



CIF CLEAN TECHNOLOGY FUND:
EMERGING PERSPECTIVES AND LESSONS LEARNED
FROM COUNTRY LEVEL PROGRAMMING

DRAFT LEARNING BRIEF AND CONSULTATIVE DISCUSSION PAPER

This publication is a work-in-progress and will be finalized after the discussions at the Partnership Forum.

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Overview

1. The Clean Technology Fund (CTF) offers countries incentives to move forward with the demonstration, deployment, transfer, and replication of clean technologies that reduce greenhouse gas emissions. The CTF aims to transform markets and accelerate low-carbon growth without sacrificing economic progress.
2. CTF financial support is provided on a programmatic basis, with recipient countries assuming the lead in developing strategic country programs that reflect national priorities. Governments develop investment plans in coordination with five multilateral development banks (MDBs)¹ and other key partners, including the private sector.
3. This programmatic and cross-sectoral approach to low carbon growth seeks to maximize the comparative advantages of development partners, eliminate duplication, and capitalize on the strengths of earlier initiatives. Bilateral development agencies and UN development institutions are engaged at the country level and may provide co-financing or parallel financing for complementary projects and technical assistance.
4. In many countries, CTF activities are coordinated by the ministries and agencies responsible for finance or planning, or both, which ensures high-level government commitment and integration with national strategies. The MDBs support the government-led process by working with countries to achieve the joint programming necessary to develop a country-led investment plan and finance scaled-up opportunities for low carbon development. Government leadership is vital for sustained resource allocation and institutional restructuring.
5. The CTF Trust Fund Committee, the governing body, has endorsed 14 CTF investment plans², which are projected to leverage an additional \$35 billion in co-financing on a \$4.4 billion CTF investment. This projected leveraging ratio of more than 1:8 represents a significant investment in climate change mitigation in CTF partner countries.
6. Scaling up climate finance, adapting and replicating clean technology models, and designing and implementing investments are at the heart of the CTF mission. Capturing the experiences and lessons emerging from these efforts, and sharing them with CTF's broad stakeholder community, enables effective stakeholder participation and supports national, regional, and global replication of CTF activities.
7. This Learning Brief is one of several tools designed to capture the lessons from the overall CTF experience. Others include regular CTF partner country meetings, the annual CIF Partnership Forum, an interactive web-based platform for communications and learning, and grant-financed country workshops.

¹ African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, and the World Bank Group, including the International Finance Corporation.

² As of December 2010.

8. The CIF Administrative Unit has commissioned an independent consultant to document country experiences and the lessons learned during CTF's design and early implementation phases, with a primary focus on four partner countries.³ The consultant visited all four countries, interviewed stakeholders and development partners, and reviewed relevant CTF documents. This CTF Learning Brief is distilled from the consultant's findings.

Key CTF Lessons

9. *Country Leadership:* Aligning investment plans with national strategies can strengthen country ownership and maximize the effectiveness of MDB interventions. CTF's potential to bring about the rapid deployment of low carbon technologies can only be realized when countries are in the driver's seat.

10. *Transformational Change:* By targeting priority sectors and niche markets with high potential, CTF investment plans create momentum to catalyze greater investment and help crystallize the kind of planning that can lead to market transformations.

11. *Leveraging:* The CTF's projected 1:8 leveraging potential reflects the attractiveness of innovative CTF investment and business opportunities, the effectiveness of the MDB partnership model, and the fact that large-scale CTF funding is available for technologies that reduce greenhouse gas emissions.

12. *Unique Partnership:* Coordinated action and collaboration by governments, MDBs, bilateral agencies, and other development partners is crucial to building synergies, eliminating duplication, and avoiding inefficiencies. CTF's programmatic approach is designed to support the capacity building, policy reform, and investments that are necessary for successful replication. MDB country assistance mechanisms, such as Development Policy Loans, can complement CTF investments.

13. *The Private Sector:* Scaling up clean technology and achieving transformational change in a country or region can only happen when the private sector is engaged and committed. To date, the private sector response to the CTF has been positive but limited. The challenge is to fully engage the private sector from the initial investment planning phase through full project implementation.

14. The Brief is based on three themes: country programming, MDB collaboration, and collaborations with the private sector and other stakeholders. The brief is intended to provide useful information to enhance and strengthen CTF's performance during full implementation. These early lessons will also inform country teams involved in the other CIF programs: the Forest Investment Program (FIP), Pilot Program for Climate Resilience (PPCR), and Scaling Up Renewable Energy Program in Low Income Countries (SREP).

