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**Can the Clean Development Mechanism help finance
energy access in the Least Developed Countries?
The case of Tanzania**

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SUMMARY

Policy documents and academic literature suggest that the Clean Development Mechanism (CDM) could help finance energy access in the Least Developed Countries. This policy brief questions these assertions by showcasing evidence of institutional, economic, environmental, informational, technical and social constraints, which prevent CDM finance from enhancing energy access in Tanzania. Institutional constraints such as the under-performance of Tanzania's Designated National Authority are the most often reported obstacles for project development. Yet non-institutional constraints such as low energy sector mitigation potential, indigenous skill shortages and low carbon market prices are also hindrances. Institutional constraints buttress, rather than supersede, pre-existing non-institutional constraints and together they undermine the ability of CDM finance to enhance energy access.

Key Messages

- 1. Suggestions that CDM can fund energy access in Least Developed Countries are overoptimistic. In fact, CDM can sustain and exacerbate global inequalities.**
- 2. Several constraints of varying severity prevent CDM finance from enhancing energy access.**
- 3. The number and severity of constraints suggest that CDM reform is unlikely to remedy the situation soon.**
- 4. New funding and policy mechanisms are essential and they should adopt enhanced energy access as their primary goal.**

Over 2 billion people are without 'energy access'⁶, yet it is crucial for fulfilling basic human needs including health, education, communication, transport, and food security^{5 13}. Efforts to improve the situation are compromised by a significant financing gap¹². Increasingly, however, policy documents and academic literature suggest that climate finance transfers; carbon markets, and particularly the Clean Development Mechanism (CDM), could complement traditional energy access funding in developing nations, including the Least Developed Countries^{1 4 14 15 19 22}.

CDM aims to encourage clean, sustainable development in developing (Non-annex 1) nations *and* assist industrialised (Annex 1) with their mitigation goals. To achieve this, industrialised nations can purchase Certified Emissions Reductions (CERs) generated by

mitigation projects based in developing nations to reduce the cost of meeting their emissions-reduction commitments³. To attain CERs, CDM projects must progress through five project development cycle stages, as set out in Figure 1.

Enhancing low-emissions energy access via the CDM could thus provide both development and climate change mitigation benefits. In addition, energy access could enhance adaptive capacities and protect forest safety nets by reducing dependence on biomass energy. Consequently, CDM-financed energy projects might be consistent with the emerging Climate-Compatible Development discourse which seeks opportunities to simultaneously realise development, mitigation and adaptation 'wins' and move beyond traditional development approaches⁷.

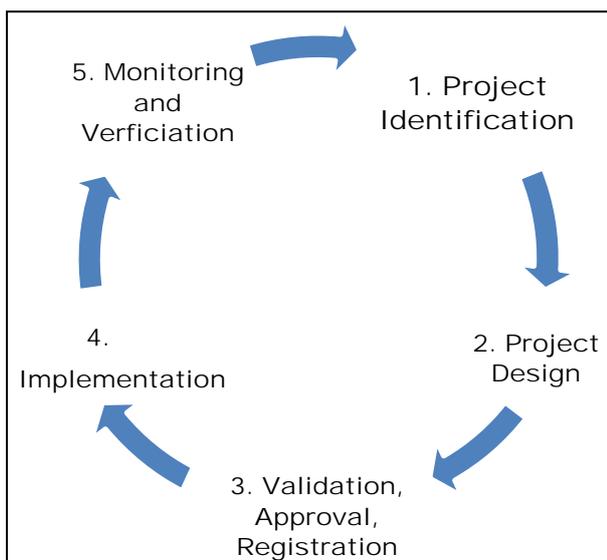


Figure 1: Stages in a CDM project development cycle¹

¹ Stages determined based on review of CDM governance literature (e.g. UNFCCC (2013a); DoE (2007)) and interviews with CDM stakeholders.

Whilst CDM is not a silver bullet for EA financing, several projects have provided low-emissions energy to populations²¹. However, most are located in middle-income countries like China, Brazil and India rather than in Least Developed Countries¹⁷. This policy brief now outlines the key findings and policy implications of a study conducted to investigate constraints preventing CDM-financed EA projects in Tanzania.

Constraints preventing CDM-financed energy access projects in Tanzania

Like other Least Developed Countries, the majority of the Tanzanian population are without EA¹², face stark wider development challenges¹⁸ and are acutely vulnerable to climate change impacts¹¹. However, just one CDM energy project has received CERs in the country¹⁷. Several other projects have been initiated but never completed¹⁶.

In June 2013 25 interviews were conducted with actors involved in attempts to enhance EA through CDM project development in Tanzania. Table 1 showcases stakeholder groups involved. Evidence of diverse

constraints to CDM energy project development was found. The most inhibitive are discussed below in the order of project development cycle stages at which they occur.

