



Eastern Africa Alliance  
On Carbon Markets And  
Climate Finance

# CARBON MARKET

PROFILE  EASTERN AFRICA







## Key assumptions

- Data referring to the CDM (projects and programmes) has been taken from the UNEP DTU CDM project and PoA pipelines as of November 2020. In order to remain conservative, we only include registered activities. We did not assess data quality with regard to 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 with regard to the issuance and upscaling 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 has been counted.
- While it is clear that in particular the 2030 potential is subject to political decisions and therefore theoretical, it is included as the numbers are based on current CDM activity documents. Whilst all emission reductions may be highly unlikely to be achieved under the CDM, the emission reduction volume may still be relevant e.g. for own NDC contributions by host countries. Moreover, PoAs may experience significant upscaling if carbon market demand increases, which would add further mitigation potential, since we only included emission reductions from actually included CPAs.
- Any future mitigation potential is expressed in kilotons of carbon dioxide equivalent ( $\text{ktCO}_2\text{e} = 1000 \text{ tCO}_2\text{e}$ ) 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 standard. Verified Carbon Standard data is as of December 2020. Data on Gold Standard (GS) activities have been obtained from the GS registry and complemented by information provided directly from the GS in December 2020. Plan Vivo data was obtained directly from the standard in October 2020.
- Assumptions on CDM transition are based on the current status of the COP25 draft decision documents. While these may change, the delay of COP26 to November 2021 rules out that a final decision can be taken before. Therefore, we give a brief indication of what the proposed cut-off dates for CDM transition may mean on a country level. A recent short study on CDM transition and its relevance for Africa explains key issues in detail.
- Due to the lack of a definition or common understanding of what an Article 6 pilot is, we also include initiatives that aim at implementing carbon market activities beyond the CDM. This includes readiness activities and others aiming at emission reduction transactions.

## Introduction

# EXECUTIVE SUMMARY

In line with the respective development visions for individual countries across Eastern Africa, the original (I)NDCs were submitted between 2015 and 2018, seeking to abate Greenhouse Gas (GHG) emissions by an average of 32% by 2030 relative to the business as usual scenario. This action being subject to international support in the form of finance, investment, technology development and transfer, and capacity building. Rwanda has submitted an updated NDC in 2020.

Through the NDC's the region estimates that approximately USD 267.9 billion is required for mitigation and adaptation actions across all sectors up to 2030. Furthermore, 4 out of 6 countries explicitly reference their interest in using climate finance instruments and international market-based mechanisms to enhance climate action.

All Eastern African countries have successfully registered CDM activities: Burundi (1%), Ethiopia (4%), Kenya (41%), Rwanda (13%), Tanzania (3%), Sudan (1%) Uganda (38%). Resulting in 465 registered CDM activities: 53 Project Activities and 412 CPAs within 58 PoAs.

52% of CDM activities in Africa that have registered and issued credits are in Eastern Africa being from 241 registered CDM activities 21 Project Activities (PAs) and 220 Component Project Activities (CPAs)

The region has issued over 13 million Certified Emission Reductions (CERs) from the following main sectors: Run-of-river hydro projects (57%), household cook-stoves (20%) and Water Purification (9%).

By 2020 Eastern Africa has the potential to generate 97 million CERs and mitigation potential of 225 million tCO<sub>2</sub>e between 2021-2030 from its registered projects.

6 out of 7 countries have registered Gold Standard and Verra Verified Carbon Standard(VCS) activities as follows: Ethiopia (9%), Kenya (27%), Rwanda (34%), Tanzania (7%) and Uganda (24%). Overall issuance under the VCM is over 37,000,000.

Positively Eastern Africa has seen significant recent activity, through engagement with the World Bank and approximately 172 CPAs being included with potential links to the Korean Emission Trading Scheme.

The region has been engaged with the Japanese Government through the Joint Crediting Mechanism since 2013 and in addition is exploring carbon financing mechanisms within the context of Article 6 with the World Bank. In February 2021, the first JCM credits in Kenya were issued totalling 974 which were evenly acquired by the two countries.

Ethiopian Airlines and Kenya Airways are actively involved in carbon offsetting programmes with the latter registered for engagement under CORSIA.

Rwanda, Ethiopia and Uganda are exploring financing options for pilots under the Adaptation Benefits Mechanism (ABM).

