of the ESCO industry will be designed as part of the project preparatory technical assistance efforts to be supported by the ADB. These interventions will draw on best practices gleaned from experience in China, Russia, India and Thailand. Among other areas, the envisioned assistance includes:</p> <p>Technical assistance for conducting investment-grade energy audits</p> <p>Increased access to financing for ESCOs, including concessional debt, risk guarantees, and even equity.</p> <p>Design and implementation of portfolio-based approaches as such as DSM bidding programs</p> <p>Assistance for the identification of carbon finance opportunities linked to the proposed EE projects and facilitating access to sources of carbon finance including the CDM.</p>

Project and Questions	Response
Urban Transport Program (ADB)	
<p>We suggest that project documentation provides additional detail on what the CTF funding would actually deliver, and what government policies are in place, or are planned, to support successful outcomes. (Australia)</p>	<p>The intention of the urban transport component is to encourage modal shift to public transport and discourage the expanded use of more carbon-intensive transport modes (cars, large vehicles). This will be achieved through: (1) restrictive parking and/or more realistic pricing of vehicle operation costs in urban areas (e.g options for congestion charging will be evaluated); (2) higher use of non-gas fuel vehicles (electric, CNG); and (3) integrated bus services and increased use of more efficient modes of private vehicles (smaller vehicles/class) through supportive regulation and (possibly) financing incentives. The intent is to restrict the unconstrained growth of private vehicles (both cars and motorcycles) being used for urban transport, and reduce the absolute numbers of all private transport vehicles compared to a "business as usual" scenario for urban transport growth. Government policies and regulation to support these measures are outlined in the urban master plans.</p> <p>CTF resources are not sufficient to address all the measured identified above. Further more,</p> <p>ADB is supporting an ongoing project preparatory TA to more clearly evaluate the costs and benefits of the various measures, overall GHG reduction potential and replicability to other cities and metro lines. The results of this TA activity will help further refine the investment project to be submitted for approval in 2010, including the identification of specific measures to be supported by the CTF resources.</p>
<p>With respect to the co-benefits (para 67) it is not reflected that urban public transport provides corridors for the development of (sub-) urban development patterns. Only with the early setup and upgrading of public transport, municipalities can counteract the urban sprawl which leads to long distances with high transport emissions. In</p>	<p>It is agreed that the changes in the urban transport infrastructure will influence future urban development patterns. Several proposed MRT lines within the urban transport masterplans for Ho Chi Minh City and Hanoi are linked at the end to proposed localised, intensive, city development plans in order to reduce urban sprawl. It is also agreed that the non-GHG co-benefits that may accrue from public transport up gradation can be significant and total project benefits go well beyond GHG reductions. These benefits will be identified and quantified during the detailed design of the proposed measures.</p>

Project and Questions	Response
<p>addition, public transport reduces, besides GHGs, other local air emissions in urban areas that affect public health (e.g., respirable dust) and diminish accident rates and severity. (Germany)</p>	
<p>The total costs stipulated (in Table 12) cannot consider measures in both cities co-financed by ADB; even the costs for the metro line 2 in HCMC exceed the stipulated figure. Thus for the two cities, HCMC and Hanoi, with a total investment volume of at least 2,400 million USD, only 50 million USD CTF-Funds are stipulated. It is strongly recommended that at least 50 million USD of CTF funding should be made available for each city by the CTF in order to make these highly climate friendly projects financially viable. (Germany)</p>	<p>The figures in Table 12 represent the total investment for the metro project ( line 2), that ADB will co-finance in HCMC. The proposed \$100 million (increased from the earlier allocation of \$50 million) will finance the piloting of a few of the additional priority sustainable urban public transport measures linked to the ADB-financed metro line project (described above). It should be noted the total estimated cost for the piloting of all relevant measures will be in the range of \$ 1.5 – 2.0 billion.</p> <p>Similar measures would be appropriate and desirable in the case of Hanoi as well. However Hanoi metro line 3 project is at an advanced stage of project development. The feasibility study was approved in early 2009 (prior to the CTF investment plan development process). Making modifications at this stage to incorporate measures to be financed by the CTF would require approval by the Prime Minister's office, and will cause a long delay in project initiation. It is for this reason that the implementing agency for the metro project had declined to apply for CTF funds under the ADB loan.</p>
<p>From an environmental point of view a strong focus of the most effective components should be given in order to maximize the reduction of the CO2-Emissions output of Vietnam. In general the relationship between the intended co-financing of CTF is clearly biased. The industrial</p>	<p>It is agreed that CTF support should be focused on sectors that are currently commercially non-viable and are in need of a greater proportion of concessional support. In the case of the urban transport project, the investment costs for the metro lines are very large, relative to the CTF funds that are available. Therefore, the ADB has decided to focus CTF funds on commercially non-viable urban transport projects that are linked to the metro line. This includes parking schemes, piloting of hybrid buses and the initial subsidization of new bus routes (with subsidies phased out as ridership increases and routes become more commercially</p>



