Stephan Hoch

Can Carbon Credits Help Kenya to Become "Green"?

The Relevance of the Clean Development Mechanism for Kenya

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HEINRICH BÖLL STIFTUNG
EAST & HORN OF AFRICA

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Summary

This policy brief aims at serving as a primer both on the Clean Development Mechanism (CDM) as a UN mechanism and its implementation in Kenya. First, it briefly discusses the CDM's role in the UFCCC climate governance architecture, and highlights the evolution of the mechanism. Second, turning to Kenya, it assesses institutions, actors, and the CDM's implementation in the currently most important energy and forestry sectors, and the broader domestic project pipeline, considering public policy and governance dimensions. Third, the paper reflects on the above findings with some concluding thoughts on the challenges and opportunities in maximizing the impact of the CDM on sustainable development in Kenya, and making sense of the mechanism's possible future. Key conclusions include that CDM rules that adequately reflect local circumstances are a necessary precondition for the CDM to contribute to Kenya's sustainable development, although successful implementation will depend on sufficiently conducive, domestic sectoral conditions. CDM rules are evolving continuously, but still insufficiently to better account for regional circumstances, with particular deficits in the agriculture and forestry sectors. More positively, the CDM has an under-appreciated impact on the impressive shift towards renewable energy in Kenya by deliberately harnessing the potential of both public and non-state organizations.

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Abbreviations and Acronyms

ACAD	African Carbon Asset Development Facility	KP	Kyoto Protocol
AIJ	Activities Implemented Jointly	KPLC	Kenya Power and Lighting Corporation
A/R	Afforestation/Reforestation	LDC	Least Developed Country
CCBA	Climate, Community and Biodiversity Alliance	LoA	Letter of Approval
CDM	Clean Development Mechanism	MoE	Ministry of Energy
CDM EB	CDM Executive Board	MEMR	Ministry of the Environment and Mineral Resources
CER	Certified Emission Reduction		
CMP	Conference of the Parties serving as the Meeting of the Parties	NAMA	Nationally Appropriate Mitigation Action
		NCCRS	National Climate Change Response Strategy
COP	Conference of the Parties	NEMA	National Environmental Management Authority
CSO	Civil Society Organization	PDD	Project Design Document
DOE	Designated Operational Entity	PIN	Project Idea Note
DNA	Designated National Authority	PoA	Programme of Activities
EE	Energy Efficiency	REDD	Reducing Emissions from Deforestation and Forest Degradation
EU	European Union		
EU ETS	EU Emissions Trading Scheme	SREP	Scaling Up Renewable Energy Program
FIT	Feed-in Tariff	tCER	Temporary CER
GBM	Greenbelt Movement	tCO2e	Tonne of CO2-equivalent
GDC	Geothermal Development Corporation	UN	United Nations
IBRD	International Bank for Reconstruction and Development	UNDP	UN Development Programme
		UNEP	UN Environment Programme
IPCC	Intergovernmental Panel on Climate Change	URC	UNEP Risoe Center
IPP	Independent Power Producer	UNFCCC	UN Framework Convention on Climate Change
KFS	Kenya Forest Service	VCM	Voluntary Carbon Market
KENDBIP	Kenya National Domestic Biogas Programme	VCS	Verified Carbon Standard
KenGen	Kenya Power Generation		

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1
Introduction

Climate change is already a tangible reality in Kenya. The need for adaptation to its consequences is well-recognized, as more and more people directly depend on increasingly fragile ecosystems. More recent is the notion that climate change mitigation can be part and parcel of a sustainable development model that is fit for a carbon-constrained world. Mitigation ranges from accelerated and more efficient use of renewable energy to sustainable ways of benefiting from ecosystem services (Stockholm Environment Institute 2009). The preparation of a 'National Climate Change Response Strategy' (NCCRS) and many more public and private initiatives indicate a growing awareness for the benefits of climate-resilient development in Kenya. The magnitude of this challenge, however, makes it vital to engage in international cooperation in the framework of the global climate regime and beyond. Stunning figures of proposed annual climate finance flows of up to $100 billion by 2020 – for both adaptation and mitigation – are making headlines and do play a key role in climate negotiations. Even though their sources remain uncertain, such funds are likely to be channeled through existing and future vehicles. For mitigation, these may include a reformed Clean Development Mechanism (CDM), Reducing Emission from Deforestation and Forest Degradation (REDD), and Nationally Appropriate Mitigation Actions (NAMAs), perhaps supported through the newly established Green Climate Fund.

Climate finance mobilization, however, should be observed cautiously. In the absence of a new climate agreement, and better-elaborated new instruments, the CDM currently remains the most important operational mitigation mechanism for developing countries within the United Nations Framework Convention on Climate Change (UNFCCC) governance architecture. Beyond doubt, it is an urgent priority for developing countries to closely observe, and actively engage in shaping new climate finance developments. Yet, the continued use of market mechanisms to mitigate climate change is almost consensual, and is likely to build at least in part on the existing CDM. Hence, reflecting on the existing in-country experience from the initial phase of hosting CDM projects offers some important lessons: How relevant has the Clean Development Mechanism been for Kenya? And what role could it play domestically beyond the first Kyoto commitment period?

This policy brief sets out to examine these questions. The rationale is less to provide an investment or project development guide for Kenya. Instead, this policy brief identifies major CDM trends in Kenya, and offers a concise analysis that considers public policy and governance dimensions. First, it briefly discusses the CDM's role within the global climate governance architecture in order to establish a sound understanding of both its design and implementation, and to grasp the dynamics of its evolution. Second, it assesses Kenyan institutions, actors, and the CDM's implementation in the currently most important energy and forestry sectors, and the broader domestic project pipeline. Third, the paper reflects on the above findings with some concluding thoughts on the challenges and opportunities in maximizing the impact of the CDM on sustainable development in Kenya, and making sense of the mechanism's possible future.

Key conclusions include that suitable global rules are a necessary precondition for the CDM to contribute to Kenya's sustainable development, although successful implementation will depend

on sufficiently conducive, domestic sectoral factors. CDM rules are evolving incrementally, but still insufficiently to better account for regional circumstances, with particular deficits in the agriculture and forestry sectors. More positively, the CDM has an under-appreciated impact on the impressive shift towards renewable energy in Kenya. A distinctive strength of the CDM's governance design is that it involves governments on a regulatory level, while deliberately harnessing the potential of both public and non-state organizations. This policy brief is based on research in progress for a doctoral dissertation in political science at the Albert-Ludwigs-University of Freiburg, Germany. It aims at serving as a primer both on the CDM as a UN mechanism and its implementation in Kenya, addressing a wider audience in relatively plain language, including policy-makers, practitioners and all interested climate policy observers.

