KENYA IS IN TRANSITION TO A CIRCULAR ECONOMY

A quick scan of the trends & opportunities for businesses in the circular economy and resource efficiency space.

SUSTAINABLE INCLUSIVE BUSINESS
THE KNOWLEDGE CENTRE KENYA

Kingdom of the Netherlands

KEPSA
KENYA PRIVATE SECTOR ALLIANCE

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TABLE OF CONTENTS

INTRODUCTION 3

General info on Kenya 4

Kenya's Business climate 5

GLOBAL DEVELOPMENTS IN THE TRANSITION TO A (MORE) CIRCULAR ECONOMY 6

KENYA'S POLICY FRAMEWORK 7

RELEVANT ORGANISATIONS INFLUENCING A SUSTAINABLE CIRCULAR BUSINESS CLIMATE KENYA 9

TOWARDS A CIRCULAR ECONOMY IN KENYA 11

Important milestones 12

TRENDS & OPPORTUNITIES IN CIRCULARITY IN THE KENYAN ECONOMY 13

CHALLENGES... 22

CONCLUSION 23

MORE INFORMATION 23

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INTRODUCTION

A radical transformation in the way we use natural resources is central to meeting the needs of future generations. The take-make-waste concept has led to the dwindling of virgin material as well as the degradation of finite natural resources and capital. Current trends in global resource extraction are incompatible with internationally agreed targets for sustainable production and consumption. In parallel, the notion of a Circular Economy (CE) as an alternative economic framework has been gaining significant momentum and traction over the last few years and is seen as offering an approach for achieving local, national, and global sustainability.
The growing interest in CE is reflected in numerous actors including governments, the private sector and civil society.

As much as a circular economy is a new concept in Kenya, the government, through the Ministry of Environment and Forestry (MoEF) and of Trade and Industrialization as well as multilateral agencies, has made it possible by developing corresponding legal and policy frameworks that ensure a smooth transition from a linear economy.

Through meaningful partnerships between government agencies and the private sector, Kenya is on a path to strategically integrating circularity in key sectors that will result in the development of new businesses active in redesigning, recycling and waste management.
It will increase sustainable economic development and resilience.

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GENERAL INFO ON KENYA

$95.5
billion

In 2019, Kenya's GDP was $95.5 billion (World Bank).

5,7%

The country's economic growth averaged 5.7% between 2015 and 2019

Kenya is one of the fastest growing economies in Sub-Saharan Africa. According to the World Bank (2021) the performance of the Kenyan economy has been boosted by a stable macro-economic environment, positive investor confedence, and a resilient services sector.

Manufacturing

Manufacturing accounts for 8.4% of GDP.

Construction

The construction and real estate sector is one of the fastest-growing sectors in Kenya.

Important source

Kenya has a potentially important source of high-value mineral commodities such as titanium and gold.

Agriculture

Agriculture remains the backbone of Kenya's economy, accounting for more than 35% of her GDP, with more than 70% of Kenyans earning at least part of their income in the sector.

E-commerce

E-commerce services and innovation across all sectors haves been experienced. For instance, Kenya was the first country to sell government bonds via mobile phones and internet access rates are some of the highest in sub-Saharan Africa.

Tourism

The tourism sector has also experienced growth with sector earnings of $1.61 billion in 2019 (Reuters). This, however, has been severely affected by the COVID-19 pandemic.

Information Technology

The Information Technology sector is also a fast-growing business sector in Kenya, recording some of the highest internet access rates in Africa.

In 2018, President Uhuru Kenyatta outlined the "big four" agenda, covering:

- Food security
- Affordable housing
- Universal healthcare
- Manufacturing

The big four agenda forms the focus of the current administration in dispensing duties, and will present opportunities for trade and investments for both local and international firms.

Like any other country, the COVID-19 pandemic has affected Kenya's economy.

Demand and supply fluctuations have been experienced and have caused a slow down of economic activity by 0.3% of the real gross domestic product in 2020 (World Bank, 2021).

Manufacturing and many service sectors like tourism and education have also been severely disrupted.

KENYA'S BUSINESS CLIMATE

Kenya has a market-based economy and is generally considered the economical, commercial, financial and logistics hub of East Africa (Source: USAID). With the strongest industrial base in region, Kenya has been successful in attracting exporters and investors who take advantage of the country's strategic location, diversified economy, entrepreneurial workforce, comprehensive air routes, and status as a regional financial centre.

The World Bank's 'Ease of Doing Business Index' shows Kenya ranking at 56 globally, moving up 80 spaces since 2014.
In these years, the government initiated a broad range of business reforms in:

- The areas of starting a business
- Obtaining access to electricity
- Registering property
- Protecting minority investors
- Streamlining insolvency rules

Kenya is also experiencing a strong flow of Foreign Direct Investment, with the majority of foreign investment going into renewable energy projects. However, businesses operating in Kenya face several challenges, majorly corruption, land titles, and policy inconsistencies like changing tax rates.

GLOBAL DEVELOPMENTS IN THE TRANSITION TO A (MORE) CIRCULAR ECONOMY

The world is increasingly aware of the challenges caused by the linear economy.