Project Identification and Design

Low greenhouse-gas emissions in Tanzania’s energy sector reduce feasible project development opportunities. Restricted industrial activity, dependence on kerosene and biomass, and low energy consumption lessen opportunities to decrease emissions, especially in households and in small and medium sized enterprises. This prevents projects from attaining sufficient CERs to make them commercially viable, and has blocked project development. Tanzania’s only accredited CDM project — the Mtoni Dumpsite project — is based in Dar es Salaam which has above-average EA and large volumes of emissions-generating city waste. **Low and unpredictable CER prices** have made it even harder to identify financially viable projects and they are problematic for projects currently under development.

Table 1: Interviewees categorised by stakeholder group

Stakeholder Group	Number of Interviewees
Project Developer	7
Consultant	2
Low-emissions Energy Technology Distributors	4
National Government	3
Supranational Governance Organisation	3
NGO	3
Trade Association	2
Donor Agency	1

Limited Governmental expertise is perceived to have prevented the Tanzanian Government from assisting project developers with project identification and design. Climate change was considered by interviewees to be poorly understood by Government officials. **Often-changing CDM regulations** are an added constraint in the context of low Government

expertise, and the novelty of CDM policy design is considered a compounding factor. It was identified as the first market-based environmental policy instrument in Tanzania.

Negative perceptions of CDM among politicians and officials present an additional constraint to project development at the beginning of the project development cycle. This was attributed to restricted project potential owing to low mitigation opportunities and carbon prices. The underperformance of the Mtoni Dumpsite project, which has not delivered expected mitigation and sustainable development benefits, was also seen as a contributing factor. It was also suggested that negative perceptions should be considered against Tanzania's colonial past and global economic relations which have been unfavourable to Africa. One interviewee stated that Tanzanian people are concerned that foreign CDM project developers might buy up vast tracts of land and instigate projects which do not benefit indigenous populations.

Limited Government enthusiasm for CDM has created additional institutional constraints during the first two project development cycle stages. It was considered to contribute to **co-ordination problems between governance actors and institutions** within and across levels. Alongside an unfavourable economic outlook, it was also seen to have engendered a **negative national investment climate** which deters external investment in CDM projects that yield returns only after many years of sustained commitment. Furthermore, together with historic donor dependency for energy sector finance and policymaking, curtailed enthusiasm was cited to explain the Government's reluctance to commit resources to streamline CDM approval processes. **Institutional and policy frameworks** for CDM are widely thought of as inadequate, and roles and responsibilities for developing, implementing and approving projects as unclear. Government CDM decision-making was described as being built on unstructured, opaque and "ad-hoc" processes.

Despite these ambiguities, significant indigenous involvement was widely agreed to be a precondition for receiving Designated National Authority (DNA) approval for projects¹. However, **Domestic technical skill shortages** apparently constrain preparation of mandatory CDM documentation and development of suitable methodologies for determining emissions savings. This is complicated by poor baseline data, which has had to be overcome by the design of novel methodologies from scratch.

Further non-institutional constraints have hindered domestic abilities to identify and capitalise on CDM opportunities in the first and second project development cycle stages. **Awareness of CDM and renewable energy solutions** remains low in Tanzania. An **underdeveloped private sector, inexperience in dealing with market-based policy instruments, slow pace of business and lack of entrepreneurial spirit** are also considered to be problematic. A disconnect exists between conditions on-the-ground and the domestic involvement requirement.

Inadequate indigenous expertise has also resulted in dependence on external consultants, accountants and auditors. This has increased **transaction costs** associated with regulatory compliance: these can total up to US\$200,000 per project across the project development cycle. **Restricted access to finance** also prevents funds being obtained from domestic banks to cover costs. Despite UN efforts to train financial institutions about CDM business opportunities, banks are perceived as being uninformed about, and wary of supporting, climate change-related investments. CDM complexity and delays on investment returns caused by other constraints are seen to compound this wariness. Tanzanian banking norms of providing finance for short periods (usually under 5 years), at very high interest rates of up to 16%, were also regarded as

¹ Although interviewees disagreed over exactly how much indigenous involvement is required.

incompatible with CDM project financing requirements.

The Tanzanian Electricity Supply Company (TANESCO) is responsible for paying for electricity generated by grid-connected projects, but three interviewees suggested that it regularly fails to fulfil its obligations. Bank perceptions about TANESCO's credibility as an end-client have further restricted finance for affected projects.

Validation, Approval and Registration

Most Tanzanian CDM-CCEA project initiatives fail at the Validation, Approval and Registration stage, yet it was difficult for interview respondents to determine why individual projects do not gain approval. One interviewee stated that "projects are blocked but no reasons are given so you are just stuck as a project developer". The absence of streamlined approval processes, ad-hoc and opaque decision-making, and the vagueness of Tanzania's National CDM Sustainability Criteria were considered to contribute to constraints at this stage.