2
The CDM as Global Climate Policy Instrument

2.1. Governance Architecture

The 1997 Kyoto Protocol (KP) is the first legally binding agreement that aims at implementing the UNFCCC's ultimate objective to prevent dangerous climate change. The KP's key achievement is that industrialized countries agreed to reduce their greenhouse gas emissions (GHG). The CDM, a central KP element, institutionalizes a political compromise: CDM projects promote sustainable development without placing mitigation burdens upon developing countries. In turn, buying certified emission reductions (CER) from CDM projects allows industrialized parties to supplement their domestic mitigation actions by 'offsetting' one tonne of CO_2-equivalent (tCO_2e) per CER. After long debates, a comprehensive set of CDM rules had been formalized in the 2001 Marrakesh Accords. Yet, it was not before the KP finally entered into force in 2005 that the CDM really gathered steam. Its regulatory framework has been constantly evolving since, and it is important to account for this process.

The CDM Executive Board (CDM EB) is the mechanism's prime regulator and supported by various expert working groups and the UNFCCC Secretariat. The EB is accountable to the intergovernmental 'Conference of the Parties, serving as the Meeting of the Parties to the Kyoto Protocol' (CMP). Hence, the intergovernmental process authoritatively provides political guidance, for instance, whether to include carbon capture and storage, or to establish an appeals process. Technical details and daily operations are worked out between the EB, the UNFCCC Secretariat and CDM stakeholders. Each project needs to complete the 'CDM project cycle' before the EB can issue carbon credits. These procedures aim at guaranteeing performance, and involve thorough documentation to ensure credible emission reductions that are 'additional' to business as usual. This information needs to be validated and verified by licensed auditors (Designated Operational Entities – DOEs). CDM host governments retain control over individual projects through domestic sectoral regulation and their Designated National Authority (DNA). DNAs issue 'Letters of Approval' (LoA) to certify a project's contribution to sustainable development as defined by the host country. LoAs are required to register projects with the UN. 126 developing countries have established a DNA (48 in Africa, of which 32 host at least one project), sometimes introducing the issue of climate change mitigation within government authorities.[1]

2.2 Implementation

Towards the end of the KP's first commitment period in 2012, the maturing CDM has been praised for its success and criticized for its shortcomings. As of June 2012, 8584 projects are listed as active in the CDM Pipeline, of which the EB has registered 4170, and 4414 have entered the validation process. 1641 projects have been rejected or withdrawn. 203 methodologies to reduce emission reductions have been approved, although only some have been widely used. Industrial gas credits still dominate CER issuance, yet, the global project portfolio is diversifying and has been shifting firmly towards renewable energy.[2] Experts agree that initial expectations have been greatly exceeded by the estimated >2.68 billion

1 For more information please visit www.cdm.unfccc.int.

2 Industrial gas projects have so far been issued 66% all CERs, but will shrink to 28% pre-2012 CERs. Renewables now make up 68% of all CDM projects, and 35% of all pre-2012 CERs. All project data in this paper is taken from UNEP Risoe Center's CDM and PoA Pipelines as of June 2012, unless otherwise indicated (URC 2012 a,b). Please also note that all project design documents are publically available at

CERs that are expected until the KP's first commitment period ends in 2012.

The value of these credits, however, remains subject to a volatile market, in part because the sluggish pace of committing to deeper emission reductions prevents serious offset demand. The bearish economic outlook in some Annex I countries shrinks demand further and has seen CER prices dwindling to all-time lows. Carbon prices, however, are extremely dependent on political and regulatory decisions. While a certain level of demand is guaranteed by the definite continuation of the EU Emissions Trading System until 2020, prices are expected to rise significantly with more ambitious GHG reduction commitments. The significance of the EU ETS as the primary CER destination has a direct impact on Kenya: In the absence of a new global climate deal, only CERs from LDCs, excluding Kenya, will be eligible to enter EU ETS unless the project has been already registered before 2013, or a non-LDC CDM host country secures a bilateral agreement with the EU Commission.

CDM projects have sometimes been criticized for weak sustainable development benefits, to be dominated by niche industries, unconvincing additionality claims, and, in isolated cases, conflicts over land and human rights. The line of criticism that is perhaps most relevant for Kenya highlights the unequal geographical distribution of CDM projects. The vast majority of projects in the pipeline are located in emerging economies, while only 2.92% are in Africa (251 total, of which S. Africa: 81, Kenya: 26, Egypt: 23, Morocco: 18). African projects are expected to generate 106 million CERs until 2012 (4.0%), and 619 million until 2020 (5.3%). This distributional concern can partly be explained by the complex, at times imperfect CDM rules, which demand scarce expertise and upfront investment. Yet, as the CDM produces offset credits, safeguards to protect its integrity are vital, particularly with regard to their additionality to business as usual. It is worth noting that the efficiency of the CDM EB has drastically improved,[3] and further reforms to better reward sustainability impacts are underway (see section 2.3). The CDM's baseline-and-credit approach still favors emissions-intensive heavy industries, and many lower-income countries offer few such opportunities. Irrespective of scale or type, however, CDM projects always depend on their underlying projects (e.g. a wind farm which applies for CDM needs to comply with sectoral regulation). Many often-cited barriers, e.g. lack of finance and capacity are as much related to domestic sectoral constraints and country risk, rather than a particular flaw of the CDM. Hence, both CDM rules, which differ significantly between project types, and domestic sectoral conditions are important causal factors for the success of a CDM project.

With regard to CDM rules, it is critical to be aware that the CDM has been conceived as a bottom-up mechanism that would evolve according to input from its stakeholders. The very idea of certifying and trading emission reduction permits has been largely unchartered terrain. In a strictly technical perspective, it can even be seen as an achievement that the bulk of CDM-related investment goes to the largest sources of developing country emissions, as long as the resulting reductions are cost-efficient (which they are not in the industrial gas case). Still, the CDM has an explicit sustainable development ambition, and is part of a multilateral institutional architecture that is built on the principles of equity, and common, but differentiated responsibilities. Although the CDM's institutional embeddedness in the overarching global climate regime deserves much deeper reflection, this context is sufficient to suggest that host country contexts with low baseline emissions but high, in some cases existential, development needs should be better accounted for in

www.cdm.unfccc.int, but will not individually be referenced for better readability.

3 Internal reorganization and recent full staffing has brought down average registration times from 600+ to ca 250 days despite record project inflows (UNEP 2011).

CDM rules. Indeed, concerns about equity and fairness are driving ongoing CDM reform debates.

2.3. CDM Reforms

Table 1: % comparison of regional distribution of programmatic CDM (pCDM) vs CDM

Region	pCDM	CDM	pCDM	CDM
Latin America	18%	14%	59	1194
Asia & Pacific	48%	81%	157	6954
Europe & Central Asia	1%	1,1%	3	92
Africa	30%	2,9%	99	251
Middle-East	3%	1,1%	10	93
Total	100%	100%	328	8584

Source: URC 2012b

A number of reforms have begun to address regional distribution. An early major innovation led to simplified small-scale methodologies, which are used in 47% of all registered projects. The 'Nairobi Framework', agreed on during COP 12 in Nairobi in 2006, has been launched to promote the CDM in Africa through capacity building, including in Kenya. CDM Programme of Activities (PoA) allow to cluster several project components, thus lowering the transaction costs of accounting for large numbers of sometimes small reductions, even at rural household levels. In stark contrast to individual projects, Africa already hosts 30% of all PoAs (99 out of 328, see table 1).[4] A particularly interesting aspect is that PoAs can be developed across borders, which may simultaneously achieve scale, create learning effects and technology diffusion in several countries. Although PoAs have only really started entering the validation process in early 2010, Kenya already hosts fifteen PoAs . The most recent facilitative measure which addresses project scale is the new category of 'microscale' projects (energy generation <5MW, or energy efficiency <20 GWh / year), which are automatically additional if the project is located in an LDC or in a "special underdeveloped zone" (UNFCCC 2011e: 2).

