African Union

Continental Circular Economy Action Plan for Africa

(2024-2034)

The layout and design was supported by the Resilience Initiative Africa (RIA), a project commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.).

Continental Circular Economy Action Plan for Africa (2024-2034)

African Union

TABLE OF CONTENTS

FOREWORD

Africa stands at a pivotal moment in its journey towards realizing Agenda 2063 – 'The Africa We Want'. Our continent's immense potential for sustainable development, green growth, and shared prosperity is undeniable, filled with innovation, youthful energy, and unparalleled natural wealth. However, the prevailing linear "take-make-dispose" economic model, characterized by excessive resource extraction and unsustainable consumption and production patterns, poses a clear and present danger. This model intensifies environmental degradation, exacerbates the three planetary crises of climate change, biodiversity loss, and pollution, and disproportionately impacts our natural capital and the well-being of our communities and threatening the foundations of our progress.

It is in this crucial context that the African Union Commission (AUC) presents the Continental Circular Economy Action Plan (CEAP) (2024-2034). This strategic framework is more than just a document; it is the culmination of a dedicated, multi-stakeholder process, ignited by the visionary decisions of the Third Specialized Technical Committee (STC) on Agriculture, Rural Development, Water and Environment (ARDWE) held in October 2019, and the Seventeenth Session of the African Ministerial Conference on the Environment (AMCEN-17) held in November 2019. These key mandates called for a holistic shift beyond waste management to embrace the transformative power of a circular economy – a pathway to resilience, innovation, and self-reliance.

The tireless efforts of the Expert Working Group on Circular Economy, established in 2020, along with the invaluable contributions from AU Member States, Regional Economic Communities, development partners, including the European Union Delegation to the African Union – have been instrumental in shaping this comprehensive roadmap. Their dedication has forged a plan that is both ambitious and pragmatic.

As the Commissioner for Agriculture, Rural Development, Blue Economy and Sustainable Environment, I am profoundly honoured to oversee the official launch of this landmark Action Plan. While its foundations were meticulously laid under the steadfast commitment of my esteemed predecessor, H.E. Ambassador Josefa Correia Sacko, I am fully dedicated to championing its rigorous implementation across our continent.

This CEAP is closely aligned with, and further reinforces, key African Union strategic frameworks, including the AU Climate Change and Resilient Development Strategy and Action Plan (2022-2032), the transformative vision of the African Continental Free Trade Area (AfCFTA), the emerging African Green Mineral Strategy, the AU

Green Recovery Action Plan (AU GRAP) and the CAADP Strategy and Kampala Declaration. By promoting resource efficiency, cleaner production, and regenerative practices, the CEAP offers a powerful mechanism to decouple economic growth from environmental degradation, unlock new value chains, create jobs, and build resilient, sustainable economies within planetary limits.

Turning the aspirations of this Action Plan into tangible progress is a shared responsibility and a truly generational opportunity. Its successful implementation will depend on the unwavering commitment and collaborative efforts of all stakeholders: African Union Member States, Regional Economic Communities, the private sector – from established industries to innovative start-ups – academia, civil society organizations, and our international partners. Through collective action, robust partnerships, and strategic resource mobilization, we can transition Africa towards a competitive, inclusive, and sustainable circular economy that safeguards our environment, creates dignified livelihoods, and secures a prosperous future for posterity.

I extend my deepest gratitude to everyone who has contributed to reaching this pivotal moment. Let us now embark on this transformative journey together, building the Africa We Want – a continent that leads the way in sustainable and equitable development.

Moses Vilakati,

African Union Commissioner for Agriculture Rural Development Blue Economy and Sustainable Environment

ACKNOWLEDGEMENTS

The successful development and realization of the African Union Continental Circular Economy Action Plan (2024-2034) is the culmination of a collaborative, multi-stakeholder process spanning several years. The African Union Commission (AUC) extends its deepest gratitude to all institutions, partners and individuals, whose unwavering commitment, financial support, technical expertise, and other invaluable contributions were instrumental in shaping this strategic roadmap for Africa's sustainable future.

A special acknowledgment is due to the Expert Working Group (EWG) on Circular Economy, which served as the core technical and advisory body, diligently guiding the process through multiple critical meetings and consultations. The Circular Economy Action Plan (CEAP) also greatly benefited from the active engagement of AU Member States, Regional Economic Communities (RECs), development partners, individual experts, and consultants. Extensive stakeholder consultations, along with a validation workshop involving Member States and RECs, ensured broad buy-in and ownership across the continent. This inclusive approach was essential to ensuring the CEAP reflects Africa's unique context, opportunities, and challenges.

The collective efforts of all stakeholders will be vital in translating the aspirations of this Action Plan into concrete actions on the ground, fostering a vibrant circular economy that drives green growth, creates employment, and secures a sustainable and prosperous future for all Africans.

The AUC appreciates the continuous technical support of key partners in the development of this Action Plan, notably the United Nations Economic Commission for Africa (ECA), the United Nations Environment Programme (UNEP) and the European Union (EU) Delegation to the African Union. We also thank the EU for the financial support provided, as well as the technical assistance from Trinomics and the ACEN Foundation.

Special thanks are due to all AUC colleagues, under the astute leadership of Mr. Harsen Nyambe Nyambe, Director of Sustainable Environment and Blue Economy, for their substantive technical contributions and dedicated efforts throughout the development process of the CEAP.

ABBREVIATIONS

ACEA	Africa Circular Economy Facility
ACEN	African Circular Economy Network
AfDB	African Development Bank
ALU	African Leadership University
AMCEN	African Ministerial Conference on the Environment
AMU	Arab Maghreb Union
ARBE	Agriculture, Rural Development, Blue conomy and Sustainable Environment
ARDWE	Agriculture, Rural Development, Water and Environment
AU	African Union
AU EWG	African Union Expert Working Group
AUC	African Union Commission
CE	Circular Economy
CEAP	Circular Economy Action Plan
CEB	Compressed Earth Block
CEDARE	Centre for Environment and Development for the Arab Region and Europe
CEMAC	The Central African Economic and Monetary Community
CEN-SAD	Community of Sahel–Saharan States
COMESA	The Common Market for Eastern and Southern Africa
DAI	Development Alternatives Incorporated
DBSA	Development Bank of Southern Africa
EAC	East African Community
ECA	Economic Commission for Africa
ECCAS	Economic Community of Central African States
ECI	Economic Complexity Index
ECOWAS	Economic Community of West African States
EEE	Electrical and Electronic Equipment
EPR	Extended Producer Responsibility
EU	European Union
EUD	European Commission Delegation
FAO	United Nations Food and Agriculture Organisation
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environmental Facility

ABBREVIATIONS

GGGI	Greenhouse gases
GHG	The Deutsche Gesellschaft für Internationale Zusammenarbeit
GIZ	Human Capital Index
HCI	Human Development Index
HDI	High density polyethylene
HDPE	The Intergovernmental Authority on Development
IGAD	Indigenous peoples and local communities
IPLC	The International Union for Conservation of Nature
IUCN	Japan International Cooperation Agency
JICA	Low density polyethylene
LDPE	Land use, land-use change, and forestry
LUCF	Middle East and North Africa
MENA	Municipal Solid Waste
MSW	National Cleaner Production Centres
NCPC	Official Development Assistance
ODA	Solar Photovoltaic
PV	People with disabilities
PWD	Regional Economic Communities
RECs	The R stands for approaches to product circularity that can either be used independently or in combination with each other. These are known as: Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle and Recover
R-strategy	Regional Sector Working Group
RSWG	Southern Africa Development Community
SADC	Sustainable Development Goals
SDGs	Specialized Technical Committee
STC	Technical and Vocational Education and Training
TVET	United Nations
UN	United Nations Development Programme
UNDP	United Nations Environment Assembly
UNEA	United Nations Economic Commission for Africa
UNECA	United Nations Environmental Programme
UNEP	United Nations International Children's Emergency Fund
UNICEF	United Nations Industrial Development Organization
UNIDO	World Tourism Barometer

EXECUTIVE SUMMARY

This Continental Circular Economy Action Plan for the African Union (CEAP) guides the continent, its regions, and countries on their individual and collective journeys towards circular economy between 2024 and 2034. It directs the continent on a competitive and cleaner development pathway by setting out Africa's key priorities and intervention areas for an enhanced circular economy approach to development. This Action Plan's implementation requires commitment and active participation from all stakeholders across all sectors. African parties and international partners are called to deepen their collaboration and rework political, economic, and trade-related activities, including applying lessons learned and avoiding the pitfalls of resource-intensive practices.

The need for Africa to move towards circularity

Africa's most pressing challenges relate to continuing high levels of poverty and hunger, and its increasing vulnerability to the effects of climate change, which worsen the socio-economic and environmental situation even more. Together with Africa's growing issue related to (mismanaged) waste, associated ecological impacts, and the socio-economic shortcomings of the linear economy, the circular economy represents an imperative paradigm shift to expand the potential of its economic development, making it more future-proof, just, and environmentally friendly.

The potentials and challenges of adopting a circular economy approach to Africa

Leapfrogging the linear and wasteful economy is likely to help Africa reach its full potential, including: a more resilient manufacturing sector and stronger local industries, becoming less import-dependent; creating jobs with a focus on reuse and recycling for its growing and young population; and establishing resilient models and communities by integrating Indigenous knowledge into business-making.

However, several challenges currently limit the circular economy transition in Africa, these include:

1. Lack of a holistic approach to adopting a circular economy (rarely beyond waste management);

2. Limited awareness and communication of the benefits of a circular economy;

3. Market entry barriers for innovation and growth of circular economy business models;

4. Limited coordination of circular economy strategies and action plans, as well as little monitoring of circular initiatives;

5. Insufficient and misaligned financing mechanisms and funding options. This Action Plan aims to directly contribute to solving challenges 1, 4, and 5 while encouraging tackling challenges 2 and 3 at the regional and country level.

Continental's policy and strategic initiatives related to the circular economy since 2017

The launch of the African Circular Economy Alliance (ACEA) in 2017 has given the circular economy greater attention at the continental level. This was followed by events such as establishing the AU Circular Economy Expert Working Group (AU CE EWG) in 2020 and the Kigali Call for Action in 2022[1] .

There are also circular economy-related advances that occurred at the country level. Almost all African countries (52/55) have at least one circular economy-related policy[2] in place, focusing on product policies (e.g., bans on plastic bags). However, their enforcement is lacking, and implementation levels vary significantly. Overall, there are substantial differences across African countries, both at the level of ongoing activities in the area of circular economy as well as in whether the private sector or the government is most active in promoting circular economy developments, which stresses, even more, the need for stronger continental guidance and leadership.

1 A call for action to make more efforts towards a circular economy transition by the Government of Rwanda. This was one of the key outcomes of the first Africa-hosted World Circular Economy Forum in Rwanda in 2022.

2 This can be climate change, environment or sustainability policies, product policies, extended producers' responsibility legislation, waste management and recycling policies or fiscal measures.

3 When using the term 'sectors' it is referred to activities undertaken mainly in the primary sector (which produces raw materials and agricultural goods, including farming, mining, fishing and forestry) and in the secondary sector (which turns raw materials into more valuable, manufactured items, through processing and manufacturing). Energy, water and waste are sectors under the secondary economy. These sectors are defined as horizontal sectors as they play an essential role in the development sectors as they play an essential role in the development of activities in the other primary and secondary sectors (which are referred to as vertical sectors).

4. To identify the priority sectors in each region, a prioritisation matrix was developed that has been filled in based on findings from desk research, inputs from local experts to country snapshots as well as data from our previous work). This prioritisation matrix addresses four separate elements: (1) the economic importance of a sector, (2) its circular economy potential, (3) alignment with policies and (4) its environmental impact.

5.These sectors have been chosen given their relevance across the majority of African countries and the existence of diverse initiatives to build upon to exploit the circularity potential in the short- and medium-term. However, other energy- and resource-intensive sectors, such as such as steel, cement, chemicals, aluminium, glass (where existent) should also become as much as possible circular in the long-term, learning from the transformation and development of the industry sectors covered in this Action Plan.

Priority sectors for circular economy in Africa[3]

Priority sectors and areas have been derived[4] and associated goals and actions to unlock their circularity potential. The priority sectors include three horizontal sectors, i.e. (1) water, (2) waste and (3) energy, and five vertical sectors, which are (4) agri-food and fisheries, (5) transport and mobility, (6) tourism (7) industry[5], encompassing (7.1) construction, (7.2) packaging and plastics, (7.3) electronics and (7.4) textiles, and (8) mining. They might not be a priority for every African country at this point, but might become so later. In addition to the sectors, enabling and cross-cutting elements are elaborated (inclusivity, trade, collaboration, regional industrial capacity, education and capacity development, and finance and business support).

The goals and actions address the AU, Regional Economic Communities (RECs), and Member States to take action. The table below presents the goals of the first seven most important priority sectors (of 11 sectors and 4 cross-cutting themes).

Sectors	Goals		
	1	2	3
Water	Strengthen policy frameworks on the continental, regional and national levels that create an enabling environment for water as a resource and sanitation	Establishment and expansion of infrastructure for freshwater consumption and water sanitation, incl. recovery systems	Promotion of efficient water use, reuse and adequate wastewater disposal among consumers and industry
Waste	Strengthen policy and strategic frameworks on circular economy and align policy related to waste management	Continue to invest in infrastructure provisions that enable the circulation and proper/safe treatment of waste and secondary resources	Implementation of an efficient environmental statistics framework on waste generation and management
Energy	Enhance decarbonisation and energy efficiency measures, and incentivise the incorporation of renewable energy components in industry, retail and consumers	Energy and electricity generation from alternative energy technologies with focus on anaerobic digestion.	
Agri-food and fisheries	Develop a policy and regulatory framework toward a circular bioeconomy	Improve infrastructure and capacity in the agri-food sector	Promote innovations and indigenous solutions that are regenerative and valorise organic waste from farms, fisheries and cities
Construction	Develop policy frameworks for circular construction on the continental, regional and national levels	Promote and stimulate the use of secondary, sustainable and circular construction materials	
Transport and mobility	Build strong policy frameworks on the continental, regional and national levels that embed circularity in the transport and mobility sector	Promotion of efficient transport modes that are clean, modern and based on service rather than ownership	Ensure proper product and material management in relation to vehicle use, reuse and recycling and align import regulations
Plastic and packaging	Strengthen the development of policy initiatives to phase out plastic pollution	Ensure waste management systems capable of dealing with packaging in a circular way	qualitative (Policy/Program/Strategy)

3 When using the term 'sectors' it is referred to activities undertaken mainly in the primary sector (which produces raw materials and agricultural goods, including farming, mining, fishing and forestry) and in the secondary sector (which turns raw materials into more valuable, manufactured items, through processing and manufacturing). Energy, water and waste are sectors under the secondary economy. These sectors are defined as horizontal sectors as they play an essential role in the development sectors as they play an essential role in the development of activities in the other primary and secondary sectors (which are referred to as vertical sectors).

4. To identify the priority sectors in each region, a prioritisation matrix was developed that has been filled in based on findings from desk research, inputs from local experts to country snapshots as well as data from our previous work). This prioritisation matrix addresses four separate elements: (1) the economic importance of a sector, (2) its circular economy potential, (3) alignment with policies and (4) its environmental impact.

5.These sectors have been chosen given their relevance across the majority of African countries and the existence of diverse initiatives to build upon to exploit the circularity potential in the short- and medium-term. However, other energy- and resource-intensive sectors, such as such as steel, cement, chemicals, aluminium, glass (where existent) should also become as much as possible circular in the long-term, learning from the transformation and development of the industry sectors covered in this Action Plan.

Governance and institutional arrangements for implementing this Action Plan

The successful and effective implementation and delivery of this continental Action Plan requires a strong governance model, as well as the development and operation of communication between the following three bodies:

- ✓ ARBE CE Secretariat, organising bi-annual African Circular Economy Implementation Forums;
- ✓ Regional Economic Communities, coordinating Regional CE multi-stakeholder sector working groups (RSWGs);
- ✓ Through their lead ministry, Member States bring forth national Circular Economy Action Plans, supported by inter-ministerial groups.

Each party will have to work on implementing the actions assigned to them and performing the respective monitoring.

Resource mobilisation to ensure the funds for implementing the circular economy in Africa

The general approach to mobilising financial resources at different levels (national, regional and continental), which can be further tailored to individual cases, includes the following steps: (1) Estimation of costs; (2) Identification of internal funding sources, (3) Determination of internal and external contributions, (4) Identification of external sources; (5) Outreach and international engagement dialogue with financial partners, including the private sector; and (6) Defining terms and conditions for external financial support, and (7) Monitoring and auditing of resources used.

Implementation steps for turning this Action Plan into practice

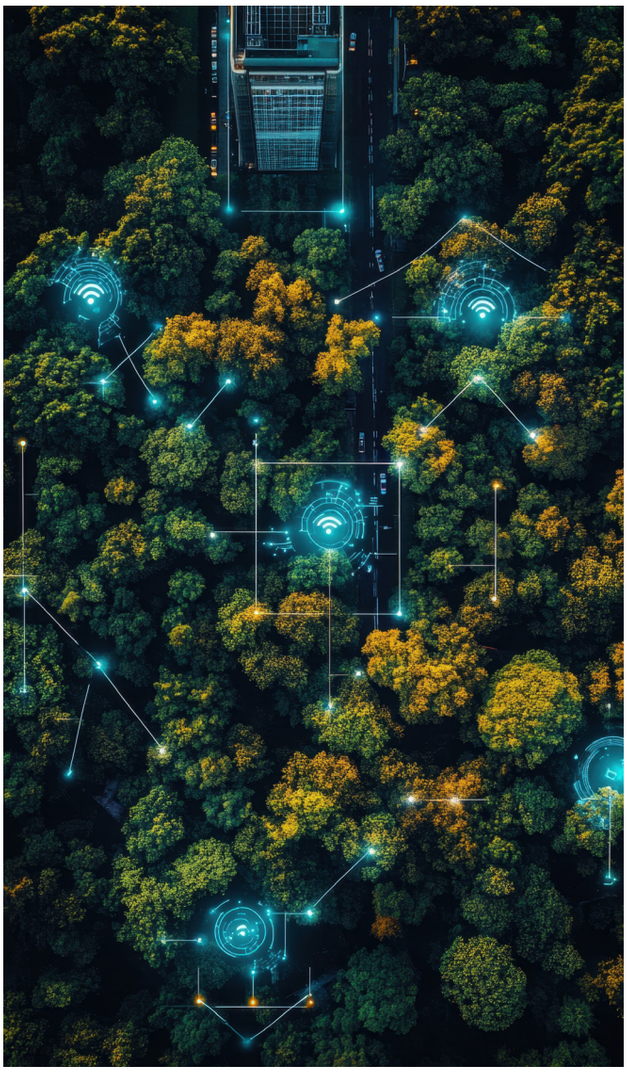
The following steps should be considered to implement the actions on the different levels[6] successfully: (1) Awareness raising, (2) Develop a baseline: (2a) National, regional and/or continental sector assessments, (2b) Review and assessment of existing enabling policy landscape, (3) National Circular Economy Action Plans, (3a) Prepare National Circular Action Plan[7], (3b) Revisit existing national Circular Economy Action Plan and align to this document, (4) Build associated and required capacity, (5) Update enabling policy landscape, (6) Monitoring and evaluation. It will be an ongoing iterative process for the ARBE CE Secretariat to follow up with the RECs and Member States on their progress and ultimately their implementation steps.

Finally, of the implementation of this Action Plan will be anchored on measurable and tangible indicators that can inform the conversations around planning, development, implementation, and overall tracking of progress made over the implementation period. While macro-indicators address the whole continent's circular economy journey (that, however, can also be used on and applied to the regional and national as well as meso and micro levels), micro-indicators should be used to track the progress of social, economic, and/or environmental measures related to the different goals.

With all these elements, the AUC and its partners hope to lay the stepping stone for actionable progress and acceleration of the circular economy in Africa, in the short and medium term.

6. Depending on the country's and region's progress to date, either they can skip a step if it has already been done or choose between options a. and b.

7. With more flexibility for countries falling under the Fragility and Conflict Situations classification of the World Bank. Fragility: "Fragility is defined as a systemic condition or situation characterized by an extremely low level of institutional and governance capacity which significantly impedes the state's ability to function effectively, maintain peace and foster economic and social development."
Conflict: "Conflict is defined as a situation of acute insecurity driven by the use of deadly force by a group — including state forces, organized non-state groups, or other irregular entities — with a political purpose or motivation. Such force can be two-sided — involving engagement between multiple organized, armed sides, at times resulting in collateral civilian harm — or one-sided, in which a group specifically targets civilians." More information on the classification can be found here. The World Bank develops a list of countries classified under Fragility and Conflict Situations every year.



1 INTRODUCTION AND BACKGROUND

1.1 The Action Plan – what to expect?

This Action Plan aims to pave the way for the circular economy journey for the African continent through actions that are based on a well-founded understanding of the different characteristics and contexts present across the regions. It includes goals and actions for sectors which are relevant for all regions — although depending on a region or country's specific situation, some might be more relevant at this point in time. However, tackling them represents an important step towards a more circular economy that should be taken at some point. Naturally, a continental document cannot be as concrete as a national document. Hence, **the high-level goals and actions presented in this Circular Economy Action Plan require dedicated initiatives and intentional collaboration of the African Union Commission (AUC), the Regional Economic Communities (RECs) as well as AU Member States to ensure translation to the local level.**

1.2 Understanding of circular economy

The concept of circular economy is very broad and overarches a range of related topics, including resource efficiency, the waste hierarchy, a shift to renewable resources both for material and energy purposes and more. This breadth is the strength of the circular economy. The circular economy provides an alternative model to the current linear economy, transforming it towards sustainable development. The desired system ultimately reduces both waste and pollution by circulating materials and products at their highest quality within the production system and, where possible, feeding materials back into the biosphere to restore natural capital (biodiversity and ecosystems) at their end of life.

In short, a circular economy is based on three overarching principles:

- ***Designing out waste and pollution*** by focusing on product design, creating more efficient and sustainable products/industries from the start to reduce energy, water and other resources consumed more than 80% of a product's environmental footprint is determined during the design phase[8];
- ***Maintaining the value of materials and products and keeping them in use as long as possible*** by prolonging their life through activities, such as reuse, repair or refurbishment;
- ***Regenerating natural systems*** by moving from exploitive to regenerative practices, for instance, through the application of regenerative farming, focussing on growing renewable raw materials or the transition to renewable energy sources[9].

The transition towards a circular economy challenges governments, businesses, and consumers to rethink production and consumption patterns and redefine the term "growth" into one that captures benefits beyond economic profit alone. In fact, the **transition towards a circular economy entails decoupling economic activity from the consumption of natural resources while designing negative externalities**

8. European Commission (2021) Sustainable Product Policy
9. Ellen MacArthur Foundation (2021) What is the circular economy

(waste and pollution) out of the system. As this is a complex challenge, it demands a holistic approach and lifecycle thinking which includes raw material extraction and processing, design and manufacturing, transport, retail, delivery, consumption and (re)use, repair as well as end-of-life management**. Ultimately, it enables the identification of strategic intervention points along the whole value chain and lifecycle of products.** It also prioritises collaboration and cooperation as key enablers the engagement of all stakeholders is essential for the successful transition towards a circular economy[10].

With its comprehensive approach and regenerative intention, the circular economy has a positive impact on all types of capital: financial, human, social, and natural. Besides phasing out waste and reducing pollution, a circular economy can also be linked to GDP growth and job creation at local and national levels by linking production more closely with consumption.

An additional important interrelation exists to climate mitigation: circular economy has the potential to support reaching emission reduction targets (e.g. in NDCs) set by global climate agreements and domestic legislation as stated by international studies.

- ***The Ellen MacArthur Foundation*** showed that the circular economy can tackle 45% of global GHG emissions[11].

- ***GIZ*** calculated that current commitments would only help to cut 40% of the total needed reduction in Greenhouse Gas (GHG) emissions while the circular economy could help reach 50% of the gap that remains[12].

However, approaches based on the decarbonisation of processes are not enough, as carbon is either built into the products themselves and then released at their end-of-life (e.g. plastics) or is core to the process chemistry of their production (such as for primary steel in blast furnaces or for cement, and more generally in the manufacture of the majority of basic metals, materials and chemicals). Thus, it is equally important to make more of the materials and products already produced and in use. targets (e.g. in NDCs) set by global climate agreements and domestic legislation as stated by international studies.harmonisation in statistics, fiscal, economic and monetary policies, and efforts toward financial autonomy of RECs and Member States.