## Carbon market portfolio

Eastern Africa has 465 registered CDM activities: 53 Project Activities and 412 CPAs within 58 PoAs. The majority, 64 % (34 out of 53), of the Project Activities were registered before 2012, with 393 (96 %) of CPAs registered after 2012.

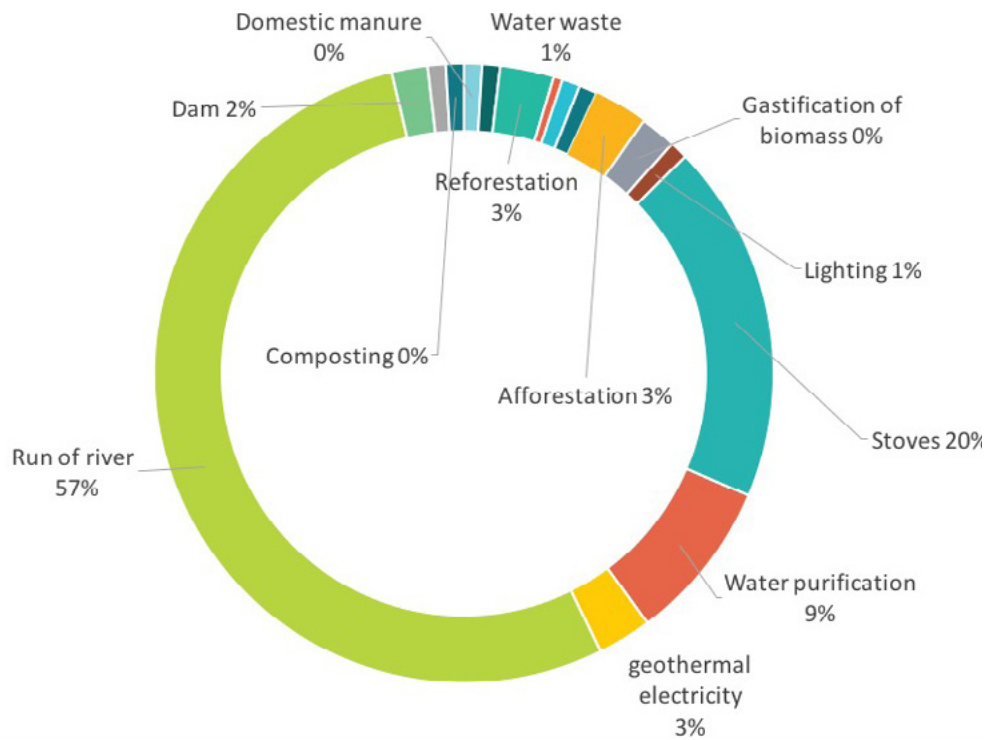
Of registered PoAs that include Eastern Africa countries – 37 are single country with 21 being multi-country.

Sector wise – significant sectors under Project Activities include reforestation (11) and run of river hydro projects (7), with a further 9 from Wind (5) and Geothermal (4). Whilst PoAs focus on cookstoves with 243 CPAs (59%), with Water Purification significantly accounting for 113 CPAs.

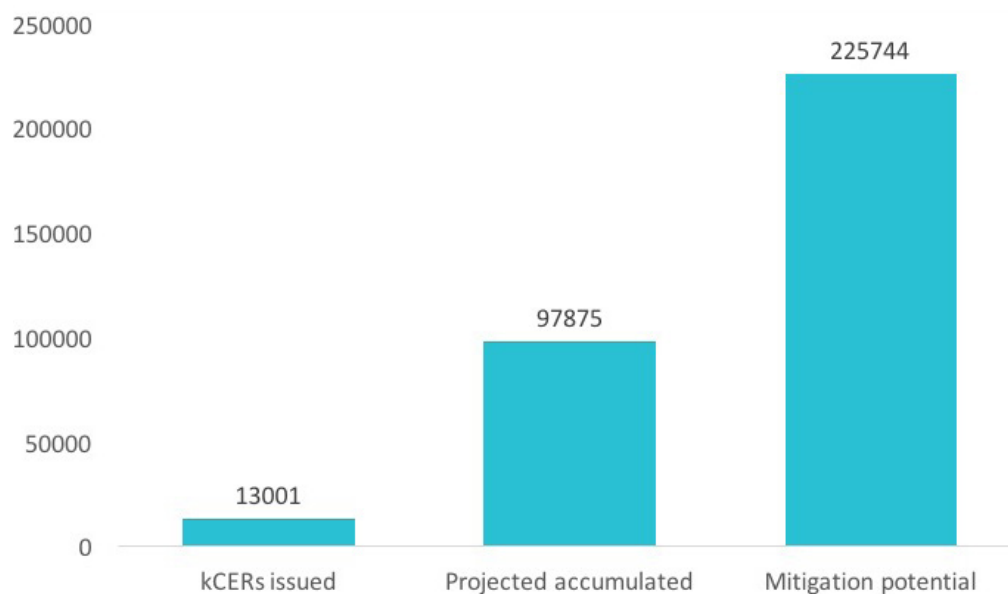
The region has issued over 13 million CERs, this is from 52 % of all activities (40 % of total Project Activities, 53 % of CPAs) from the pipeline. High performing sub-sectors include – run-of-river hydro (57%), cookstoves (20%), water purification (5%), afforestation (4%) and geothermal (4%).