More recently, the 2010 Cancun Agreements urge to widen access of 'underrepresented' countries to the CDM, through developing 'standardized baselines' and factoring in 'suppressed demand'. Standardization aims at easing data collection, baseline determination and monitoring requirements for projects with high sustainability impacts, thus opening up the CDM to new project types and greater host country influence. In a related work program, the UNFCCC Secretariat offers LDCs and countries with less than ten registered projects as of 2010, which includes Kenya, to cover the costs of developing up to three standardized baselines. Additionally, the EB is developing a loan scheme for carbon project management costs for the same countries. Suppressed demand refers to the 'reduction of future anthropogenic emissions'. In the absence of historic GHG emissions due to poverty, sustainable development requires greenfield development rather than cleaning up existing pollution. Factoring in suppressed demand aims at balancing the necessity to generate offset credits conservatively with addressing urgent development needs, defined as minimum service levels (e.g. access to clean water or modern energy services)h ping imes from 600+ to ca..Risoe Center as of the Parties to the Kyoto Protocol (CMP). Current carbon finance rules focus on historic emissions, yet, a renewed sensitivity for low-income country development trajectories has resulted in a CDM EB suppressed demand work program (UNFCCC 2011d). Hence, enabling access to the CDM for parties that have not yet been fully engaged is a key priority of the CDM reform process. The next section will direct the focus to the Kenyan context and shed light on major CDM trends.

4 Africa Progress Panel (2009), Kickstarting Africa's Carbon Markets. The Potential for Programmatic CDM. Geneva: AAP.

3
The Relevance of the CDM for Kenya

In contrast to the rather dim CDM performance in Africa, as of June 2012, Kenya hosts 26 active CDM projects at various stages of the UNFCCC project cycle (8 registered), 17 of which are energy projects (including biomass, 5 registered), 7 reforestation (3 registered), 1 cement, and 1 methane avoidance. Together, these projects are expected to yield 2.45 million CERs until 2012 (1.26mn from registered projects), and 24.89mn CERs until 2020 (10.88mn from registered projects).[5] Moreover, there are now fifteen PoAs at validation (4 EE household stoves, 4 grid-connected renewables, 4 solar, 1 EE distribution; 1 biogas, 1 EE household lighting), as well as an additional methane avoidance CPA from a PoA hosted in Uganda (KENDBIP). However, no PoA has been registered yet, or listed more than one CPA, therefore, their eventual scale cannot be reliably estimated at this stage.[6] Still, Kenya trails only South Africa in regional comparison. It is also important to mention that four projects have already had their validation terminated (2 bagasse-based co-generation, 1 gas turbine conversion, 1 reforestation), and another one has been negatively validated (Sondu Miriu Hydro).[7] This demonstrates that the CDM does not automatically provide 'icing on the cake', but that its checks have to be taken seriously. Although no statistics on the total number of Project Idea Notes (PIN) and Project Design Documents (PDD) submitted to the DNA are available, prospective projects that have notified the UNFCCC of the CDM (UNFCCC 2011f) indicate that awareness is comparatively high in Kenya, slowly building on early efforts. Kenyans have engaged in 'Activities Implemented Jointly' (AIJ), the CDM's unsuccessful predecessor. National CDM investment guidelines were established in 2002. That Nairobi hosted COP 12 in 2006 has contributed to this awareness, and prompted a regional UNEP/UNDP CDM capacity building program.

Despite its regional leadership in project implementation, Kenya ranks only 'satisfactory' in the *CDM Investment Climate Index* (10. in Africa; Kyoto Coaching Cologne 2007).[8] Kenya is often described as a comparatively market-friendly economy, but deficits in security, governance and infrastructure constrain economic development (IBRD 2009). Although general investment conditions are important, the great diversity of potential CDM projects requires scratching the surface on a sector-by-sector basis to understand barriers and success factors. Some reforms have already become effective, particularly in the power sector. The new 2010 constitution may further advance these efforts, provided it can be implemented timely and effectively. Moreover, the mechanism's open, project-based design empowers entrepreneurial individuals and organizations that may successfully drive a project to success even in difficult circumstances.

3.1. Institutions and Actors

In 2002, the Kenyan DNA has been established as part of the National Environmental Management Authority (NEMA), an agency of the Ministry of the Environment and Mineral Resources (MEMR). It is the main public CDM institution in Kenya, contributing to national policies and UNFCCC

5 All figures are based on UNEP Risoe data (URC 2012a,b), and have to be treated as indicative, especially of projects under validation. These databases provide an excellent overview, as well as extensive primary data on the CDMpipeline, including on the Kenyan projects.
6 UNEP Risoe (2012b) lists 204k CERs until 2012, but already 43.514,4kCERs until 2020, although each PoA currently lists only one single CPA, and it is unclear when further components may follow.
7 Validation reports are publically available for registered projects only. This limits the CDM's transparency, but concerns about additionality and community rights have been voiced by CSOs prior to the project's negative validation (international Rivers 2007).
8 Updated rankings are similar, but only available upon request, www.kyoto-coaching-cologne.net.

negotiations. The DNA has developed a procedure for assessing whether a prospective project contributes to sustainable development ('National CDM Clearing House'), which draws on experts from relevant public and non-state organizations. The project pipeline suggests that the process is functional, although anecdotal evidence indicates that it could be sped up, in part owing to thin and rotating staff levels. The DNA maintains an updated website with background information on the CDM.[9]

More recently, climate policy has been climbing up the political agenda. As a result of a multi-stakeholder effort, MEMR has published NCCRS in 2010. Its "primary focus is ensuring adaptation and mitigation measures are integrated in all government planning, budgeting and development objectives" (NCCRS: 12), as well as "to participate effectively in the carbon markets including the CDM" (16). MEMR's National Climate Change Secretariat facilitates the work of the 'National Climate Change Task Force', which comprises representatives from government ministries, the National Assembly, the private sector and CSOs, which provides guidance for these processes. Related, the Office of the Prime Minister's Climate Change Coordination Unit has initiated an 'Inter-ministerial Consultative Forum on Climate Change' to ensure policy coherence. It coordinates the development of a 'Climate Change Action Plan' to implement the NCCRS, which seeks to mainstream the NCCRS' ambitions into sectoral authorities and policies, and benefit from existing and emerging climate finance mechanisms. A key component is the effort of the 'Green Energy Task Force' to facilitate the rapid development of additional renewable energy capacity of 2000 MW until 2012. Moreover, the Ministry of Finance is currently drafting a 'Climate Finance and Emissions Trading Policy'. These initiatives demonstrate the recognition of climate change as a development challenge, as well as an awareness of the opportunities, but their proliferation also poses challenges for policy coherence.