1.3 Why is there a need for such a plan?

The challenges posed by the growing amount of (mismanaged) waste in Africa, including associated environmental impacts as well as socio-economic shortcomings related to linear activities, require strategic and timely action of continental, regional and national actors. By **initiating new tailored programmes to advance the circular economy in Africa, it will be able to unlock and realise its full potential.** This, however, demands strong collaboration between African parties and international partners to re-work political, economic and trade-related activities, including applying lessons learned and avoiding pitfalls of resource-intense practices. While being a complex task, it is both attainable and an absolute imperative.

Urgently required developments in Africa, that the circular economy can contribute to, include:

- support in remaining within planetary boundaries;

- reduction of excessive exploitation and harmful sourcing of primary virgin materials;

- support in achieving net-zero emission targets;

- decoupling economic growth from resource extraction and climate emissions;

- strengthening local economies and trade balances to build economic resilience and independence;

- support to the achievement of the United Nations (UN) Sustainable Development Goals (SDGs)[13].

The importance and potential of the circular economy have been recognised at the continental level. With the decision of the Specialised Technical Committee (STC) on Agriculture, Rural Development, Water and Environment (ARDWE), in October 2019, during its 3rd Session, it was requested that the African Union Commission (AUC) broaden the scope of its work on facilitating the ban of single-use plastics to embrace the circular economy due to its environmental and economic benefits. In addition, the African Ministerial Conference on Environment (AMCEN), at its 17th Session, held in November 2019, requested the

10. UNDP (2020) A 1.5°C world requires a circular and low carbon economy
11. Ellen McArthur Foundation (2019) Completing the picture: How the circular economy tackles climate change
12. GIZ (2021) Circular Economy as a Cornerstone for Meeting the Goals of the Paris Agreement
13. In particular: SDG 6 on energy, SDG 8 on economic growth, SDG 11 on sustainable cities and communities, SDG 12 on sustainable consumption and production, SDG 13 on climate change, SDG 14 on oceans and SDG 15 on life on land.

AUC, the United Nation's Environmental Programme (UNEP), Regional Economic Communities (RECs) and other partners to define and elaborate the circular economy concept in the context of Africa and put in place mechanisms for its adoption.

In 2020, the AUC established the AU Expert Working Group on Circular Economy to operationalise these decisions. More recently, a historic resolution was adopted at UNEA 5.2 to end Plastic Pollution and forge an international legally binding agreement by 2024. Furthermore, the African Group sponsored a resolution on Circular Economy at the United Nations Environment Assembly (UNEA) 5.2, which called for the development of Action Plans on circular economy and further integration of the concept.

As several African countries have taken the initiative in developing national Circular Economy Action Plans, this Circular Economy Action Plan aims to inform and guide regional and national action plans and related initiatives in transitioning to a circular model. It directs the continent on a competitive and cleaner development pathway by setting out the continent's key guiding principles, priorities, and intervention areas for an enhanced circular economy approach to development. However, this is not a one-way approach. Instead, the action plans, regardless of their geographic scope, should inform each other through an ongoing information and feedback flow during their development and especially their implementation to ensure coherence and alignment.

1.4 Methodology

This Continental Circular Economy Action Plan of the African Union (CEAP) was developed between January and October 2023, under the assignment "**Technical Assistance on Circular Economy**", funded by the European Delegation (EUD) to the AU. It was undertaken by Trinomics B.V. and ACEN Foundation, as part of the DAI consortium, and under the consultation of the AU Expert Working Groups, AU Member States, UNECA and UNEP.

The CEAP has been developed through a comprehensive approach, merging bottom-up information with high-level regional and continental knowledge. It is based on data and information collected at the country and regional level through:

- working with national experts, sourcing their local knowledge, understanding and experiences, especially concerning common practices and processes in different economic sectors and in waste management;
- desk research to complement data and information gaps as well as exploration of existing regional and continental initiatives that could be built upon;
- data collection from international sources, such as the World Bank, to extract comparable and reliable data, backing up the national snapshots.

This information and data have been aggregated at the regional level (regional analyses). The analyses resulting from this aggregation have been carried out to inform the goals and actions for the different sectors.

Throughout the development process, intermediate versions of this action plan have been shared with key partners as well as national and regional government representatives for feedback provision and validation. This was either done through one of the two workshops or via email. The list of participants in the workshops can be found in Annex K.

1.5 Structure of this report

After this introductory chapter, the presentation of the content of the Circular Economy Action Plan is structured in the following way:

- ***Chapter 2: Circular Economy in Africa*** – context and priority sectors sets the scene by introducing the continent from a circularity perspective, highlighting important advances and further potential as well as giving a comprehensive overview of the different priority sectors covered in the Action Plan. To support this chapter, the following is attached in Annexes: Analysis of demographics, economic and trade data (Annex A), Overview of the regions (Annex B), Methodology for sector prioritisation (Annex C), Additional information on the waste management sector in Africa (Annex D), and The EAC's bioeconomy strategy description (Annex E).
- ***Chapter 3: The Continental Circular Economy Action Plan*** is the core of this document. It contains the vision and mission for Africa, the goals and actions by sector and cross-cutting priorities, governance and institutional arrangements, the resource mobilisation strategy as well as recommendations and steps to bring forward the implementation of this Action Plan. To support this chapter, the following is attached in Annexes: Methodology for sector prioritisation (Annex C), Circular best practices for the proposed actions (Annex F), External funding sources (Annex G) and Implementation tracking matrix (Annex H).
- ***Chapter 4: Monitoring and Evaluation*** describes the approach to measuring the progress of Africa's Circular Economy journey as well as the granular progress towards the achievement of the different goals presented in the Action Plan. The following annexes support this chapter: Additional macro-indicators to support governance and resource mobilisation (Annex I); Overview of the M&E micro-indicators (Annex J).

2 CIRCULAR ECONOMY IN AFRICA – CONTEXT AND PRIORITY SECTORS

2.1 Continental context

2.1.1 Introduction to the continent from the circularity perspective

Africa's make-do culture as a source of inspiration

Africa's economies are mostly defined by linear characteristics, typically based on the extraction of primary resources for export. However, circular economy has always been practised in Africa to some degree. Current globalised economies have largely replaced these practices and reduced the use of quality products and services. They are now typically found in marginalised informal economies, in which reuse, repair and recovery of materials are clearly present. These processes are valuable for their flexibility and innovation but also experience low-income, high-risk realities. Nevertheless, they can be an inspiration for mainstreaming circular practices again. Although the circular economy is deeply embedded into the African make-do culture (with a focus on repair and reuse), the application of the circular economy and its principles are yet to be fully exploited.

There is potential to mitigate continental issues and unleash Africa's potential through a circular economy Even though many African countries have made significant progress in terms of economic development and Sustainable Development Goals (SDGs), the continent still faces significant issues (including poverty, income inequality, youth unemployment, food insecurity, inadequate housing, poor waste management, etc.). These issues are likely to increase together with the projected significant demographic growth, if not addressed. With a holistic and just approach, the circular economy offers an opportunity for Africa to tackle several of these issues. As such, circular economy is not only a socio-economic opportunity but a necessary strategic paradigm for economic development that can foster sustainable economic development while decoupling it from resource consumption and negative environmental impacts. This could enable Africa to leapfrog the linear and wasteful economy and thereby help Africa reach its full potential.

More particularly, the circular economy offers the following opportunities for Africa:

- Circular economy creates synergies between economic diversification and industrialisation policies that are high on Africa's political agenda. The circular economy can effectively contribute to **the establishment of a more resilient manufacturing sector and stronger local industries in value chains where Africa has the raw materials available, as well as the opportunity to build upon skills and technologies**. By shifting the focus to local value creation, instead of generating (unexploited) value from raw material exports, Africa can become more independent. This opportunity

would also offer significant improvements in the trade balance, positive GDP growth, positive employment outcomes, and the development of a larger, more competitive economy with improved utilisation of the materials available in waste streams.

- Circular economy provides a paradigm for the development of new economic activities and the **creation of new jobs, which are in high demand in Africa, with a focus on product life extension repair, recycling and reuse.** The projected high population growth for the continent combined with increasing levels of purchase power will create a significant increase in the demand for natural resources while also offering a workforce that can fire circular economy activities.

- Circularity has been practised for decades in Africa, mainly through indigenous knowledge and informal practices. In the meantime, there are a vast amount of business cases being identified in the circular economy space in Africa[14]. Scaling these up and incorporating them into business-making holds the opportunity to **build resilient models and communities.**

More information can be found on Africa's demographics, socio-economic and environmental context and trade flows in Annex A (Analysis of demographics, economic and trade data). This shows why the Continent offers large potential in the transition to a circular economy

Limitations and challenges of adopting a circular economy approach in Africa

In order to leverage the aforementioned opportunities, strong momentum, committed and skilled leadership as well as the right tools and enabling frameworks are required. However, several challenges currently limit the circular economy transition in Africa[15]. The Guidelines for Accelerating the Circular Economy Transition in Africa rightly point out the following challenges and reflections that have to be considered on the way:

- ✓ Lack of a holistic approach to adopting a circular economy that reflects opportunities in all sectors beyond waste management;
- ✓ Limited awareness and communication of the benefits of a circular economy;
- ✓ Market entry barriers for innovation and growth of circular economy business models developed by the private sector;
- ✓ Limited coordination of circular economy strategies and action plans, as well as little monitoring of circular initiatives;
- ✓ Insufficient and misaligned financing mechanisms and funding options.

This Action Plan aims to directly contribute to challenges 1, 4, and 5 while encouraging the tackling of challenges 2 and 3 at the regional and country level.

With these opportunities and trends, the **development of this continental Circular Economy Action Plan is timely, promising to provide guidance and alignment for the journey of regions and towards an overall inclusive circular economy in Africa.**

2.1.2 Relevant continental policy and strategic initiatives

The momentum around the circular economy has gained pace on the continental level since 2017

An recent years, the circular economy has been increasingly and explicitly mentioned in national strategies and continental declarations. At the continental level, efforts are becoming more concrete: while in 2015, in the guiding vision "Africa 2063", circular economy was only addressed indirectly through topics like climate change adaptation or sustainable development, the attention to circular economy has substantially increased with the launch of the African Circular Economy Alliance (ACEA) in 2017, and the commitment to promote circular economy at the continental level gained momentum during the 17th African AMCEN in 2019.

In 2019, the decision at the 3rd Session of the Specialised Technical Committee (STC) on Agriculture, Rural Development, Water and Environment (ARDWE) requested the AUC to broaden the scope of its work on facilitating the ban of single-use plastic to embrace a circular economy. Since then, there have been requests to define and elaborate the circular economy concept in the context of Africa and put in place mechanisms for its adoption.

The AUC established the AU Expert Working Group on Circular Economy in 2020 to operationalise these decisions. The AU also integrated circular economy aspects in its Climate Change and Resilient

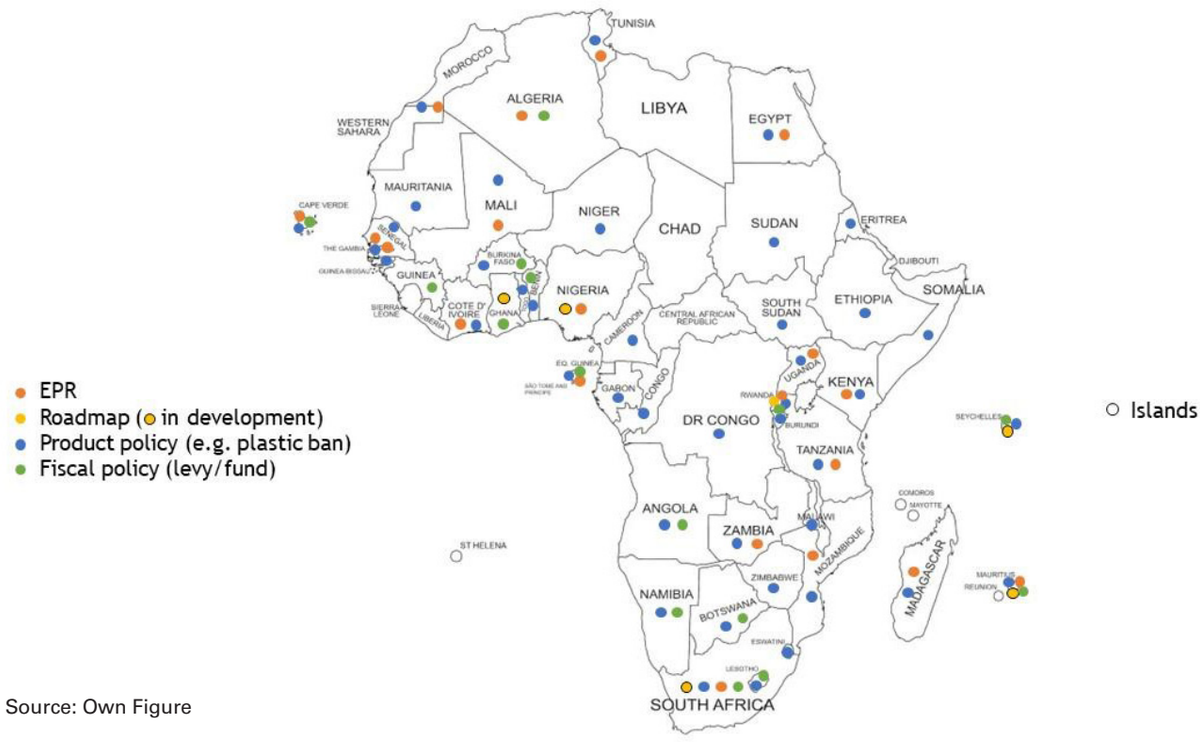
14. The business cases identified in Africa are mainly in the agri-food, construction, ICT & electronics, textiles, packaging, waste and water sectors. Some regions of the continent have a considerable number of circular economy initiatives, while others have just a few. East Africa and West Africa have the most initiatives. 60 business cases in East Africa have been identified and nearly 70 in West Africa. Central Africa is the region of the continent with the fewest circular economy initiatives. Most of the business cases focus on (in priority order) the following circularity principles (1) using waste as a resource, (2) prioritize regenerative resources and (3) design for the future. Circular business case studies can be on Footprints Africa Case Study Database
15. UNEP, AU, UNECA, Switch to Green (2023) Guidelines for Accelerating the Circular Economy Transition in Africa

Development Strategy and Action Plan (2022-2032).In March 2022, UNEA adopted a resolution encouraging Member States to integrate circularity into national, regional, and continental development plans, and create a conducive environment to increase access to affordable green financing and sustainable markets, particularly to micro, small, and medium-sized enterprises (MSMEs). In the same month, the AfDB launched the Africa Circular Economy Facility (ACEF) to provide: (1) institutional capacity building to strengthen the regulatory environment for circular economy innovations and practices; (2) support the private sector through a business development programme; and (3) technical assistance to the African Circular Economy Alliance (ACEA). The Kigali Call for Action[16] as one of the key outcomes of the World Circular Economy Forum held in Kigali, Rwanda in December 2022, alludes to cooperation within the region for the advancement of circular economy. This goes hand in hand with the most recent ongoing EU initiative on formulating a Regional Circular Economy Action Programme for Eastern and Southern Africa and the Indian Ocean (ESA-IO) region.

Finally, the most recent initiative is the Guidelines for Accelerating the Circular Economy Transition in Africa, launched in August 2023 and developed by AUC, UNEP, ECA, AfDB and Switch Africa Green, providing instructions for African countries in their circular economy journey.

National developments directly linked to circular economy are still limited with a few best practice examples

Most of the circular economy-related advancements have occurred at the national level: almost all African countries (52/55) have at least one circular economy-related policy in place. This can be climate change, environment or sustainability policies, product policies, extended producers' responsibility legislation, waste management and recycling policies or fiscal measures. The focus is mostly on product policies, such as bans on single-use plastics, and waste management and recycling policies, but their enforcement and implementation levels still vary significantly. Rwanda has become the first African country with a published circular economy roadmap , followed by Ghana whose Action Plan is about to be launched[18]. Nigeria has established a national circular economy working group to drive the acceleration towards the transition to a circular economy while also working on its national circular economy roadmap[19]. Overall, there are strong differences across African countries, both in the level of ongoing activities in the area of circular economy as well as in whether the private sector or the government is most active in promoting circular economy developments. The figure below illustrates which countries have which of the circular economy policy types.



Source: Own Figure

16. Ministry of Environment, Rwanda (2022) Kigali Call for Action for a Circular Future
17. UNDP (2023) Rwanda National Circular Economy Action Plan and Roadmap
18. Currently being finalised.
19. Currently being developed.

2.2 Priority sectors[20]

Based on regional analyses, several sectors have been identified[21]cas priority sectors for the five different African regions. For the sake of presenting a complete and inclusive picture, all priority sectors have been included in this continental Action Plan. They might not be a priority for every country in Africa at this point in time, depending on their development status or national characteristics, but they might become so at a later stage. In addition to the sectors, enabling and cross-cutting elements are also elaborated, as these are essential to supporting the transition towards circularity of the sectors and participating stakeholders.

When selecting priority sectors for their own national/regional circular economy roadmaps, Member States/RECs should consider the sector overview and analysis, including associated challenges and opportunities, presented in this report. Supporting information can be found in Annex B (Overview of the regions) and Annex C (Methodology for sector prioritisation).

2.2.1 Continental priority sectors

The priority sectors chosen are based on aggregated national and regional analyses. They include three horizontal sectors, i.e. (1) water, (2) waste and (3) energy, as they play an essential role in each of the vertical sectors, which are (4) agri-food and fisheries, (5) transport and mobility, (6) tourism (7) industry, encompassing (7.1) construction, (7.2) packaging and plastics, (7.3) electronics and (7.4) textiles, and (8) mining.

Water

The water and sanitation sector is an important cross-cutting sector as water is an existential resource for the population's livelihood, resilience and dignity, a prerequisite for a healthy environment as well as a key input stream for industrial and agricultural processes.

The United Nations SDG 6 aspires for clean water and sanitation provisions across the globe, including the African continent. In addition, the African Union's Agenda 2063 aims for inclusive growth and sustainable development that can help give Africans a high standard of living and quality of life. This implies the provision of basic resources, such as clean water and sanitation, among others[22]. The International High-Level Panel on Water Investments for Africa, as part of the United Nations 2023 Water Conference, stressed that water security and sustainable sanitation for all Africans is possible by 2030. This, however, requires strong initiative from African leaders, as well as investments into water infrastructure — yet, a financial gap of USD 31-40 billion per year, remains[23]. In 2021, the Board of Directors of the African Development Bank approved the Water Strategy for 2021-2025: Towards a Water-Secure Africa. While underscoring four important pillars (i.e. i. water security and sanitation, ii. Sustainability, resilience and inclusivity, iii. Food production and nutrition and iv. Hydropower), the five-year strategy aims to guide the AfDB and other financial stakeholders in expanding their role as the continent's partners, captured in 48 formulated priorities. Such strategies represent an important framework to channel funding into the water and sanitation sectors as well as its circular development[24].

Notwithstanding the actions described above, the current situation is that over 300 million Africans do not have access to clean water and over 700 million live without access to sufficient sanitation. Climate change might intensify water shortages in the coming years and lead to more food insecurity, disease burden, human displacement, and conflict, and obstruct the continent's economic development[25]. While in North Africa, access to water and sanitation no longer represents a pressing challenge — all Northern African countries have a water access rate of above 90% while an average of 92% of the Northern African population has access to sanitation — in Sub-Sahara Africa, it remains a critical issue. Among the Sub-Saharan African regions, water access ranges from 61% (East Africa), 70% (West Africa), 73% (Southern Africa) to 85% (Central Africa). In terms of access to sanitation, the situation is worse. For instance, only 33% of the East African and 49% of the Southern African population have access to basic sanitation[26]. In West Africa, UNICEF even reported a decreasing trend regarding access to toilet facilities. Insufficient access to sanitation infrastructure bears the risk of contributing to the propagation of waterborne diseases, such as Cholera or Ebola as well as environmental pollution of water bodies and fresh (ground) water resources.

Many African countries border coastal waters while the continent also holds a vast diversity of inland water bodies, including muddy waters (e.g. of the

20. When using the term 'sectors' it is referred to activities undertaken mainly in the primary sector (which produces raw materials and agricultural goods, including farming, mining, fishing and forestry) and in the secondary sector (which turns raw materials into more valuable, manufactured items, through processing and manufacturing). Energy, water and waste are sectors under the secondary economy. These sectors are defined as horizontal sectors as they play an essential role in the development of activities in the other primary and secondary sectors (which are referred to as vertical sectors).
21. To identify the priority sectors in each region, a prioritisation matrix was developed that has been filled in based on findings from desk research, inputs from focal points to country snapshots as well as data from our previous work). This prioritisation matrix addresses four separate elements: (1) the economic importance of a sector, (2) its circular economy potential, (3) alignment with policies and (4) its environmental impact.
22. African Union Development Agency (2021) A Water, Sanitation, and Hygiene Revolution in Africa using Smart Technologies
23. African Union (2023) Global leaders say Africa can achieve water security by 2030, present three pathways supported by action plan
24. African Development Bank Group (2021) African Development Bank Board approves new Water Strategy for 2021-2025
25. African Union (2023) Global leaders say Africa can achieve water security by 2030, present three pathways supported by action plan
26. Own calculation, based on Country Analyses.

Congo River), equatorial swamp forests, floodplains (e.g. of the Inner Niger Delta or Okavango Delta), deep and shallow lakes (e.g. Rift lakes in eastern Africa), ephemeral streams (e.g. Namib or Sahara deserts), equatorial and perennial basins, or mountain and coastal rivers (e.g. of Maghreb or South Africa). However, several threats presently affect both the hydrological and biological resources, with the rate of loss of freshwater biodiversity in some areas already suspected to be high. Anthropogenic threats to freshwater ecosystems are recognised to exist at the continental scale, including habitat loss or transformation, water extraction and hydrological disruption, pollution, and overexploitation[27].

In summary, most Sub-Saharan African countries face challenges in achieving adequate clean water supply and security including water storage, water usage and monitoring, as well as water contamination. In several regions, the increasing occurrence of floods also represents a growing concern, such as in West and East Africa. A relevant factor is inappropriate waste management practices that often contribute to the clogging of urban drainage systems or the natural absorption ability of the ground.

Waste

Waste management challenges impose a significant burden on ecosystems and are a threat to public health. Mismanaged waste is also a lost economic opportunity. Solutions to the challenges within the waste sector can help achieve strategic goals around a clean and safe environment as well as providing sustainable livelihoods for the communities.

The average per capita municipal solid waste generation in Africa in 2018 was 190 kg per year. The waste generation exceeds this average in East Africa and North Africa, with values of 211 kg and 267 kg per capita per year, respectively. Southern, Central and West Africa generate less waste, with a production of 146 kg[28] , 173 kg, and 159 per capita per year, respectively. [29]Although the waste generation per capita in Africa is among the lowest in the world, the total quantity of waste generated in Africa is projected to reach 244 million tons per year in 2025. [30]This projected growth is attributable to economic transformation, population growth, rapid urbanisation and changes in consumer behaviour. More information about municipal solid waste generation is provided in Annex D (Additional information on the waste management sector in Africa).

Much of the waste collected in Africa's major cities is not recycled, either because of poor collection systems or a lack of sorting at the source and after collection. For secondary towns and rural settlements, there is no monitoring system to record data on the rate of collection and recovery. This is mainly because the collection in these areas is largely done informally.

Amongst the challenges of the sector, waste collection appears to be the most significant. As of 2018, only 55% of the total waste generated was collected, with the average collection rate varying within cities, and lower collection rates in rural areas. In Tunisia and Egypt, 5% and 15% of the rural waste are collected respectively[31], attributable to the inadequate frequency of transportation, insufficient trucks, and poor road conditions which contribute to a prolonged waste transport process leading to waste being deposited on streets. These challenges are also observed in other regions of the continent and significantly impact the slow deployment of recycling at scale, especially since separate collection at source is hardly enforced.

The collection is typically the responsibility of the municipal governments, with some contracts given to private entities or performed by informal sector workers. It is common practice in various regions to aggregate waste at transfer stations or other sites before being sent for final disposal. Some of the continent's capitals have transfer stations, but for the reasons mentioned above, rural areas often do not have sufficient transfer stations. The lack of waste collection in some African cities has given rise to the informal sector. In most of the countries in West Africa, door-to-door waste collection from households is performed by informal waste pickers or by private waste collection businesses. In other cases, waste may be delivered to local skips or pickup locations before being sent to landfills. Pre-collectors in Central Africa collect waste from homes and transport it to regional collection sites before private companies transport it to a landfill, where individuals recycle the inorganic waste (plastics, cardboard, bottles, etc.) and resell or turn it into new products. In summary, the supply of waste management services is insufficient to meet the demand, and with the expected increase in the quantity of waste generated in the continent, there is a need for urgent attention to meet the growing demand.