In 2019, over 92 billion tonnes of materials were extracted and processed → **contributing to about half of global CO2 emissions (WeForum)**

The use of global resources has tripled since 1970 x 3

Could double by 2050 if we continue with 'business as usual' x 2

This extraction rate is far beyond the limits of our planet. The population is also rapidly increasing and needs to be well provided for within the planetary boundaries. There is no question about it, the world needs a new economy.

The European Commission adopted the new circular economy action plan (CEAP) in March 2020. The EU's transition to a circular economy will reduce pressure on natural resources and will create sustainable growth and jobs. It is also a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss.

The African Circular Economy is vibrant and innovative. Currently, most circular solutions are inspired by the waste management situation.

However, since Africa is on a rapid growth curve, there still lies great opportunity to thrive by creating effective systems for a resilient social-environmental system. The focus needs to shift from solving 'waste' problems to redesigning, innovatinge and investing.

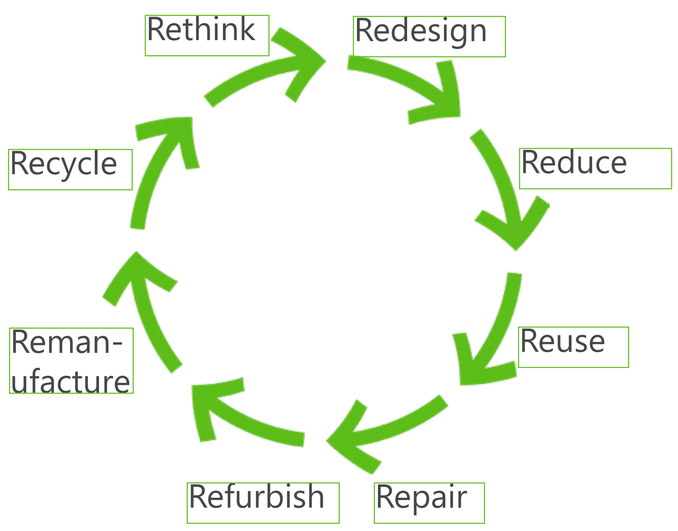
The circular economy is growing in Kenya, however, more needs to be done to ensure policy priorities are budgeted and appropriated for the economy to fully go circular.

Companies need to get ready for a circular economy approach and look at all aspects of their business and value chain following the circular Rethink, Redesign, Reduce, Reuse, Repair, Refurbish, Remanufacture and Recycle thinking approach.

Although a circular economy is a logical and natural cycle of how we use resources, it is not so simple to successfully adopt and operate a circular economy. It requires an 'all-in-approach' from the industry, citizens, and, government.

At the same time, this shows a great deal of inclusion in the circular economy model. Not only is it an environmentally friendly approach, it creates jobs along the way. For businesses, it creates environmental value, customer value, resource value and informational value. The model is all about building a sustainable business in every aspect.

According to the Ellen MacArthur Foundation, the three principles of working towards the transition to a circular economy are: phase out waste, be regenerative and use renewable energy. The circular economy will provide a completely new system with tremendous opportunities for a future-proof society.



KENYA'S POLICY FRAMEWORK

How does Kenya's policy framework contribute to a sustainable circular economy? New policies, laws and legislations are pushing for change. This is an overview of the most instrumental policies.

The Constitution

In chapter 4 of the constitution (the Bill of Rights), every person has the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislative and other measures.
In other chapters and clauses the right of every Kenyan to reasonable sanitation standards, safe water, sustainable land management among others.
To have this right in the constitution can be considered the vision for the country and this should guide strategies and other policies to achieve the 'rights' we have.

Kenya Vision 2030

Kenya Vision 2030 is the country's development blueprint covering the period 2008 to 2030. Its objective is to help transform Kenya into a "newly industrializing, middle-income country providing high-quality of life to all its citizens by 2030 in a clean and secure environment."
Under the social pillar, the blueprint highlights the need for establishing waste management systems in selected local authorities.
The vision picked waste management as a major national issue that needed to be addressed urgently.
Plastics management was captured as a flagship project that **needed to be addressed urgently** through public-private partnerships.

Environmental Management & Coordination Act (EMCA)

This is the framework law guiding waste management in Kenya. It is the framework law on environmental management and conservation. EMCA also establishes national and county implementation institutions like NEMA. The Act provides for environmental protection through; Environmental impact assessment; Environmental audit and monitoring Environmental restoration orders, conservation orders, and easements.

- Ban on plastic carrier bags
- Plastic ban in protected areas takes effect in June 2020
- Extended Producer Responsibility (EPR) Regulations 2020 published in Feb. 2021
- The revision of the building code

Waste Management Regulations 2006

The rules provide a framework to use in sustainable management of waste that include transportation, recycling, and recovery up until disposal of waste in Kenya.

National Solid Waste Management Strategy 2015

The strategy lays the framework for improved solid waste management, inclusive of plastics in the country. It's aim is to establish collaborative ways for major counties in Kenya to act systematically, and achieve the overarching goal, which is zero waste.