Besides these public agencies, a regional UNDP/UNEP CDM capacity building program has been raising awareness for the CDM within the Nairobi Framework. Further CDM training by multilateral and bilateral development partners frequently takes place on an ad-hoc basis. Recently, the African Carbon Exchange has been launched and seeks to serve as a trading platform for carbon credits. Although there is no indication of significant trading activities soon, it may contribute to raising awareness about emissions trading particularly among domestic and regional financing institutions. Regional player Standard Bank has entered into carbon purchasing agreements, while its Kenyan daughter CfC Stanbic has experience in financing renewable energy projects in Kenya. These nascent activities thus may contribute to alleviating the often-lamented upfront financing barrier, which could also leave a larger chunk of the carbon credit value chain in the host country.

Kenya's proactive CDM engagement has attracted the presence of large international carbon project developers (CAMCO, JP Morgan). Among domestic consultants, Bea International has been spreading awareness about carbon markets from AIJ times. Carbon Africa has successfully registered the widely publicized Lake Turkana Wind Power project, is developing several solar PV PoAs, and works on a multi-sectoral project portfolio. Civil society organizations like the Kenya Climate Change Working Group, Kenya Forest Working Group, and the Pan-African Climate Justice Alliance are participating in the climate policy discourse, but have not been directly involved in implementing projects, with the exception of the Greenbelt Movement's reforestation projects. Kenya Association of Manufacturers and Kenya Private Sector Alliance have also expressed interest in the CDM project development. AFREPREN frequently contributes studies and expertise, particularly on climate and energy issues.

9 All information from DNA website, which can be visited at www.nema.go.ke, last accessed at November 17, 2011.

3.2. Projects and Programmes

This section briefly examines the current Kenyan CDM portfolio, which mainly comprises energy and reforestation projects. Rather than analyzing individual projects in depth, it draws attention to the interplay of global CDM rules, domestic regulations and actors, and the related governance processes. A wide range of sectoral regulations has to be considered by project developers, which can only be touched upon here. As energy and forestry contribute 25 out of 26 active projects, and all 15 PoAs are energy-related, these sectors will be briefly reviewed individually, prior to a broader outlook on the Kenyan CDM pipeline.

3.2.1 Energy

According to the World Bank's African Infrastructure Diagnostics, power shortage is Kenya's "greatest infrastructure challenge", with a need for at least 1000 MW of additional generation capacity over the next decade (IBRD 2010: 1). This equals about two thirds of the current installed capacity. The Kenyan Least Cost Power Development Plan (LCPDP) even predicts a need for 15,000 MW capacity to meet electricity demand until 2030. Yet, power sector development has been cumbersome even with grant and concessional financing, and energy services remain insufficient and unreliable in most African countries (IBRD 2009). It is therefore notable that grid-connected electricity generation comprises 13 out of 26 active Kenyan CDM projects (5 registered), including 3 biomass co-generation (1 registered), 4 geothermal (2 registered), 4 wind (1 registered), 2 hydro. Registered CDM projects expect to generate 447.9 MW, while projects under validation may add another 425.3 MW. Further projects that have expressed prior consideration of the CDM include geothermal (5), wind (6), co-generation (3) and small hydro (2). As registered projects have already demonstrated their additionality, the CDM has begun facilitating the introduction of advanced renewable energy technologies on a commercial basis, which is widely seen as a precondition to achieve scale and unprecedented in Kenya. However, CDM registration does not mean that a power plant has already been constructed, and sectoral governance challenges also apply to projects that are co-financed through the CDM.

With regard to CDM rules, Kenya's grid-emission factor (0.62 tCO_2/kWh) is below the global average of grid-connected CDM projects (0.83), but still sufficiently conducive.[10] This is a necessary precondition for projects to yield CERs, yet, a satisfactory explanation for this rapid inflow of power projects needs to consider power sector reforms, which have recently advanced much faster compared to Kenya's neighbors. Energy institutions have been divided into a regulatory body, the Energy Regulatory Commission, while operations are split in power generation through Kenya Power Generation (KenGen), and transmission and distribution by Kenya Power and Lighting Corporation (KPLC). Both draw on private capital, although the government remains the majority shareholder. Recently, the wholly state-owned Geothermal Development Corporation (GDC) has been established as a special purpose vehicle dedicated to exploring Kenya's enormous geothermal potential in the Rift Valley. However, the 2004 Energy Policy and the 2006 Energy Act enables KPLC to negotiate power purchase agreements with independent power producers (IPP) (MoE 2006). Additionally, the Ministry of Energy has developed a feed-in tariff law (FIT) in 2008, which was revised to include solar in 2010 (MoE 2010). FITs have been very successful in attracting private finance to renewable energy infrastructure globally, as they provide the certainty that is needed for large-scale investments. As the relatively recent Kenyan FIT is capped, relatively low and regularly

10 The Grid-Emissions Factor describes the emissions intensity of an electricity grid per unit of electricity and serves as the most important parameter in the baseline scenario for renewable energy projects (see IGES 2011 for further info and raw data).

reviewed, no conflicts with the CDM EB's so called E+/E- policies, which essentially concern the impact of government support on the additionality of energy CDM projects, have been found.[11] With World Bank support, both KenGen, driven by its Managing Director Edward Njoroge, and KPLC have entered strategic long-term consultancy contracts, which aim at developing CDM projects as well as building in-house CDM expertise. The next paragraphs will briefly introduce individual projects and PoAs by type.

Grid-connected Electricity

The LCPDP estimates 5-10,000 MW **Geothermal Energy** potential across 14 sites at the Kenyan Rift Valley, which is Kenya's largest renewable energy potential. Only Olkaria site in Hell's Gate National Park has been developed, and KenGen has registered Olkaria II (35MW, 310k 2012 CERs / 1,509k 2020 CERs), has Olkaria I Units 4&5 (140MW; no 2012 CERs / 4,196k 2020 CERs), and Olkaria IV (140MW; no 2012 CERs / 4,195k 2020 CERs) under validation, and has expressed prior consideration for an additional site. Moreover, Ormat 4 Power's registered Olkaria III (48 MW, 502k 2012 CERs / 1,924k 2020 CERs) is the first privately owned geothermal IPP in Africa. Several other IPPs are to follow in Longonot and Suswa sites. GDC has been set up to underwrite the risks associated with early stage geothermal exploration, and facilitate the development of up to 1,600 MW by 2016. The recently approved investment plan for Kenya's Scaling up Renewable Energy Program (SREP), a World Bank/ African Development Bank administrated program under the Strategic Climate Fund, co-finances $50mn of $468mn dedicated to immediately explore 400MW geothermal potential at Menengai site (SREP IP 2011).