³ Indonesia, Mexico, South Africa, and Turkey.

Country Programming

15. The CTF targets middle-income countries, where established institutions, skilled personnel, and relatively developed energy and transportation markets are the norm. The governments have a history of working with experienced financiers and investors, so the potential for sophisticated business and development opportunities is high. Nevertheless, these countries have policy and financing gaps that must be addressed before they can achieve low carbon growth. Following are the lessons learned from CTF's early experiences with country programming.

Country Leadership

16. **Country ownership is stronger and investment plans are timelier when the Ministries responsible for finance and planning play a leadership role, in close collaboration with sectoral agencies.** Experience has shown that country leadership is most effective and efficient when exercised by the Ministry of Finance in tandem with the Ministry of Planning. Both Ministries are well placed to consider broad as well as sector-specific development strategies. The Ministries of Energy, Transport, and Environment typically propose specific projects. They also provide relevant sectoral and technical information, including emissions data and abatement scenario options.

17. In South Africa, the Departments of Treasury and the Environment assumed joint ownership of CTF activities, working closely with the national power utility to implement grid-connected renewable energy projects. This collaboration strengthened the country's investment plan and garnered solid support from the CTF Trust Fund Committee.

18. In Mexico, the Treasury led the CTF process, with strong involvement from the Ministries of Energy and Transport. Two of the country's leading state development banks will implement and co-finance part of the investment plan. Their involvement will help build national capacity and is likely to encourage higher volumes of commercial lending for low carbon technologies in the future.

19. In Turkey, the Treasury played a leadership role by addressing policy needs and engaging local stakeholders. Local Turkish banks participated in funding energy efficiency and renewable energy lending programs in collaboration with the World Bank Group, including IFC.

20. **Government commitments to CTF are enhanced when investment plans are aligned with broader national strategies.** Countries with low carbon growth plans or climate change mitigation programs often have ongoing clean energy projects. These broader-focused national strategies provide the framework for introducing specific renewable energy, energy efficiency, and clean transport technologies. Because Mexico's investment plan builds on the strong, analytical framework of its 2009 Climate Change

Program, appropriate activities were identified quickly and have strong government support.

21. In countries with less developed climate change strategies or where the domestic impacts of the financial crisis detract from the government's ability to lead effectively, the MDBs play a more prominent role in the planning process. Overall, the CTF's vision that countries will strategically lead the investment planning process is largely being realized.

Stakeholder Participation in Planning

22. **National stakeholders, particularly technical experts and the private sector, can play a key role in the investment planning process.** Rapid investment plan preparation may enable the government to jump start project implementation and receive CTF funds quickly, but it also may lead to a greater reliance on existing partnerships. The fast-track approach that characterized several of the earliest investment plans limited the opportunities for full stakeholder consultation. In cases where even a few additional months were available for investment planning, a broader group of development partners and national stakeholders were able to contribute. Full stakeholder consultation requires appropriate outreach and feedback mechanisms.

23. Turkey was able to complete its investment plan in two months because of a history of planning and interactions with development partners. The government used the planning process as an opportunity to expand engagements with existing partners. The ongoing relationship between the government, private leasing companies, and state and privately-owned banks is continuing through EBRD's establishment of the Turkish Sustainable Energy Financing Facility. The collaboration is providing up to \$560 million in financing for renewable energy initiatives, independent of CTF funding.

24. Similarly, the Thai government encouraged Bangkok city leaders to become engaged in the investment planning process. Because the pace of the investment planning process was relatively slower, there was sufficient time and opportunity to enable their full participation. Their engagement helped focus the investment plan on reducing emissions in the urban area. The city officials provided accurate emissions baseline data that can be used to measure progress in mitigating greenhouse gas.

Mainstreaming

25. **Investment plans that support development goals can focus diverse stakeholders on a common program of action.** When shorter-term initiatives support longer-term country strategies, stakeholders are more likely to buy into specific projects that further national priorities. In Mexico, the government set a longer-term goal of reducing the carbon footprint of urban transportation by 20 percent. A fundamental part of this reduction is projected to come from the expansion of bus rapid transit systems. CTF funding enabled the government to provide incentives for municipalities to develop

efficient and convenient urban transit systems that have lower emissions. The new systems will help facilitate a shift to lower carbon public transportation and provide the poor with improved access to economic centers.