The Green Economy Strategy & Implementation Plan (GESIP) launched in July 2017

GESIP is a blueprint for enhancing low-carbon, resource efficient, equitable and inclusive socio-economic transformation. The plan will aid Kenya's transition to a sustainable path through five thematic areas and strategies, including: promoting sustainable infrastructure; building resilience; sustainable natural resource management; promoting resource efficiency and social inclusion and sustainable livelihoods.

E-Waste recovery and recycling in Kenya

The Bill commits the government to put in place measures to reduce the amount of waste generated and, where waste is generated, to ensure that waste is reused, recycled and recovered in an environmentally sound manner.

OTHER RELEVANT STRATEGIES

Climate Change Act

This Act provides a framework for promoting climate resilient low carbon economic development.

Nationally Appropriate Mitigation Actions (NAMAs)

Circular Economy Solid Waste Management Approach for Urban Areas in Kenya.

Bio-energy strategy 2020-2027

Kenya Climate Smart Agriculture Strategy

Kenya National Energy & Conservation Strategy

RELEVANT ORGANISATIONS INFLUENCING A SUSTAINABLE CIRCULAR BUSINESS CLIMATE KENYA

Transition to a new economy takes an all-in approach, multi-stakeholders efforts and collaboration. In Kenya the following organisation are actively driving the shift towards a circular economy.

Kenya Private Sector Alliance (KEPSA)

This is the apex body of the private sector in Kenya with a membership of over 500,000 businesses. KEPSA is a key player in championing the interests of the Kenyan business community in trade, investment and industrial relations.

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Environment Sector Board

The entry point between KEPSA and the Government on Policy advocacy. This Board has also contributed to major CE milestones, and has a CE subsector board to prepare the industry's position on this matter.

Sustainable Inclusive Business Kenya (SIB-K)

The knowledge centre under the Kenya Private Sector Alliance, focusing on the Circular Economy, People Power, Biodiversity and New Business Values. SIB-K hosts the annual Circular Economy Cconference, bringing together various stakeholders to champion for the swift shift to a sustainable economy in the country. SIB-K also contributed to the Sustainable Waste Management Bill 2019, the EPR regulations, Kenya's first PRO and is the Kenyan lead of the Kenya Plastics Pact.

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Kenya Association of Manufacturers (KAM)

KAM represents business members of the manufacturing industry. Keen on catalysing recycling in Kenya, KAM led the development of the Kenya Action Pan, collaborated with SIB-K in forming a PRO among other initiatives.

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National Environment Management Authority

This agency was established under EMCA 1999 to ensure sustainable management of the environment through exercising general supervision and coordination over matters relating to the environment and; to be the principal instrument of government in the implementation of all policies relating to the environment, most notable, the plastic carrier bag ban.

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Kenya Association of Waste Recyclers

KAWR is the umbrella body for the private sector industry involved in the materials recovery from waste by retrieval, repair, refurbishment, recycling, remanufacturing, composting, power generation, or any other initiative aimed at extracting value from material that would otherwise be discarded.

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Kenya Green Building Society

KGBS aims at transforming the built environment in Kenya toward environmentally sustainable buildings, promoting a healthy and efficient built environment. They also advocate for the use of recycled material for construction.

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Kenya Association of Resident Associations

KARA is an apex body mandated to facilitate formation of residents' association and coordinate their activities with a view to tackling service delivery challenges in a structurally unified voice. They can play a pivotal role in the coordination of waste segregation and collection activities within residential areas.

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Ministry of Environment

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The ministry has been at the forefront of the transition to a circular economy in Kenya by involving and partnering with the private sector in the policy formulation process.

TOWARDS A CIRCULAR ECONOMY IN KENYA

The constant growth of the Kenyan economy offers a great range of opportunities and possibilities to rethink materials & business models, redesign products and close the loop solutions. While many developed countries are now correcting the mistake, Kenya can thrive responsibly.

Kenya is one of the leading Circular Economy hotspots in East and Central Africa. There are efforts from different fronts to close loops and to create different business models.

Support organisations like the **KEPSA** and **KAM** have played an important role in creating awareness, convening value chain actors, catalysing solutions that make business sense and influencing policy.
Dynamic businesses on the other hand do what is within their knowledge, technical and financial capacity. Oserian, for instance, is a flower farm in Naivasha with no organic waste. **PETCO Kenya** is setting up a recycling centre for plastic, **WEEE centre** is collecting and refurbishing electronics; **T3** is recycling PET to fabric; and many more which will be highlighted in the trends and good practice section.

In Kenya, the circular economy continues to be understood primarily as a waste management and recycling strategy by many, but the economic opportunities are far broader and more diverse. There is, therefore a lot more that needs to be done to think about circular models from design perspective instead of waste, and to bring on board more businesses.
Going forward, advocacy awareness needs to be deliberate and intentional to ensure the benefits of circularity are well communicated and augmented for smooth integration. Also, collaboration among the government, private sector and academia need to be effective to ensure the knowledge crystalises in the right platforms for action and uptake.