The second-most important energy source, **Wind Power,** has entered Kenya's electricity generation portfolio slightly later. Lake Turkana Wind Power develops the largest wind farm in Africa (310MW, no 2012 CERs / 5,612k 2020 CERs), and is already registered and certified by the premium CDM Gold Standard. Lake Turkana will be implemented by a private consortium while carbon management is provided by Nairobi-based consultancy Carbon Africa, with support for CDM-related aspects by the African Carbon Asset Development Facility (ACAD), a public-private partnership between UNEP, Standard Bank, and the German Federal Environment Ministry. Carbon Africa has also submitted the Corner Baridi 50MW wind farm for validation (no 2012 CERs / 727k 2020 CERs). KenGen has a 5,1 MW (4k 2012 CERs / 102k 2020 CERs) project at validation, with two additional project phases listed for prior consideration. Kinangop Wind Park Ltd has a 60MW wind farm under validation (63k 2012 CERs / 1,056k 2020 CERs), and further IPPs have expressed prior consideration of CDM (Aeolus 60MW/100MW Ngong, GE Energy, Oleleshwa Wind Energy Ltd). Hence, all of Kenya's wind farms plan to utilize the CDM. Data on investment in the underlying projects is so far only available for Lake Turkana ($622mn) and Kinangop ($140mn). These available figures, however, hint at an enormous amount of finance that is leveraged through CERs and directed to this previously non-existent industry, provided that the projects will be completed as planned. The recent shift to PoAs also encompasses wind power, with Standard Bank's 'Green Power for East Africa Programme' and German power utility ENBW's 'Grid-Connected Wind Power Programme in Kenya' at validation.

Hydropower has long been Kenya's most important power source. The 'Sondu Miriu Hydro Power' project has been negatively validated, indicating that the project cycle can impose serious checks on the integrity of a prospective project. After a review, the re-development of Tana Power Station has now

11 E+/E- policies essentially concern the impact of government support on the additionality of energy CDM projects. See Castro et al (2011) for a recent discussion.

been registered (19,6MW, 31k 2012 CERs / 237k 2020 CERs). KenGen's 'Optimisation of Kiambere Hydro Power' project currently remains at validation (20 MW, 170k 2012 CERs / 477k 2020 CERs). Greenfield projects include a Kenya Tea Development Agency 'KTDA Small Hydro Programme of Activities', in which small run-of-river power plants replace tea factories' diesel generators, selling surplus power to the grid. The program has originally been initiated through Global Environment Facility seed funding for the regional 'Greening the Tea Industry' initiative. In an innovative use of public finance to leverage private investment, the Ministry of Energy has then financed further pre-feasibility studies to scale up the Kenyan component to 12 plants. Carbon management is financed by UNDP, as the capacity building program shifts towards implementation. Standard Bank has an additional PoA at validation ('East Africa Renewable Energy Programme'). Further hydro IPPs have expressed prior consideration of the CDM, including Kleen Energy Kenya (3MW) and Viability Africa.

Bagasse Co-generation produces electricity from the biomass residues of sugar production. Mumias Sugar has been a CDM pioneer, and after cumbersome methodology revisions and an issuance delay of 38 months, the pilot project is now registered (35MW; 551k 2012CERs / 1,296k 2020CERs). The approach has been replicated quickly in the Kenyan sugar industry, although the 6MW Muohoroni Sugar and the 40MW West Sugar Ltd recently had their validation terminated. Still, Mumias has another small-scale vinasse co-generation project (2,1MW; 11k 2012CERs / 106k 2020CERs) at validation. BIDCO submitted a biomass cogeneration project (2,1 MW; 53k 2012CERs / 530k 2020CERs), as well as a fuel-switch project at its crude edible oil refinery. Related, the Karan biofuel CDM project markets biomass briquettes (10k 2012CERs / 323k 2020CERs). Kibos Sugar (25MW) and Kwale International Sugar have expressed prior consideration of the CDM for bagasse co-generation.

Besides power generation, the CDM also allows for energy efficiency measures. KPLC's 'Green Light for Africa' PoA plans to distribute up to 900,000 Compact Fluorescent Lamps (CFL) to Kenyan households. The initiative is financed through Standard Bank, with carbon management by Cool nrg International. While the approach is certainly an important technical innovation, the financial additionality of such approaches raises some questions, as KPLC publicly claims power savings equaling 45MW that may save up to $212mn for a total investment of $3,9mn (Thomson Reuters 2010). After overcoming the commonly accepted first-of-its-kind barrier, alternatives to generating offset credits such as supported NAMAs may need to be explored for such interventions. Additionally, KPLC and Standard Bank have the industrial-scale 'Installation of Energy Efficient Transformers (IEET)' at validation. Potentially important innovations that are promoted through programmatic CDM also include improved cookstoves. CO_2-Balance's 'Efficient Cook Stove Programme: Kenya' is the first Kenyan PoA that is requesting registration. It can be used to give a brief impression of the potential and the challenges of PoAs. While the first CPA anticipates generating 50.8kCERs per year, the full PoA envisions to generate 6,146.5kCERs until 2020. This means that the project developer will need to successfully add at least ten similar individual project activities, and it will be highly important for the success of the PoA concept how these first activities perform. The high interest is indicated by the proliferation of similar PoAs at validation, in Kenya currently Top Third Ventures 'Top Third Ventures Stove Programme'(7.1k 2012CERs / 135.4k 2020CERs), Climate Pal's 'Kenya Improved woodstoves' project(16.4k 2012CERs / 5,961k 2020CERs), and Envirofit International's 'Improved Cooking Stoves Programme of Activities in Africa' (6.6k 2012CERs / 1,598.3k 2020CERs).

Offgrid Power Programmes

Despite these promising trends in electricity generation capacity, vast rural areas will remain

disconnected from electricity grids, at least in the mid-term future. Off-grid technologies typically operate at much smaller scales, and clearly, the project-based CDM has remained unable to support such initiatives. Similar to the cook stoves examples above, however, PoAs have also opened the CDM to such technologies. There are currently four solar PV/LED PoAs at validation: Barefoot Power's Lighting Program (20k 2012CERs / 403k 202CERs), Nuru Lighting PoA (9.5k 2012CERs/377,8k 202CERs), Tough Stuff International (25.2k 2012CERs / 3,060.1k 202CERs), and TATS Solar Lantern PoA (8k 2012CERs / 80k 2020CERs). Furthermore, regional PoAs that list Kenya as a potential future host include an additional solar lighting, a water purification and an efficient cook stoves PoA. SREP also includes a solar water heating PoA in its investment plan, which is being implemented by KPLC. $10m are provided as upfront financing, and KPLC's growing CDM experience is intended to leverage further co-financing through CER revenue.