Project and Questions	Response
<p>energy efficiency program accounts for a CTF ratio of about 19 % of total costs. For the urban transport sector CTF stipulates only a rate of 4 % of the total costs. This does not reflect the matter of fact that public transport investments are commercially non-viable and needs subsidies. (Germany)</p>	<p>viable). Within these areas, CTF funds can have a truly transformational impact.</p>
<p>Taking into account the rapidly growing urbanization in Vietnam, we consider the replicability of the urban transport investment as significant. (Germany)</p>	<p>Replication of investments is high with ADB co-financed projects representing only two out of eleven proposed MRT lines in both cities. The actual replication of CTF is higher than indicated Table 12 as the "Direct Reductions with CTF" are actually lower than originally indicated due to an erroneous assumption that reduced the ratio (see comment on scalability below)</p>
<p>We consider this component as highly relevant in the CTF context due to the expected co-benefits, funding requirements and implementation potential and request to shift additional CTF resources towards this component. (Germany)</p>	<p>Agreed. As discussed earlier, ADB proposes to reallocate \$ 100 million to the urban transport activity (increased from \$ 50 million)</p>
<p>The urban rail project (Annex 3) which seems to have very limited scalability (direct emissions reductions 1.3MtCO<sub>2</sub>e, scaled up 1.6 MtCO<sub>2</sub>e – Table 6, page 18 – though clearer development benefits para. 24). (UK)</p>	<p>The urban rail figures as indicated in Table 6 have limited scalability in Viet Nam as HCMC and Hanoi are the only two cities where urban rail could be implemented, as all secondary cities have a population well below 1 million and are not yet highly urbanized. However, on further review of the limited scalability issue, it was determined that an erroneous assumption had resulted in the "direct reduction with CTF" of 1.3 MtCO<sub>2</sub>e to have already included the scalability for all HCMC, not just metro line 2 that is co-financed by ADB. (This was because whilst some potential measures like parking restrictions will have city wide effect, most measures will be limited to vehicles in the zone of influence of line 2 only). The direct reduction from CTF financing is only 0.26 MtCO<sub>2</sub>e. The relevant tables and text will be amended accordingly.</p>
<p>Supporting Development of a Smarter</p>	

Project and Questions	Response
Transmission Grid (IBRD)	
<p>The plan would benefit from a more detailed discussion of the potential for subsequent uptake of the technologies demonstrated in the transmission-related projects. Both programs will result in long-term cost savings. In both cases the subsequent investments will be made a single public utility. Is there a strategy for reinvesting the cost savings into further deployment of the technologies? (US)</p>	<p>The purpose of the demonstration is to build confidence in the technologies as to both their technical and financial performance. Confidence in technical performance can be measured in terms of the ability of the new technologies to improve system operations and, in particular, to reduce losses. Financial performance to some extent follows from this by demonstrating that the benefits of the investments exceed the costs. Assuming that the demonstration is successful then the NPTC will have strong incentives to reinvest cost savings and invest additional capital in wider deployment of the technologies. Moreover, as confidence with the technologies improves, NPTC can be expected to experiment with increasingly sophisticated technologies which further improve technical and financial performance, thus creating a virtuous circle. The vehicle for doing this is the five-yearly planning cycle which calculates least cost expansion of the transmission system and so impacts of the CTF can be relatively easily monitored.</p>
Private Sector Financing Program for Energy Efficiency, Cleaner Production and Renewable Energy (IFC)	
<p>EE and RE risk sharing facility and RE fund: We note that the projected transformation potential appears relatively low (0.5 times, according to our own calculations). Has consideration been given to how this might be increased? (Australia)</p>	<p>In the IP, we have used a conservative basis for estimating transformation potential. We will further review this as we prepare the CTF subprogram proposals. Given the inputs we have received from private sector clients to date, we are likely to have a higher figure for emissions reductions. For EE and RE risk sharing (EE Financing through FIs), direct reduction with CTF could be around 3-4MtCO<sub>2</sub>e/y (instead of the 1.235 figure in Table 6) . In order to achieve highest market transformation potential, in addition to the specific investment activities, our proposed program will be supported by advisory services that will collect best practices in EE/RE and share them with market participants.</p>
<p>EE and RE risk sharing facility and RE fund: Is it possible to provide more detailed justification for scale of funding and how funds will be used? (Australia)</p>	<p>The proposed CTF interventions in EE and RE will be tailor made to each program/project according to the barriers being addressed. They may include risk sharing facilities, lines of credit, mezzanine finance facilities, direct financing and capacity building programs to help address barriers including higher costs, perceived risks, and risk averse investment policies in the local markets. The scale is due to the major challenge these</p>