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IMPORTANT MILESTONES

February 2017

Plastic Carrier Bag Ban

Sept 2017

Ban of use of the disposable PET bottles in Karura Forest by the Ministry of Environment and Forestry. Other areas include the National reserves and Game Parks, a move aimed at conserving and protecting animals and nature within this ecosystem.

October 2017

Establishment of the PET task force
(A partnership between KAM, the Ministry of Environment and Forestry and the National Environment Management Authority (NEMA).
The task force's purpose is to – have both the private sector and government support each other in management of waste PET bottles.

May 2018

Framework of Cooperation (FoC)
with Private Sector (Kenya Association of Manufacturers) and National Environmental Management Authority (NEMA) on PET plastic.

Nov 2019

Launch of the Kenya Plastics Action Plan (KPAP)
As a result of the FoC, KPAP was launched. It is a private sector led initiative that aims at establishing a voluntary centre for post-consumer plastic management through an industry-led Producer Responsibility Organization (PRO). Kenya PET Recycling Company (PETCO) was established in 2019 as private- sector led PRO to catalyse sustainable management of plastic waste via "Polluters Pays Principle". The plan predicts a plastic recovery and recycling regime that would grow by 6% annually to 30% by 2030.

June 2020

Single Use Plastics Ban
(Gazette Notice No.4858) Ban of use of specific Single Use Plastics items plastic bottles, straws, and related products within the protected areas in the national parks, national reserves, conservation areas and any other designated wildlife protected areas.

October 2020

Business Plan Model for a PRO
Kenya Association of Manufacturers (KAM) in collaboration with the Ministry of Environment and Forestry (MoEF) and Sustainable Inclusive Business under KEPSA Foundation, officially launched the Business Plan Model for a PRO, the first of its kind in the country (besides the specific PRO for PET; PETCO). The Business Plan Model is tailored to the Kenyan framework and taking into consideration current draft regulations for the EPR.

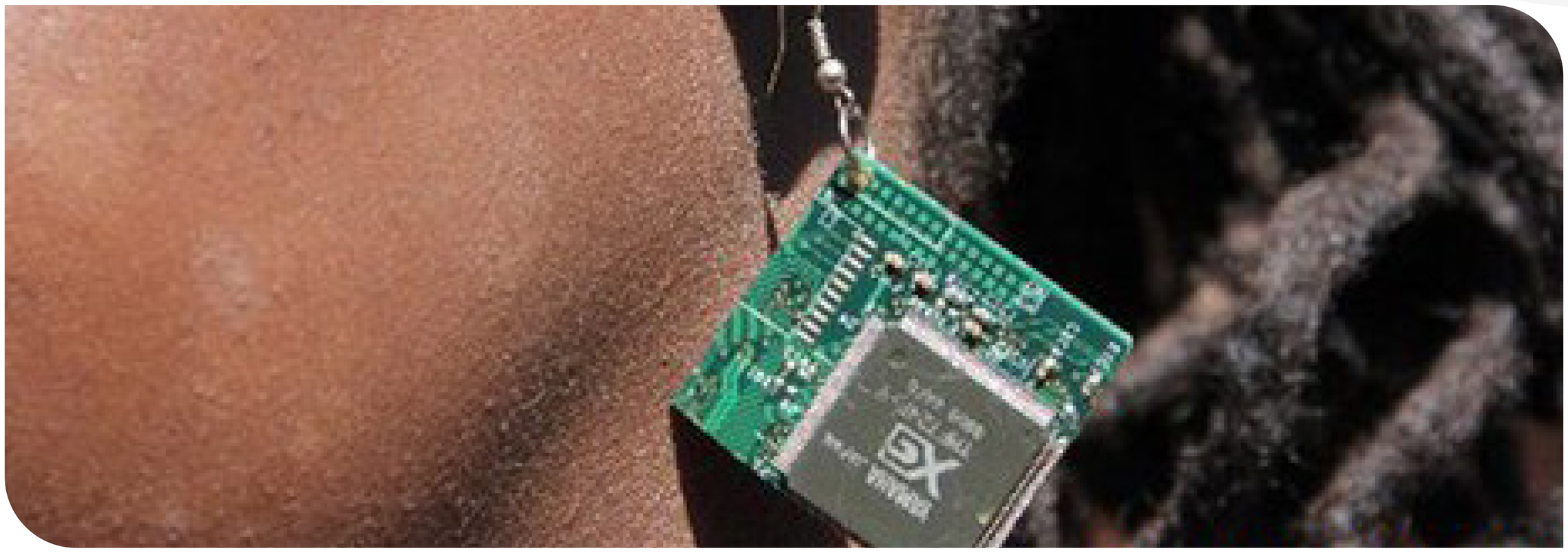
February 2021

Kenya launched the EPR regulations
It provides for extended producer responsibility for all products and waste streams in all phases of their life cycle to enhance environmental sustainability.