As PoA rules are maturing, this nascent portfolio hints at a potential paradigm shift in the CDM for small appliances, which may reach great numbers of people. Methodology development for dispersed emission reductions has generally been cumbersome, although the recent uptake can be seen as a response to significant improvements. For instance, the solar lighting methodology AMS-III.AR has been undergoing a thorough review including a technical standard setting exercise, commissioned by the CDM EB Small Scale Working Group, and led by Lawrence Berkeley National Energy Laboratory (Mills 2010). The resulting technical standards have been linked with default emission reduction values, and the crediting period for a device is set at only two years, unless it matches certain technical benchmarks. Hence, the revised CDM methodology is not only simplified, but may also act as a quality driver in a market that has been flooded with low-quality products. Solar projects now comprise 16% of all PoAs, and all four related Kenyan solar PoAs use this improved methodology. This approach could therefore serve as a model for other technologies, e.g. as part of the standardization reform process. While the dissemination of such micro-scale appliances is often less regulated, the long time horizons of CDM crediting periods require functional decentralized structures as the activities are not restricted to a single installation, e.g. a power plant. Hence, local structures, including those by civil society organizations, have to play a critical role in implementing and monitoring the continuous use of the devices, especially if a PoA is managed by international entities with little ground presence. Particularly with regard to reaching scale and fostering innovation, however, the benefits of market-based approaches should not be underestimated.

3.2.2. Reforestation

Many parts of Africa are being intensely deforested, which erodes fertile top-soil, and negatively impacts biodiversity, water catchment services, and rural livelihoods. The relevant CDM sector, afforestation and reforestation (A/R) has played only a minor role globally, contrary to initial expectations. A/R CDM is fundamentally different from other sectors as project activities do not reduce existing emissions, but sequester atmospheric carbon in trees, which function as 'carbon sinks'. This difference has also lead to different A/R CDM rules, which have matured more slowly, and remain difficult to implement. Average project development took 5.4 years before 2007, when some improvements became effective, and still 3.0 years afterwards (WB CF 2011). For instance, CDM rules define that eligible project sites had been deforested prior to 1990. Due to the constant pressure on ecosystems by a growing population that heavily relies on traditional biomass energy, this criterion rules out many areas in Kenya that need to be reforested. Perhaps the most important barrier remains that A/R CDM yields

only temporary CERs (tCERs). The permanence problem of carbon sequestration which is subject to risks, e.g. by forest fires, has not been resolved in the CDM, although voluntary offset standards offer alternatives. tCERs need to be replaced, and are not eligible for EU ETS, which prevents demand from the largest CER destination, resulting in lower prices.

Although A/R CDM contributes only 0,8% of all CDM projects, the sector comprises 8% of all African projects, which emphasizes its (sub)regional significance. In Kenya, reforestation comprises more than a quarter of all active projects in the pipeline (7/26), although this ratio somewhat distorts their real scale. All seven projects are implemented by the Greenbelt Movement (GBM), a longstanding Kenyan champion of community-based reforestation, on behalf of community forest associations in the Aberdare ranges, jointly with Kenya Forest Service (KFS). CDM project development has been supported by the World Bank BioCarbon Fund. Together, the seven projects cover 1763 hectares in the Aberdares ranges, and expect to generate 290k 2012 tCERs and 842k 2020 tCERs. For comparison, the single large-scale Ethiopian Humbo assisted natural regeneration CDM project seeks to restore 2728 hectares. Their synchronized approach, implementation and small individual scale renders the GBM projects a 'de facto' Programme of Activities, which only comes in the shape of individual projects because PoAs did not exist at the time of their initiation, and GBM actually intends to re-structure their CDM projects in order to lower transaction costs. After several revisions since LoAs have been issued in 2007, three projects have finally been registered (Kamae-Kipipiri: 45k 2012 tCERs / 113k 2020 tCERs; Kirimara-Kithithina: 42k 2012 tCERs / 112k 2020 tCERs; Kibaranyeki: 20k 2012 tCERs / 80k 2020 tCERs). The only other Kenyan CDM A/R project, a large-scale reforestation initiative at unspecified project sites, which had been initiated by various Kenyan ministries and Bea International, had its validation terminated in October 2011. The Kenyan Ministry of Finance has recently expressed prior consideration of CDM for two potentially large AR projects (Mau, Aberdares).

Kenya Forest Service acts as the focal point for A/R CDM in the national CDM Clearing House, and simultaneously as Kenya's REDD+ focal point. From a regulatory perspective, the Forests Act 2005 (Kenya Gazette 2005) allows community forest associations to hold legal tenure rights, which is practiced in the GBM projects. For instance, communities can set out grazing lands, and restrict other areas to reforestation, where only sustainable practices like cut and carry, and pruning are allowed. Given the population pressure and reliance on biomass fuels, however, such regulations are difficult to enforce. This also affects the feasibility of CDM projects, which require monitoring a precisely defined site for a very long time. Beyond their carbon and sustainability impacts, however, the Greenbelt Movement finds that the CDM creates awareness about leakage and due diligence (GBM 2009). The impact of introducing such accountability standards is impossible to quantify, and difficult to trace, but is particularly important in contexts that have been constrained by governance deficits.

Another important lesson from the Greenbelt Movement's CDM projects is to clearly differentiate between vast monocultural plantations of exotic species, and community-based approaches that rely to a large extent on slower-growing, biodiverse indigenous species. A potential trade-off between sustainable development benefits and optimal carbon revenues becomes apparent. Hence, it is unlikely that carbon credits alone can make small community-based projects financially self-sustainable under current rules. So far, A/R CDM projects have not even come remotely close to the scale that is needed to restore degraded Kenyan lands, although they are the first of their kind and can inform further improvements. Opportunities for A/R CDM reform include a recommendation by the Afforestation and Reforestation Working Group, a subsidiary body of the CDM EB, to develop guidelines for

standardized baselines in A/R CDM. The CDM Gold Standard, a key driver for carbon projects with high sustainability impacts, has recently announced to include community-based reforestation. If they are developed according to rigorous standards, such initiatives could potentially simplify CDM A/R implementation, while preserving environmental and social integrity. The lessons from the Kenyan and African CDM experience should inform these processes. Although the awareness for the need to protect the Kenyan 'water towers' (forests) is undoubtedly there, no further A/R CDM project has been announced, partly perhaps in anticipation of a REDD+ scheme, but probably also because of the persistent lack of progress on A/R CDM rules. There are, however, a number of reforestation initiatives, including by GBM, that use voluntary carbon standards.

3.2.3. Other Sectors and Voluntary Carbon Standards

Beyond energy and forestry, only two more Kenyan CDM projects are currently under validation. The Nairobi River Basin Biogas Project, implemented by Kenyan firm Sustainable Energy Strategies and German non-profit carbon developer Atmosfair, plans to avoid methane emissions through domestic biogas digesters (2k 2012CERs / 452k 2020CERs). The project is partly modeled on an Indian CDM project, which represents an interesting form of South-South cooperation under the CDM umbrella. Similar technologies are promoted by two PoAs at validation, the 'SimGas biogas PoA', implemented by Kenyan project developer SimGas (48.9k 2012 CERs / 5,915.7k 2020 CERs), and the Kenya Domestic Biogas Programme (KENDBIP) (54.9k 2012 CERs / 6,591.4k 2020 CERs). The East African Portland Cement Company seeks to replace clinker in its cement factory (396k 2012CERs / 1,056k 2020CERs). Further projects that have notified the UN of prior consideration of the CDM – beyond the above-mentioned energy projects – include another cement factory, solar desalination, energy efficiency, biomass heat generation, and KPLC's SF6 projects. Hence, while the Kenyan CDM pipeline remains clearly dominated by large-scale grid-connected renewable electricity generation, early stage projects offer some hints at the potential diversity of the CDM's bottom-up approach.