Project and Questions	Response
	<p>enterprises face which is the lack of access to finance given the constraints in the local market, exacerbated by the lack of access to high-quality and affordable advisory services. IFC will leverage its skills, relationships and innovative financing structures to maximize the effective use of CTF so that the much needed RE/EE investments elaborated in the IP will be scaled-up on an accelerated basis. The use and scale of funding will be further elaborated in the CTF subprogram proposal based on the specifics of each case. Finally, the IFC program is not intended to invest in the government's RE fund. IFC's program in EE and RE will be either through FIs or through direct investment.</p>
<p>Private sector support for renewable energy development: Against the background of the established regulatory framework (fixed feed-in-tariff for small hydro power plants; PPA's etc.), CTF funds are not needed to incentive financial institutions and local developers to invest in small hydro (which will be most likely the predominantly part of the component.) Over the past years renewable projects in Vietnam have become more economically attractive. A 2006 study found that many small hydro projects were below avoided cost, which is below the cost that EVN, the national power company, would incur if it were to generate the power by itself. Moreover, World Bank, KfW and other donors have already started or intend to start similar programs for Renewable Energy. In contrast to sufficient funds, a lack of experience exists in terms of environmental -and social impact assessments, supervision and monitoring of renewable energy projects. Consequently, CTF investment finance is not the key bottleneck, but</p>	<p>On the private sector side, RE programs would include biomass, wind and solar, and possibly some small and medium size hydro power if proven justifiable. For all investments, the program would address the question of additionally. The programs will use the CTF resources in the most effective and efficient manner, and support projects that would otherwise not happen without CTF. We will further elaborate on the use of CTF funding in our upcoming CTF subprogram proposals.</p> <p>Further on hydro, some hydro projects with good project parameters are considered economic and profitable to some degree under the current tariff policies. However, significant amount of hydro resources are still facing barriers. We estimate there are at least 200 small to midsize hydro projects that require longer term financing. Local banks do not have the long term resources to lend to these projects. Also, further scale-up of hydro projects could be established if more local FIs had the capacity to address the technical and environmental issues related to hydro. Taking the local market conditions into consideration, if proven justifiable, IFC may prepare a CTF subprogram proposal that includes working with local FIs to enhance their capacities and provide financing for a portfolio of RE projects that could include small/medium hydro.</p>

Project and Questions	Response
<p>rather the provision of tailor-made technical assistance.</p> <p>In contrast, other Renewable Energy projects than hydropower like wind, biomass and solar energy have received little attention in Vietnam for the time being. CTF funding would help substantially in overcoming the financial barriers for these projects.</p> <p>We would welcome to see the CTF contribution for this component increased. However, we would like to see appropriate measures in place that would ensure that commercially viable hydropower projects will not receive CTF funding. (Germany)</p>	
<p>Private Sector Renewables: This proposal will need to place a strong emphasis on sector analysis, the identification of barriers to investment – including with regard to the current legal and regulatory circumstances, and, most particularly, on the development of technical assistance activities to address those barriers. The proposal should also include discussion of other ongoing activities – MDB-sponsored and otherwise – and seek to leverage and build off those activities. We also think it will be very important that this program focus on renewable opportunities in sectors other than</p>	<p>We will take these suggestions into the CTF subprogram proposals. Please also refer to the response to Germany regarding small hydro. We feel there is still scope to further develop the small hydro sector in certain circumstances. These would be specifically addressed in any project proposal.</p>

Project and Questions	Response
small hydro. (US)	