TRENDS & OPPORTUNITIES IN CIRCULARITY IN KENYAN ECONOMY

In the trends described, various sectors will be highlighted. Circular Economy principles are not sector based, they cut-across. A farm will not only farm regenerative, but also has to rethink transport and packaging. Therefore some issues, opportunities, sectors and trends come together.
The Netherlands is a European front runner in the transition to a circular economy. She is also Kenya's natural partner, collaborating with government, funders, businesses and experts to facilitate the transition to a circular economy.
The trends in Circular Economy in Kenya offer a broad range of business opportunities for innovative Dutch companies. Looking at the many examples that are Dutch owned, initiated, designed or managed we foresee, with the ambitions and the improved business climate in Kenya, that this will only have the potential to grow.

1 Resource Efficiency is key



Kenya is well-endowed with natural beauty and many diverse natural resources. Iron, gold, water, coal, sand, limestone, salt and many other rare gemstones are mined in Kenya. This brings a focus on the value of resources and therefore, on resource efficiency with an opportunity to rethink materials. For instance, creating construction material out of reused materials (waste), treating waste-water, repairing/refurbishing electronics – these are opportunities to create new industries (and transform a value chain), where a by-product of one is a raw material for another, and it creates employment in the process. In Kenya, infrastructure development and construction projects are only on the rise.

Currently, construction is using fresh water, and demolished buildings end up on one pile of 'waste'. Tremendous potential for carbon emission reduction, keeping resources in the loop are within the sector that uses resources that are very suitable for reuse and recycling. Materials like steel, aluminium, wood, glass, cement are all 100% recyclable and steel even becomes stronger during the recycle process. Besides resource efficiency, there is also the process of resource processing, for instance, processing sand to glass instead of exporting sand and importing glass. These are areas of opportunity for circular growth.

2 Renewable energy, carbon free power generation is firmly on track

The renewable energy sector in Kenya is among the most active in Africa.
Today, Kenya is the largest producer of geothermal power in Africa at 200 MW.
In 2011, Kenya was also the first country in Africa to open a carbon exchange. From the seven forks project in the Tana Delta, to the Turkana Wind Power Project in Turkana County (biggest private equity funded windmill project in Africa), to the geothermal power plant in Naivasha, the country is indeed making a strong statement on renewable energy. In this transition we see interesting businesses sprouting up like Asobo (electric engines for fishermen on lake Victoria).

The government is also already in its last phase of the last mile electricity project that will see close to 70% of the population get access of the national grid power by 2022.

The development of Power Africa strategy by USAID has also seen a plethora of angel investors put up solar mini-grids that power villages including town centres in rural Kenya. Solar power is a great renewable energy source and with examples like Solinc ltd., Kenya is well on the way to set the tone for Africa. Solar energy has always been the preferred alternative for off-grid energy on household levels and especially remote areas.

Companies like Mkopa provide the ultimate household solution including the devices via a payment system linked to Mpesa are examples of how to make energy accessible and affordable leaving no one behind. One of the investors behind Mkopa is DOB Equity (Dutch Fund). Renewable energy opportunities exist in all categories. With Solar power, we do need to consider the responsible dis-assembly, re-use and recycle of the E-waste components. Solar waste, should be addressed now, before the first batch of 'expired' products overwhelm the market as waste.

Solinc Ltd. Assembly factory in Naivasha, Kenya

3 Entrepreneurship and innovation are hot

The Rockefeller Foundation identifies Kenya as a global innovation "hot spot" as Kenyans are innovative and receptive to new ideas.
Within this is an opportunity to create more employment by identifying what businesses need in a sector and create need-based innovation.

Watch out for changes in policies, new laws and what this implies to existing businesses.
In the tourism and hospitality industry, for instance there is a need for locally produced alternatives for all types of single use plastics (especially now with the Single-Use-Plastic ban in restricted areas) and in hospitality for take-away materials and cutlery.
The market is ready and proactive as businesses are already importing alternatives.
A local business could easily thrive on this and many more circular business solutions are needed in different sectors.
From take-make-waste, we will move to design, make, reuse, repair, refurbish, remanufacture and recycle.
All these are extra cycles that will redesign value-chains and create job opportunities.

GreenThing, Kenya

4 Workforce for the future

Kenya is endowed with a skilled and dynamic workforce. All educated Kenyans can speak English, and the workforce is healthy with international and local expertise.

There is also a great need for employment as Kenya's unemployment rate currently stands at 10.4%. This is a great opportunity to create circular jobs, ranging from low skilled activities in repair and recycle to high skilled jobs in engineering.

Kenya, like many other countries, does suffer from the 'academic paper syndrome', where everyone preferably needs a master's degree from a university.
It is time to shine a light on the future skills, curriculum and vocational training; which are needed in a circular economy.

These need to be promoted by positive communication that will cause a mind-set shift. Currently, there is a skills gap for well-trained, professional handymen; electricians, carpenters, plumbers, mechanics, etc.

Gjenge Makers - CEO Engineer: Nzambi Matee

5 Public-Private-Partnerships are going hand-in-hand

Both business and government alike are intentional about the transition to circularity. This is evident in the partnerships witnessed in the drafting of the Waste Management Regulations, the EPR regulations and other collaborative frameworks.
On all levels of government, there is direct inclusion of private sector bodies.

In Kenya it is understood that the government is responsible for law, policies and strategies; it's the private sector (the country is over 80% driven by private sector) that needs to implement and drive the change.

