



Eastern Africa Alliance  
On Carbon Markets And  
Climate Finance



# CARBON MARKET

PROFILE  KENYA



## 1. Introduction/Executive summary

### Role of carbon markets in Kenya's NDC

- Kenya submitted its updated Nationally Determined Contribution (NDC) in December 2020, seeking “to undertake an ambitious mitigation contribution to abate its GHG emissions by 32% by 2030 relative to the business-as-usual scenario of 143 MtCO<sub>2</sub>eq in line with her sustainable development agenda”. The country estimates that over USD 17 billion is required for mitigation actions up to 2030. Kenya intends to mobilize domestic resources to meet 21% of the estimated budget while the budget balance of 79% is subject to international support.
- The updated NDC states Kenya’s intention “to use voluntary cooperation under Article 6 of the Paris Agreement” and further states that domestic legislation and institutional frameworks will be developed to govern engagement in market and non-market mechanisms.
- In total about 52.4 million carbon credits have been issued in Kenya through the Clean Development Mechanism (CDM) and Voluntary Carbon Market (VCM) standards.

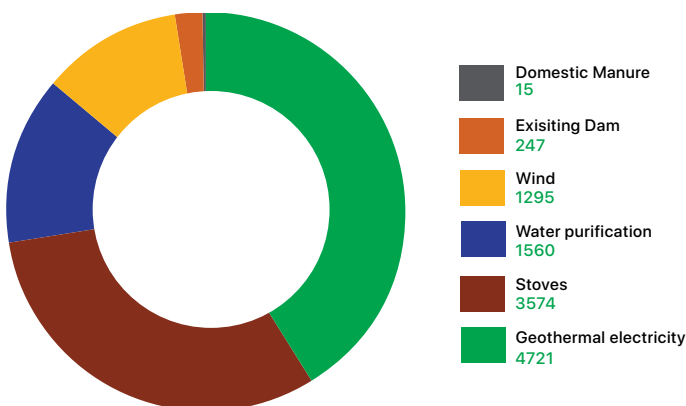
### Kenya's Carbon Market Portfolio – Key insights

- Kenya has the largest CDM portfolio in Eastern Africa, with a total of 210 registered activities, including 20 Project Activities as well as 190 Component Project Activities (CPAs) within 29 Programmes of Activities (PoAs). The country also hosts a significant voluntary carbon standards portfolio totalling 72 activities with a large number of registered Gold Standard activities (51), Voluntary Carbon Standard (19) and (2) Plan Vivo projects.
- Kenya has issued over 12.3 million Certified Emission Reductions (CERs), with the top three sub-sectors being grid connected renewable power (geothermal and wind), improved cookstoves and water purification. The power projects have been implemented by the national power producer KenGen and Turkana Wind generating over 6.2 million issued CERs. As an early mover on the continent, 80% (16) Project Activities were registered before December 2012 with 4 PAs post-2012. Though around half of the crediting periods expiring in 2022 are renewable (9 out of 20), there are open questions on whether all of them will be renewed and transitioned to the Art.6.4 mechanism. Still, this highlights an untapped potential with over 111 million CERs available by the year 2025.
- Kenya has been engaged by the Japanese Government through the Joint Crediting Mechanism (JCM) since 2013 and in addition is exploring carbon financing mechanisms within the context of Article 6 with the World Bank.
- Kenya has actively been involved in the International Civil Aviation Organisation (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) through the Kenya Civil Aviation Authority (KCAA) from voluntary phase 2021-2023 up to 2035. Currently, the national airline Kenya Airways actively been involved in carbon offsetting programmes since 2011 and is participating in with CORSIA together with Astral Aviation.

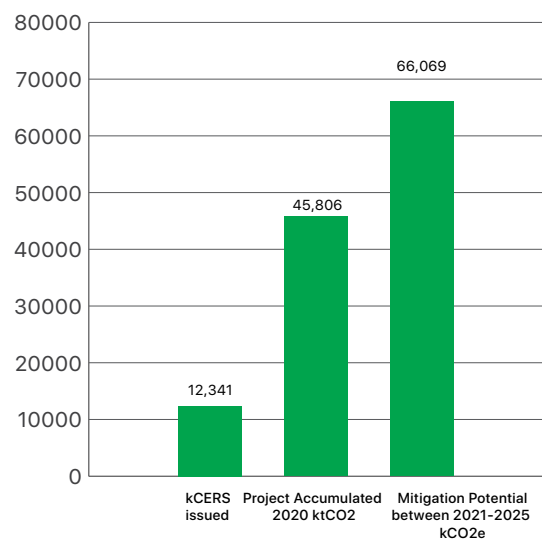
## 2. CDM portfolio and performance

- There are 210 registered CDM activities: 20 PAs and 190 CPAs in 29 PoAs. 16 PAs (80% of the PAs) were registered pre-2012, 164 (81% of the CPAs) were registered post-2012. Of the registered PoAs that include CPAs in Kenya, 11 are single country while 15 are multi-country.
- PAs are dominated by grid connected electricity (12 PAs) and reforestation (5 PAs), whilst PoAs focus on de-centralised energy solutions for cooking, lighting, and water purification (175 CPAs).
- Kenya issued more than 12.3 million CERs, with the top three sub-sectors being grid connected renewable power (geothermal and wind), improved cookstoves and water purification.
- Geothermal activities have the highest issuances with about 4.7 million CERs (41%), improved cook stoves with about 4.5 million CERs (31%) and water purification activities with about 1.6 million CERs (14%).
- Total mitigation potential of registered activities by 2020 reached over 45.8 million CERs, which is evenly split between projects and PoAs. The 2021-2025 mitigation potential could reach over 66 million tCO<sub>2</sub>e.