Total mitigation potential of registered activities by 2020 reaches over 97 million CERs, with 40% under Project Activities (39 million) and 60% (58 million) under PoAs. The 2021-2030 mitigation potential could reach over 225 million tCO<sub>2</sub>e, of which 22% is from PAs, and over 252 million from PoAs.

### Regional CER issuance by activity



### CDM Pipeline - Issuance and mitigation potential



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

Activity Type	No. of PA	No. of PoA	No. of CPA	kCERs issued	Projected accumulated 2020 ktCO <sub>2</sub> e	Projected accumulated 2030 ktCO <sub>2</sub> e
Overall	53	58	412	13001	97875	225744
Afforestation	1			345.16	352.26	247.16
Biomass energy						0.00
Bagasse power	1				1295.91	0.00
Biomass briquettes	1				353.42	83.57
Agricultural/forest residues	1	1	1	0.05	120.82	120.26
Gasification of biomass		1	2	34.48	370.80	938.55
EE Households						0.00
Lighting	1	1	4	64.32	951.59	534.10
Solar lamps	2	5	8	128.38	1382.24	1144.53
Stoves	1	29	243	2594.68	34722.61	120407.91
EE Industry/ Petrochemicals	1				42.48	0.00
EE Service						0.00
Stoves	3				1619.36	2459.00
Water purification		6	113	1211.08	15609.48	62078.91
Lighting						0.00
Geothermal electricity	4	1	1	345.63	11064.10	15083.63
Hydro						0.00
Run of river	7	1	1	7319.94	8736.27	5469.86
Dam	2			246.60	573.66	95.18
Landfill gas						0.00
Flaring	3			93.47	2916.36	257.80
Composting	1	1	12	16.55	1299.39	1638.67
Methane avoidance						0.00
Domestic manure	1	3	3	15.06	1559.53	1722.41
Waste water	3			139.12	731.72	1776.36

Reforestation	11			328.98	1889.26	1774.10
Solar						0.00
Water disinfection	2	1	1		102.07	8.01
Solar lamps		2	2	0.00	63.91	486.35
Solar PV		1	1	25.90	131.31	221.86
Transport/Biodiesel	1				48.47	352.73
Wind	6			23.87	8992.59	3965.31
Energy distribution		2	3	28.75	1922.58	2963.02
Hybrid Renewables		3	17	38.63	1023.20	1915.07

## Registered Voluntary Carbon Standard activity by sector

### Key statistics/facts

Eastern Africa has 212 VCM activities which have issued over 37.7 million credits.

#### Gold Standard (GS)

- The region hosts 169 certified GS projects in 6 of the 7 countries, and has issued over 16.7 million VERs;
- 45% (76/169) of certified GS projects are registered in Rwanda making it the largest single representation by a country;
- Additionally, the region has 619, 244 Gold Standard CERS and over 150,000 Planned Emission Reductions (PERs) from 3 GS activities in Ethiopia. These PERs will be converted to VERs from Land Use and Forestry.
- Kenya has generated the most GS VERs combined making up 48% of credits (over 8 million), followed by Uganda 36% (6,006,775), Rwanda 9% (1,576,721) Ethiopia 3% (556,017), Tanzania 2% (354,969) and Sudan 1% (231,507).