The need for innovative, new, sustainable and inclusive business ideas and development - that provide close-the-loop solutions is highly recognized by international NGO's, Governments, and the Civil Society. Businesses are no-longer comfortable in the space of business-as-usual. However, the feasibility of certain changes and models is not yet guaranteed. This has led to the provision of many funding opportunities. Through the EU Green Deal international partnership program, funding opportunities are increasing and becoming more accessible to sustainable and innovative businesses, and especially SMEs.
Therefore, Circular Economy, sustainable business and green impact present opportunities for funding.

6 The future is not plastic

1 Single Use Plastic Ban Infographic

2 EPR Regulations 2020 Kenya

3 Singe Use Plastic Trend Report

From 2017, the government of Kenya has been on a roll, gradually phasing out plastics, in all its forms, through legislation that has seen the ban on plastic carrier bags, ban on specific Single-Use Plastic items (SUP) in all protected areas since June 5th, 2020 and the EPR legislations.

The ban has fast-tracked the development of policy regimes that support circularity by and largely within and outside the private sector. The ban has been widely accepted as timely and proper in line with the National Sustainable Waste Management Bill a 2019.

7 New policy frameworks supporting a circular economy

Circular Economy policies are attracting more and more attention from policymakers within the country. This is resulting in an increased amount of policies that stimulate the change needed for the economy to become more circular. In parliament, the National Sustainable Waste Management Bill has been approved by the cabinet and is now going through the parliamentary process to become a law.
The Extended Producer Responsibility (EPR) legislation was also presented in February 2021 and is undergoing revisions by various industries before incorporation into the law.

The water sector in Kenya is still organising due to the Water Act 2016 that brought new developments and alignment in line with the 2010 Constitution.

This realignment stage allows space for the incorporation of sanitation as an added service including digitalization of service in line with Vision 2030. Many companies have adopted water recycling in line with sustainability strategies developed.

8 Businesses commit to Extended Producer Responsibility (EPR) schemes

In as much as EPR schemes are new in Kenya, the private sector had responded positively. With the help of multi-stakeholder engagements, the new EPR policy is a policy pending approval into law. This is a clear case for Rethinking current business models, product design, use and, revaluing materials and resources.

With 19 products covered in the policy, businesses are required to take back their post-consumption material and reuse, refurbish, remanufacture or recycle them. Innovation, investments, alternatives, and partnerships are all needed to meet these obligations.

The schemes will oversee the sustainable management of different waste streams as well as the development of a national registry system of all waste materials, inclusive of both imports and exports. The registry will be reviewed periodically, tracing the of material value chain, from the producer to the final consumer.
Producer Responsible Organization (PRO) will also allow the development of new businesses in Kenya in upstream solutions (redesign, innovation, new material recovery technologies and smart alternatives) as well as services that enhance collection ability and recycling.

Currently PETCO, and KEPRO (in development) are PROs in place to take care of EPR obligations for their members. Users of plastic packaging, like BIOFOODS, are investing and exploring the use of different types of PET to create a more recyclable product. The efforts of BIO FOODS (launched in the presence of the PS. Dr. Kiptoo - (Ministry of Environment & Forestry) around EPR do fit into their overall sustainability strategy.

9 Regenerative Agriculture gaining traction

Agriculture is Kenya's biggest (export) sector. Investing in and developing regenerative agriculture can contribute to water smart solutions.
More and more cooperatives, farmers and growers are reviewing their business models and including quality hybrid seeds, soil enhancing methodologies
(like: **Safi Organics**), education, inclusion, water smart solutions (like: **SunCulture** provides solar-powered irrigation solutions for farms, that ensures water at all times, animals and crops do not wither to waste in case of drought) and postharvest control tools as part of their future model.

Recently the country has become a good launch-pad for farmers pioneering regenerative agriculture. The practice though new, has gained prominence due to its model that employs simple technology that reinvigorates and revitalize the soil as well as the environment in general.
In Kenya, the biggest food losses are at the farm level. The main contributing factors are lack of timely markets and lack of postharvest storage.

All projects that try to improve the agricultural potential of Kenya start at the source; quality seeds and agri-smart farming, and cold and dry storage rooms for produce.

Great examples in Kenya are **Florensis** (Dutch flower farm), Oserian and Tambuzi. Efforts are also in place by Flowerwatch to transform the industry's transition to a circular economy. Sweetunda jumped into post-harvest losses with the conversion of fresh fruit into dried fruit. They intervene on issues like sustainable packaging and efficient logistics.

10 Green Sustainable cities are a must

The building and construction sector is a key sector for sustainable development. From a global perspective, this sector typically provides 5% to 10% employment nationally and generates between 5% and 15% of a country's GDP.

Green building has lately become a trending subject in Kenya. Also known as eco-friendly construction, green building entails the creation of structures that have a low environmental impact throughout their life cycle: from design, construction, operation, maintenance, renovation, and demolition stages. It is important to note that green building techniques differ from region to region, but the general areas of action include structural design, energy efficiency, materials efficiency, water efficiency, operations, and maintenance optimization, and waste and toxic reduction.