The most common type of waste produced on the continent is organic waste. On average, it accounts for 52% of the waste produced, occurring throughout the entire food value chain. Plastic is the second

27. IUCN (2011) The diversity of live in African Freshwaters: Underwater, under Threa
28. The low report of per capita waste generation in Southern Africa is due to the quantities generated in Lesotho, Malawi and Mozambique, which are significantly lower than the quantities generated in the other countries in the southern region (while for Malawi, the data may be accurate, the MSW generation per capita in Lesotho and Mozambique are likely to be undervalued).
29. Own calculations based on data from World Bank (2018) What A Waste Global Database and own data collected in the Country Snapshots.
30. UNEP (2015) Global Waste Management Outlook
31. The World Bank (2018) What a waste 2.0. A Global Snapshot of Solid Waste Management to 2050

biggest waste stream on the continent, accounting for 10% of municipal solid waste (MSW).[32] Furthermore, the share of plastic waste is rising within African countries. In Northern Africa, plastic accounts for 16.9% of Algeria's solid waste. In some countries like Kenya, it even rises to almost 20% of the waste composition. This is especially problematic since Kenya has a large coastal area and collects only 40% of the waste generated. As a consequence, large amounts of plastic waste end up as marine debris, with a growing trend, that could reach up to 21,777 tons per year by 2025. [33]In the meantime, the amount of marine debris might be lower since the Kenyan government implemented ambitious plastics policies, such as a ban on plastic bags. More on waste composition can be found in Annex D.

Several countries are aggressively tackling the plastic waste challenge by developing various product policies and instituting fines and levies to varying degrees. One of the first bans issued on the importation, sale and marketing of plastic materials was issued in Rwanda, and this remains one of the most effective product policies for plastics alongside the policy implemented in Kenya. In other countries that adopt product policies, implementation remains a challenge. A map of all the countries that adopted product policies can be found in Figure 2-1.

Overall, waste is not valorised in the continent. The volume of waste that is recycled is low when compared to other continents. Where data is available, the recycling rates are as low as 0.4% (Cameroon). In both Western and Eastern Africa, more than 73% of the waste generated ends up being landfilled.[34] In some countries, such as Madagascar and Uganda, around 90% of the waste is landfilled in open dump sites which are uncontrolled.[35] In other countries, such as Eritrea and Djibouti, burning waste in the open air is a recurring practice.

The low recycling rates highlight the urgent need for improvements in waste management to enable the diversion of waste from landfills towards circularity. In an ideal scenario, the goal is to reduce the quantity of waste generated and ensure disposal with minimal environmental risks, namely reducing land degradation, air pollution, water contamination and greenhouse gas emissions. The implementation of a circular economy in the waste sector in Africa is poised to achieve this.

Another priority should be the collection of the data required to plan effectively and manage the anticipated increase in waste generation. Currently, data on waste generation and disposal is not prioritised as valuable in waste planning and management.This also requires investments into the infrastructure needed to record waste flows, establish waste information systems to support national planning purposes and assess the performance of waste management systems. Waste data and indicators should also be more closely linked to economic and social information systems and material flows.

Energy

Energy is an important sector, essential for economic and social development. From the circular economy viewpoint, this mainly includes the expansion of renewable energies as well as the production of alternative energy sources, such as biogas, from the anaerobic digestion of organic solid and liquid waste.

Nearly 40% of Africa's population still has no access to electricity in their homes but there are big differences between the regions Among the regions (in North Africa, 90% have access to electricity). In recent years, several initiatives have been put in place to improve electricity access on the continent. The AfDB developed Light Up and Power Africa – A New Deal on Energy for Africa as a part of its High 5s[37]. Through this partnership-driven initiative, the AfDB aims for Africa to achieve universal access to energy by 2025. In order to help achieve this it promised to invest USD 12 billion in the energy sector in the next 5 years.[38] More investments are needed as the potential is there (renewable energy has the potential to contribute 67% to the African energy generation mix [39] but currently, only 22% of the potential is used). The main sources of energy in Africa are solar, hydro, oil, gas and coal.[40] Overall, Africa's energy production comes from oil (42%), followed by gas (28%), coal (22%), hydro (6%), renewable energy (1%), and nuclear (1%)[41].The high dependence on coal is one of the most critical threats to climate change.

Considering that energy demand in Africa is expected to triple by 2030, combined with environmental threats related to the use of fossil fuels, for many African countries, the renewable energy transition is a key priority to address[42]. Africa's potential for renewable energy sources includes, among others, solar energy,

32. Own calculations based on data from World Bank (2018) What A Waste Global Database and own data collected in the Country Snapshots.
33. Jambeck et al. (2015) Plastic waste inputs from land into the ocean
34. Own calculations based on data from What A Waste Global Database of the World Bank from 2018 and data collected in Country snapshots.
35. Ibid.
36. AfDB (2017) Light up and Power Africa
37. Light up and Power Africa; Feed Africa; Industrialize Africa; Integrate Africa; and Improve the Quality of Life for the People of Africa.
38. AfDB (2017) Light up and Power Africa
39. IRENA (2020) Energy Innovation for a Green Recovery in Africa
40. IRENA (2021) Africa
41. Europa.eu (2021) Atlas of Africa - Energy Resources
42. IRENA (2020) Energy Innovation for a Green Recovery in Africa

hydropower, wind energy and geothermal energy. By 2030, the AfDB predicts that Africa will have 310 GW of renewable energy capacity, placing it at the forefront of the world's renewable energy production.[43]

The connection between renewable energy sources and the circular economy is especially visible at the beginning of the energy value chain, i.e. the extraction of raw materials. A zero-carbon future by 2040 may lead to a 20-40 times larger demand for essential materials like cobalt, and lithium . Mining these materials is labour and resource-intensive, and causes numerous environmental concerns. Circular economy principles, such as recycling and reusing, have the potential to recover 60 million tonnes of those materials and make the deployment of renewable energy infrastructure more effective and less damaging. In addition to this, the circular economy will also bring more opportunities to the energy sector, i.e. job creation, economic development and innovation, while also helping to ensure energy security through more decentralised systems, reducing dependence on imports of fossil fuels, and providing a more equitable distribution of resources.

Agri-food and fisheries

The agricultural, forestry and fishing sector contributes 10% of the GDP of African countries on average[45] and the agriculture sector employs 37% of the population on average. This means that the life of many Africans depend on this sector's activity. Its activity is however decreasing and its employment contribution as well. In fact, most of the African governments spend only less than 4% of their budget in this area. This is less than half of what they committed to in the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods (10%).[46]

The continent is failing to achieve the SDG targets listed under 'Zero Hunger'[4] , especially because around 282 million Africans were reported malnourished in 2022 and this could increase to 320 million by 2025.[48], [49] Furthermore, Africa is a net importer of agricultural goods while the continent has 65% of uncultivated arable land.[50]

The agri-food sector contributes to the high levels of GHG emissions, soil and water pollution in many countries of the continent. Agriculture is among the top four emitters in all of Africa's regions — it is the first /largest emitter in East Africa and the second largest emitter in South, West and Central Africa[51]. This highlights the necessity for decarbonising the sector on the continent. The extensive expansion of the agricultural land area is the main driver of deforestation and forest degradation. This has large consequences on the continent's biodiversity. Africa had the largest annual rate of net forest loss in 2010–2020, at 3.9 million ha. This rate of loss has increased in Africa in each of the three decades since 1990.[52] In addition to this, unsustainable agricultural practices (including the use of chemical fertilizers) in Africa lead to high levels of pollution of the soil and water bodies. About 65% of agricultural soils are degraded in Africa and soil fertility depletion is a major cause of this. The use of nitrogen fertilisers particularly affects the soil quality since it diminishes the humus content of the soils, makes them more acidic and reduces their biodiversity. Thus, the use of such fertilisers can lead to food insecurity in the future. [53] Their application may also lead to water pollution in rivers and to the formation of algae in lakes which affect their fish population since the presence of high quantities of algae species decreases oxygen levels under the surface. [54]Finally, the price of chemical fertilisers has rapidly increased with the war in Ukraine putting huge pressure on African smallholder farmers who depend on these and putting increased pressure on food security on the continent.[55]

It is therefore evident that Africa and international development partners must fulfil their commitments and invest in the sustainable transformation of the agriculture sector. In 2016 the AfDB launched a 10-year Feed Africa Strategy[56] through which it will invest USD 24 billion to support the agricultural transformation. The strategy identified several barriers that prevent the growth of the agricultural sector. The main barriers are underperforming value chains, insufficient infrastructure, limited access to finance and limited resilience to climate change.[57]

In the context of agriculture, the AU has focused on nutrition and climate resilience. To achieve climate resilience, it developed an action plan for climate resilient agriculture in its Green Recovery Action Plan

43. African Development Bank (2018) Why Africa is the next renewables powerhouse
44. Vigotti, R. (2023) Harnessing the Power of the Circular Economy for Africa's Energy Transition
45. Own calculations based on World Bank Open Data.
46. Oxfam (2023) Over 20 million more people hungry in Africa's "year of nutrition"
47. SDG 2 Zero Hunger includes targets, such as ending hunger, ending malnutrition, and ensuring sustainable food systems and resilient agricultural practices.
48. Ibid.
49. AfDB (2016) Feed Africa
50. Ibid.
51. Own calculations based on Climate Watch Data.
52. FAO (2020) Global Forest Resources Assessment 2020
53. WWF (2015) Adverse impacts of mineral fertilizers in tropical agriculture
54. IISD (2022) Why we must rethink the use of nitrogen fertilizers
55. APRI (2022) The Impact of Fertilizer Prices on Africa
56. AfDB (2016) Feed Africa
57. APRI (2022) The Impact of Fertilizer Prices on Africa

2021-2027 that includes the following interventions: strengthen land governance and land markets, increase funding for climate change adaptation in the sector, invest in the green industrialisation of this sector, mainstream with other agricultural programmes, make use of best available technology, and strengthen public support towards a climate resilient agriculture.[58] It has also addressed climate-resilient agriculture and food systems in its Climate Change and Resilient Development Strategy and Action Plan 2022-2032.[59] Both the AfDB and the AU seem to believe that Africa is far from capturing the full value of its agricultural production and a transformation is needed.

On the other hand, the topic of bioeconomy[60] has been on the rise globally and has been picked up by the EAC. The EAC developed the East African Regional Bioeconomy Strategy. More on this strategy can be read in Annex E (The EAC's bioeconomy strategy description).

While the application of circular economy measures in agri-food systems could reverse the harmful trends of soil depletion, pollution and increased GHG emissions from the sector, the link between circular economy and agriculture is not addressed in these major strategic documents. In its Five Big Bets for the Circular Economy in Africa, the African Circular Economy Alliance (ACEA) has highlighted the need for circular food systems and opportunities at the production, processing and distribution, consumption and post-consumption stages.[61] These opportunities are taken up further in this Action Plan.

Transport and mobility

The transport and mobility sector has an important and enabling role to play as regards industrial development (through low-emission logistics enabling trade), social development and environmental protection (through clean and accessible public transport systems) in Africa.

Across African countries, there is an average of 204 km of roads per 1,000 km2, with only one-quarter paved, which illustrates the need for more roads. An insufficient road and rail network is delaying the continent's development [62]. In this respect, the Eastern African Region has developed a relatively good infrastructure while the Western and Central Regions have to catch up. The most recent developments that promise to increase inter-connectivity and access include a plan promoted by ECOWAS for a 4,010 km Trans-West African Coastal Highway project linking 12 West African coastal nations with feeder roads to the landlocked countries[63] Other developments related to rail transport include the USD 3.2 billion standard gauge railway connecting Mombasa to Nairobi which is a flagship Belt and Road project in East Africa. It forms part of a massive project, the USD 13.8 billion East African Rail Master Plan, a proposal to rejuvenate lines in several countries including Kenya, Uganda, Rwanda, South Sudan and Ethiopia. Other examples include the USD 4.2 billion electric railway from Addis Ababa to Djibouti, the Lamu Port-South Sudan-Ethiopia-Transport Corridor Programme. Kenya is also building a 969 km standard gauge railway from Mombasa to Malaba on the country's western border with Uganda for USD 9.9 billion.

Only 34% of Africa's rural population lives within two kilometres of an all-season road.[64] It is also crucial for land-locked countries to ensure that their products can access seaports and can be exported overseas. Poor road infrastructure also increases the cost of transportation in Africa which is on average 50-175% higher than in other parts of the world. Transport and mobility contribute significantly to the GDP in African countries (average from 5% in North Africa to 7% in West Africa) and employment.[66]

However, there is a lack of data to precisely estimate these contributions since a large proportion of transport is done informally through informal taxis, motorcycles and bicycles, which are mainly powered by diesel/petrol engines. At the city level, some authorities invest in clean moto taxis rather than run on electricity (i.e. Kigali, Nairobi). West Africa also needs infrastructure across borders.

Informality also dominates in vehicle repair and reuse activities. However, the repair potential is highly dependent on the availability of spare parts, coming from the Global North.

The transport and mobility sector is the 3rd most polluting sector in Africa.[67] Most cars in Africa are imported second-hand from Europe, the USA, Japan, and Canada, which are often above 15 years old. In some countries, the regulations for the import of second-hand vehicles are weak. Therefore, the quality, efficiency and environmental performance of vehicles on the roads is low which results in increased pollution and decreased road safety. Africa accounted

58. AU (2021) African Union Green Recovery Action Plan 2021-2027
59. AU (2022) African Union Climate Change and Resilient Development Strategy and Action Plan 2022-2032
60. Definition by the EU: "The bioeconomy means using renewable biological resources from land and sea, like crops, forests, fish, animals and micro-organisms to produce food, materials and energy." It encompasses the concept of the circular economy, especially for the agri-food sector.
61. ACEA (2021) Five Big Bets for the Circular Economy in Africa
62. Mitchell, J. (2021) Will Africa's road to prosperity be blocked by environmental concerns?
63. LAPSSET (2023) LAPSSET Corridor Program
64. AfDB (2014) Tracking Africa's progress in figures
65. KPMG (2013) Megaprojects
66. Own calculations based on data extracted from the country snapshots.
67. Climate Watch Data (2023) GHG emissions

for only 3% of the global new vehicle market in 2020, but imports of used vehicles and a growing vehicle fleet are fuelling increases in climate emissions and air quality impacts in the region. About 1.5 million used vehicles are imported into Africa every year. Furthermore, the transport sector's demand for fossil fuels grew by almost 50% between 2010 and 2020.[68]

There is a need to expand the transport system both in cities, to render them more livable and in rural areas to enable better access to markets for the food sector. Governments at the national and local levels are addressing the issues according to their competencies, however, there is a potential to improve cross border movement of people and goods under a pan-African approach. This development must be done with respect for nature and a proper mindset to leap-frog to clean and efficient modes of mobility[69], including public transportation, light mobility and electrification. It is important to consider transport more as a service that the population can benefit from, rather than a system based on ownership of cars, which is exclusive and makes cities even more congested. By doing so, African countries can foster a circular transport system that strengthens resilience, sustainable livelihoods, redistribution of opportunities, and social justice to ensure sustainable green growth on the continent.

As far aselectrification is concerned, African countries should support a gradual roll-out of electric vehicles, ensuring that they can be maintained and repaired locally. Africa is the source of the raw materials needed for battery production, however, there is no battery production facility yet on the continent. Developing a full supply chain for battery production will position the continent at the forefront of this global race to electrification and at the same time secure access to batteries, develop regeneration technologies and recycling to feed back into the economy, at the same time as leapfrogging the rest of the world by moving directly to cleaner transport vehicles. African countries have the potential to become future EV and battery exporters as several countries are rich in raw materials important for EVs[70]. As part of its Global Electric Mobility program, UNEP is currently working with twenty African countries to set baselines and support governments to develop policy incentives for the introduction and shift to electric vehicles.[71] Policy incentives, like tax exemptions for imported new and used electric vehicles and components, batteries, and charging equipment, waived parking fees and reduction of road tax, and lower electricity tariffs, are being implemented in many African Countries such as Cape Verde, Kenya, Seychelles, Mauritius, Ethiopia, Rwanda, Tunisia and Zambia.[72]

Tourism

Despite its wide range of natural and cultural attractions, including wildlife safaris, cultural experiences, pristine beaches, coastal attractions and outdoor activities, the tourism sector in Africa is still underdeveloped, accounting for only 4.3% of the GDP on average. However, data from the World Tourism Barometer (UNWTO), released in March 2022, shows an increasing trend since international arrivals in Africa grew from 16.2 million in 2020 to 18.5 million in 2021.[73] Tourism is one of the most significant sectors in the economies of South and East Africa, but is also an important sector for some countries in other regions. In the EAC, the sector contributes an average of 10% to the regional GDP in a year[74] and generates around 7% of the employment in the region. It is equally important in the SADC region, as it directly contributed to around 2.8% (USD 19.4 billion) of the total SADC GDP in 2017 with more than 6.3 million jobs depending on tourism[75].

However, the sector also causes harm to local environments, especially through plastic pollution at nature-protected sites. Therefore, this sector requires significant transformation taking into account current and future economic, social and environmental impacts. Tour operators, travel and hotel organisations play a large role in promoting the right behaviour to safeguard local heritage and biodiversity. At the same time, as a foundation, the sector requires more regulation and a stronger regulatory interlinkage with the other sectors.

Considering the increasing trend of the sector and the challenges attached to it, it is now vital to implement circular economy principles into the sector. This sector can be used as a transformative tool as it interacts with several other sectors, such as the built environment, food, water, waste, transportation, textiles and retail as well as energy, with the potential to inspire local economies. Furthermore, the circular economy offers the opportunity to enhance the sustainable development impacts of tourism, generating improved wellbeing for the local population through the creation of new jobs and more inclusive local

68. UNEP (2021) Used Vehicles and the Environment
69. Means of transport and infrastructure should be thought with circularity in mind, notably that vehicles put on the market must be durable, resource-efficient, and repairable, while infrastructure should be modular, adaptable to changing demographics, trade characteristics and utilities and favoring reliable public transport, and affordable clean and light mobility models such as walking and cycling.
70. For instance, lithium in Zimbabwe, manganese and platinum in South Africa, copper and cobalt in the Democratic Republic of Congo. Morocco is working with three major international automakers to build Zero Emission Vehicles (ZEV) manufacturing plants and aims to build a ZEV production capacity of 1 million vehicles by 2025. South Africa has a lithium-ion battery precursor pilot plant. Rwanda is incentivizing ZEV production. Tunisia is building capacity for manufacturing ZEV components. ICCT (2022) Zero-emission vehicle deployment: Africa
71. UNEP (2023) Electric mobility projects in Africa
72. ICCT (2022) Zero-emission vehicle deployment: Africa
73. Mutingwende, A. (2022) Africa collaboration to drive tourism growth and recovery
74. SADC (n.d.) Tourism
75. Ibid.
76. UNWTO (2020) Integrating Circular Economy Principles in Tourism
77. World Bank (2013) Tourism in Africa: Harnessing Tourism for Growth and Improved Livelihoods

value chains, thus creating a virtuous circle between businesses and territories.[76]

The interconnectivity of the tourism sector makes many different stakeholders responsible for a successful transformation. The governments have to provide decent sector strategies and supportive regulation as well as coordinating among responsible public sector agencies, private and non-profit entities and local communities. It is also part of the government's role to address market failures that affect the sector and thus create an enabling environment for investments as well as political and social stability. Together with the private sector, it is important to spur investments into necessary infrastructure, especially accommodation, tourism facilities and services as well as attractions. Yet, only 10% of Sub-Saharan African hotel rooms meet international standards. Local communities also play an important role as they have to be receptive to the tourists that come into their immediate environments. This is why they should participate in the benefits of tourism.

The emerging eco-tourism initiatives represent great examples of what a circular and resilient tourism sector may mean in practice. Aligned with circularity principles from the other sectors, it clearly overlaps, such as waste and especially plastic management, slow and cautious consumption of goods and commodities as well as respectful interactions with local environments and communities, that make the tourist experience even more authentic.

Industry

In the scope of this document, priority sectors under 'industry' are (1) construction, (2) plastic and packaging, (3) electronics and (4) textiles, given their relevance across the majority of African countries and the existence of diverse initiatives to build upon to exploit the circularity potential in the short- and medium-term. However, other energy- and resource-intensive sectors, such as steel, cement, chemicals, aluminium, and glass (where existent) should also become as much as possible circular in the long-term, learning from the transformation and development of the industry sectors covered in this Action Plan.

Construction

Construction is an important sector in Africa, considering the fast-growing population, economic growth, rising middle class and the urbanisation trend applicable in most of its countries. According to GDP figures, the construction sector is most important for North and Central Africa, with 8% and 5%, respectively[78]. Unlike other regions, the population of the African continent has increased by 2.42% per year for the past 30 years which contributes to larger housing needs. Similarly, the percentage of urban dwellers has doubled to 39%, implying about 360 million urban dwellers[79]. For the construction and built environment sector, this presents a unique opportunity towards a sustainable and affordable system to support this exponential growth. It is estimated that between 60% and 80% of the built environment that is required to accommodate everyone until 2050 has not yet been built — it is projected that 1.34 billion will live in metropolitan areas by then. 13 out of 20 world's largest cities by 2100 will be African cities, with the most populated expected to be Lagos, Kinshasa and Khartoum[80].

The built environment in Africa, which can be classified as formal or informal, is largely dominated by the unstructured and unregulated informal category. In 2015, an estimated 17% of the population in Sub-Saharan Africa lived in informal settlements. This is projected to double every 15 years without the necessary investments.[81] The capital-intensive nature of the formal category makes it inaccessible for low-income earners, with only 30% of African households living in the formally developed built environment. A major issue is the import dependency: most African countries are net importers of building materials, specifically cement and steel that have the highest embodied energy and GHG emissions, and this further impoverishes countries through a negative balance of trade that could easily be rectified using locally available resources.

The design of yet-to-be-built infrastructure is one of Africa's largest circular opportunities, ensuring safe and sustainable construction and affordable housing that provides access to basic services and responds to basic human needs. The application of circular principles to building structures entails considering a structure's whole life, including its design, components and materials used, construction, and deconstruction processes, as well as seeing the built environment as an element of a larger geographic and political context.[82] Challenges relating to access to sanitation services and clean energy sources, especially for low-income communities, are closely linked to the construction and built environment and require rethinking design and construction methods to incorporate integrated and regenerative

78. Own calculations based on World Bank Open Data
79. AfDB (n.d.) Human development
80. Bearak, M. et al. (2021) Africa's rising cities
81. Currie P. et al. (2021) Circular economy in Africa: examples and opportunities – built environment
82. GGGI (2023) Circular Built Environment Highlights from Africa Report

techniques. Circular economy interventions that consider the use of locally sourced building materials, refurbishment and conversion of old buildings offer potential solutions to the affordable housing crisis on the continent and potential improvement to access to essential services.

However, even though the integration of sustainability and circularity into the construction sector has gained traction in the last years in Africa, elements, such as designing out waste, material selection, flow analysis, and planning for deconstruction or disassembly for reuse, have become popular in the building sector, it still faces multiple challenges to unleash the full potential of a circular approach. Those include inconsistent policies, skills deficit, lack of awareness of circular opportunities in the industry, outdated building standards and codes blind to circular economy principles, and lack of secondary raw material markets.[83]

When applying circular economy to the construction sector, it is crucial to look at measures to lower the industry's energy and material throughput since the construction sector accounts for more than 40% of energy consumption in Africa and a sizeable share of Africa's material use. To reduce greenhouse gas emissions and environmental degradation, it will be crucial to invest in housing and infrastructure that uses limited resources effectively and use less energy-intensive construction methods. It is also important to consider the interface with the water and waste sector.

A few material innovations whose application would significantly increase the circularity in the construction sector and offset expensive and unsustainable imports and create local economic opportunities are as follows:

- Some 70% of Africa's local soils are lateritic in nature — these are ideal sub-soils (top-soils are for agriculture) for Compressed Earth Block (CEB) production suitable for all residential developments less than three storeys. CEBs have several advantages[85] over conventional materials, which is why they should be given more attention. These include having the lowest carbon footprint of all building materials and affordability.
- Additional applications are found related to foamed concrete that allow for 40% less materials and carbon footprint. Their aggregates can be sources from local waste materials like mine tailings, ash and slag. They are suitable for high-rise, commercial and industrial applications.
- Common wastes, such as paper and pulp waste, can replace cement entirely as an activated 3D-printed replacement for many infrastructure requirements.
- Other waste materials, such as coal fly ash and slag wastes, can also replace cement completely with more than a 90% reduction in carbon for better strength, or else used in combination with cement to create hybrid cement.
- Local lime and basalt can be used to create mineral fibres that can be spun into wires and rods to replace steel reinforcement for construction, using local materials at a sixth of the weight and fraction of the carbon footprint of steel.