26. **Climate change mitigation can be accelerated when investment plans are mainstreamed into national low carbon development strategies.** Often, projects identified for possible CTF financing are derived from a country's existing climate change strategy, special initiatives identified by the government for CTF funding, or—in some cases—from the MDBs' pipelines. Those agreed strategies provide a menu of priority options and enable the quick development of a consensus-based investment plan. Early indications are that this coordinated approach helps to accelerate and mainstream action to mitigate climate change while promoting development.

27. Government-MDB coordination also facilitates the effective use of CTF resources for project investments that support sector development strategies. For example, Turkey and Mexico prepared their national low carbon development strategies just before preparing their CTF investment plans, which allowed the timely allocation of CTF resources. In Turkey, in particular, this led to the mainstreaming of lending for energy efficiency within a number of public and private bank operations.

28. Mainstreaming is also driven by pressure from private sector developers of innovative new technologies and financiers seeking to tap into the upside potential of these emerging opportunities.

Technology Transfer

29. **CTF funds support technology transfer as well as the scaling up of viable technology options that are already being deployed.** This flexibility to introduce sophisticated new technologies or build on existing ones highlights CTF's ability to adapt to individual country and regional circumstances. While facilitating technology transfer remains a challenge and the mechanisms to encourage technology transfer are still being worked out, the CTF promotes the adoption of readily deployable technologies within the context of each partner country. Investments in energy efficiency, for example, do not always require the transfer of new technologies. Retrofitting a production facility, developing creative business models, and providing technical assistance can also be used to achieve low carbon growth.

30. In Indonesia, the CTF is supporting the development of geothermal power, a stable technology already widely used in the country. The CTF funds will support the scaling up of national geothermal power generation and nearly double the currently installed capacity. Other donors are expected to co-finance additional geothermal projects. The CTF program could be used to facilitate the transfer of new technologies, such as the more advanced geothermal well-testing techniques and equipment being tested elsewhere, if they are deemed appropriate for Indonesian conditions. However, the specific mechanism would have to be determined.

31. In Mexico, the CTF is catalyzing the adoption of more energy efficient household appliances. Mexican appliance manufacturers have already begun producing more efficient models in response to increased consumer demand resulting from the CTF-funded energy efficiency program.

32. The CTF investment in the Middle East and North Africa (MENA) region⁴ and South Africa supports concentrated solar power (CSP), which has higher costs and risks than current energy options. The investments will help mitigate some of the initial risks by buying down costs and off-setting risks, thus encouraging domestic innovation and facilitating the transfer of CSP technology. When implemented, the investment plans for the MENA region and South Africa are expected to increase energy security, strengthen regional and sub-regional integration, and promote industrial growth and diversification.

Transforming low carbon markets

33. **An investment plan is more robust if it defines the specific transformational changes that will be achieved.** One of the CTF’s most important investment criteria is a program’s “demonstration potential at scale⁵”—in other words, its potential to stimulate lasting changes in a sector and lead to market transformation.

34. To meet expectations, the CTF needs to show that it has contributed to the elimination or lowering of major barriers to market transformation. This includes demonstrating the technical and financial viability of low carbon technologies, reducing their costs, increasing national capacity for deployment, and enhancing the policy and regulatory frameworks to enable expanded use. To this end, the CTF investment plans identify general sector-wide barriers.

35. During the design phase, information about the specific barrier-lowering results of each individual project or the transformational change in the target market is not available since projects have not yet been identified. This level of detail is generally included when individual project and program proposals are submitted to the Trust Fund Committee for approval. Defining such specific transformational changes clarifies the intended impact of CTF investments.

36. **In underdeveloped but promising niche markets, even limited CTF resources can significantly increase low baseline investments and lay the groundwork for transformational change.** Recognizing the importance of realistically leveraging its competitive advantage, the CTF focuses on subsets of the clean technology sector that have the potential to be scaled up, but are yet untapped. One strategic approach is to use CTF resources to increase low baseline investment levels in niche markets.

37. In Mexico, the CTF is accelerating the development of Mexico’s private wind market by targeting the untapped wind power potential in the state of Oaxaca. Oaxaca has more than 5,000 megawatts of world class wind potential, but only 88 megawatts are

⁴ Algeria, Egypt, Jordan, Morocco, and Tunisia.