In March 2017, Kenya hosted the Africa GB forum in which the Kenya Green Building Society organised on-site training.
In conjunction with public, private, academia, and civic sectors, Green Africa Foundation recently created the Green Africa Building Standards, Certification and Rating Systems aimed at mitigating the impact of buildings on occupants and the natural environment.
Through their rating system, a "Green Mark" award certificate can be given to all types and sizes of buildings that respect green best practices. In the commercial market, especially in tourism, the business case is well articulated, and projects can enjoy operational savings. According to the Green Market Intelligence Report, by 2018, there were about 24 green building projects in the pipeline of being completed by 2022. The Green Building movement is looking for trained staff and green building technologies.

Keeping resources in the loop by reuse, reducing waste, and recycling waste is key to bear in mind while planning the future of urban areas.
It requires a systematic change in design for buildings, infrastructure, and the design of an urban area. Sanitation, proper waste management, air-friendly transport solutions (like bicycle lanes, green busses, electric vehicles), affordable and sustainable housing are all essential to leave no one behind but also to provide a growing population with circular and sustainable future proof concepts.

This requires a circular approach at the core, the very beginning of urban planning stages.
Sanergy has been taking up the task to offer solutions for sanitation in very high- density areas.
Dasuda is a Dutch Urban Planning agency with pioneering work done in Kenya and the **Rebel Group** has also opened their offices in Kenya, in anticipation of a need that will be on the rise.

Zooming through town. Wishful thinking?

Vehicles and automobiles form one of the key economic sectors in Kenya. The traffic is unbearable and the flow in the cities is catastrophically low. Massive infrastructure projects are on the daily menu. This will create better connectivity in the long run.

However, true sustainable urban planning has not been taken into account. Bicycles and bikers tracks don't exist even as these become more preferable means of transport. Electric public transport, shared use models, and Uber like concepts are needed and sprouting up.

Uber has been meeting friends like **Bolt**, **LittleCab** and **Swvl**, all offering car and motorbike services.
Decathlon brings your online shopping on the bicycle and many restaurants are adopting bicycle and motorcycle delivery options.

Synergies with the circular economy transition lie in particular by applying product-as-service solutions to reduce virgin material consumption, use sustainable alternative transport fuels, optimise infrastructure and vehicle use and increase occupancy rates and load factors.

11 The Informal Economy as an Urban Lab for CE

Kenya's hub of circularity has been largely in the informal sector "Jua kali", where metal and plastics materials have been undergoing recovery into useful household items.
The informal sector has been accelerating circularity in Kenya since the 1990s though their impact has been largely undocumented. The repairers, commonly known as the Fundi's have been at the forefront in integrating modular designs on metal waste leading to the creation of affordable household affordable items even some for export.

The COAST project (by educating survival entrepreneurs) and other organization like Takataka solutions (organized collection and sorting), Mr. Green (organizing informal waste pickers with established trading points and fix market prices and incentives) and the Circular Economy Hub by Close the Gap in Mombasa, boost / include and incubate the new workforce young (digitally) talented people in the hub space. young (digitally) talented people in the hub space.

If we can redirect the informal sector towards a role in 'closing the CE loop, this can lead to volume, scale and max impact.

> Kenya's economy is rich of many sustainable initiatives and circular practices coming from the informal market or activity, "existing but not yet captured".

— Dr. Pacifica Ogola, EU-Kenya Conference on Green Diplomacy, May 2021

12 Digitalization offers new tools for CE

The expansion of digital platforms in Kenya has offered new opportunities for CE business models to thrive. The advent of high-speed fibre internet has seen the growth of platforms and networks that espouse principles of CE. For example, the installation of digital meters along water infrastructures has minimized loss of water as a result of leakages. The use of satellite data to monitor forest cover has led to the integration of big data into Circular Economy data reporting.

The over 80 Water services companies under the Water Services Regulatory Board (WASREB) are in the process of being overhauled to respond to the divergent needs of the water consumer, incorporating both technology and science to ensure that water which is a function of human health, reaches more people with minimum loss.

The advanced digitalization of Kenya also enables new CE business models where ownership of goods is shifted into a service model of using the goods.

In Kenya almost 50% of the GDP runs through Mpesa. This mobile money platform from Safaricom is a foundation for many more innovations to manage and control access to their services and goods (examples: Mtiba (a mobile phone service to set funds aside for healthcare, developed by Dutch company CarePay).

The digital devices used to access digital services and use of tools are always up for improvements and advancements. This is why digital devices, electronic equipment quickly expire and turn into electronic waste.

In Kenya we see the number of firms in the assembly, testing, repair and maintenance of electronic goods are in operation and are rapidly increasing their scope of activities to meet the growing demands of the business & society.

Seed funding for refurbishment plants like WEEE Centre in Nairobi and the Close the Gap in Mombasa (funded by Netherlands Enterprise Agency) are needed to cover the time and set-up costs to transitions to a (more) local market from refurbishment to sales. Other key needs for the transition include knowledge exchange, innovation and technical skills.

With the Sustainable Waste Management Bill and the Electronic Waste Policy & Strategy in place, Kenya is definitely moving towards a circular digital world.