Packaging and plastics

The packaging and plastic sector is considered a priority sector across all 5 regions. It is rapidly growing along with the demographic growth. Delivery models are quite different to those in developed countries, however, there is a remarkable increasing trend in single-use plastic packaging. The trend is global and has received considerable attention at the highest political level, especially with the recent Inter-governmental Negotiations Committee-2 discussions around a Global Treaty for Plastics. However, this trend raises concerns, especially given the depleting resources, climate and pollution impacts of plastics along the whole supply chain, during production and use, as well as at the end-of-life stage. The latter is of particular concern on the African continent due to insufficient waste management infrastructure in terms of both collection and recycling. Mismanaged plastic creates pollution when burned and marine pollution when disposed of in waterways, contributing to floods in cities when clogging the water channels. Several policies and regulations have been initiated

83. Mhlanga J. et al. (2022) Shaping circular economy in the built environment in Africa. A bibliometric analysi69. Means of transport and infrastructure should be thought with circularity in mind, notably that vehicles put on the market must be durable, 84. Ellen MacArthur Foundation (2021) Circular economy in Africa: Built environment

85. Other advantages of CEBs include: making use of local skills, materials and labour, representing the healthiest materials to build with, having the highest thermal efficiency, being noise-proof, bullet-proof, earthquake resistant and being adaptable to many architectural styles and applications.

in the region to address plastic pollution. These policies promote waste collection and treatment and establish EPR schemes. The informal sector is largely involved in the early stages of the value chain, notably, sorting, collection and transfer. However, infrastructure deficiencies contribute to the inefficient implementation of policies and regulations.

At the global level, there is a strong involvement of African countries in the UNEP-led INC on Plastic Pollution. The submission to INC-2 on behalf of the African Group reiterated some remarkable objectives such as a mandatory approach along the whole supply chain, the development of national actions and plans, as well as a call for technical assistance in terms of providing guidance and best practices. In this respect, African nations can be leaders in calling for an ambitious legal instrument at the global level that will also impact the producers and importers putting packaging on the African market. The Indian Ocean Commission (IOC) and the island states which are part of this regional community committed to "examine appropriate ways to develop or advance national and regional action plans to combat marine plastic pollution and plastic pollution" during their Ministerial Conference on the Circular Economy of African and Indian Ocean Island States in September 2023.[86]

Multiple countries in the East, South and West African regions have implemented certain market restrictions with regard to packaging. Most common policies included banning the use of single-use plastic bags, i.e. Cote d'Ivoire or Kenya. The Eastern African Community plan a concerted action to harmonise national legislation on the manufacture, sale, and import of certain non-essential single-use plastic items that are detrimental to the environment and livelihoods, especially those that cannot be recycled and can be easily substituted.[87] In April 2023, participants of the East Africa Assembly were unanimous in their agreement to take a regional approach and committed to taking collective action to ensure all East Africans can thrive and be part of a sustainable transition to a more circular economy and a healthier environment. The East African Community is also the only REC to have introduced a harmonised ban on plastics. Such harmonisation is especially needed in Southern Africa where the bans on plastic bags differ depending on the thickness of the bags between countries. Such a lack of harmonisation makes bans hard to implement in practice, especially as such products cross borders.

While striving to achieve a reduction in plastic packaging, governments shall carefully assess the available alternatives, in order not to shift the problem to another sector. With this in mind, the analysis of existing and emerging production types, delivery and consumption models is recommended. Countries should also look to reinforce, where possible, non-packaging solutions, reusable packaging solutions and other alternative materials that might be plant-based, and locally sourced building on indigenous knowledge. Such solutions shall be incorporated across the sectors involved in packaging, in particular food systems and tourism. In general, biodegradable plastic poses the very same problems as conventional plastic, it continues the single-use approach and is therefore not a solution. Often marketed as environmentally friendly oxo-degradable bags should be banned across the continent as they contain harmful additives and lead to the release of microplastics when they degrade. This case also proves that while addressing plastic production and consumption, authorities should also address the greenwashing that is an increasing trend.

One cannot ignore the fact that the use of plastic packaging has not only waste pollution implications but also contributes to climate crisis since these products are made of fossil fuels, and are often burned at the end of life, contributing to air pollution and generating GHG emissions. When entering waterways and oceans, plastics become uncollectable, through degradation into microplastics.

Electronics

Traditionally, Africa is known for its issues arising from the import of surplus and second-hand electronic products, such as refrigerators or televisions. In Nigeria and Ghana, at least 25% of incoming electronic products can be classified as waste[88]. The major import hubs for uncontrolled exports of such products are North Africa and West Africa, mainly coming from Europe and to a smaller extent from West Asia[89]. Due to limited infrastructure to deal with the products and underdeveloped domestic markets to absorb recycled materials, it causes many threats to the environment and places a huge burden on informal workers and communities.

While this remains a pressing challenge that requires further attention, the market in Africa is slowly shifting towards demanding more technological products. Drivers behind this trend are population growth as well as a growing middle class. By 2025, Africa will have 350 million electronic users and a user penetration of 26.6% .[90] Products that are

86. IOC (2023) Declaration of the Ministers and High Representatives of Island States of Africa and the Indian Ocean for the Development of the Circular Economy
87. UNCTAD (2023) East Africa workshop on single use plastics and plastic substitutes
88. ACEA (2021) Five Big Bets for the Circular Economy in Africa
89. WEKA Industry Medien (2023) Global e-waste flow monitor 2022
90. Isaac, S. (2022) How to invest in Consumer Electronics in Africa
91. Ellen MacArthur Foundation (2021) Circular Economy in Africa: Electronics and e-waste

most in demand are portable devices, being the driving force of growth for the industry in Africa, with smartphones spearheading the demand across all countries (Africa is the world's fastest-growing mobile phone market[91]).

Currently, the revenues in the electronic market are at USD 13.09 billion (2023), with an average annual growth rate of 20.28% between 2022 and 2025[92]. Among those countries with the largest demand and appetite for consumer electronics, with a clear preference for high-tech goods, are West African countries, with Ghana and Nigeria at the forefront. This market opportunity has already been identified by many investors to enter the African market. Although Japanese and South Korean companies dominate the global consumer electronics manufacturing industry on which Africa's electronics market is still very dependent on, African start-ups are gradually penetrating the market with new and innovative solutions. Examples are the Nigerian-based companies Afrione[93] and Imose Mobile[94], which produces smartphones as well as portable devices and computers.

However, the growing demand for technologies and electronics inevitably drives local e-waste production at the same time, with Nigeria having produced 290,000 metric tonnes of e-waste in 2017. As such, adopting circular economy approaches to the electronics market as well as the e-waste challenge in Africa, requires a two-sided approach focused on stopping illegal imports and creating systems to deal with domestic generation. In the longer term, the unique combination of factors in the electronics sector in West Africa offers the opportunity to attempt to close the loop in the region. These factors include (1) large electronics and e-waste imports that are not manageable, (2) a growing demand for electronics, (3) domestic entrepreneurs and businesses entering the market of manufacturing portable devices and computers, (4) emerging e-waste recycling hubs, as well as (5) the importance of the mining sector in the region, of mostly aluminium and gold that represent critical materials for electronics, for portable devices and renewable energy technologies, such as solar panels.

The largest opportunities lay first in the recycling of e-waste, further duplicating and scaling the existing hubs; second, in the shifting of the demand for imported electronics to domestically manufactured products, that ideally involve recycled materials from regional recycling hubs, as a necessary long-term vision; third, representing the low-hanging fruit, in further empowering and scaling the mostly informal repair and reuse initiatives.

While precise quantitative data on the extent of reuse in West Africa is unavailable, it likely represents a large proportion of the electronics market. It was estimated that Ghana had 1,200 electronics repairers, primarily situated in Greater Accra and not registered as business entities. The reuse of electronics also extends to product components, such as spare parts used in repairs, which are often harvested from old items. The repair and refurbishing sector is characterised by a low degree of formal training and provides many with an income, involving more than 30,000 people in Accra (Ghana) and Lagos (Nigeria).

Very few countries and regions have developed legislation related to e-waste. However, recently, the IOC and the African Island States, through their Ministerial Declaration on Circular Economy[95], committed to:

- ✓ Initiate reforms of legal frameworks and/or the development of regulations favourable to the circular economy for zero electrical and electronic waste in the island states of Africa and the Indian Ocean.
- ✓ Implement, where appropriate, action plans for the elimination of electrical and electronic waste from the environment in island states, through the promotion of the circular economy.

Textiles

The textiles sector is an important sector for Africa with the current value of the apparel and footwear market estimated to be around USD 31 billion and estimated growth of the industry by approximately 5% between 2019 and 2024. This especially applies to East, South and West Africa.[96] The continent represents 5% of global cotton production and more than 9% of the world's cotton exports.[97] West Africa is one of the leading producers of cotton in the world, with Benin, Mali, Burkina Faso, and Cote d'Ivoire are the highest cotton-producing countries in Africa and accounting for about 50% of the region's produce,[98] however only a small percentage is processed within the region or in the continent more broadly. Cotton production has decreased over the years. With the aim of diversifying their economies, countries like South Africa, Botswana, Lesotho and Malawi have transitioned

92. Isaac, S. (2022) How to invest in Consumer Electronics in Africa
93. https://afrione.com/
94. http:/imosemobile.com
95. IOC (2023) Declaration of the Ministers and High Representatives of Island States of Africa and the Indian Ocean for the Development of the Circular Economy
96. See Annex C (Methodology for Sector Prioritisation).
97. Better Cotton Initiative (2023) Where Better Cotton is Grown?
98. Mordor Intelligence (2023) Africa Cotton Market Size

to the production and export of textiles, fashion and leather products. The GDP contribution of the textiles sector is not clear, however, the sector holds potential for growth within the continent. In terms of employment, the sector officially employs 4% of the workforce in Southern Africa. However, considering the informal activities, this can be expected higher. There is limited data on the employment of the sector in the other regions but it is expected that there are significant informal workers active within the sector. The informal sector plays a large role, especially when it comes to repair and re-selling.

The West African region has one of the largest markets for second-hand textiles with limited regulation on the quality being imported. The majority of these textile materials end up in landfills, contributing to the pollution of the environment. An estimated 326 ktons of post-industrial textile waste is generated from Egypt, Tunisia and Morocco annually.[99] The Accra Metropolitan Assembly in Ghana picks up around 70 metric tons of imported clothing waste from Kantamanto market every day, six days a week. Although there are regulations against the import of second-hand clothing into some countries in the East African region, the region still faces large inflows of used textiles which qualify as waste to a large extent, of which the majority ends up in landfills. This significantly contributes to environmental pollution, especially through fabrics based on plastic materials.

While textiles and fashion products do not represent a significant share of the waste composition in the regions, it is most of the time mismanaged, ending up in landfills or open waters. This causes pollution coming from the different artificial material blends, especially their decomposition into micro-plastics. Adopting circular economy approaches along the value chain of the actors involved can help close the resource and waste loops, and reduce negative environmental and social impacts, including the use of new business models and investing in the identification and use of alternatives to current hazardous substances used in production and processing of textiles and leather products. With the increasing consumer lifestyle for sustainable products, creating a circular brand can bring an economic advantage.

Mining

The extractive sector is important in Africa, contributing significantly to the GDP and export earnings of countries, especially in Central, West and Southern Africa.[100] In Central Africa, the mining and extraction sector contributes around 18% of GDP on average. It is also important to the West African economy, with several countries deriving significant revenue and export earnings from the sector and employment for small-scale and artisan miners. Artisanal and small-scale mining remains, in Guinea, Mali, Burkina and Côte d'Ivoire as the largest employer in the mining sector. This category of miners refers to 200,000-400,000 people in Burkina Faso and one million in Guinea.[101]

The distribution of resources is linked to the geological history of the region with the countries having unequal quantities of the resources. In West Africa, the resources mined include gold (Burkina Faso, Mali, Ghana and Guinea), diamonds (Liberia and Guinea), iron ore (Mauritania and Guinea), bauxite (Guinea), phosphate (Senegal and Togo), and uranium (Niger).

Within the region, there are laws regulating the activities of the extraction industry. In West Africa, WAEMU Mining Code of 2003 requires environmental impact assessments to be conducted before the operational phase and environmental monitoring and rehabilitation plans are also required to be set up. Additionally, the ECOWAS Mining Directive (2008) has reinforced environmental protection that includes a system to regulate the process of granting mining licenses, regulating the activities of the companies through audit mechanisms, frequent monitoring and a fund for environmental rehabilitation. The Standard Oil Agreement of Guinea-Bissau stipulates that oil companies must ensure that environmental and natural resources are conserved. The existence of these regulations has, however, not been effective in the preservation of the environment as there are examples of increased degradation of land and water resources, pollution and destruction of ecosystems in mining communities, and communities that host quarries and oil fields.

Although its GHG emissions are not calculated, the emissions from the sector can be horizontal. Deforestation is often done to enhance mining activities. Thus, the emissions from land-use change can be regarded as indirect emissions from the extractive sector. Land-use change and forestry in 2019 was 749.83 Mt CO2e in Central Africa and 119 Mt CO2e in West Africa. The products from oil fields are important in the energy and transportation sector, which are also significant emitters of GHG gases in Central (energy: 70 Mt CO2e; transportation: 9.67

99. Closed Loop Fashion (2023) Assessing Circular Economy Potentials in North African Textile Industries
100. See Annex C (Methodology for Sector Prioritisation).
101. IUCN/PACO (2012) Mining sector development in West Africa and its impact on conservation

Mt CO2e) and West Africa (energy: 286.47 Mt CO2e, transportation: 95.30 Mt CO2e). Overall, activities within the extractive industry have a large impact on the environment in Africa.

Applying circular economy strategies to extraction activities is a difficult task and there has not been much research around it, even though interest is growing. In terms of realising a circular and just transition for the mining sector, it arguably needs to be seen as a cross-cutting theme, rather than being viewed in isolation. Mining offers a unique perspective, particularly in Africa, as mineral deposits are generally found in remote and rural areas — in the current linear model thinking, these create economic hubs that attract local communities for work and opportunities, but once the mines close down these hubs collapse. Therefore, mines should be seen as a unique opportunity to develop circular and sustainable hubs that not only survive but thrive after the cessation of mining activities. This implies a paradigm shift in terms of the planning, implementation and operationalisation of mining activities that embraces the community and biodiversity aspects of the situation rather than excluding and isolating them.

By increasing circularity in the mining sector mines could create strong relationships and partnerships with communities and workers. At the same time, the creation of skills and supply chains through local empowerment would ensure a just transition and long-term sustainability for the community long after mining operations cease. While mining remains an invasive extractive process, much can be done to lessen the impact, and the key to this is environmental rehabilitation which can be implemented continuously by replacing topsoil and repurposing modified land for agriculture, conservation and even tourism.

flagship projects like the AfCFTA, a single African passport etc. making Agenda 2063 a comprehensive roadmap for Africa's renaissance.

2.2.2 Cross-cutting and enabling priorities

Besides elaborating on priority sectors for Africa on the way towards a circular economy, four important elements are key to consider along the way, promising to enable, strengthen and accelerate an effective transition.

Inclusivity

A circular economy can only be effective if it results in reduced social and gender inequality. The inclusivity element intends the protection and engagement of vulnerable groups, such as women, youth as well as disabled (PWD) or indigenous people and local communities (IPLC), on the one hand. For instance, women are vulnerable to the effects of unsustainable consumption and production patterns in many ways. This includes their high dependence on natural resources for subsistence. Women also disproportionately engage in unpaid work related to waste management, potentially exposing them to harmful products and chemicals. On the other hand, the inclusion of vulnerable groups in the circular economy transition aims to source from knowledge, leadership and capacity of a growing and diverse workforce in Africa.

From a broader perspective, incorporating inclusive and gendered considerations into circular economy development can lead to more equitable outcomes, promote social inclusion, and ensure that the benefits of circular practices are accessible to all. It is therefore important to be intentional and strategic about ensuring women and youth, PWD and IPCL participation. For instance, the circular economy offers opportunities for women across a range of sectors while also having job creation potential in sectors that are already saturated with women, such as fashion and textiles. At the same time, women play a leading role in advancing the circular economy in Africa from a behavioural change perspective; they directly influence household consumption habits and household waste disposal and have also been observed to be more environmentally conscious than men, in most cases[102].

Taking women as an example, that often correlates to the situation of other vulnerable groups, their current participation in sectors relevant to the circular economy varies but is usually limited to integrated waste management, roles of artisans, retail vendors or working for family businesses and is concentrated in the lower skill and pay positions. In the waste sector, this would be equivalent to informal waste pickers or sorters of recyclables. Gender discrepancies also manifest as women are unlikely to handle high-value recyclables or get compensated equitably for them and face greater exposure to health risks, and even morbidity, due to handling waste in unsafe environments.

The career growth of women is often faced with uncertainties due to challenges linked to gender stereotypes influencing the distribution of jobs and economic opportunities, potentially leading to gender-segregated workforces. Additional challenges

102. UNEP, AU, UNECA, Switch to Green (2023) Guidelines for Accelerating the Circular Economy Transition in Africa

occur related to unfulfilled fundamental criteria for decent working and living conditions, and access to knowledge, tools or market outlets that determine the participation and success of women.

A just transition towards a circular economy calls for women, youth as well as PWD and IPLC to be empowered and upskilled to actively participate in more dignified jobs where the valorisation of materials is prioritised, shifting from waste-related jobs to opportunities across the entire value chain of the circular economy. To empower these vulnerable groups, and enhance equality towards them, innovative tools and incentives are required to create the enabling environments for successful intervention. This should be enabled through the provision of access to networks and platforms, capacity building, financial and business intelligence as well as practical tools, all related to circular economy activities. Equal access to training and capacity-building programmes related to circular economy practices must be prioritised, breaking down traditional barriers that might limit their participation. In addition, equality and gender-responsive policy frameworks should be integrated into existing circular economy strategies and programmes. This includes considering and addressing specific inclusivity and gender needs in policy development, implementation, and evaluation.

Trade, Collaboration and Regional Industrial Capacity

The African Continental Free Trade Area (AfCFTA) is a single market that covers 55 African countries. It was established as a part of the AU's Agenda 2063 in 2018 and trade within the AfCFTA started on 1 January 2021. Under this agreement, the Action Plan for Boosting Intra-African Trade was also adopted.[103] In June 2023, 46 member states had ratified the trade agreement and had to lift their barriers to trade.[104] The objective of this trade agreement is to eliminate the trade barriers between countries in Africa and thus increase intra-African trade. More concretely, the agreement provides a backdrop for industrial development and value chain enhancements which are essential for trading locally developed goods and services. The Action Plan for Boosting Intra-African Trade aims to increase the volume of intra-country trade to 25% within the next decade by addressing infrastructural bottlenecks, financial needs of trainers and fostering trade liberalisation. However, the full benefit of economic development provided through an enhanced continental trade process can only be achieved through the development of sustainable industrial capacity. The Action Plan for Accelerating Industrial Development for Africa which addresses the industrial development plan creates an opportunity for sustainable industrial development through the deployment of key circular principles.[105]

Today, only 16.6%[106] of trade flows in Africa take place between African countries. Africa trades much more with Europe for example than within Africa. Africa has a large trade imbalance of around USD 108 billion[107] , highlighting its dependence on the import of commodities from the Global North. It imports large quantities of cereals and electrical equipment and machinery. The AfCFTA has the potential to increase intra-Africa trade including for circular goods such as agricultural commodities grown in a regenerative way. Therefore Africa can reduce its dependence thanks to the AfCFTA and could even cut its trade imbalance in half. However, the Regional Economic Communities (RECs)[108] will have to play an important role in the implementation of this agreement by enhancing the conversations related to trade and inter-regional collaboration play. The RECs should also facilitate cross-border collaboration in the industrial sector to reduce dependencies in this sector and support the industrial transformation of the Continent. More on trade flows can be found in Annex A.

Africa is a major importer of waste from the EU. It imported more than two million tons of waste in 2020. Some of these imports are useful such as metal waste in Egypt and Morocco where the metal scrap is used for metal production.[109] This reduces the need of such countries for the extraction of new materials and feeds the growing construction sector. However, some other waste imports are more problematic such as textiles and plastics. Textile waste is another major import in Africa since more than half a million tons of textile waste were imported from the EU in Africa.[110] The demand for textiles is not this high in Africa and many of these second-hand textiles cannot be worn anymore. Thus, large piles of textiles end up in landfills every day in Africa and consequently pollute the rivers and the sea where they leak microplastics which affect biodiversity and human health. Plastic waste is not exported in large quantities to Africa in comparison to textiles since only around 9,000 tons were exported from the EU to Africa.[111] However,

102. UNEP, AU, UNECA, Switch to Green (2023) Guidelines for Accelerating the Circular Economy Transition in Africa
103. African Union (2023) African Continental Free Trade Area.
104. AU (2023) Creating One African Marke
105. African Union (2023) African Continental Free Trade Area.
106. UNCTAD (2019) Economic Development in Africa
107. UN Comtrade (2023) Trade database
108. African RECs recognised by AUC: Arab Maghreb Union (UMA), Common Market for Eastern and Southern Africa (COMESA), Community of Sahel–Saharan States (CEN–SAD), East African Community (EAC), Economic Community of Central African States (ECCAS), Economic Community of West African States (ECOWAS), Intergovernmental Authority on Development (IGAD), Southern African Development Community (SADC).
109. Own calculations based on Eurostat (2023) Trade in waste by type of material and partner.
110. Ibid.
111. Ibid.

Spain is a major exporter and it is not clear whether there is always the capacity to deal with this waste in the receiving countries. Africa should limit its import of textiles and plastic waste overall since it already struggles to deal with its own waste. Even though it is not recognised as hazardous waste by the EU or the Basel Convention, this type of waste can have large impacts on the environment and human health if mismanaged.

Large amounts of E-waste and used electrical and electronic equipment are exported to Africa, more than half a million tons.[112] E-waste is a hazardous waste and as such cannot be exported by EU countries. Nevertheless, large quantities of used electrical and electronic equipment (EEE) that are shipped to Africa end up being wasted and there are also many illegal shipments. Since E-waste contains hazardous elements, it is very dangerous for the environment if not managed correctly. The issue is that it is mostly mismanaged when it is received in Africa. For example, more than 90% of the E-waste sent to Lagos in Nigeria is landfilled.[113] Although used EEE is necessary for Africa to give the population access to digital technology at low prices, there needs to be better checks and standards at customs to ensure these products are usable. More on the waste trade flows can be found in Annex A.

Although trade is an enabler for the development of circular value chains and the growth of circular economy products, it also leads to abuses in terms of waste flows that cannot be managed by receiving countries which need to be addressed.

Education and Capacity Development

Africa has made significant progress in achieving access to tertiary-level education. However, with an estimated number of 1,682 higher learning institutions, the region's progress is still considered to be low when compared to global status[114] . The education system varies widely by country, with some countries having high literacy rates and strong educational systems, while others, especially in the Sub-Saharan Africa region, struggle with access to education. This is mainly due to the disproportionate number of students against the limited number of institutions. Inadequate financial resources to absorb operational costs, including tuition fees, staff salary, research grants and related costs, compromise the quality of education provided. Human capital remains deficient, especially in terms of faculty as African universities are not producing enough graduates with completed degrees, like doctoral or graduate degrees earned after a bachelor's degree. The overall impact is exhibited in a low Human Capital Index (HCI) resulting in scarce skilled manpower in the region which in turn fuels very high youth unemployment in Africa.

A shift to a circular economy will impact labour markets in two ways. Labour markets are currently deeply rooted in the linear, take-make-waste economy. However, this will change by nature as businesses, cities and countries adopt circular business models and strategies. On the other hand, new 'circular jobs' will emerge focusing on activities and services that are directed towards resource efficiency, cleaner production, recovery of parts for reuse, and repair, leased products via product-as-a-service models or reverse logistics — in general, those that are closing material and biological cycles.

It is worth noting that many African Institutions, e.g. the University of Cape Town, University of Nairobi, and University of Sfax offer comprehensive courses focusing on sustainable natural resource management, environmental management, conservation and preservation techniques, climate change mitigation and adaptation strategies, renewable energy technologies and similar topics that address the elements of a circular economy. However, to produce competent, competitive and skilled manpower to implement circular transformations, African educational institutions, including Technical and Vocational Education and Training (TVET) centres, should invest in restructuring their respective curriculum to an interdisciplinary approach accommodating the circular economy view as well as the establishment of circular skills. This would include elements like systems thinking, research and development of alternative product designs or engineering of new innovative solutions and entrepreneurship. This should not only apply to students (the future workforce) but also experienced staff and practitioners, working in government and businesses. For a successful circular transformation, the shift in mindset has to be initiated at all levels, across all sectors.