⁵ Clean Technology Fund Investment Criteria for Public Sector Operations

operational to date. The government plans to use the CTF funds to build a wind power generation plant and attract private commercial banks to provide debt financing for the construction and implementation of wind projects.

38. Concentrated solar power is a niche technology that has attracted minimal investment in developing countries. The CTF investment in the MENA regional project is expected to support the deployment of about one gigawatt of CSP generation capacity, almost tripling current global levels. The project is expected to produce higher capacity plants with state of the art technologies, reduce CSP technology costs, build technical capacity, and establish performance benchmarks. These advances are expected to transform the regional market for large-scale solar technology.

39. **CTF financing represents only a fraction of overall low carbon investments in most partner countries, but its targeted focus can catalyze transformational change.** CTF financing in most target markets is relatively modest in comparison to overall country investment needs, but it can still encourage the adoption of climate-friendly approaches and overcome barriers to the introduction of new technologies.

40. The MDBs, including IFC, are supporting transformational change by bolstering energy efficiency programs in South Africa, Mexico, Turkey, the Philippines, and other countries. The relatively modest energy efficiency programs aim to significantly reduce emissions by targeting energy intensive industries as well as consumer markets.

Enabling Environment

41. **CTF investment plans generally assess shortcomings in a country's enabling environment, but it is too soon to determine if this recognition will, in fact, result in the barriers being effectively addressed.** The enabling environment—a country's institutional, policy, legal, and regulatory framework—is critical to the success of low carbon development initiatives. All CTF investment plans include an assessment of the shortcomings in the enabling environment and potential risks to a project's success.

42. South Africa's investment plan identified broad concerns about the enabling environment, such as the limited regulatory regime for both public and private investments. In addition, the investment plan highlighted the risks for each specific technology and program. For renewable energy, for example, the risks include the lack of grid integration, the technology risk associated with technologies that have little or no commercial track record, and the absence of any precedent for bankable purchase power agreements. The investment plans indicate that CTF will address these barriers, but no strategy is detailed. Whether the shortcomings were sufficiently addressed will not be clear until the projects are submitted to the Trust Fund Committee for approval and then implemented.

43. **Targeted MDB country assistance mechanisms can effectively complement CTF country programs.** While CTF funds are used to address investment priorities, maximizing the impact of these investments hinges on a favorable enabling environment.

MDB financial tools, such as World Bank Development Policy Loans, can be used to support a government's policy and institutional changes. Promoting synergies between CTF programs and other financing instruments can enable governments to create more dynamic environments for low carbon growth.

44. For example, Mexico moved quickly to secure CTF financing for its investment projects, but their success depends on the establishment of broader policy frameworks and institutional adjustments. Mexico is using a Development Policy Loan to deal with such fundamental issues. This complementary mechanism is strategically important to the long-term effectiveness of CTF programs.

Leveraging Additional Funds

45. **The CTF's expected 1:8 leveraging effect is seen as a good indication that the market is interested in the CTF business offering.** On average, every \$1 from CTF is expected to leverage \$8 from other sources (MDBs, national governments, bilaterals, and the private sector), including \$3 coming from the private sector. For one of Mexico's wind projects, the \$15 million CTF funding is leveraging about \$46 million from IFC and IDB, and an additional \$134 million from other agencies and the private sector. In Turkey, the \$50 million CTF funding for the Turkey Sustainable Energy Financing Facility is expected to leverage \$320 million from EBRD and other partners.

MDB Collaboration

46. The MDBs are integral to the unique CTF partnership. Even though the MDBs do not have a long history of working together, they have developed solid partnerships to support country-led CTF investment programs. These relationships build on each organization's relative strengths and are growing as the CTF evolves.

47. **MDB roles in CTF investment planning should build on comparative advantages.** The CTF requires the MDBs to jointly help pilot countries prepare their investment plans. This has stimulated increased collaboration and consensus on the most advantageous country investment strategies. Joint programming initiatives promote MDB capacity building, better communication and relations between professional staffs, as well as more strategic MDB joint assistance programs.