DNA project approval is reportedly near-impossible to attain. The approval process was seen as plagued with delays and inadequate communication – the DNA was perceived by project developers and others to be unresponsive, with projects ending up getting de facto non-approval for unspecified reasons. Frustration about this reportedly exists even in the DNA's office, but different views prevailed over why gaining approval is difficult.

Insufficient DNA staffing and budgetary capacity were widely cited (including by Government Officials) as key factors. International and domestic actors are said to regularly complain to DNA and wider Government organisations about DNA underperformance. However, continued complaints allegedly fall upon deaf ears. It was reported that DNA underperformance has led most donor agencies to now advise

international CDM investors to avoid Tanzania.

Other causes for DNA underperformance were also recounted. One Project Developer interviewed cited "**corruption in the DNA**" and stated that "staff are also CDM consultants and therefore have vested interests in seeing certain projects succeed and others fail". Another, who has developed CDM projects in many non-industrialised nations, described the DNA as "the most corrupt in Africa". However, others reported corruption to be "a continental norm". In a contrasting view, it was suggested that the DNA's 'gatekeeper' role is the reason for non-approval, with projects blocked for **failing to meet Tanzania's National CDM Sustainability Criteria**. From this perspective, DNA staff work to protect populations from harm. It should be recognised that Government interviewees (three) were vastly outnumbered by non-Government interviewees (22) in data collection. This could explain why positive reasons for non-approval were in the minority.

Project Implementation and Monitoring and Verification

Insufficient consumer demand was seen to constrain project implementation. While Tanzania's electricity grid has significant supply problems, demand for off-grid electricity projects is low due to restricted disposable incomes and low-cost biomass abundance: they make (even CDM-subsidised) energy solutions prohibitively expensive for local people. Further, **concerns about imported technology** and associated job losses, **low education and awareness about project benefits**, and **negative past experiences** with inadequate energy products result in low community buy-in. Consequently, this has hampered project developers' abilities to secure behaviour change necessary to stimulate emission reductions and make projects commercially viable.

Moreover, **few energy solutions were regarded to address local peoples' energy needs**. For example, electricity solutions can provide lighting but may not fulfil cooking and productive usage requirements. Accordingly, local people are reluctant to spend money which could be used to purchase other vital goods and services, such as food, clothing, and children's education.

Indigenous technical skills shortages were said to restrict the manufacture, installation, maintenance and repair of required energy technologies, as well as project monitoring and verification. Despite Government efforts to increase low-carbon energy generation by reducing renewable technology import duties, foreign exchange costs (owing to the need to buy foreign-manufactured products) have increased **implementation costs**. A need to hire external consultants for monitoring and verification raises project development costs further still. Inadequate tariffs offered by TANESCO, its unwillingness to assist with grid-infrastructure costs and non-payment are troublesome for grid-connected projects.

Policy Implications and Conclusions

Evidence from Tanzania points to the existence of several institutional, economic, environmental, informational, technical and social constraints operating across project development cycle stages. Institutional constraints including the under-performance of Tanzania's DNA were widely reported. Despite this, non-institutional constraints play an equally if not more significant role in preventing project development. Low energy sector mitigation potential, indigenous skills shortages and slumped carbon prices are particularly problematic. Institutional constraints have merely buttressed pre-existing non-institutional constraints, and together they have for practical purposes halted CDM energy project development. Suggestions that CDM can help to fill the EA financing gap in Least Developed Countries therefore appear misplaced. Rather, it appears to be sustaining uneven development

patterns which overlook those most in need. CDM values cost-effective CER generation potential, supportive business environments and local capacity to organise projects^{9 10}. However, constraint presence is at odds with such requirements, creating a debilitating lack of 'fit' with the overarching CDM design. Targeting and overcoming so many onerous constraints would be challenging and complex, and attempting to do so would unlikely enhance EA with the required urgency. Moreover, while structural CDM reform has been discussed extensively, research suggests that implemented² and proposed³ market-based options would not reduce constraints outlined here. Conversely, while fund-based proposals could make project distribution more equitable and would overcome low carbon prices, they would be unlikely to generate levels of finance required to provide EA *and* advance other mitigation activities⁸.

But traditional energy funding will be inadequate on its own. Consequently, new, innovative funding and policy mechanisms are essential. Unlike CDM, these mechanisms should avoid seeing EA as an opportune by-product of fulfilling other objectives, and should make enhanced EA their primary goal. Policy development should take heed of lessons provided by this and other similar research to help ensure that new mechanisms are not hampered by similar constraints and can benefit those most in need.

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² e.g. EU nations' prioritising investment in LDCs²

³ e.g. a sectoral CDM in line with Nationally Appropriate Mitigation Actions⁸

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Further Information

Information informing this policy brief is taken from an academic paper with the same title which is under review at *Energy Policy* and has been published as a CCCEP Working Paper available from:

<http://www.cccep.ac.uk/Publications/Working-papers/home.aspx>

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