- The dominant sub-sectors are Energy Efficient Stoves (over 90%) and Land Use and Forestry projects (3%).

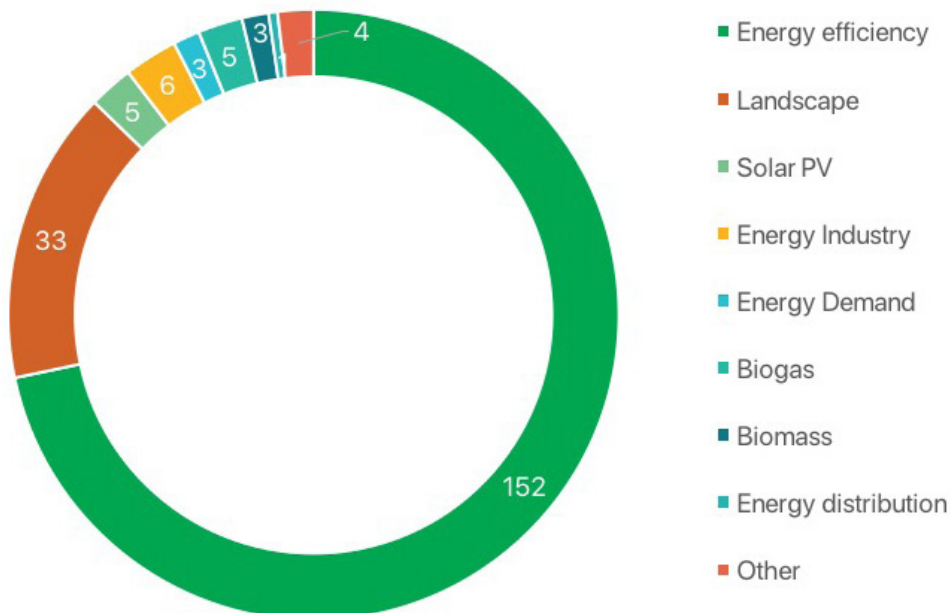
#### **Verra - Verified Carbon Standard (VCS)**

- 38 projects registered with a total issuance of 19million+ credits;
- Main sectors issuing credits are Agriculture Forestry and Other Land-Use (93%) and also Energy Industries (Hydropower, Geothermal) (5%).

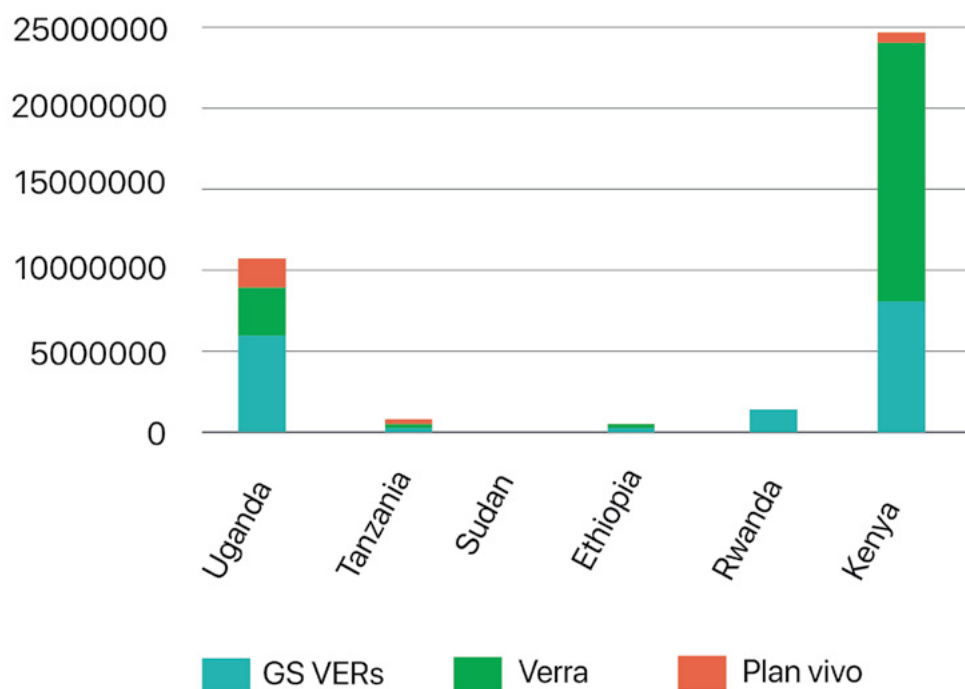
#### **Plan Vivo**

- 5 projects across the region in Ethiopia, Kenya, Tanzania and Uganda. These initiatives apply various tree planting and improved land management methods to various settings including with small-scale farmers
- Total issuance-1,665,935 credits