The African Leadership University (based in Rwanda) is currently taking the lead in educating students and professionals on the circular economy through tailored courses, building new knowledge and innovations applicable to the African context by conducting impact-driven research as well as fostering skills for entrepreneurship. The university aims to continue this initiative by building industry-academia partnerships

112. UNEP, AU, UNECA, Switch to Green (2023) Guidelines for Accelerating the Circular Economy Transition in Africa
113. EEB (2023) Study on items shipped for reuse and Extended Producer Responsibility fees
114. Zeleza, P. (2021) Quality higher education 'indispensable' for Africa's future

to pilot circular economy solutions. The program has 11 research projects underway in four different African countries, each addressing at least two of the United Nations Sustainable Development Goals (SDGs) – supported by 43 students and graduates across Rwanda, Mauritius, Kenya and Uganda. This initiative can be taken as a great example to bring to more African countries and foster cross-country learning approaches.[115]

In addition to this, engaging the private sector through, e.g. Private Sector Engagement Models, is a must to complement the efforts of governments and development partners; it supports the knowledge exchange across sectors and stakeholder groups, facilitates the development of an enabling environment for circular businesses and industry to thrive as well as ensures that regulation, incentives and tools match the needs and abilities of the private sector.

In conclusion, education, knowledge exchange and training providers should collaborate with a wide range of stakeholders, including industry and the private sector to advance knowledge of the circular economy, and accommodate the need for new skills and business models. The focus should be given to providing high-quality focused career guidance for students to pursue circular jobs, facilitating adult learning possibilities, especially for policy practitioners and public service providers, and enhancing peer-to-peer learning and experience-sharing platforms, both within the continent and beyond among stakeholders in South-South and North-South cooperations.

Finance and Business Support

The circular economy business ecosystem across the continent is dominated by Micro, Small and Medium-sized enterprises (MSMEs) and startups often operating in informal settings. By applying circular economy approaches, businesses can become more resilient and profitable by reducing and disrupting their costly supply chain and resource price volatility. With increasing consumer demand in the African middle-class economy, for environmental products and services, building a circular brand is a competitive advantage to enhance profit margins. However, for MSMEs to access financing through conventional financial institutions including credit facilities is a daunting task, due to high interest rates, lack of collateral, short repayment period, lack of loan information and capacity gaps of bank officers. It is even more challenging for those seeking to develop an innovative product within a circular economy context. With regards to the circular economy transition, the development, prototyping and demonstration of new materials and new products as well as novel business models and value chains might need more capital with a higher risk appetite (or de-risking schemes) than what is currently in the market or accessible for the small business owners/ founders.

Building the institutional and human capacity of the finance sector to ensure the required skills and knowledge for better identifying risks from the linear business models and benefits from the circular business models is key to developing financial schemes and tools that support circular business models. Developing an understanding of climate-related risk policies, circular economy markets and the flow of materials, such as recycling infrastructure and capacity, relevant legislation related to changing consumer demand patterns, Extended Producer Responsibility (EPR) policies, the shift of tax policies from labour to resources and the removal of the VAT on (secondary) resources can be added value information for building on their investment portfolio. The transformation of the finance sector will also create opportunities for jobs in the form of new Circular Economy related financial jobs, career development paths and educational tracks. In this regard, the Development Bank of Southern Africa (DBSA), Green Fund is among the pioneers in Africa to finance green investments.

Governments should prioritise designing regulatory frameworks and investment portfolios with sustainable technologies and together with businesses that adopt restorative and regenerative business models and low-carbon climate-resilient innovations. The public sector is the largest buyer and importer of goods and thus should design public procurement strategies that incentivise and prioritise purchases aligning and embedding circular economy concepts. Mainstreaming circular economy solutions to mitigate the impacts of climate change while revising the Nationally Determined Contributions (NDCs) is a promising trend in the region to attract funds allocated for Climate Change from institutions such as the Global Climate Fund (GCF) or the Global Environment Facility (GEF).

Development partners like UNEP, UNIDO, UNDP, UNECA and GIZ and multilateral development banks like the WB, and AfDB are currently playing pertinent roles by developing Multi-sectoral Development Programmes in support of the transition to a circular economy. The support ranges from promoting CE,

115. African Leadership University

technical and institutional capacity building and co-financing of programmes with various stakeholders. Multi-donor trust funds such as the African Circular Economy Facility are providing strategic guidance and financial support for member states to develop national circular economy roadmaps. This is a good example of forward-thinking donor initiatives that support the circular economy.

Currently, CE business models are being pursued by MSMEs. One way of successfully supporting innovation in Africa, where the number of youth is relatively high, is through urban and rural entrepreneurship incubation and acceleration hubs and/or co-working spaces which allow for access to the internet and digital tools (e.g., internet of things, satellite data, analytic), learning, mentoring, and financing that transforms the best-performing ones into formal micro businesses. Those can then be partners of multinational corporations that seek to transition their value chains from unsustainable/linear practices to regenerative/circular materials, goods, and practices. Another way to advance CE in the sphere of MSMEs is through business associations and coalitions that are playing an important role in recognising, representing and supporting entrepreneurs.

Bridging academic innovations with investors is also the right approach to convert circular ideas into income-generating and job-creating solutions. Universities often take the role of a hub for eco-innovation, and in the past few years, many graduates have successfully presented novel and innovative ideas that fit with the circularity principles. However, despite the availability of funds and impact/venture investors who were willing to invest, these innovations have often remained unfunded, often due to unused intellectual property rights (IPR) by the universities. The unlocking of these would be instrumental to making use of the innovation capacity of young entrepreneurs and creating first employment for recent graduates. To bridge the idea-to-market and help overcome the universities' hesitation to use their IPR in favour of start-up creation and a revenue flow, support to contract negotiations, contract design as well as the setup of spin-off companies and financial models that cherish and comply with the IPR rights of the academia could be an effective enabler in many African countries.

3. THE CONTINENTAL CIRCULAR ECONOMY ACTION PLAN:

Circular economy is not only a socio-economic opportunity but a necessary strategic paradigm for economic development that can foster sustainable economic development while decoupling it from resource consumption and negative environmental impacts. If done through a holistic approach, circular economy has the potential to enable Africa to leapfrog the linear and wasteful economy, thereby helping the continent to reach its full potential and mitigating pressing challenges.

In alignment with the Agenda 2063 as well as the UN Sustainable Development Goals, this continental Circular Economy Action Plan provides guidance and alignment for the journey towards an overall inclusive circular economy in Africa. It is composed of the following sections:

- Its vision and mission;
- Continental goals and actions, divided into:
  - Priority sectors;
  - Cross-cutting and enabling elements;
- Governance and institutional arrangements;
- Resource mobilisation;
- Implementation steps.

3.1 Vision & mission

Vision

Guided by this continental Circular Economy Action Plan, Africa's economic system will be transformed into a circular, resilient, inclusive, nature-positive and competitive one, that maximises local value creation and reduces environmental impacts, thereby contributing to Africa's journey towards prosperity.

Mission

The Continental Circular Economy Action Plan will catalyse harmonised actions, leadership and investments by multiple actors at all levels to accelerate the transition to a just and inclusive circular economy in Africa.

The dimensions are themselves broken down into sub-dimensions, reflecting specific themes within the various sectors of regional integration. Thanks to this detailed structure, ASRII offers a comprehensive framework for measuring and promoting the progress made by African states towards regional integration.

3.2 Continental goals and actions

The priority sectors are based on regional analysis and sector prioritisation. The methodology for this prioritisation, which can be used by Member States to derive their priorities, can be found in Annex C.

The following sections present the high-level goals and actions by sector and cross-cutting element that should be pursued by the AUC, its RECs and Member States, respectively. Priority actions are highlighted by a light-green coloured background (representing either low-hanging fruits or crucial/fundamental steps to pursue in the short term).

Please note: (1) Member States are not expected to implement all the actions that they are assigned to, but rather to select the most relevant actions within their identified priority sectors and topics. (2) It is important to keep in mind that the sectors and cross-cutting topics presented are highly interlinked and that some actions are rather cross-sectoral.

To support the members in the implementation of the actions, best practice examples are presented in Annex F, illustrating how specific actions can be materialised.

3.2.1 Priority sectors

Water

Applying circular economy to the water and sanitation sector has the potential to unlock economic opportunities across sectors while offering solutions that combat critical and life-essential challenges on the continent. This way, it can contribute to preserving the quality and quantity of water resources through measures that ensure the efficient use and preservation of water resources.

For Africa, the most important goals are the strengthening and enforcement of water policy frameworks from the circularity perspective, the establishment and expansion of water supply and sanitation infrastructure as well as the promotion and adoption of efficient water use, reuse and disposal systems. [116]

Table 3-1 Water - Goal 1

Goal 1	**Strengthen policy frameworks on the continental, regional and national levels that create an enabling environment for water as a resource and sanitation**		
Actors	**AUC**	**RECs**	**Member States**
Actions	Develop a continental and regional guiding policy document to support member states in the design and implementation of national frameworks on how to implement and address circularity in water resource management and water sanitation.[117]		Revisit existing sanitation and water resource management policies and strategies to incorporate circularity and strengthen the enforcement of such frameworks.

Table 3-2 Water – Goal 2

Goal 2	**Establishment and expansion of infrastructure for freshwater consumption and water sanitation, incl. recovery systems**		
Actors	**AUC**	**RECs**	**Member States**
Actions	Promote national water and sanitation infrastructure projects that embed circularity principles to international donors (active on the continental level).[118]	Identify, document and promote regional case studies and best practices for water supply and sanitation infrastructure, including smart technologies.[119]	Promote circular technologies suitable for water-scarce environments, e.g. in schools and remote/ poor communities.[120]
			Identify better water harvesting technologies and water storage infrastructure, including indigenous water harvesting technologies and management practices to address water availability for water-scarce regions.[121]

116. A healthy functioning of ecosystem services is a vital part of the circular economy; natural water bodies require active restoration and protection measures. This links to actions covered under Water Management Plans and Strategies which is why no explicit goal has been formulated on this topic.
117. This should also include a clear link to other sectors where water plays an important role, such as agriculture.
118. Infrastructure projects that consider in their conceptualisation the potential separate collection of (1) human excreta with minimum dilution (e.g. dry toilets); (2) household grey water; (3) different categories of industrial wastewater, per nature of contaminant to ensure water efficiency and optimal recovery of nutrients.
119. Such technologies would improve small- and medium-sized water supply and sanitation infrastructure. A special focus should be on rural areas and poor neighbourhoods
120. This should go hand in hand with providing an alternative energy source and nutrient-rich natural fertilizer for agricultural purposes. Depending on the countries' situation and context, this action could include technologies, such as bio-latrine facilities and accompanied bio-digestion.
121. This could include surface water catchment systems and groundwater extraction management systems (commonly used in Morocco, Spain, Syria, Iran, and Central and Eastern Asia, helping water-scarce African communities to acquire potable water for domestic and irrigation use, even in average rainfall with erratic patterns).

Table 3-3 Water – Goal 3

Goal 3	Promotion of efficient water use, reuse and adequate wastewater disposal among consumers and industry		
Actors	**AUC**	**RECs**	**Member States**
Actions	Promote smart water management systems that can improve strategic water usage monitoring systems and storage protocols, by integrating digital technologies with traditional technologies to monitor water quality, water quantity, efficient irrigation, leak detection, pressure and flow, ecosystems, floods, droughts, etc.		Launch initiatives that promote water and resource efficiency and reuse of water, addressing consumers and industries as active approaches to conserve water and reduce wastewater[106]
Actions	Formulate and strengthen policies on payments for Ecosystem Services to provide incentives and compensate individuals or communities for undertaking actions that increase the provision of ecosystem services, such as water purification, water use regulation, and irrigation policies		
			Introduce and enforce the Polluter-Pays Principle that charges penalties for inefficient water use and inappropriate wastewater disposal to lead water stewardship efforts, biodiversity and ecosystem protection.
			Increase enforcement (and enforcement capacity) of existing resource-efficient and cleaner production standards (including wastewater treatment and disposal) in the manufacturing sector, and promote concepts like Industrial Symbiosis.

Waste

The application of a circular economy in the waste sector provides the opportunity for Africa to reduce severe challenges related to environmental pollution while contributing to preserving scarce resources and providing economic and social benefits. While the overall aim of circular economy is to reduce waste, at the end-of-life stage, the aim is to establish an effective waste management system that allows disposed products and materials to be treated in a way that enables maximum recovery of their value and the lowest harm to the environment.

Advancing Africa's waste management system towards one that enables circularity requires the strengthening and alignment of waste policy frameworks, investments into infrastructure that can manage the waste in the most appropriate and circular way, the establishment of waste statistics as well as supporting and recognising the informal sector in its management and recycling activities.

Table 3-4 Waste – Goal 1

Goal 1	Strengthen policy and strategic frameworks on circular economy and align policy related to waste management		
Actors	**AUC**	**RECs**	**Member States**
Actions	Develop a strategic guidance document that includes basic elements that should be part of every national waste management strategy/plan.	Develop regional guidelines for the development of standards of waste management to improve waste collection and treatment rates.	Update existing waste management policies, regulations and strategies at continental, regional and national levels to include the circular economy and its principles.
Actions	Develop strategies that support Member States in reaching important continental targets related to the waste sector, i.e. by 2050, recycle and treat 50% of its solid waste.		Embed waste separation between hazardous, organic (wet), and inorganic (dry) waste into regulation, where non-existent, and combine it with strong awareness-raising campaigns.
	Develop incentives for adequate waste collection and treatment in Member States in line with the Waste Hierarchy, in priority order: reduction of waste production, reuse, material recycling and recovery, other recovery (e.g. energy recovery), and environmentally-friendly disposal.[123]		
			Apply and enforce waste management regulations and policies and build capacity for enforcement agencies (enforcement capacity and understanding of the CE concept).
			Ensure that hazardous waste is treated appropriately at centralised or decentralised sites (depending on the feasibility and acceptance of the population) by specialised, equipped and trained staff.

122. Inter-regional conferences could be used to agree on these elements as well as to report on progress.
123. This could be combined with reward systems and knowledge provision that promote a culture of adopting the 9Rs.

Table 3-5 Waste – Goal 2

Goal 2	Continue to invest in infrastructure provisions that enable the circulation and proper/safe treatment of waste and secondary resources	
Actors	**RECs**	**Member States**
Actions	Design national and regional reverse logistics networks and infrastructure to capture value, proper disposal, remanufacturing and refurbishing activities for unused and discarded obsolete products.	
	Support the resource mobilisation and creation of regional recycling infrastructure (incl. logistics and facilities) for specific waste streams.	Together with international partners, invest in building and improving infrastructure for waste separation (at source and/or after collection).
		In collaboration with international partners, invest in the development of the waste collection, transfer and treatment infrastructure.
		With international partners, improve and expand waste infrastructure enabling a circular economy, especially recycling facilities with a long-term strategy to reduce the percentage of waste that ends up at landfills.
		Ensure strict sanitary conditions protecting adjacent communities within the existing structure of landfilling.

Table 3-6 Waste – Goal 3

Goal 3	Implementation of an efficient environmental statistics framework on waste generation and management		
Actors	**AUC**	**RECs**	**Member States**
Actions	Use (trade) data on waste transfer within the regions and the continent at large, develop strategies to monitor trade flows and create incentives to keep the maximum value within the region.		Implement existing standards for environmental statistics and develop standards for collection and reporting in member states, where these are not existent.
	Develop a continental waste characterisation that can be used on the regional and national level, aligning with international standards.	Develop targets for waste management within the regions and a monitoring and evaluation process to measure progress.	Invest in research for the collection of data as the basis of the development of policies and interventions.
		Facilitate and coordinate harmonised national and regional data collection.[124]	

Table 3-7 Waste – Goal 4

Goal 4	Strengthen and support the informal sector to increase their recognition and role in waste management and recycling activities		
Actors	**AUC**	**RECs**	**Member States**
Actions	Establish an overview of existing sustainable informal sector integration models.		Take into account the role of the informal sector in national waste policies as well as solid waste management planning, so that, for instance, the quality and pricing of valorised waste can be overseen or even standardised.
		Promote and support the establishment of informal sector cooperatives, coalitions or networks on different geographic levels to reduce social marginalisation, improve economic efficiency and thus the position in the economic value chain, and enable partnerships with municipalities and other stakeholders.	
		Increase the involvement of the informal sector in the waste management sector by licensing their activities in certain zones and ensuring safe working conditions for informal workers.[125]	
			Investigate the impact of the informal sector and the development of scenarios about informal sector integration to identify the best integration options in the local context.
	Promote the formalisation of the informal sector as a long-term solution to maximise and align the opportunities for effective waste management.		

124. For instance, develop (or identify and scale existing) standardised data collection tools and registries.
125. This may also include the regional involvement of the informal sector as it often works across borders

Energy

Integrating circular economy into the energy sector holds the potential to decouple energy production from raw material extraction for the production of fossil fuels and to reduce climate change impacts. For this to be achieved, it is key to replace conventional energy production systems — primarily running on fossil fuels — with systems that are powered by renewable energy or alternative sources, such as biogas. In addition to this, another relevant contribution can be made by decarbonising industry through integrating energy-efficiency measures and renewable energy into the production cycle.

The energy sector requires increasing decarbonisation efforts across all sectors and users, while also maximising the potential of organic waste in the production of biogas.

Table 3-8 Energy – Goal 1

Goal 1	**Enhance decarbonisation and energy efficiency measures, and incentivise the incorporation of renewable energy components in industry, retail and consumers**	
Actors	**Member States**	**RECs**
Actions	In collaboration with the private sector, shift from the use of fossil-fuel sources of energy manufacturing of carbon-intensive products like cement, iron, steel, and plastics to using renewable energy alternatives and increase energy efficiency (especially in energy-intense sectors, like construction, extraction or industry).	
Actions	Maximise the utility by adopting energy service sales over product sales, e.g. large-scale solar panels or wind infrastructure that may serve a pool of users.[126]	
	In collaboration with research institutions, increase research and development for renewable energy technology.[127]	
	Develop a regional strategy on how existing energy and carbon-intensive sectors should be decarbonised in the coming years and how required industrial capacity can be built for successful implementation, based on circularity and clean energy principles.	

Table 3-9 Energy – Goal 2

Goal 2	**Energy and electricity generation from alternative energy technologies, with a focus on anaerobic digestion**	
Actors	**Member States**	**RECs**
Actions	In collaboration with universities and the private sector, investigate technologies and business cases for energy recovery other than anaerobic digestion, where they represent reasonable transition solutions for the medium-term, to reduce the amounts of waste in a controlled manner, that are (1) not viable for recycling and (2) are landfilled or inadequately managed.[128] (See box below for further discussion)	
Actions	With domestic and international funders, invest in infrastructure and centralised facilities that are able to maximise the generation of electricity from organic waste (solid and liquid) via anaerobic digestion to support the clean and sustainable transition at scale.	
	Incrementally phase out large-scale and technologically-outdated incineration plants incineration plants.	

126. Collaboration with international knowledge partners can be a great enabler.

127. This should be done while taking into account the requirements and conditions as well as the potential risks linked to such technologies (see box below for further discussion).

128. Collaboration with international knowledge partners can be a great enabler

Box 3-1 Discussion on Alternative Energy Technologies

Discussion on Alternative Energy (Recovery) Technologies

Alternative Energy (Recovery) Technologies refer to innovations, e.g. related to refused-derived-fuels (RDF). Those are considered the second-least favoured option of the circular economy and the waste hierarchy. However, they can be seen as important transition solutions, as they were put forward by several national representatives during the stakeholder consultation. In the context of controversy related to this topic, it shall be made clear that:

- these technologies cannot be put equal to incineration; and thereby
- this document does – by no means – promote large-scale and technologically-outdated incineration plants as a solution in Africa.

Effectively recycling cannot solve the waste and plastic crisis alone, especially in the current situation where most of the waste streams are mixed at source. Currently, as much as 40% of low-value or contaminated plastic[129] cannot be viably recycled through traditional mechanical recycling until products and packaging are designed for full recyclability. Until then, African countries may choose Alternative Energy (Recovery) Technologies as medium-term solutions ***to deal with the amounts of accumulated non-recyclable waste*** while also reducing CO2 (compared to landfilling) as well as the consumption of virgin fuels[130] . If done correctly, namely when processed in the absence of oxygen at critically high temperatures, technologies like containerised gasification and pyrolysis, can be controlled to maximise the efficiency of energy extraction from a syngas perspective. Such a process can either be used to derive hydrocarbon fuels, or processed through a gas turbine to generate electricity.

However, to avoid that these solutions lead to irreversible situations which would hinder the transition and scale of more upstream solutions, their design, development and operation ***have to be closely overseen (by regulatory bodies) and guided by policy and standards under the following conditions:*** (1) a maximum amortisation duration of 3-5 years – implying the focus on small- and medium-scale solutions, (2) availability of local technical capacity to maintain the facility at full performance levels (regarding the purity of materials and calorific value) and ability to perform the preventive and curative (repair) operations supported by on time access of spare parts, etc., (3) a decommissioning process within a maximum of 7 years, and (4) the ability to repurpose the facility for a different application thereafter (e.g. turning the waste into feedstock for a different application or turning the plant into a chemical recycling plant for plastics). In addition to these conditions, the application of these solutions requires cost/benefit as well as risk analyses.

Agri-food and fisheries

Circular economy applied in the agri-food and fishery sectors enables the circulation of nutrients, contributes to food security while reducing their environmental impacts and reduces food losses along the value chain.

Making the agri-food and fishery sectors more circular requires developing aligned policy frameworks for a circular bioeconomy on different geographic levels, improving capacity and infrastructure in the sectors and promoting regenerative practices that valorise organic waste.

[129] OECD (2022) Global Plastics Outlook

[130] Innovation News Network (2023) Pyrolysis systems: A cutting-edge alternative to incineration & Engineer Live (2022) The merits of tyre pyrolosis

Table 3-10 Agri-food and fisheries – Goal 1

Goal 1	Develop a policy and regulatory framework toward a circular bioeconomy		
Actors	**AUC**	**RECs**	**Member States**
Actions	Develop circular bioeconomy strategies on different geographic levels.[131]		
	Ensure that regenerative and indigenous agricultural practices are recognised and included in continental, regional and national policies.		
		Promote and support the establishment of informal sector cooperatives, coalitions or networks on different geographic levels to reduce social marginalisation, improve economic efficiency and thus the position in the economic value chain, and enable partnerships with municipalities and other stakeholders.	
		Increase the involvement of the informal sector in the waste management sector by licensing their activities in certain zones and ensuring safe working conditions for informal workers.[125]	
			Link multi-lateral instruments related to bioeconomy with national instruments to facilitate their enforcement.
			Revisit existing regulations and legislation in the agriculture and fishery sector and ensure the integration and specification of circular economy.
			Issue directives to ensure fisheries' waste from fish processing is further processed or refined and not wasted.[132]
			Ensure the collection and appropriate recycling of fishery and agricultural equipment, with special regard to nylon fishing nets to reduce "ghost-net" problems[133]

Table 3-11 Agri-food and fisheries – Goal 2

Goal 2	Improve infrastructures and capacity in the agri-food sector		
Actors	**AUC**	**RECs**	**Member States**
Actions	Document, disseminate and carry out peer-to-peer learning activities on best practices in terms of regenerative farming and in terms of policies to support such practices.	Support member states in finding complementarities in their agricultural value chains.	Support improvement in storage systems at markets and transport systems between the farm/fisheries and the market to prevent vast amounts of pre-consumer waste.
	Encourage member states to trade agricultural products with each other by removing trade barriers.		Promote sustainable farming techniques among farmers and farmer cooperatives through awareness campaigns and workshops.
			Support farmers that adopt regenerative agricultural practices, especially practices that increase water efficiency. The support could take the shape of direct subsidies for these farmers
			Investigate opportunities for closed-loop food systems encouraging local production and consumption while providing more independence to remote communities.
			Digitize markets to promote and optimise connectivity between producers and consumers to reduce post-harvest losses and also track organic waste production and distribution.