Additional sectors with CDM potential, but no ongoing project development include efficient buildings, manufacturing, mining, and sustainable transportation, according to the DNA. Sustainable public transportation has been experimented with under the CDM, e.g. rapid bus transport (Bogota), old taxi scrapping (Cairo), and a metro rail (New Delhi). These are international pilot projects, though, and there is no consensus whether transportation will be better served under CDM or as future NAMAs, or an integrated climate finance approach that would blend several instruments. A regional UNEP/UN-HABITAT project on sustainable urban mobility in Nairobi, Kampala, and Addis Ababa may function as a seed project, although there is no link to climate finance yet. Additional relevant sectors include waste-management, for instance municipal composting as piloted in Uganda. KenGen has recently announced its intention to develop 50MW electricity from the planned Ruai landfill site in Nairobi, in tandem with the Nairobi City Council (Mbogo 2011). The CDM's market-based approach and additionality requirement has lead some observers to conclude that it targets primarily private sector implementers. Yet, while the private sector will certainly need to provide financial and intellectual resources, important sectors like public transportation will necessarily depend on public agencies, and their proactive engagement.

In light of the subregion's food insecurity, climate-resilient agriculture is perhaps the most neglected potential CDM sector. As agricultural productivity is expected be adversely affected by the adverse consequences of climatic changes, this situation has a sadly ironic dimension. The World

Bank's climate-smart agriculture initiative, however, supports a pilot scheme that implements new agricultural techniques in Western Kenya (Kisumu and Kitale). The WB's Biocarbon Fund funded the development of a soil carbon methodology under the Verified Carbon Standard (VCS), and has signed an emission reductions purchase agreement that will direct cash payments for soil and above-ground carbon sequestration to 60,000 small-holder farmers. The project is another first of its kind in Africa. However, although there is potential for soil carbon sequestration (Tennigkeit et al 2012), offset credits may not be the most suitable instrument to enhance the climate resilience of agriculture, as they are restricted to rewarding the mitigation dimensions only. Still, like in the soil carbon example above, voluntary carbon standards are developing in parallel to the CDM, which generates 'compliance' credits under UN regulations. The more robust standards have adopted many CDM features with regard to documentation and auditing. In turn, they also serve as test balloons for the CDM, e.g. in forestry and agriculture. Although no further reforestation CDM project has been developed, there are four projects under the Climate, Community and Biodiversity Alliance (CCBA) in Kenya, one of which also uses CDM methodologies (TIST Program in Kenya). Both voluntary and compliance A/R projects are seeking double certification to demonstrate integrity and to fetch higher market prices. One of them is the Wildlife Works' Kasigau Corridor project, which has made headlines for being the world's first REDD project to receive VCS credits. REDD is perceived to be an important instrument in protecting remaining forests, however, if, when and in which shape it will be adopted as an UNFCCC instrument is not yet clear. In the ongoing 'readiness phase', support from the WB's Forest Carbon Partnership Facility aims at preparing host countries, with KFS as focal point, for implementing REDD through workshops and knowledge-sharing, which may allow Kenya to harness benefits more quickly than from the CDM, provided it is done right.

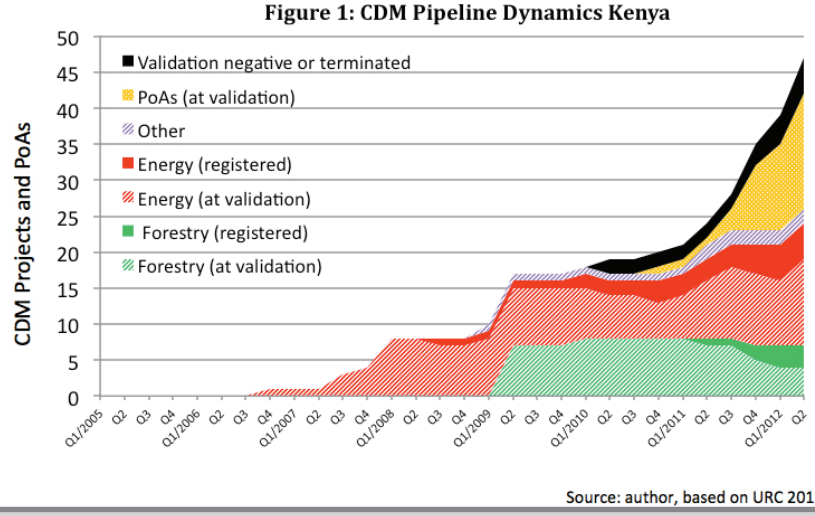
4
Summary and Outlook

This brief analysis reveals that Kenya has often been an early mover with respect to climate policy instruments. Regarding the CDM's relevance, it yields mixed findings even if Kenya hosts the second-largest CDM portfolio in Africa. The represented sectors can be expected to deliver sustainable development contributions, and the globally most controversial ones do not play any role in Kenya (e.g. industrial gas, efficient coal). The CDM clearly contributes to Kenya's beginning shift towards renewable energy, but has had only limited impacts on forestry, and virtually none on other sectors. The concluding section sets out to interpret these findings in a forward-looking perspective.

On a global level, the CDM's governance design principles have been found to rely on both top-down (guidance from CMP, EB regulation) and bottom-up drivers (methodology/project development, stakeholder input). This empowers both public and non-state actors to innovate and implement, but creates a certain dependence on highly-specialized experts. While it is evident that the project-based CDM has a bias towards large-scale interventions and poorer countries still benefit much less from such approaches, it is important to recognize regulatory improvements for activities that promise direct livelihood benefits for many people, as illustrated by the rapid uptake of PoAs. Due to the natural implementation delay after reforms, however, their real impact remains to be seen.

Turning back to Kenya, the ratio of 19 bilateral (with international project participants), and seven unilateral projects (without international project participants) indicates that international expertise and finance are still important, but that some domestic project participants have the capacity to develop CDM projects. The necessary procedures to develop CDM projects are largely in place. Lacking awareness has probably contributed to the absence of sectors that require public involvement (e.g. transport, waste management), but the CDM and other climate finance instruments are part of Kenya's NCCR Strategy and Action Plans, and the pipeline hints at diversification. Still, Kenya is one of the leading African countries in terms of CDM project development, and Figure 1 illustrates the dynamic evolution of Kenya's CDM pipeline as discussed above.[12] Clearly, it took several years before the introduction of the CDM concept translated into actual project development. Development of conventional CDM projects has accelerated only very recently, although PoAs are being picked up very quickly. Unfortunately, it seems likely that these trends will come to an abrupt end, as the rapid project inflow has to be seen as part of a global "CDM gold rush" (Michaelowa and Buen 2012:

Figure 1: CDM Pipeline Dynamics Kenya



Source: author, based on URC 2012 a,b

12 The figure uses the entry dates into the official CDM pipeline, beginning with the public comment phase of public validation ('start comment' in URC 2012a,b), even if significant activities for CDM project documentation and planning precede this date.