#### **VCM Sector Distribution**



## Voluntary Standards Issuance



## CDM transition

### What is at stake?

Of 53 registered project Activities – 23% (12) have expired crediting periods. Of the remaining 40, 22.5% expire in 2021, 20% in 2022.

The issuance rate for CERs under CDM Activities from up until 2020 currently stands at 19% for registered Project Activities and 4.7% for CPAs; Though it is important to note that without the 5 million plus CERs from the Bujagali project (ref no. 4217) the issuance rate to date stands at 6.4%.

Between 2013 and 2016, 18 project Activities and 23 PoAs were registered;

There have been recent noticeable PoA registrations and CPA inclusions across Eastern Africa that include:

- World Bank backed CPA inclusions via the Carbon Initiative for Development (Ci-DEV) in Kenya, Rwanda and Uganda. Sectors covered include - off-grid energy access (Solar Home Systems, Solar Mini-grid, Stand Alone Home Systems, Water Pumping. and cookstoves) and Grid extension;
- Additionally, in Tanzania, the Rural Energy Agency (REA) has registered a mini-grid PoA (ref no. 9904);
- South Korea has been actively screening the African CDM portfolio for international carbon credit procurement opportunities and 172 activities in Eastern Africa appear to have established links with related entities. CDM Programmes include improved cookstoves in Burundi, Kenya and Uganda, and safe water activities in Rwanda, Kenya and Uganda.

## New market mechanisms and Article 6

Japan has been developing activities with Kenya and Ethiopia under the Joint Crediting Mechanism (JCM) since the signing of the respective bi-lateral agreements as early as 2013. To date there are three projects registered in Kenya, the latest being registered in January 2020. In February 2021, a 991.1kW solar PV project at Krystalline Salt Factory, issued the first JCM credits in Kenya. A total of 974 credits were issued and evenly acquired by the two countries.

Rwanda, Ethiopia, Kenya and the World Bank are exploring Article 6 provisions through the use of results-based carbon market financing mechanisms. The Bank is piloting the Standardized Crediting Framework activity via Ci-DEV and has 1 pilot in Rwanda and is considering 2 in Ethiopia. In Kenya, the country is considering other alternative markets for carbon credits such as the Transformative Carbon Asset Facility (TCAF).

Rwanda, Ethiopia and Uganda are exploring financing from the Adaptation Benefits Mechanism (ABM) under Article 6.8. The proposed projects under this non-market approach are intended to enhance climate adaptation and resilience. Ethiopia received technical support from the African Development Bank (AfDB) to develop a methodology under the ABM.

Uganda underwent an Article 6 readiness assessment through the UNDP NDC support programme which led to the submission of a letter of intent to the Klik Foundation.

Rwanda has submitted an updated NDC in line with the Paris Agreement requirements to submit revised NDCs at a minimum of every 5 years. The newly updated NDC indicates Rwanda's strong interest to participate in international carbon market mechanisms under Article 6 for reaching its targets.

## Role of CORSIA

5 airlines in Eastern Africa have registered an interest in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). These include Ethiopian Airlines, Kenya Airways, Rwandair, Air Tanzania Company Ltd (ATCL), Precision Air and Transafrik Uganda Ltd.

Kenya Airways is actively involved in CORSIA, building on having become in 2011 the 1st airline in Africa to work under the International Air Transport Association (IATA) Carbon Offset Program.

Currently two airlines are engaged with REDD+ projects – Kenya Airways and Ethiopian Airlines are supporting Wildlife Work's Kasigau Corridor project and 'Plant one tree for every passenger flown' REDD+ project respectively.

- Eastern Africa has 4 PAs and 312 CPAs that are eligible under CORSIA .
- In addition, KenGen submitted the Olkaria IV Geothermal Project to the Technical Advisory Body (TAB) in 2020 as an applicant for assessment against the CORSIA Emission Unit Criteria (EUC).

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