131. The strategy developed by EAC can be used as an inspiration. AUC to provide guidelines, e.g. on the identification of supporting and hindering policy means and tools.
132. Fish skins can be used to create eco-friendly leather. Fish waste can be dried and processed into feed. It can be digested for energy and the residue applied to agriculture, else combined directly in humic soil processing to add nutrients to bio-organic fertilizer.
133. This may be addressed through EPR schemes.
134. They could organise awareness campaigns to promote the use of organic fertiliser

Table 3-12 Agri-food and fisheries – Goal 3

Goal 3	Promote innovations and indigenous solutions that are regenerative and valorise organic waste from farms, fisheries and cities		
Actors	**RECs**	**Member States**	
Actions	Phasing out the practice of open burning and incineration of organic waste (implement ban in the long-term).	Incentivise the use and production of organic fertiliser and where inorganic fertilizer is inevitable, to provide for sustainable use of chemical fertilizers (right fertilizer, right quantity, rightly applied and right place).[134]	
	Promote regional technological transfer among countries, esp. related to fish waste valorisation.waste (implement ban in the long-term).	Promote and incentivise the creation of decentralised anaerobic biogas production plants (small-scale onsite applications) and medium-sized facilities run by farmers cooperatives, the composting of organic waste on farms and other bio innovations such as the production of organic fertiliser from organic waste and the use of indigenous solutions.waste and the use of indigenous solutions.	
			Support innovation in the valorisation of fish waste, such as making fish oil/powder, using fish skin for leather production, and producing micronutrients.
			Promote and support the development and use of alternatives to polystyrene for fish storage and the incorporation of solar-powered cooling systems.
			Support climate-smart agriculture innovations and practices such as inter-cropping and agroforestry.
			Disincentivise the landfilling of organic waste through taxation when other valorisation options are available.

Transport and Mobility

A transport and mobility sector that embraces the circular economy provides sufficient and equal access to clean and safe mobility services and infrastructure, enhances maintenance and repair activities during the lifecycle of vehicles, performs recovery activities at the end-of-life and ensures correct waste management of broken cars while also regulating the import of second-hand vehicles. In line with the proximity principle of the circular economy, there is also the potential to build a local industry for batteries given the access to relevant raw materials (related to electronics).

Important steps for advancing circularity in the transport and mobility sector shall include the strengthening of policy frameworks that embrace circular principles, the promotion and support of transportation that is clean and based on product-as-a-service, proper material and product management allowing for circularity through maintenance, reuse and recycling as well as the regulation of second-hand vehicle imports.

Table 3-15 Transport and Mobility – Goal 1

Goal 1	Build strong policy frameworks on the continental, regional and national levels that embed circularity in the transport and mobility sector	
Actors	**AUC**	**RECs**
Actions	Document, disseminate and carry out peer-to-peer learning activities on best practices in terms of regenerative farming and in terms of policies to support such practices.	
	Establish a continental strategy for efficient, modern and clean transport modes development that promotes public transport, mobility as a service and circularity through the promotion of efficient, durable and repairable vehicles.[135]	
	Develop golden rules for infrastructure development so that Member States use the best available techniques, models and circularity principles in terms of durability, modality and resource efficiency of infrastructure.	
	Ensure that Member States align their existing transport and infrastructure development strategies with circular economy, environmental standards and international conventions to protect nature.	
	Connect international donors (active on the continental level) with national transport and mobility agencies and projects to reinforce coordinated development in line with circularity principles.	.
	Enable land-locked countries to access sea ports with dedicated agreements.	

Table 3-16 Transport and Mobility – Goal 2

Goal 2	Promotion of efficient transport modes that are clean, modern and based on service rather than ownership	
Actors	**AUC**	**Member States**
Actions	Encourage sharing schemes over individual car ownerships, e.g. service model via carsharing and carpooling rather than ownership to render mobility more accessible and to reduce congestion in cities.	With cities, encourage mass public transportation using clean energy, like electric trains, tramways, metros and vehicles as well as light mobility, such as walking and cycling, including fostering bike-sharing schemes.[136]
	Enable stronger mobilisation of stakeholders in the battery value chains, allowing the shift from being an exporting raw resources provider to becoming a key actor in battery production, regeneration and recycling.	Decentralise and/or digitise essential mobility services to optimise the movement of people
	Invest in Research and Development with a focus on technology transfer and collaboration with international partners to develop a robust electric vehicle industry in Africa.	Promote investment for setting up public recharging infrastructure and access to alternative energy solutions like off-grid solar charging, vehicle-to-grid applications and back-up power.

Table 3-17 Transport and Mobility – Goal 3

Goal 2	Improve infrastructures and capacity in the agri-food sector		
Actors	**AUC**	**RECs**	**Member States**
Actions	Reinforce circular economy policies related to vehicles and notably promote repair and producers' responsibilities, access to spare parts and enable a longer lifetime of vehicles.		
		Promote the re-processing (to remove impurities) and reuse of vehicle oils and lubricants and campaign against the burning of these substances.	
			Regulate the import of used vehicles to ensure that they comply with high environmental and safety standards, e.g. introduce specific bans for some second-hand vehicles.
			Dedicate special economic zones to serve as manufacturing hubs for EVs, spare parts and maintenance.
			Continue the expansion of EPR policies to cover tyres and vehicles put on the market, both new and second-hand items, in order to finance proper take-back schemes, recycling and disposal. distribution.

136. This should include the adaption of road traffic rules to ensure security for the most vulnerable users.

Tourism

Circularity applied in the tourism sector implies the shift towards eco-tourism that accounts for its economic, environmental and social impacts; it ultimately includes the reduction of potential harm potentially caused through waste and pollution as well as the recognition and appreciation of the local heritage.

Making the tourism sector more circular requires the development of a strong policy framework favouring circular principles and aligning with related and overlapping sectors (e.g. plastics and waste) as well as active support and promotion of eco-tourism initiatives.

Table 3-27 Tourism – Goal 1

Goal 1	Develop a strong and interlinked policy framework for the tourism sector that reinforces circularity approaches in the overlapping sectors (creating a level playing field, including environmental/green aspects).	
Actors	**AUC**	**Member States**
Actions	Establish a framework of cooperation in the sector guiding how different stakeholder groups from different sectors (overlapping with the tourism sector) can collaborate on enhancing circularity in tourism.	Align existing tourism policies with circular economy principles and develop national strategies, where not yet existent.[137]
	Establish a common code of conduct for mainstreaming the circular economy approach among private and public tour and travel operators.	Standardise hotel classifications and harmonise the professional standards of agents.

Table 3-28 Tourism – Goal 2

Goal 2	Support the promotion of eco-tourism/sustainable tourism	
Actors	**RECs**	**Member States**
Actions	Develop eco-tourism certification based on the utilisation and application of circular economy principles and products for tour operators, restaurants and hotels.	Identify best practice examples to be featured across the region while also channelling financial means to them allowing them to scale up.
	Develop guidelines and incentives for hotels, restaurants and travel agencies and their sub-contractors to become more sustainable and circular.[138]	
	Use the tourism sector as a pilot sector for large-scale experimentation with integrated circular economy measures that can then be rolled out across the economy as a whole, for example in the areas of water management, solid or liquid organic waste, textile processing and in the construction, renovation or demolition of buildings.	
	Develop a regional strategy for collectively promoting and marketing eco-tourism as a Single Tourist Destination, e.g. Trans-Frontier Conservation Areas (TFCAs).	Ensure that eco-tourism gives recognition to local communities and involving them in cultural eco-tourism activities. tor.
		With research and educational institutions, develop educational programmes tailored to the skills and knowledge required to succeed in the
		Support the international communication and advertisement of circular and resilient eco-tourism.

Industry: Construction

Circularity in the construction sectors is characterised by designing for durability and modularity, utilising sustainable, safe and renewable materials, providing access to basic services as well as the recovery of building materials.

Shifting to more circularity and supporting Africa in accommodating its growing population, efforts have to focus on the development of aligned policy frameworks integrating and strengthening circularity principles in construction and supporting the use of locally sourced, sustainable, circular and renewable construction materials.

137. These should include a strong link to the other sectors and their circular economy endeavours as well as the preservation of national and trans-border protected areas.

138. Incentives may include tax incentives and subsidies for activities and products favouring and promoting the circular economy.

Table 3-13 Construction – Goal 1

Goal 1	Develop policy frameworks for circular construction on the continental, regional and national levels		
Actors	**AUC**	**RECs**	**Member States**
Actions	Develop a continental construction and urbanisation strategy that shall inform regional guidance materials as well as national policies. This should include a strong focus on the water, waste and energy nexus in the context of construction.		
		Provide technical assistance in Green and Circular Building certification.	Develop national construction visions, sourcing from regional best practices and feasibility studies.
			With Local Governments, develop action plans for making (mega) cities smart and circular.
			Revisit and update national Building Standards and Building Codes to integrate circular economy principles, e.g. choice of materials based on performance and passive design criteria, as well as local construction materials, like mudbricks, Compressed Earth Blocks etc.
			Develop Public Green and Circular Procurement policies to drive the demand for circular and sustainable building materials and componentsdistribution.

Table 3-14 Construction – Goal 2

Goal 2	Promote and stimulate the use of secondary, sustainable and circular construction materials	
Actors	**AUC**	**Member States**
Actions	Develop a guidance document on how the market can be steered towards secondary and sustainable construction materials.[139]	Promote modular buildings which facilitate repairs and the recovery of materials and complete functional blocks during decommissioning.
	Establish an online marketplace for exchanging construction waste materials and secondary raw materials from construction waste.	Identify innovations that promote the use of waste materials in construction or the reuse of construction materials or the recovery of other waste materials, such as plastic waste or copper tailings, that can be used as input for construction products.[140]
		Investigate higher taxation of unsustainable construction materials for large-scale construction projects from local and foreign investors.
		Impose mandatory selective demolition at demolition sites.

Packaging and plastics

Achieving a circular economy in the plastics and packaging sectors entails the elimination of unnecessary and harmful plastics, innovation for reusable, recyclable and compostable plastics and packaging materials as well as the circulation of materials, keeping disposed products and materials out of the environment, and instead safely recycling them.

Africa needs to adopt a pan-African approach in strengthening policy frameworks that aim to phase out plastics as well as their enforcement, improve plastic waste management systems and incentivise the development of innovative solutions and/or scale of business initiatives that minimise plastic packaging use.

[139] This should feature best practices from the continent and abroad.

[140] These should be featured across the industry, e.g. through Private Sector Federations or Green Building Councils, and scaled-up.

Table 3-18 Plastics and Packaging – Goal 1

Goal 1	Strengthen the development of policy initiatives to phase out plastic pollution	
Actors	**AUC**	**Member States**
Actions	Develop a continental guidance document that assists Member States and RECs on the phase phase-out of single-use plastic materials as well as problematic plastics.[141]	Set up recycling and reuse targets to stimulate the development of concrete measures and accountability aligned with international initiatives and agreements.
	Promote best practices (incl. public-private collaboration) and run continental-wide awareness-raising campaigns about the importance of action and participation in tackling plastic pollution in the public sector.	Set up national task forces to ensure the enforcement of plastic products product bans.
	Introduce a continental ban on plastic waste imports as a worldwide flagship initiative.	
	Harmonise and align policies at the continental level on product policy and EPR regulations, especially for plastic materials, as well as standards on the treatment of packaging materials within the region.	
	Support Member States to effectively engage in the Intergovernmental Negotiating Committee (INC) to develop an international legally binding instrument on plastic pollution.	
	Develop a plastics action plan in line with the Zero Draft of the Global Plastic Treaty and with the current efforts of member states.[142]	

Table 3-19 Plastics and Packaging – Goal 2

Goal 2	Ensure waste management systems capable of dealing with packaging in a circular way		
Actors	**AUC**	**RECs**	**Member States**
	Establish a framework/ guidance for characterising different circular packaging materials/alternatives (e.g. distinction between biobased, biodegradable and compostable) and explaining proper use/ application and treatment techniques.[143]	Invest in regional plastics recycling capacity.	In collaboration with the private and informal sector, increase the collection and management of plastic waste by developing financial mechanisms, such as EPR or deposit schemes, and supporting decentralised collection systems.
			Introduce a separate collection of plastics and packaging with funding from EPR schemes or collection fees.
			Discuss in regional working groups how the existing waste management system can be made fit for circular packaging.
			Promote research and development for alternative packaging materials sourced locally.

[141] This should include different approaches of how an incremental phase phase-out can look, incl. legal and fiscal tools, such as (gradual) bans and taxation.

[142] This action plan should include best practices, for instance, on proven plastic waste recycling and viable and sustainable alternatives to plastics packaging.

[143] This shall support Member States in taking informed decisions on the feasibility and benefits of replacing conventional materials with biodegradable plastic (i.e. bags for separate collection of biowaste from households).

Table 3-20 Plastics and Packaging – Goal 3

Goal 2	Promote and stimulate the use of secondary, sustainable and circular construction materials	
Actors	**AUC**	**Member States**
Actions	Develop regional start-up policies and acts that can help unlock the potential of entrepreneurs and start-ups working on circular solutions for plastics and packaging to establish, and support their growth (incubation centres and business accelerators).	Develop policies to leverage and scale up reusable packaging systems combined with options to refill and purchase in bulk.
	Restrict the use of single-use packaging formats for specific applications and support sales in bulk, in particular when reusable products or systems can be introduced or when consumer goods can be handled safely without packaging.	
		Foster economies of scale and market penetration of reusable packaging systems by, for example, enabling companies to share the same packaging and/or the same logistics and washing lines.
		Integrate the informal sector in policies related to the collection and treatment of plastic waste, especially on aspects related to capacity building and safe working conditions.

Electronics

The circular economy embedded in the electronics sector means products being designed for repairability and recyclability, the utilisation of safe and environmentally friendly materials, access to repair services, the environmentally sound waste management of disposed products, and material recovery of recyclable components. At the same time, digitalisation enabled through electronics plays an important enabling role in the circular economy related to data collection and connectivity for collaboration.

To tackle the advancement of circular economy in the electronics sector, Africa has to strengthen and align policy frameworks that regulate and guide the management and treatment of electronic waste, to improve and expand infrastructure with a focus on recycling hubs and the scale-up of repair, reuse and refurbishment initiatives aiming to extent the product's lifecycles.

Table 3-21 Electronics – Goal 1

Goal 1	Harmonisation, alignment and strengthening of policy in the region, regarding the regulation of handling the vast amounts of electronic waste	
Actors	**AUC**	**Member States**
Actions	Promote and support the alignment of electronic and e-waste-related regulations across the region to facilitate the operation of regional recycling hubs.	Develop national EPR regulations and set up Producer Responsibility Organisations (PROs) in close collaboration with the private sector while also looking at best practices.
		Develop e-waste management strategies and guidelines for each country, based on knowledge exchange on good practices.
		Establish product policies, e.g. on energy efficiency policies for certain electronics and combine them with increased custom controls.[144]

Table 3-22 Electronics – Goal 2

Goal 2	Improve the infrastructure to manage e-waste and strengthen recycling hubs
Actors	**Member States**
Actions	With local governments, offer training and capacity building to informal workers on the appropriate collection and safe treatment of e-waste.
	With international donors, invest in the collection and transport/transfer infrastructure of e-waste.
	With international donors and the private sector, invest in the development of regional e-waste recycling facilities to treat the waste that cannot be treated nationally.[145]

144. This could include collaboration with the EU on these aspects under the umbrella of the AUC.

145. These should be able to progressively process e-waste from renewable energy equipment which will become a major source of e-waste in the future; trying to avoid a re-bound effect thereby.

Table 3-23 Electronics – Goal 3

Goal 3	Strengthen and scale existing repair, reuse and refurbishment initiatives for electronic products		
Actors	**AUC**	**RECs**	**Member States**
	Identify and promote repair, reuse and refurbishment initiatives of electrical and electronic equipment to showcase local and indigenous innovation and their viability.		With domestic banks, support business initiatives involved in the repair and material recovery of electrical and electronic equipment.
			In collaboration with informal sector associations (e.g. GAIA, WIEGO), support informal repair, reuse and refurbishment initiatives of electrical and electronic equipment and help their formalisation where welcomed.
		Promote collaborations between academia and, the private sector and repair, reuse and refurbishment initiatives of electrical and electronic equipment to strategically embed circularity in existing business models, sourcing from original and local knowledge.	
			Develop or expand national incubator programmes where small-scale initiatives can receive targeted business support and advice for scaling their operations.

Textiles

Circularity applied in the textiles sector includes the reduction of textile waste at the production phase, utilisation of recyclable and/or renewable materials, increase of clothing utilisation through reuse, maintenance and repair, phase out of substances of concern and micro-fibre release, and proper waste management that enables recycling or cascading of materials.

To exploit the opportunities that the circular economy offers in the textiles sector and to combat waste challenges, Africa needs to adopt stricter regulations on the import of second-hand textiles and better enforcement of such regulations, supporting the development of the textiles industry towards textile processing, and actively tackle the pollution issue of landfilled textile wastes.

Table 3-24 Textiles – Goal 1

Goal 1	Support and promote a circular textiles sector through policies on the importation of second-hand textiles and incentives for circular initiatives		
Actors	**AUC**	**RECs**	**Member States**
	Categorise second-hand textiles to facilitate custom checks. [146]	Develop regulations (where non-existent) on the import of second-hand textiles on dangerous and poor-quality products, as well as products for which the demand is already met locally; the regulation should be better enforced in the regions, where it already exists.	Provide technical and financial assistance to existing circular textile and apparel initiatives.
			Incentivise the growth of circular textile and apparel industry by expanding the capacity of textile collection and recycling.

[146] More information needs to be included in the products through product passports on which the AUC and Member States can collaborate.

Table 3-25 Textiles – Goal 2

Goal 2	Strengthen the production of raw materials and improve capacity for processing		
Actors	**AUC**	**RECs**	**Member States**
	Encourage more circular consumer behaviour through awareness-raising initiatives that promote reuse, e.g. buying from second-hand clothing platforms and shops which actively contribute to a circular fashion in Africa.	Promote the implementation of resource resource-efficient methods in the processing of fibres and textiles.	Conduct training and awareness awareness-raising activities for farmers on sustainable cultivation of textile fibres.
	Facilitate trade between countries in order to make African raw materials available in sufficient quantities for local production through the AfCFTA.		Support the growth of local manufacturing companies by providing incentives such as special economic zones and tax breaks.
		Subsidise the local production and processing of sustainable textile raw materials.	

Table 3-26 Textiles – Goal 3

Goal 3	Reduce waste and pollution generated by the textiles and apparel sector, from local generation	
Actors	**RECs**	**Member States**
Actions	Develop standards and regulations on the nature of chemicals used in the manufacturing process and hold companies responsible for the waste generated by their processes.	Increase capacity to manage textile waste locally by investments in collection, transfer and treatment infrastructure.
		Foster economies of scale and market penetration of Support local resale, maintenance, and repair markets through capacity capacity-building initiatives (such as training for local tailors).

Mining

The mining sector contradicts the idea of circularity, however, there is much potential for making its current practices more circular and efficient by, for instance, re-utilising mining slag, while also embracing community and biodiversity aspects into the sector operation.

Re-thinking the mining sector from a circular perspective requires Africa to adopt stricter regulations and their enforcement, develop incentives to support the transition to a more sustainable mining industry, and restore degraded former mining areas.

Table 3-29 Mining – Goal 1

Goal 1	Develop a regulatory framework at the continental level, for the circular transition of the extractive mining industry		
Actors	**AUC**	**RECs**	**Member States**
	Mainstream circular economy in the upcoming African Green Mineral Strategy.		
	Develop a strategic guiding document that includes basic principles that should be part of the updated regulations.	Implement the overarching basic principles, e.g. preventing the trade of materials that have been sourced from endangered ecosystems.	Update national regulations on mining to include aspects on the use of harmful chemicals, safe working conditions, the end-of-life of waste chemicals from the processing of minerals, water efficiency and treatment, and the disposal of wastewater in the extraction and refining process.

Table 3-30 Mining – Goal 2

Goal 2	Incentivise circular innovations to support the circular transition of the extractive mining industry	
Actors	**RECs**	**Member States**
Actions	Support and guide the research into the development of nature-based solutions to restore degraded ecosystems.	Pilot innovative solutions, such as materials-as-a-service.
		In collaboration with industry associations, conduct training and awareness awareness-raising programmes for small-scale and artisan miners on wastewater management.
		Conduct awareness-raising campaigns on the environmental impacts of the extractive mining industry in cooperation with national NGOs towards political, private and informal actors.
		Support circular approaches to recycle water from mining operations.

Table 3-31 Mining – Goal 3

Goal 3	Reduce waste and pollution generated by the textiles and apparel sector, from local generation	
Actors	**AUC**	**Member States**
Actions	Create a framework for cooperation between the AU and international companies to restore the areas they have damaged.	Implement stricter licensing regulations as well as laws and systems that mandate extracting companies (including mines, quarries and oil fields) to conduct environmental impact assessment, mandate the use of processes with the least environmental impact and hold extractive companies responsible for the impact of their activities.
		Implement regulations that protect host communities from exploitation by the extractive industries and guarantee the protection of the ecosystem within the communities.
		Perform an inventory of areas previously allocated as protected areas and update based on current realities at regional and national levels and develop regional policy policies and regulations to protect biodiversity hotspots and ban any mining activities within these areas.
		Create funds for restoring degraded areas financed by taxation of polluters.

3.2.2 Cross-cutting goals and actions

Inclusivity

Incorporating inclusivity and gendered considerations into circular economy development can lead to more equitable outcomes, promote social inclusion, and ensure that the benefits of circular practices are accessible to all. It is therefore important to be intentional and strategic about the empowerment and upskilling of women and youth as well as PWDs and IPLCs to allow active participation in more dignified jobs where the valorisation of materials is prioritised, shifting from waste-related jobs to opportunities across the entire value chain of the circular economy.

To provide a fair and inclusive circular economy, Africa has to ensure equal opportunities for vulnerable groups, especially women and youth, while providing the necessary tools for their involvement in the whole circular economy value chain.

Table 3-32 Inclusivity– Goal 1

Goal 1	Build an enabling environment for equal opportunities for women and youth		
Actors	**AUC**	**RECs**	**Member States**
Actions	Together with Member States, provide financial (e.g. MSME fund) and technical support for vulnerable groups active in formal and informal circular activities (e.g. in recycling).	Develop evidence-based public awareness campaigns that break down stereotypes towards women, youth, PWDs and IPLCs, as well as disparities and traditional barriers that limit their participation in circular economy economy-related activities .[147]	
		Encourage the formation of cooperatives and coalitions focusing on women and youth as well as PWDs and IPLCs, providing access to networks and platforms to facilitate their participation in broader markets, sharing knowledge and collaborating on solutions, and ensuring their representation.	
			With Member States, ensure the existence of inclusive and gender-responsive policy frameworks and their integration into circular economy strategies and programmes, ensuring more dignified employment along entire value chains.
			Ensure that employment of women, youth and vulnerable groups align with occupational health and safety standards, and develop protection measures where necessary (e.g. exposure to hazardous materials).

Table 3-33 Inclusivity – Goal 2

Goal 2	Empower and upskill women and youth for employment in the entire value chain of the circular economy	
Actors	**RECs**	**Member States**
Actions	Support fragile states in accessing capacity-building programmes for women, youth, PWDs and IPLCs.	Together with the private sector and VETs, develop capacity-building programmes related to financial intelligence and business skills, offered through incubator programmes or free/affordable training programmes at VETs.
		In collaboration with the private sector, universities and VETs, develop sector-specific capacity-building programmes tailored to the needs of women and youth as well as other vulnerable groups.
		Design a Young Professional Programme focusing on research and development.
		Encourage the private sector to incorporate gender and equality in their business operations and circularity activities, providing fair and dignified employment that goes beyond less valuable tasks, low-paid and low-skilled positions.

Trade, Collaboration and Regional Industrial Capacity

Stronger regional trade, in line with the proximity principle of the circular economy, regional and international collaboration as well as the development of industrial capacity, embedding circular principles, are important enablers on the circular economy journey.

Taking the circular economy forward in this area, Africa has to build a market for sustainable goods and foster industrial cross-border collaboration, strengthening inter-regional trade and enforcing waste import regulations as well as cooperating on advancing its industrial capacity.

[147] This should be supported by research and data collection on the importance of the role of women, youth, PWDs and IPLCs in the circular economy as well as their accomplishment, challenges and capacity to influence change.