### CDM activities by sector



### CDM Pipeline - Issuance and mitigation potential

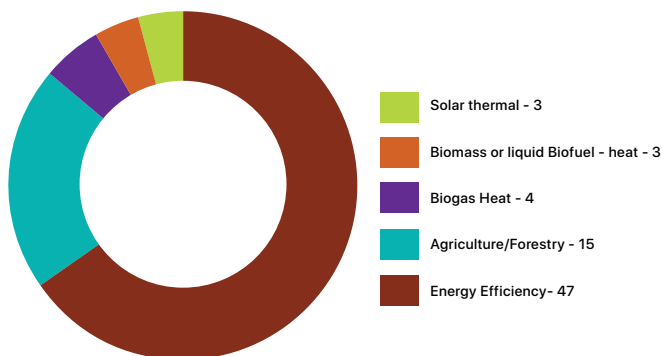


## Volume of CER issuance and potential of currently registered CDM activities by sector

Activity Type	Sub-sector type	No. of PA	No. of PoA	No. of CPA	kCERs issued	Projected accumulated 2020 ktCO <sub>2</sub> e	Mitigation potential between 2021-2025 ktCO <sub>2</sub> e
<b>Overall</b>		<b>20</b>	<b>29</b>	<b>190</b>	<b>12,341</b>	<b>45,806</b>	<b>66,069</b>
Biomass energy	Bagasse power/ Briquettes	1	0	0	-	1,296	-
	Biomass briquettes or pellets	1	0	0	-	353	84
EE industry	Petrochemicals	1	1	0	-	42	-
Geothermal	Geothermal electricity	4	1	2	4,721	11,064	3,476
	Existing dam	2		0	247	902	612
Hydro	Run of river		1	1	-	427	542
Methane avoidance	Domestic manure	1	2	4	15	1,168	2,043
Reforestation	Reforestation	5	0	0	-	1,369	700
Wind	Wind	5	0	0	1,295	8,350	310
	Stoves	0	12	107	4,504	12,116	39,173
EE Households	Lighting	0	1	8	-	713	1,126
	Solar Lamps	0	5	5	-	668	1,775
EE service	Water purification	0	3	55	1,560	7,528	15,513
Hybrid renewables	Solar Wind and Others	0	2	1	-	-	241
Solar	Solar PV	0	0	3	-	64	614
Energy distribution	Efficient electricity distribution	0	1	2	-	173	403

## CDM transition potential

- Most of Kenyan CDM activities may be eligible for transition. Once Article 6.4 Supervisory Body has made available the transition process, Kenya will need to establish criteria and an approval procedure for activity transition aligned with UNFCCC rules. At the same, there is significant leeway for host countries to determine how CDM activities may contribute to their NDC. While Kenya has only attracted few CDM projects, most PoA CPAs have been registered only recently and could be significantly scaled up with additional CPAs if the PoA frameworks would transition to Article 6. Therefore, the post-2020 emission reduction potential may be much higher than the currently available data if several PoAs successfully transition and expand new CPAs.
- 9 (45%) of the 20 registered projects activities have crediting periods that expire in 2022. 5 (25%) of the PAs will expire in 2025, with the remaining 6 (30%) expiring after 2025.
- The issuance rate for CERs currently stands at 28% across all registered CDM activities.
- Between 2013 and 2016, four projects and four PoAs were registered.
- The CDM has 12.3 million CERs pre-2020 vintage credit issuances from 20 project activities and 190 CPAs. There are no post 2020 vintage issuances yet.



## 3. Voluntary carbon market portfolio and performance

Kenya has 72 VCM activities that have issued over 40 Million carbon credits.

### Gold Standard (GS)

- Hosts 51 certified GS activities (22 VPAs and 29 Standalone projects).
- GS activities have issued over 12 million VERs. Of the 51 GS activities, 4 projects have issued 171,732 GS CERs.
- The dominant sub-sectors are improved cook stoves (83%), biogas and solar.
- GS has 12,141,022 pre-2020 vintage credit issuances from 44 activities and a total of 358,702 post-2020 vintage credit issuances from 7 activities. This makes Kenya one of the first countries to have issued post-2020 credits which are relevant for the NDC.

### VERRA/Voluntary Carbon Standard (VCS)

- 19 activities have issued over 27.5 million VCUs, mainly from agriculture Forestry and Other Land Use (68%) and improved stoves (32%).