Bonnie Mbithi, CEO WEEE Centre

13 Don’t create waste and don’t waste

image by freepik

Although the Kenyan waste initiatives are relatively new, waste management opportunities will arise in the coming years, from waste separation & collection systems, (bio) waste – to- energy, recycling technology, training, and consultancy.

To develop the waste management infrastructure in Kenya based on the circular economy principle there is a need for ‘closing the CE loop’ entrepreneurs, turning local waste streams into products for the local markets.
An example of upcycling plastic waste is **Green Pavers** turning waste into building materials.

At the moment, most of the plastics that are recycled are collected and washed and shredded into small plastic pieces and sold to different local and international companies for manufacturing. This does not help the cycle of resources to close.
For example, PET bottles used for water and soft drinks should technically qualify to become PET input for the same products.
To set up a closed-loop PET cycle, there is a need for high-quality PET, a clean collection of only PET bottles (preferably transparent in colour), and recycled in the country for production of new bottles. Partnerships to increase volume, smart collection technologies and high quality recycle techniques are necessary to produce food-grade PET.

With the rising middle class in Kenya the consumption of high-end well-packed products are growing as well. The volumes of packaging waste is a huge concern.

Enabling openings for multi-use packaging, alternatives for plastics and for packaging-free solutions is key in the years to come. The opportunities in the re-use models, (re) distribution-models, are endless, but they require out-of-the-box thinking.
For example, making drinkable tap water accessible in public places will reduce dependence on bottled water and prevent packaging waste.

Businesses are also looking for affordable technology for waste collection, waste separation and better recycle processes.
An example of a business that is currently extending the collection and seperation activities into on-site recycling and composting is:**TakaTaka Solutions**.

Mr. Green has created a business model for waste collection around informal waste pickers; by formalising them and guaranteeing a fixed market price they take the waste out of the environment and bring them to their plant for recycling.

Plastics is not the only waste stream that needs to be redesigned for a circular future. Most of the waste generated in Kenya is organic and currently of no value (unless composted on e.g. farm site and used at the farm again).

And what about waste water? **Nawasco & VEI** collaborated to turn waste water sludge into briquettes, phasing out waste and creating an environmentally better and healthier option for charcoal.

14 Fabrics are never going to be out of fashion

Textiles and apparel industries are very labour intensive and can play an important role in alleviating unemployment. Fast fashion and the resources used for it and production processes are very unsustainable. The future of fashion should be in the reuse and recovery of textile, efficient production, and new business models.
Kenya has an annual import of over 100 million kilograms (kg) of second-hand clothes. These items mainly come from Europe, Canada and the US. After re-use, these items end up at the overflowing dumping sites.

Africa Collect Textiles (ACT) is an initiative to collect used textiles and footwear for re-use and recycling. The current amount of textiles discarded by the public and other parties (traders, tailors, etc.) in urban Kenya is estimated at 35 million kg yearly, of which 20 million kg is in Nairobi.
Within the next 10 years, ACT aims to collect and recycle more than half of Kenya's lost textiles.
Opportunities arise in the field of facilities for transforming used textiles into new fibres, new fabrics (naturally dyed), and other textile products. At the moment if it is being 'recycled' it ends up filling for car seats, busses, and other insulation / cushioning purposes. For the textile recycling sector companies are looking for ways to collect clean textiles in big volumes which will enable them to upscale and create a sustainable business model.

CHALLENGES...

Kenya might have her nose pointing in the right way, but hiccups, challenges and roadblocks are definitely there. A bullet list to keep in mind while weighing and exploring the opportunities.

- Legislations & policies are new and thus not yet implemented
- Tax and regulations are fairly unpredictable – which makes big investments risky
- At the start of innovations the laws come later and sometimes the current ones don't cater for a smooth and fast start-up process
- Innovations needs finance and quick volume to proof the concept of scale, to get all stakeholders aligned and convinced might take time
- In Kenya copy paste syndrome can create some competition before starting
- Importing goods and materials is fairly complicated and expensive
- Electricity is expensive
- Cities are very congested with traffic
- Unconventional business practice might create unfair competition for businesses that work in a fair and transparent manner

CONCLUSION

The Circular Economy Action Agenda is a rallying call for businesses, governments, researchers, consumers, and civil society to work together to accelerate the transition to a circular economy. Kenya, as the East African hub, is clearly joining the journey towards a Circular future. This is still in the early stages of creating the infrastructure we need; a great space of opportunities.

MORE INFORMATION

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EXTRA MATERIAL

- https://www.youtube.com/watch?v=oVlx2UwcpRc
- https://www.youtube.com/watch?v=es3E5XjLjSA
- https://www.youtube.com/watch?v=cU6xn9FBa44

LINKS TO RELEVANT STUDIES

- Kenya Private Sector Action Plan
- Trinomics EU study
- Eunomia
- Footprint CE Africa study
- Kenya Association of Manufacturers & Kenya Business Guide: Manufacturing in Kenya Under the 'Big 4 Agenda'
- Nederland Circulair transitie-agenda's
- EU Circular Economy Action Plan