48. In general, before the investment planning process begins, countries and the MDBs agree on which multilateral organization will play a lead based on experience and comparative advantage. The MDBs also collaborate on projects for the investment plan pipelines. For example, the Asian Development Bank and the World Bank Group are jointly promoting investments in geothermal power in Indonesia, rather than working independently. Similarly, the African Development Bank and the World Bank Group are jointly co-financing CTF investment projects in South Africa.

49. Because of its size and scope of operations, the World Bank has, at times, been perceived as dominant in contrast to other MDBs. MDB collaboration is a learning-by-doing process and the levels of cooperation among all MDBs are improving.

50. **The MDBs can facilitate a strategic dialogue if there are gaps in donor assistance coordination.** The investment planning process has stimulated dialogue between the MDBs and bilateral agencies involved in specific sectors. However, donor support must be actively coordinated to ensure a strategically unified approach. In Indonesia, for example, technical assistance mobilized from the German government's KfW and the Japan International Cooperation Agency is helping the government identify options for the design of a risk mitigation fund that will be used to pre-finance geothermal exploration.

51. **MDB support needs to reflect the extent and complexity of their engagement with country institutions.** The MDBs provide governments with technical assistance for the development of investment plans. Initially, this support was envisioned to include only two MDB country missions—one, to reach agreement on the scope and potential priorities for CTF resource allocations, and a second to discuss the completed first draft of the investment plan. As CTF was operationalized, the comprehensive programmatic approach that was envisioned required more MDB staff interventions in some cases. Additional activities, such as scoping missions and plan finalization, were necessary to provide the full support that governments required. The initial norms for MDB support, funded through the CIF corporate and administrative budget, were adjusted to reflect this reality.

Collaboration with the Private Sector and Other Stakeholders

52. The engagement of diverse stakeholders strengthens the CTF and creates a momentum that attracts a broader range of development partners, including the private sector. CTF's programmatic approach can accommodate numerous interests, but expanded partnerships must be nourished and require proactive and systematic outreach. The private sector, especially, must be a critical partner in developing long-term, low carbon solutions.

53. **The CTF seeks to combine public sector investment with private sector action, but a more concerted effort is needed to engage the private sector.** The projected private sector co-financing of CTF projects—30 percent or \$12.5 billion of the total expected project financing—is a positive indication of CTF's attractiveness to the private sector. Approximately 37 percent⁶ of the projects in the CTF pipeline are supporting private sector initiatives. This slightly exceeds the CTF Trust Fund Committee's expectations at CTF's inception.

54. Despite these promising figures, private sector engagement in the CTF design phase has been uneven. Many governments traditionally focus on public sector

⁶ By volume.

investment options and give private sector needs less consideration. In addition, a country's specific economic conditions and the new technologies being proposed also affect private sector engagement.

55. In Turkey, the EBRD and the World Bank Group, including IFC, helped mainstream lending for energy efficiency through local financial intermediaries. This was made possible by the Turkish Treasury's ongoing engagement with many state-owned banks and the MDBs well-established relationships with private Turkish financial institutions. In the MENA region, the CSP project has stimulated important dialogues between the government and the private sector. The government is tapping the expertise of technology providers and financiers to structure complex transactions and ensure efficient project implementation.

56. Involving development partners can help mobilize co-financing, catalyze complementary projects, and leverage technical assistance for capacity building. Even middle income countries may have limited national capacity to address all of the complex challenges involved in stimulating low carbon development. Because many developing countries will not borrow for technical assistance, mobilizing complementary technical assistance grants can be strategically vital to the success of investment plans that are funded through concessional loans.

57. For example, German and French development agencies are co-financing several CTF projects in South Africa and Morocco, and providing both co-financing and technical assistance to Turkey. The Japan International Cooperation Agency and the German government's KfW are active bilateral development partners in Indonesia and the Philippines, complementing CTF investment products with their own investments.

Going Forward

58. The CTF was the first to test the CIF model and has been able to move ahead relatively quickly because of the ability to work within the parameters already established in middle-income countries. The CTF has had initial success in building strategic frameworks for allocating resources and setting out the modalities for scaling up low carbon development. The emphasis has been on building partnerships and leveraging synergies.

59. As the CTF moves beyond the initial phase, where much of the focus has been on the planning process, to actual project implementation, new and more in-depth lessons that are tailored to country contexts will emerge. Going forward, progress toward low carbon development will depend on country leadership and policies. The replication of CTF investments by the private sector will also be an important indicator of whether CTF funds have been used successfully to catalyze market transformation.