Table 3-34 Trade, collaboration and regional industrial capacity – Goal 1

Goal 2	Empower and upskill women and youth for employment in the entire value chain of the circular economy	
Actors	**AUC**	**Member States**
Actions	Formulate a continental AU Green Deal that aims to harmonise and synthesise policy actions and policy adoptions[148].	Update their existing product policies, where they exist, to align to the continental sustainable product policy framework, focusing on durability and repairability.
	In collaboration with the private sector and the EU, develop sustainable product regulation which would determine the conditions to access the African market and (1) defines the quality and standards of products, e.g. related to durability, reparability, utilisation of safe materials and recyclability, and (2) favouring circular products through respective tools and incentives[149].	
	Develop the continental eco-labelling scheme, based on a sustainable product framework, that can be adapted to the national level and allows operability with local eco eco-labels.	
	With international knowledge partners, investigate other incentives that can drive the mainstreaming of circular products, such as tax reductions for recycled materials.	
	Investigate other innovative tools that could boost the circularity of products, such as the Eco-Mark Africa	

Table 3-35 Trade, collaboration and regional industrial capacity – Goal 2

Goal 2	Strengthening trade regulation and increasing enforcement capacity		
Actors	**AUC**	**RECs**	**Member States**
Actions	Develop a resolution with minimum requirements for the import of waste.		Establish limits and higher controls and standards at customs on the import of textiles, waste and used EEE.
	Promote the standardisation of products and materials exchanged within regions to facilitate their trade and the creation of regional markets (commoditisation) as well as to prevent monopolies, captured in the AfCTFA.[150]		
	Integrate circular goods, such as agricultural commodities produced through regenerative practices, in the AfCFTA.		
	Introduce a ban on the import of plastic waste and hazardous waste, aligned with the Basel Convention on the Control of hazardous wastes and their disposal as well as the Bamako Convention.		
	With its international partners, deliver training on best practices for customs and standards to Member States.		
	Harmonise trade-related policies to enable the transfer of waste to these regional recycling facilities with limits based on their capacities.		
	Promote and advocate for sustainable trade, focussing on value creation vs. waste dumping.		
	Prioritise sustainable trading practices within the AfCFTA and integrate definition of sustainable products into the AfCFTA agreement.		

148. This should align with the Carbon Border Adjustment Mechanism (CBAM).

149. Such tools and incentives (stimulus packages) are recommended to shift from voluntary to mandatory in the medium-term.

150. This should align with the HS codes, UN International Standard Industrial Classification of All Economic Activities, Rev. 4 (ISIC 4).

Table 3-36 Trade, collaboration and regional industrial capacity – Goal 3

Goal 3	Establish an integrated registry of trade (incl. materials and products) and related waste flows
Actors	**AUC**
Actions	Support the creation of a digital platform to trace what comes onto the continent and is traded within the regions, informed by improved customs (trade and material flows).
	Create a harmonised nomenclature to subdivide goods further than the HS codes across the continent via the AfCFTA with a special focus on waste products.[151]

Table 3-37 Trade, collaboration and regional industrial capacity – Goal 4

Goal 1	Support and promote a circular textiles sector through policies on the importation of second-hand textiles and incentives for circular initiatives		
Actors	**AUC**	**RECs**	**Member States**
Actions	Create sector working groups to exchange best practices and policy approaches as well as explore collaboration potential on building a strong cross-country circular industry, ensuring that more value is created in Africa.		Establish trade and economic cooperation agreements between each other in value chains where they can complement each other to establish circular value chains.
	Create working groups to exchange on how Member States could cooperate on and enhance the production and trade of certain products with a high circular economy potential, e.g. scrap.[152]		
	Incentivise the growth of circular textile and apparel industry by expanding the capacity of textile collection and recycling.		Start the strategic development of local production, moving from exporting to local value creation, in countries where sectors and markets are ready.[153]

Education and Capacity Development

The right education and capacity development are determining factors for the success of the circular economy. On the one hand, people across all sectors and stakeholder groups have to grasp the full concept of the circular economy and its potential benefits. On the other hand, circular economy promises the creation of jobs that require the right skills which are diverse and the right focus enabling the closing of material and biological cycles.

To equip the workforce of tomorrow, Africa has to build a common educational foundation for teaching the concept across different levels, invest in circular economy entrepreneurship and employment as well as strengthen the knowledge exchange and research in this field.

151. The AU can take inspiration from what was done at the EU level with the CN codes.

152. These recycled 'commodities' should lead to cross cross-country industrial investments, to reduce the exports of these 'commodities' and to increase local employment and create more economic added value. Instead of forming a new working group, the Regional multi-stakeholder Sector Working Groups can be used as well (see Chapter 3.3).

153. The readiness should be defined by sufficient local demand and a growing market, access to necessary technology, available funding and skilled labour. This development requires close alignment with the product policy framework to ensure that production is based on the right principles.

Table 3-38 Education and capacity development – Goal 1

Goal 1	Enhance learning, align understanding and build awareness through circular economy curriculum and sector training programmes		
Actors	**AUC**	**RECs**	**Member States**
Actions	In collaboration with existing AUC regional specialised institutions, develop a continental harmonised curriculum for building skills and expertise on circular economy focusing on continental sectors that can drive circular transformation.[154]	Develop Train the Trainer programmes to increase training capacity and quality.	With standardisation boards and knowledge institutions, develop internationally recognised certifications for developed training programmes.
	In collaboration with knowledge institutes, tailor a universal curriculum to different stakeholder groups (businesses, investors, students, CSOs and decision-makers) and sectors.	Run awareness campaigns that contribute to increasing the awareness and understanding of circular economy of the general public while also communicating benefits and best practices.	
			With VETs, collaborate with the informal sector and women cooperatives on tailored training courses.

Table 3-39 Education and capacity development – Goal 2

Goal 2	Support entrepreneurship and circular employment	
Actors	**RECs**	**Member States**
Actions	Establish a regional innovation and entrepreneurship centre focusing on the region's circular economy potential.	Develop curriculum reform in selected public universities and TEVTs geared towards entrepreneurial skills and jobs for the circular economy.
	Develop a regional networking platform to share knowledge and employment opportunities.	Promote collaboration and partnership between industry and academic institutions for practical training.
		Provide technical assistance to equip MSMEs with the skills and documentation required to access funds designated for circular economy, as well as skills to iterate and improve their innovations to make the business model more bankable.[155]
		Support circular business hubs which offer capacity development for SMEs to develop bankable circular economy projects.

Table 3-40 Education and capacity development – Goal 3

Goal 3	Strengthen and enhance knowledge exchange and research related to science, technology and innovation within/across regions and stakeholder groups within countries		
Actors	**AUC**	**RECs**	**Member States**
Actions	Establish a continental database/platform featuring experts, projects, best practices or communities of practice that can assist circular transformation of governments and businesses.[156.]	Promote collaboration and partnership between industry and academic institutions to stimulate research and development related to circular solutions across sectors and industries.	Create National Cleaner Production Centres (NCPC) to coordinate all sustainable production and consumption programming between government and businesses; where one exists, strengthen its capacity.
	Establish regional-wide or continental-wide research programmes between universities focussing on circular innovations.	Ensure the application of Private Sector Engagement Models to co-create solutions and market incentives to increase innovation and the adoption of circular economy practices.	
	Establish a continental financing scheme to support research and development on circular economy.		Support innovation and intellectual property rights for alternative products.
		In collaboration with universities, organise symposia and conferences focusing on applied science to present the most recent research and discuss their application.	

[154.] Examples are The Pan African University (PAU), Scientific, Technical and Research Commission (STRC), Pan African Training Center on Statistics, Centers of Excellence, African Capacity Building Foundation (ACBF).

[155.] This could include to help MSMEs to form Savings and Credit Cooperative Organisations to access funds at better rates from their pooled savings.

[156.] This platform should be publicly available and also address freelancers and media houses.

Finance and Business Support

Finance and business support is one of the most essential enablers for a circular economy, as without adequate financial tools and resources, circular business cases won't be implemented, scaled up and mainstreamed. In a circular economy, the financial sector internalises the concept of circular economy and offers diverse and innovative financial instruments fit for circular business models. At the same time, circular businesses are supported through tailored business support and advisory schemes that stimulate their development.

To make its circular economy businesses thrive, Africa has to improve the financial viability of circular businesses through new financing mechanisms, bringing forward the certification of circular businesses and developing regional project portfolios, advancing public financing mechanisms, such as circular public procurement, and tailor business support to the needs of circular entrepreneurs and businesses.

Table 3-41 Finance and business support – Goal 1

Goal 1	**Improve and support the financial viability of circular businesses through new financial services/ mechanisms/instruments and alignment of standards that fit characteristics of circular investments**		
Actors	**AUC**	**RECs**	**Member States**
Actions	Develop campaigns and advocate to banks to lower their interest rates for circular projects, incl. advice on monetary policy.		Together with banks, advocate for and initiate the extension of investment portfolios and services of banks and investors that accommodate green and circular investments and projects.
	In collaboration with AfDB, support Member States with specific facilities at the national level (see policy of the EBRD[157]) and to become more involved in private project financing.		Together with banks and Direct Foreign Investors (DFIs), integrate circular economy principles in their revenue/ capital mobilisation strategies, establish proactive circular economy credit policies and lending procedures, and manage and disburse funding for circular economy solutions.
	Advocate to international climate or green funds (e.g. Adaptation Fund) for the broadening of their portfolios and amendment of criteria that match circular projects and businesses, justified by the contribution that CE can provide to climate change.		Together with banks, develop innovative, proven financial instruments, including co-financing, blended financing and guarantee schemes for de-risking, for promising start-ups and MSMEs to scale up.
			Work with UNCDF [158] to integrate circular economy financing as one of its priorities to support the imple-mentation of national circular economy interventions while aligning financial arrangements.
			Together with the private sector and banks, develop a criteria catalogue (relevant to the national context) for facilitating the identification and evaluation of CE investments/projects/ business cases that banks should use in assessing funding applications.
			Together with banks, establish green bonds where not existent yet.
			Investigate and research the opportunities and feasibility of debt swaps and introduce pilots.

[157] European Bank for Reconstruction and Development (EBRD) was created in April 1991 to foster the transition towards open market-oriented economies and to promote private and entrepreneurial initiative.

[158] UN Capital Development Fund (UNCDF) is the United Nations' flagship catalytic financing entity for the world's 46 Least Developed Countries (LDCs). With its capital mandate and focus on the LDCs, UNCDF works to invest and catalyse capital to support these countries in achieving the sustainable growth and inclusiveness.

Table-42 Finance and business support – Goal 2

Goal 2	Strengthen certification for circular economy and develop regional project portfolios to sup-port leveraging finance within the regions		
Actors	**AUC**	**RECs**	**Member States**
Actions	Support financial institutions and Member States to align with global climate finance schemes facilitating the financing of circular solutions.		Together with banks, foster collaboration amongst certification bodies across Africa to create coherent standards that are aligned with international standards such as ISO and IEC.
		Assist national and regional financial institutions in obtaining internationally recognised certification to access climate funds.	
		Develop comprehensive regional investment strategies with a circular economy as its central focus.	
		Develop a regional portfolio of potential bankable and investment-ready projects to share with large financial institutions and international partners.	
	Identify, document, and disseminate best practices in financing circular economy initiatives from all over the continent and from other continents.		

Table 3-43 Finance and business support – Goal 3

Goal 3	Advancing public financial mechanisms to create a level playing field for circular businesses
Actors	**Member States**
Actions	Promote green and circular public procurement strategies. This may include an initial voluntary phase which then transitions into an obligation.[159]
	Set up green public funds to support circular businesses financed by environmental taxes.[160]
	Introduce tax breaks, reductions or exemptions for businesses transitioning to the circular economy and businesses which are already circular.
	Direct a certain percentage of public project budgets to CE projects/funds to showcase the viability of and build trust towards CE businesses (public sector in the lead).

Table 3-44 Finance and business support – Goal 4

Goal 4	Develop tailored business support that encourages entrepreneurship and facilitates operations	
Actors	**RECs**	**Member States**
Actions	Design market systems that enable economies of scale by clustering start-ups and SMEs focusing on similar projects, and waste streams through hubs and incubators.	
	Offer land at lower costs or for lease to circular MSMEs and for regenerative farming to decrease their CAPEX.	
	Foster public-private partnerships to mobilise resources for increasing the accessibility and affordability of infrastructure, such as recycling facilities, and off-grid renewable energy installations.	
	Promote collaboration between established businesses and entrepreneurs to exchange on know-how related to technology and innovation.	

[159] This may start with an initial voluntary phase which transitions into obligation. After the public sector first went ahead, it can then be followed by the private sector or public-private collaboration, see the Netherlands.

[160] This must be connected to awareness raising among members of governments and green funds employees to ensure the funds are allocated appropriately.

3.3 Governance and Institutional Arrangements

For a successful implementation and delivery of the Continental Circular Economy Action Plan for the AU, it is crucial to have a governance model in place that:

- ✓ has an institutionalised entity in the AUC under the Agriculture, Rural Development, Blue Economy, and Sustainable Environment (ARBE) department to spearhead and coordinate CE work;
- ✓ clearly defines the process of coordination among the different stakeholders;
- ✓ outlines the implementation process of the actions and stakeholder groups acting on different levels;
- ✓ tracks the progress-making process and holds stakeholders accountable.

Structure and roles in the governance model

For the successful and effective implementation of this Action Plan, the development and operation of as well as communication between the following three bodies is key:

- ARBE CE Secretariat, organising bi-annual African Circular Economy Implementation Forums;
- Regional Economic Communities, coordinating Regional CE multi-stakeholder sector working groups (RSWGs);
- Member States, through their lead ministry, bringing forth national Circular Economy Action Plans, supported by inter-ministerial groups.

As required by this Action Plan, each of the different parties will have to work on the implementation of the actions assigned to them and the respective monitoring (see Annex I – Macro-indicators to support governance and resource mobilisation). However, in the overall implementation process, their roles can be summarised in the following way.

ARBE CE Secretariat

On the continental level, the aforementioned elements require significant coordination effort and oversight. Therefore, the mandate should be given to one dedicated body, namely, the **Circular Economy Secretariat sitting under the AUC / ARBE**, which is yet to be formed.

The **ARBE CE Secretariat** has the following four main tasks:

- ✓ coordinate the different actions, provide high-level guidance and ensure collaboration, engagement and coherence among Member States and RECs;
- ✓ link the relevant stakeholders operating at a higher level (i.e. international development and finance partners, international knowledge partners), domestic financial institutions, and the Member States;
- ✓ track progress (based on the attached tracking matrix and M&E indicators) and ensure enforcement and compliance. The national Focal Points[161] will support the monitoring efforts by reporting on their progress once a year to the Secretariat and elaborating on their challenges and elements where they could need additional support;
- ✓ report to STC as well as the AU Executive Council and Assembly;
- ✓ engage in financial resource mobilisation and support Member States in securing external funding, as further elaborated in Chapter 3.4.

The Secretariat shall be run by permanent AUC staff, which can be supported by ministers (or government representatives) and experts from Member States and RECs to support the operation, or domestic and international partners to provide ad-hoc advisory support.

In order to keep up the momentum, give updates on progress-making and address potential implementation challenges, the ARBE CE Secretariat will organise annual **African Circular Economy Implementation Forums**. These shall be held together with Member States and RECs, and potentially also other domestic and international stakeholders, depending on their relevance to the different implementation steps. This platform will expand and replace the AU EWG on CE[162] . The discussions about the implementation and progress evaluation should be based on the attached Tracking Matrix and M&E indicators, attached to this document Annex H, I and J). The forums could be complemented or combined with a bi-annual **African Circular Economy Open Forum**

[161] Representatives of national lead ministries

[162] The AU CE EWG has been launched in 2020 to operationalise decisions related to CE in Africa. It is composed of a few Member States representatives, and partners such as ACEA, UNEP, UNECA and AfDB. More Member States are invited to participate. This is planned to be expanded to the African Circular Economy Forum.

serving as a means to update development partners on progress and enhance knowledge sharing across the continent. The participation will be open to any interested party to take part in the continent's, regional and national circular economy transitions. Such an open forum can be an important means, especially for raising international awareness of Africa's circular economy transition and investment interests from businesses, financial institutions, development banks and development agencies. Finally, it will bring together important players and actors from different levels and sectors, aiming to enhance partnerships and find solutions for reoccurring challenges related to the implementation of actions.

Regional Economic Communities

Based on their regional experiences, the RECs are expected to provide policy guidance and coordination to the ARBE CE Secretariat and the Member States. At the same time, they play a key role in bringing together different stakeholders from the regions, including the public and private sector, academia, finance and civil society to ensure access to sufficient and first-hand information and knowledge to come up with concrete solutions and/or make well-founded decisions.

Regional CE multi-stakeholder Sector Working Groups (CE RSWGs) will serve as a means of doing so and have the following main tasks:

- ✓ increase regional collaboration and partnerships and private sector engagement by providing a permanent platform for frequent exchange;
- ✓ enhance the dialogue on progress in relation to the implementation of actions and potential challenges faced, as well as the exchange of best practices;
- ✓ support the process of harmonising policies and inter-/extra-regional trade-related concerns in the region;
- ✓ find region-specific and technical solutions to resolving regional issues and implement actions on the regional and national levels.

The CE RSWGs will be led by an appointed small team from the RECs. They can be supported by Member States' representatives with sector-specific technical and political backgrounds. Depending on the region's priority sectors in common and their focus, it is encouraged to form several RSWGs per region to allow a certain level of depth in the discussions. Subject to the needs of the region, quarterly CE RSWG meetings lasting over half a day are considered appropriate to accommodate the different elements while also respecting other responsibilities of the members.

Member States

The Member States will be responsible for contextualising and aligning their Action Plans, formulated in this document, to the national level by developing national Circular Economy Action Plans or by revising existing ones. Considering the cross-cutting nature of the circular economy, this will be facilitated by forming **Inter-ministerial Groups** that will support the alignment and collaboration across ministries relevant to the topic. These should be held on a quarterly basis for half a day. Furthermore, they may provide capacity to the ARBE CE Secretariat and engage in the CE RSWGs.

Additional key stakeholders will be invited to participate on an ad-hoc or occasional basis in meetings and activities of the ARBE CE Secretariat, Member States and RECs. These include:

- Strategic partners (e.g. from AfCFTA, ARSO, EU, etc.);
- Knowledge partners (e.g. ACEN, ACEA, EU, Ellen Mac Arthur Foundation, etc.);

Development and finance:

- Domestic partners (e.g. AfDB, National Development Banks, National Green or Development Funds, etc.);
- International partners (e.g. UNEP, UNECA, EU, GIZ, The World Bank, CTCN, AfDB, GGGI, UNIDO, USAID, FAO, JICA. etc.).

Figure 3-2 shows the different parties involved in the implementation process of the Continental Circular Economy Action Plan, how they relate to each other and what reporting lines will be applied. It is depicted that the new ARBE CE Secretariat will play a key role in driving the implementation of the circular economy by conveying important technical capacity, expertise, funding and information flow between the Member States, RECs as well as domestic and international partners, on the one hand, and the AU Assembly, Council Committee and STC, on the other hand.

Figure 3-2 Overview of suggested governance structure

Source: own figure.

3.4 Resource Mobilisation Strategy

The implementation of this Action Plan requires a strategic and thorough approach to mobilise the necessary resources from internal and external funds in which Member States, RECs and AUC should participate. The general approach to mobilising financial resources on different levels (continental, regional and national), which however can be further refined on a case-by-case basis, includes the following steps:

- **Estimation of total costs:** The first important element of successful resource mobilisation is the provision of a complete overview of estimated costs (incl. investment and operational costs). It will add a necessary concrete level to fundraising conversations and subsequent planning. This activity should be based on bottom-up data collection, professional estimates and financial documentation of best practices.

  For the Member States, this shall be part of their national costed Circular Economy Action Plans. For parties that implement actions on the regional and continental levels, this activity should be part of their programming.

- **Identification of internal funding sources:** Once the costs have been estimated, internal sources have to be identified that could be accessed by the AUC itself, the RECs and Member States to realise their actions. Possible internal sources include national funds, allocated ministerial budgets or revenues from environmental taxation.

- **Determination of the amount of internal and external contributions:** After the internal sources have been identified, it has to be decided how much of the total costs can be covered by internal sources. The difference between the total cost and available internal resources leads to the open amount, which has to be mobilised from external sources.

- **Identification of external funding sources:** This includes the mapping of external, diverse funding sources, such as available funds from domestic financial institutions, international development agencies, financial institutions or other partners. Inspiration for potential external sources can be found in Annex G.

- **Outreach and intentional engagement dialogue with financial partners, including the private sector:** Existing and new financial partners have to be approached informing them about the continental Circular Economy Action Plan, the financial gap for its actions' implementation and the potential opportunities that arise from contributing to the circular economy transition in Africa. This is an important first step to open doors and attract the attention of new financial partners as well as the corporate sector. Once interest has been created, partners should be invited to discuss their exact contribution, e.g. based on which goal/action aligns with their portfolio.

This step could also be supported by an African Circular Economy Open Forum (see Chapter 3.3) to update development partners on progress-making, raise international attention, and showcase the continent's, regional and national circular economy transitions and related investment opportunities.

Box 3-1 Source of interest in the circular economy for financial partners

Source of interest in the circular economy for financial partners

International financial partners can be encouraged to invest in circular economy solutions by the high effectiveness of investment in decarbonising the economy, compared with solutions involving the transformation of industrial processes.

Indeed, decarbonising industrial sectors requires heavy investment in: (1) converting existing industrial facilities for the production of metals, materials and primary basic chemicals from fossil fuel-based technologies (coal, gas, oil) to renewable electricity-based technologies (direct use of electricity, chemical reduction using hydrogen); (2) producing renewable electricity; (3) storing electrical energy or converting it into hydrogen.

In contrast, circular solutions reduce the need for metals, materials and primary base chemicals with lightweight solutions based on substitution and eco-design of products and processes throughout the life cycle.

Studies based on European data indicate that the cost of reducing GHG emissions by employing Circular Economy techniques would be negative - i.e. financially profitable - before any measure of price given to GHG emissions.

- **Definition of terms and conditions for external financial support:** As a final step of the resource mobilisation process, the parties have to agree on contractual terms if not pre-defined yet. This should be based on fair conditions recognising Africa as an equal economic and strategic partner.

- **Monitoring and auditing of resources used:** An important element of subsequent financial resource management is the establishment of a monitoring and auditing plan, ensuring adequate distribution and effective use of resources. The outcomes of the monitoring and auditing should be used to report to the AUC

Box 3-2 Capacity building for fundraising

Capacity building and human resources for fundraising

International financial partners can be encouraged to invest in circular economy solutions by the high effectiveness of investment in decarbonising the economy, compared with solutions involving the transformation of industrial processes.

Indeed, decarbonising industrial sectors requires heavy investment in: (1) converting existing industrial facilities for the production of metals, materials and primary basic chemicals from fossil fuel-based technologies (coal, gas, oil) to renewable electricity-based technologies (direct use of electricity, chemical reduction using hydrogen); (2) producing renewable electricity; (3) storing electrical energy or converting it into hydrogen.

In contrast, circular solutions reduce the need for metals, materials and primary base chemicals with lightweight solutions based on substitution and eco-design of products and processes throughout the life cycle.

Studies based on European data indicate that the cost of reducing GHG emissions by employing Circular Economy techniques would be negative - i.e. financially profitable - before any measure of price given to GHG emissions.

3.5 The Way Forward: Implementation Steps and Recommendations

TWith all its components this continental Circular Economy Action Plan aims to paint a more clear picture of what circular economy can look like in the AU and provide guidance on how this can be reached. It requires acknowledging existing challenges and making them part of the solutions, as the box below attempts to illustrate.