### Plan Vivo

- 2 projects (Mikoko Pamoja and Vanga Kenya) issued 25,207 credits.
- Plan Vivo has 20,515 pre-2020 vintage credit issuances and a total of 4,692 post-2020 vintage credit issuances
- VERRA has issued 19,331,600 Pre-2020 vintage VCUS and a total of 8,025,296 post-2020 vintage VCUs.

CHART 2 | Voluntary Standard Activities

## Showcase Activity

**GS5304 MKOPA Solar Lighting Programme of Activities – Kenya VPA 4** - Ref No. GS 5317) aims to distribute solar lighting systems to households throughout Africa. The use of solar lighting systems enable households to switch from high-cost kerosene to affordable, safe, off-grid renewable solar power. The utilization of the systems reduce the amount of fossil fuel-based domestic energy needs, which contributes to a reduction in greenhouse gas (GHG) emissions. The project not only mitigates climate change but also improves the health and well-being of the target communities as well as providing affordable clean energy and decent employment, therefore, helping in meeting several sustainable development goals.



Source:MKOPA n.d.

## 4. Article 6 readiness and piloting

### 4.1. Kenya's Article 6 readiness

- NEMA currently serves as Kenya's DNA for the CDM
- Kenya is an active member of the Eastern African Alliance on Carbon Markets and Climate Finance (EAA) and has begun preparing for establishing its institutional framework and capacity for engaging in Article 6 carbon market instruments.

### 4.2. Article 6 piloting

- As early as 2013, Kenya and Japan agreed to cooperate bilaterally through the Joint Crediting Mechanism (JCM). There are two registered projects (1 hydro, 1 solar), as well as a total of three methodologies have been approved, all focused on renewables (2 hydropower, 1 solar (JCM Kenya- Japan, n.d.).
- The World Bank Carbon Initiative for Development considers to also apply the Standardized Crediting Framework to existing PoAs in Kenya (UNEP CCC, 2022b). This approach would possibly also fall under Art.6.2 cooperative approaches.
- Kenya is the first Eastern African country to have joined the new Africa Carbon Markets Initiative (ACMI) launched at COP27.
- With its updated NDC, Kenya has also expressed a strong interest in participating under the market-based mechanisms and intends to sell ITMOs to finance achieving the conditional mitigation targets.

### Role of CORSIA

- Kenya has actively been involved in the International Civil Aviation Organisation (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and Kenya Civil Aviation Authority (KCAA) is the mandated authority for monitoring its implementation
- Kenya is one of the States participating in CORSIA from the voluntary (pilot) phase 2021-2023 up to 2035 and has already submitted emissions data for 2019, 2020 and 2021 to ICAO.
- The participating airlines in CORSIA currently are Kenya Airways and Astral Aviation.
- Kenya Airways is the first airline in Africa to work under the International Air Transport Association (IATA) Carbon Offset Program, where the firm has supported projects in Kenya, including the Wildlife Work's Kasigau Corridor project, the world's first REDD+ project to be validated and verified under the VCS and the Climate, Community and Biodiversity Standard (CCB). The project covers 500,000 acres of threatened forest, positively impacts more than 100,000 people and acts as a vital wildlife passageway.
- Kenya hosts 145 registered CDM and 4 registered VERRA activities that are eligible to supply carbon credits to CORSIA..

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JCM (2022): JCM Kenya Japan, <https://www.jcm.go.jp/ke-jp/projects/registers> (accessed August 2022)



## 6. Key assumptions

- Data referring to the CDM (projects and programmes) has been taken from the UNEP CCC CDM project and PoA pipelines as of August 2022. To remain conservative, we only include registered activities. We did not assess data quality regarding whether a project is still active, as UNEP is the commonly recognized database drawing directly on UNFCCC Secretariat data.
- While there is a high degree of uncertainty regarding the issuance potential of individual activities, these are difficult to assess and will be affected by future political decisions. Only PoAs which have an included component project activity (CPA) in the profiled country have been counted.
- While UNEP CCC captures estimated accumulated emissions until 2025 based on transparently available CDM activity design documents (PDD; PoA-DD, it is clear that meeting these estimations is subject to political decisions and therefore theoretical.
- Any future mitigation potential is expressed in kilotons of carbon dioxide equivalent (ktCO<sub>2</sub>e = 1000 tCO<sub>2</sub>e) in order not to prejudge the type of certification that post-2020 mitigation outcomes may be using.
- Voluntary carbon standard data has been taken from the official databases of the respective standards. Verified Carbon Standard data is as of August 2022. Data on Gold Standard (GS) activities have been obtained from the GS registry while Plan Vivo data was obtained directly from the standard in August 2022.
- Parties agreed at COP26 that projects will be able to transition from the Clean Development Mechanism to the new Article 6.4 mechanism. A limited number of Certified Emission Reductions (CERs) could be used towards countries' NDCs, noting that the projects will not be able to receive issuances for post-2020 emission reductions, unless they transition to the new Art.6.4 mechanism. Vintages issuances post-2021 will require corresponding adjustments.



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