3), in which project developers urgently want to get CDM projects and PoAs registered before the EU ETS eligibility deadline for non-LDCs closes at the end of 2012. As discussed above, a resuscitation of the CDM in non-LDCs critically depends on stronger global demand for carbon credits, which is directly contingent on deeper global mitigation targets. Related, the current depression of carbon prices jeopardizes investment certainty and raises serious challenges for any credible demonstration that projects depend on CER revenue.

Still, provided that a major share of the current pipeline successfully navigates the project cycle and overcomes sectoral barriers, the CDM is poised to facilitate a significant market penetration of advanced renewable energy technologies. The range of technologies that are to be deployed, most importantly wind and geothermal, promise to profoundly diversify the Kenyan energy portfolio away from drought-vulnerable hydropower and dirty, costly diesel generators. As implementation is just commencing, it is too early for a full evaluation of the CDM's impact. It is important, however, to be aware that large-scale infrastructure projects take time even without CDM. As the first projects are progressing, and replication effects are observable, the CDM's impact on shifting Kenya towards renewables is its most important achievement. Interestingly, both public and private project proponents have begun harnessing benefits from the carbon market. Although MoE remains in regulatory control, enabling IPPs to develop power projects contributes to scale and diversity. As this has clearly been facilitated by recent regulatory improvements, one of the most interesting findings is the interplay of global CDM rules and domestic conditions for underlying projects. Both factors need to be sufficiently conducive in order to allow for effective project development. The other prominent climate finance instrument for the energy sector in Kenya, SREP, may alleviate a key CDM barrier (access to up-front finance), but is much more government-driven, thus restricting agency by non-state organizations. Furthermore, it is financially capped and limited to initiating pilot projects. A smart, integrated approach of blending strengths and weaknesses of different instruments will probably be required to support Kenya in moving firmly towards a sustainable development pathway.

No one in Kenya has fought more vigorously to avoid and reverse deforestation than the late Professor Wangari Maathai, charismatic founder of the GBM, Nobel Peace Laureate, and a driving force behind GBM's CDM engagement (Maathai 2011, GBM 2009). Like Ethiopia's Humbo A/R CDM project, GBM's approach is genuinely community-based, relying mainly on indigenous species and extensive social mobilization. These projects reveal a distinct contrast to the monoculture plantations for which the CDM has sometimes been criticized. However, progress in achieving registration and CER issuance remains slow, and GBM is still the only Kenyan organization which develops A/R CDM projects. Hence, much bolder regulatory improvements for A/R projects with high sustainable development impacts are needed if this sector is to play a role for the future of the CDM, e.g. through PoAs, baseline standardization and innovations from VCM standards. If properly planned and implemented, projects such as those described above contribute even more to climate change adaptation than mitigation. Under current rules, only carbon sequestration is financially rewarded, although the livelihood dimensions of more climate resilient ecosystems are likely to be of much greater local importance. For such projects to achieve financial self-sufficiency as a precondition for the necessary scale, even more fundamental climate finance innovations will probably need to be explored. For instance, provided that certain conditions and safeguards are credibly met, up-front adaptation payments could be blended with performance-based carbon credits for mitigation.

Similarly, a variety of mechanisms should be explored to support climate-resilient agriculture, which include CDM-like and non-market approaches with upfront support. Agriculture has a strong adaptation dimension, and many voices call for adaptation finance to be provided strictly through grants (Calland and Dubosse 2011: 6). Unfortunately, the political will to provide adaptation finance at the necessary scale has been lacking, and there is still no UNFCCC agriculture framework.
In conclusion, the CDM as a global climate policy instrument is evolving, but the lessons from its implementation in 'underrepresented' countries do not yet sufficiently inform the reform process. Hopes for easier access to climate finance through other instruments have to be carefully evaluated as these will also need to define baselines and systems for monitoring, reporting and verification. As the Kenyan example illustrates, the process of institutionalizing and implementing global climate finance mechanisms has been laborious (see figure 1), and there are many unresolved issues in the design of REDD, NAMAs and the Green Climate Fund. Therefore, the transition between the CDM and future mechanisms is likely to be incremental and complementary (Castro et al 2011). This means that it will be important for Kenya and other African countries to engage in shaping these new climate finance developments, as well as harnessing benefits from the existing and evolving CDM.

The CDM Executive Board has decided, at its 64th meeting, to "launch a policy dialogue to review past CDM experience and help to ensure the readiness and positioning of the CDM to meet the challenges of the post-2012 period" (UNFCCC 2011c). The growing CDM experience across Africa should definitely inform this process much more than it has previously. Consolidating the lessons from currently scattered success stories, some of which can be found in Kenya, allows to replicate feasible approaches, and to improve the adequacy of the modalities of the CDM and other climate finance instruments for low-income countries. This would not only strengthen the CDM's legitimacy, but also ensure that the mechanism contributes to exploiting the leapfrogging potential of fast-growing developing countries like Kenya.

5
Key Policy Conclusions

- If the EU ETS ban on CERs from non-LDC projects that are registered after 2012 will not be eased at least for priority sectors in low-income countries, Kenyan climate policy-makers should consider negotiating a bilateral agreement on CER eligibility with the EU Commission, in order to facilitate the continuation of recent CDM investments. A regional agreement between the EU and the AU may be more efficient, but could involve high mobilization costs.

- The transition between the existing CDM and new climate policy mechanisms should be seen as complementary and incremental. Therefore, building on the experience with the CDM as part of the UNFCCC climate regime will help to maximize climate finance benefits for Kenya.

- Domestic and regional CDM experience needs to be consolidated in order to inform both domestic stakeholders that could replicate existing projects, and the global reform process, particularly in agriculture, forestry, and projects with high sustainable development impacts.

- The public sector should provide more support for realizing the untapped potential of climate finance and carbon market opportunities. This requires to
  - Strengthen domestic capacity, regulatory frameworks, and policy coherence
  - Screen public sectors for carbon and climate finance opportunities, for instance in the waste management, transport, and building sectors
  - Provide financing arrangements that alleviate investment risks for the private sector and are flexible enough to encourage innovations

- Future developments will place greater burdens on DNAs, e.g. for approving standardized baselines. A modest fee structure, in exchange for an efficient and transparent process may contribute to building capacity and ensure the competitiveness of any CDM host country.

- The CDM can involve civil society organizations both as watchdogs and as implementing agencies, particularly in community-based approaches. On an advocacy level, integrating into the global CDM Watch network may be one possible avenue to tap into a highly effective, science-based CSO network that is playing a key role in challenging the CDM's weak spots. For implementation, best-practice exchanges should be institutionalized, and knowledge gaps about global climate policy developments addressed.

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