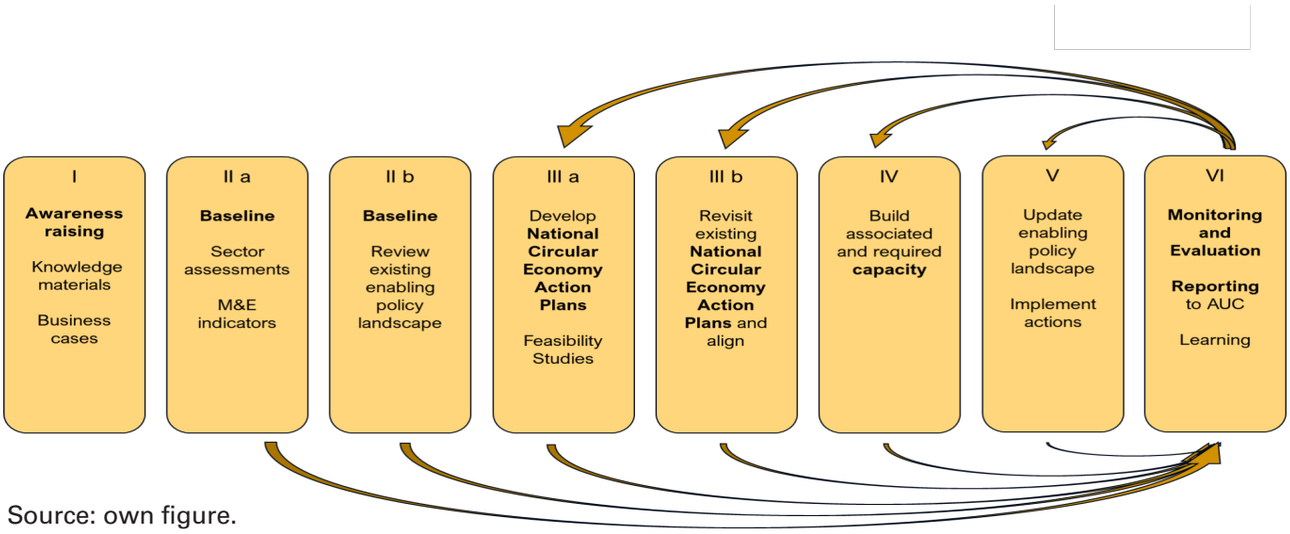
Box 3-3 Recommendations for making challenges part of the solution

Recommendations for turning challenges into opportunities:

- The lack of a holistic understanding and approach to adopting circular economy leads to unexploited potential, such as limiting circular economy only to waste management. This calls for alignment across countries and stakeholders through increased communication and knowledge exchange. At the same time, capacity building and awareness rising on all levels are key to mitigating this challenge.
- The limited coordination among Member States and institutions on circular economy-related policies and legal mechanisms as well as little monitoring of circular initiatives results in slow progress-making and unharmonised approaches and the undesirable pattern of working in silos. This stresses the need for increased coordination, monitoring and enforcement mechanisms as well as stakeholder engagement.
- The finance gap in Africa remains huge, with no exemption for any sector. This includes insufficient and misaligned financing mechanisms and funding options. Without sufficient funding, it will be difficult to support and scale best practices and viable business cases. Collaborating with international and domestic financial institutions to develop dedicated funding programmes for the implementation of circular economy on different levels and in different sectors is a condition for making progress towards circularity.
- Connected to the previous challenge that hinders best practices and viable business cases to grow are market entry barriers for innovation and growth of circular economy business models developed by the private sector. This requires the identification and amendment of those barriers as well as the development of concrete incentives and support means that facilitate market entry.
- Some countries suffer from political instability which hinders the progress, adoption and/or implementation of sustainable and circular agendas. Other countries claim to have other priorities to tackle first. However, circular economy has huge potential to solve pressing socio-economic and environmental challenges. This stresses once more the need for education and awareness raising in this regard.

In order to facilitate the transition from theory into practice and take on the above-mentioned recommendations, this chapter aims to provide guidance through the following steps (depicted in Figure 3-3 and explained further below). Depending on the country's and region's progress to date, either they can skip a step if it has already been done or choose between a. and b. It will be an ongoing iterative process for the ARBE CE Secretariat to follow up with the RECs and Member States on their progress and ultimately their implementation steps (Step VI).

Figure 3-3 Illustration of Implementation Steps



Source: own figure.

- **Awareness raising:** is an essential means to prepare the implementation process as it will increase the involvement, acceptance and support of the subsequent steps. It is also suggested as the first step because it usually takes a long time until awareness is created and behaviours changed. This step should include the preparation, compilation and dissemination of knowledge materials, business cases and best practices across all stakeholder groups and sectors.

- **Develop a baseline:** is important to define the starting point of the transition and to pre-define, plan and tailor the next steps. The baseline should include:

  - National, regional and/or continental sector assessments of the current status quo of circular economy based on qualitative and quantitative information. They should be prepared in alignment with the M&E macro indicators (Chapter 4) and micro indicators for respective priority sectors (Annex J).

  - **a review and assessment of the existing enabling policy landscape.**

Both parts will ensure that existing strengths, structures and processes as well as initiatives related to sectors and cross-cutting topics are properly integrated into the circular economy journey and built upon, thereby avoiding working in silos or re-inventing the wheel. They will also facilitate and inform the monitoring and evaluation (Step V).

- **Prepare/Revise national Circular Economy Action Plans:** is the logical consequence of translating and cascading the continental CEAP to the national level.

✓ If there is no national Circular Economy Action Plan in place yet, Member States shall choose their priority sectors (based on outcomes of the baseline) and formulate national costed Circular Economy Action Plans by 2026, including an individual tracking matrix (with more flexibility for countries classified under [163]). This may include the following steps:

  - form the team of government staff, and local and technical experts, that will develop the document;

  - specify national stakeholders for consultation along the way;

  - prioritise sectors (at least three) based on national assessment and methodology provided in Annex C;

  - translate continental actions (for Member States) to the national context, and cost them;

  - formulate additional indicators supporting the implementation tracking of national actions in line with the macro and micro indicators proposed in this document (Chapter 4 and Annex I); and

- vi. form a national implementation body that can steer the implementation on the national level[164].

✓ If there is already a national Circular Economy Action Plan in place, Member States are asked to revisit their Action Plans and align them to the actions and elements proposed in this document.

- **Build associated and required capacity:** is a critical element to enable the implementation of the Circular Economy Action Plans. This shall be informed by outcomes of the baseline step (e.g. identified gaps) as well as capacity needs for realising the actions and elements formulated in the national CEAPs. Same as with awareness rising (Step I), capacity building is suggested for every sector and stakeholder group, but especially in governments across relevant ministries and in inter-governmental bodies.

- **Update enabling policy landscape:** based on the outcomes of the baselines (Step II b) as well as the development or review of national Circular Economy Action Plans (Step III a and b). It may include (1) the revision of existing policies to streamline the circular economy in related policies, programmes and strategies[165] or (2) the development of new legislative pieces. As this is essential to guide the population and market towards circularity but usually takes rather long due to administrative and formal processes, this should be tackled immediately once the National Action Plans have been approved. Subsequently or in parallel, other actions formulated in the CEAPs should be implemented.

- **Monitor and evaluation:** is a crucial activity and tool to accompany the implementation steps of national, regional and continental actions to ensure that responsible parties are held accountable and actions are effectively integrated as well as to optimise or adjust actions and processes along the way (learning). The mandate of doing so sits with the ARBE CE Secretariat, informed by the reporting responsibility of the Member States and RECs. This should be done in alignment with the macro-indicators supporting governance and resource mobilisation (Annex I) as well as the Implementation Tracking Matrix (Annex H) that suggests the timing and sequencing of the continental actions up until 2034.

[163] The Fragility and Conflict Situations classification has been developed by the World Bank.
Fragility: "Fragility is defined as a systemic condition or situation characterized by an extremely low level of institutional and governance capacity which significantly impedes the state's ability to function effectively, maintain peace and foster economic and social development."
Conflict: "Conflict is defined as a situation of acute insecurity driven by the use of deadly force by a group — including state forces, organized non-state groups, or other irregular entities — with a political purpose or motivation. Such force can be two-sided — involving engagement between multiple organized, armed sides, at times resulting in collateral civilian harm — or one-sided, in which a group specifically targets civilians.". More information on the classification can be found here. The World Bank develops a list of countries classified under Fragility and Conflict Situations every year.

[164] This could be in the form of national circular economy steering committees, inter-ministerial groups, dedicated units/departments in a ministry leading circular economy initiatives or leveraged through National Cleaner Production Centres or Circular Economy Centres of Excellence.

[165] Amongst others, these can include National Determined Contributions (NDCs), National Biodiversity Strategies and Action Plans or Blue Economy Strategies.

4 MONITORING & EVALUATION FRAMEWORK

A comprehensive Monitoring and Evaluation (M&E) framework has been developed to track, assess and assist the implementation process and impact of this Action Plan, on every level. It contains measurable and tangible micro- and macro indicators that should inform the planning, development, reporting and progress monitoring of the Action Plan's implementation. Where possible and available, for each goal in this Action Plan a mix of social, economic, environmental and/or other micro-indicators have been chosen according to the RACER criteria[167] and OECD criteria[168].

Table 4-1 Definitions of Monitoring and Evaluation

Monitoring	Evaluation
The monitoring corresponds to the regular gathering of data related to pre-defined indicators. It will help the CE Secretariat measure the progress of the implementation of the various goals of the Action Plan.	**The evaluation assesses the impacts that the Action Plan has had and how effective it has been in fulfilling the vision, mission and objectives of the Action Plan.**

Source: Own definitions based on EU Commission.

The first part of this M&E framework represents a **set of overarching macro indicators and metrics that monitor the whole continent's circular economy journey and aim to track its circularity level** (Table 4-2) — however, they can also be used on the regional and national level as well as the micro and meso level. Most of these indicators come from Regional and National Circular Economy strategies, roadmaps or dashboards[169], the SDGs and other internationally recognised institutions. The targets are averages or aggregates for the whole continent as it is recognised that not all countries have the same baseline. However, the contribution of all countries will be needed to reach those targets. It is expected that some countries may set more ambitious targets and some less ambitious targets in their national CEAPs depending on their individual baselines and assessed possibilities.

[166] The term 'macro indicators' is applied to indicators and metrics that shall be measured on the continental level. However, they can also be used on the meso and micro level where considered as helpful. The term 'micro indicator' defines the indicators and metrics that shall be used on the national level. The term 'meso indicator' refers to the regional level.

[167] RACER criteria: relevant, acceptable, credible, easy and robust.

[168] OECD evaluation criteria: relevance, coherence, effectiveness, efficiency, impact and sustainability.

[169] For instance, the circular economy material use rate comes from the EU CE dashboard, the Biodiversity footprint of production (million MSA loss ha/year) comes from the CE Strategy of the Netherlands, number of CE jobs and number of people graduating from CE courses appear in the Rwanda CE action plan.

Table 4-2 Macro-indicators and associated targets

Economic		Social		Environmental		Governance	
Indicator	**Target**	**Indicator**	**Target**	**Indicator**	**Target**	**Indicator**	**Target**
Number of circular economy businesses[170]	10,000 [171]	Average share of circular jobs (%)	25[172]	Recycling rate (%)	30[173]	Number of countries with a Circular Economy Action Plan/Roadmap	55
Non-energy material productivity per GDP (USD per kg)[174]	1.25[175]		TDB[176]	Collection rate (% waste generated)	Urban: 90 Rural: 60	Number of countries with an enabling policy environment for the CE177	55
Share of the governmental budget dedicated to supporting CE (% GDP)	2[178]	Number of citizens graduating from a CE course, training, or programme	50	Circular Material Use Rate[179]	TDB[180]	Number of countries with a dedicated unit for CE implementation	55
Economic Complexity Index (ECI)[180]	>0 [181]	Share of circular businesses owned by women (%)	95[182]	Landfilling rate (%)	45[183]	Number of government institutions trained on the circular economy	10[184]
Amount of funding directed towards circular businesses and initiatives (USD)	TBD[180]			Post-harvest food loss (%)	10[186]	Number of government institutions trained on the circular economy	110[184]
Amount of funding received by governments for circular economy projects (USD	TBD[180]			Water reuse rate (%)	40[186]		
				Biodiversity footprint of production (million MSA loss ha/year)	TBD[180]		
				Reduction in CO2 emissions linked to material consumption (%)	20		

Source: Own Figure. Note: Governance indicators are based on our own collected data through our Regional Analyses.

[170] May be disaggregated by upstream and downstream activities. More than 500 businesses working on CE have been identified. It is not claimed that this is a complete overview; it focuses on businesses with an online presence.

[171] Based on the identification of 500 CE businesses via online search, it can be expected that there are more than 1000 CE businesses in Africa today. The ambition is to multiply that by 10 with the action plan. This only accounts for formally registered businesses.

[172] Some cities in Africa have more than 20% of circular jobs, thus it could be expected that through this Action Plan, the share of circular jobs over the continent could be around 25%. This includes informal employment.

[173] The initiative '50 by 2050' launched at COP27 set a target of 50% of solid waste recycled. The current recycling rate in Africa is around 4%. Therefore, the continent would need to reach a rate of 30% by 2034 to make sure it is on track with this objective.

[174] According to the OECD, "Material productivity is expressed as the amount of economic output generated (in terms of GDP) per unit of materials consumed (in terms of DMC)". In this case, it excludes energy materials.

[175] The material productivity of African countries has grown by 12.5% on average in the last 10 years. This Action Plan would boost economic growth while limiting the increase in domestic material consumption. A doubling of the growth in material productivity is thus a reachable target.

[176] For this indicator, there is no baseline, and thus the target could not be defined. It is, therefore, encouraged to start collecting data on this.

[177] Countries having developed a Circular Economy Action Plan, an EPR legislation, a product policy and a fiscal policy.

[178] Climate Policy Initiative calculated that Africa would need to spend a total of 2.8 trillion over 10 years to reach its NDC targets. Based on this, two guiding assumptions shaping the target value are: (1) according to the EMF, CE can address 45% of the emission reductions needed, (2) it can be assumed that 70% of the total investment needed comes from Official Development Assistance (ODA) or private investments, so 30% would come from the public sector in the future (this number is based on the current average 22,01% of GDP representing the public expenditure in Sub-Sahara Africa). As an indication of public spending on CE-related (environmental) investments, the average public expenditure for environmental protection is currently at 0.38% of GDP (baseline).

[179] The circular material use (CMU) rate measures the share of material recovered and fed back into the economy in overall material use. The CMU rate is defined as the ratio of the circular use of materials to the overall material use.

[180] The Harvard Growth Lab defines the ECI as "a rank of countries based on how diversified and complex their export basket is. Countries that are home to a great diversity of productive know-how, particularly complex specialised know-how, are able to produce a great diversity of sophisticated products. The complexity of a country's exports is found to highly predict current income levels, or where complexity exceeds expectations for a country's income level, the country is predicted to experience more rapid growth in the future. ECI therefore provides a useful measure of economic development." The indicator ranges from -2.5 to 2.5, with -2.5 indicating the lowest and 2.5 representing the highest economic complexity.

[181] All but 2 countries in Africa (Tunisia and South Africa) have an ECI of less than 0. Therefore, increasing this indicator to above 0 is a reasonable target for the next 10 years.

[182] Although there is no baseline available, it is common for Africans to buy second-hand products and repair their products. This indicator requires a dedicated back-up study.

[183] This number is built based on the recycling rate target (30%). It is assumed that 25% of the waste is valorised through other means than recycling (i.e. bio digestion, downcycling, pyrolysis and incineration).

[184] That is equivalent to at least two institutions per country.

[185] The African Union had set a target of reduction of post-harvest food loss (PHL) by 50% for 2025 in the Malabo Declaration. PHL was around 37% in 2011. It can be expected that Africa makes even more efforts on this front with this action plan. Thus, a target of 10% was set for 2034.

[186] There are large disparities in terms of water reuse rates among countries. For instance, Tunisia has a water reuse rate of 72% while Djibouti reuses less than 1% of its water. Therefore, a reasonable average target value of 40% has been chosen.

[187] MSA: Mean Species Abundance. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) defines MSA as "an indicator of naturalness or biodiversity intactness. It is defined as the mean abundance of original species relative to their abundance in undisturbed ecosystems. An MSA of 0% means a completely destructed

To support the progress-making of governance and resource mobilisation on the AUC and REC levels, additional macro-economic indicators can be found in Annex I.

The second part of this M&E framework represents an **extensive set of micro indicators that shall be used to track progress on social, economic and/or environmental measures against the different goals for each priority sector or cross-cutting topic at national, REC and AUC level depending on the respective action**. Most of the indicators selected in this set are quantitative. Very few, mainly social indicators, are qualitative and have to be gathered through surveys or interviews. The set can be found in Annex J (Overview of the M&E micro-indicators). However, other additional indicators can be considered to complement the monitoring where deemed necessary.

To kickstart the M&E process, **a guideline document shall be developed by the AUC to support Member States in the collection of the necessary data for monitoring**. This Guideline will also develop a Continental baseline for each macro-indicator and corresponding targets for 2034 (also see Implementation Steps, Step II, Chapter 3.3). It may also define the contribution expected from each Member State to achieve the targets and further align with international standards where appropriate.

Both parts of the M&E framework have to be measured periodically and reported to the ARBE CE Secretariat by the Member States' Focal Points. The recommended frequency is once a year. Furthermore, an evaluation meeting with all RECs and Member States should be organised every 2.5 years to assess the impacts of the Action Plan since its adoption (baseline) and consider potential adjustments in the Action Plan and its components to improve its effectiveness

ANNEX A – ANALYSIS OF DEMOGRAPHICS, ECONOMIC AND TRADE DATA

Demographics

Africa is a very diverse continent in terms of culture, language, and landscape. In 2021, the continent has 1.3 billion inhabitants. By 2050, this number is expected to rise to at least 2.4 billion, becoming the world's largest workforce. Africa's diverse and dynamic population lives across 55 countries, assigned to five regions: North, East, West, South and Central. The average age on the continent is 23 with half of Africa's population being under the age of 20, representing the future of the continent. The region with the oldest population is North Africa, with an average age of 33; it also has the smallest population. For the other regions, the average age is between 19 and 22 years. The region with the largest population is West Africa, with over 400 million inhabitants .

The continent has a rather low Human Development Index (HDI). Its average value is 0.6. However, in some parts of the continent, the HDI is high, while in others it is not. In North Africa, the HDI is 0.7 which is comparatively high. For the rest of the regions, the index is between 0.5 and 0.6[191].

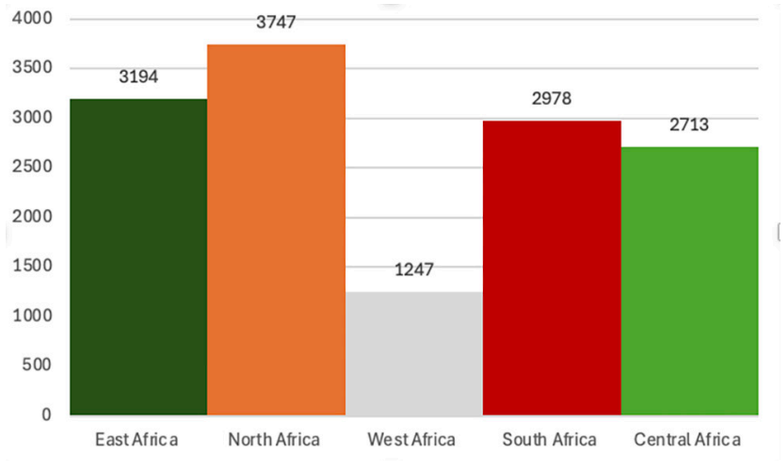
The employment of young people (aged between 15 to 24) remains a major problem on the African continent. In 2022, the youth unemployment rate was 17% on average across the continent. In North Africa, this rate is doubled compared to the whole continent, with an average of 32%. Young people are not the only ones facing unemployment problems in the continent. The average unemployment rate for the overall population in Africa is 11%. With a rate of 15%, Southern Africa is the region with the highest overall unemployment rate while West Africa has the lowest unemployment rate at 4%. [192]

The transition to a circular economy requires large and diversely-skilled human resources and a certain degree of adaptability of the population which are two elements given in Africa thanks to its young and growing population. If implemented in a just and inclusive way, the concept can help to overcome many of the continent's issues linked to socio-economic development and unemployment. Z

Economic Data

The African continent has a total GDP of USD 2,679 billion spread over 5 regions. This GDP is not evenly distributed between the regions. More than half of the continent's GDP is concentrated in the North African and Southern African regions. The per capita GDP on the continent is USD 2,775. North Africa is the region with the highest GDP per capita at USD 3,747, followed by East Africa at USD 3,194. The region with the lowest GDP per capita is West Africa with USD 1,247. [183]

Figure A-1 Average GDP per capita in African regions, 2021 [USD]

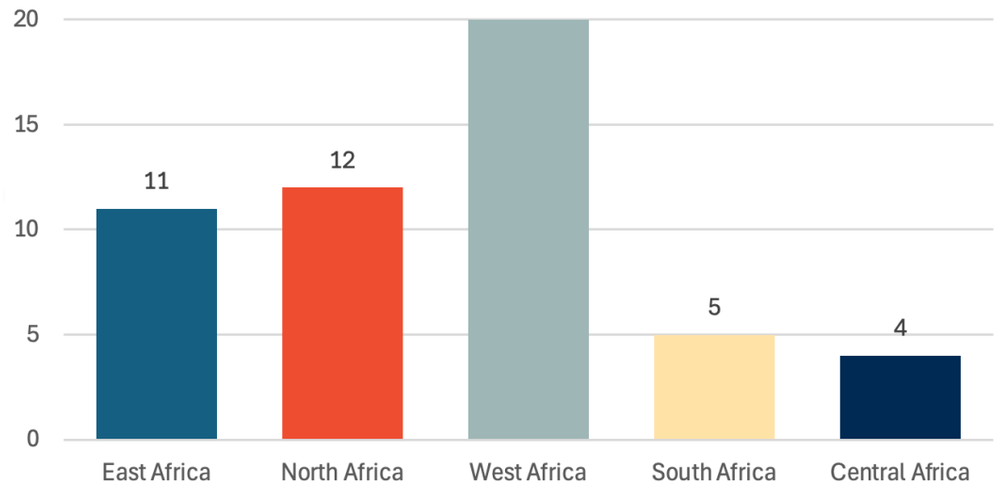


Source: Own calculations based on World Bank Open Data

[185] Own calculations based on World Bank Open Data
[186] Own calculations based on data from the CIA's World Factbook
[187] Own calculations based on World Bank Open Data
[188] Own calculations based on data from Human Development Index database
[189] Own calculations based on World Bank Open Data
[190] Ibid.

Between 2017 and 2021, the continent's GDP grew by an average of 10%. While some regions experienced double-digit growth, i.e. West Africa, North Africa and East Africa, other regions saw growth much lower growth rates. There were big divergences between countries since some experienced negative growth (e.g. South Sudan: -45%) and some experienced a growth of more than 20% (e.g. Rwanda: +30% during the 2017-2021 period. [194]

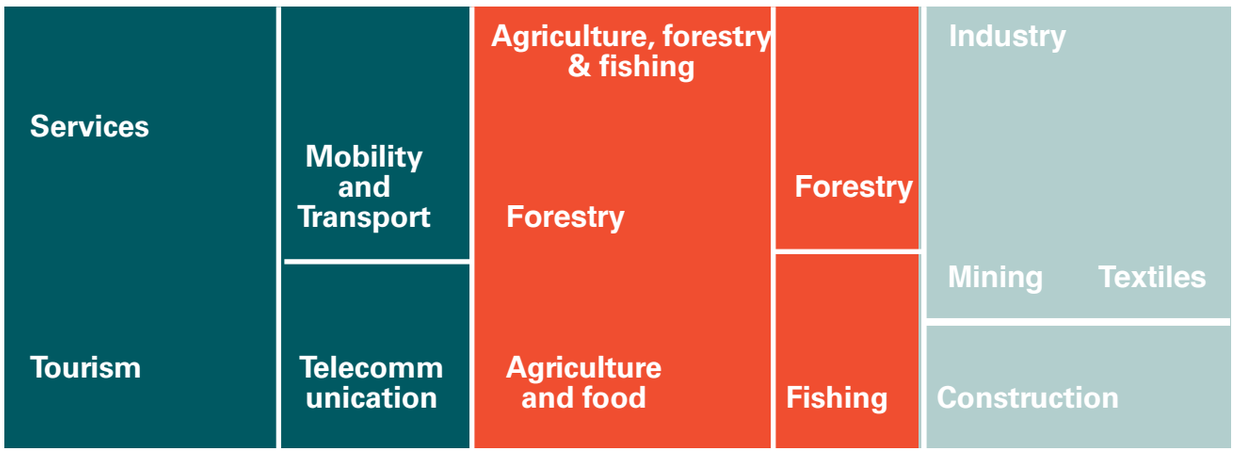
Figure A-2 Regional GDP growth rates between 2017-2021 [%]



Source: Own calculations based on World Bank Open Data

The most important sector on the continent is the service sector. It contributes half of the continent's GDP, with a share of 51%. This is followed by industry, which contributes 25% of the continent's GDP, and agriculture, fishing and forestry, which contributes 18% of the continent's GDP. [195] The sub-sector that contributes the most to GDP is agriculture. However other sub-sectors have high contributions as shown in Figure 2-5. Note that this figure does not include all sub-sectors.

Figure A-3 Contribution to GDP per sector and sub-sector [%]



Source: Own calculations based on countries' analyses data.

[194] Own calculations based on World Bank Open Data.

[195] Ibid.

[196] UN Comtrade uses the term developed Europe which corresponds to the EU 27 + United Kingdom, Iceland, Norway and Switzerland.

Applying the circular economy across the different sectors and their sub-sectors, transforming linear into circular activities and enabling a more efficient and extended use of resources, will create new sources of revenue and enable Africa to increase its local value creation.

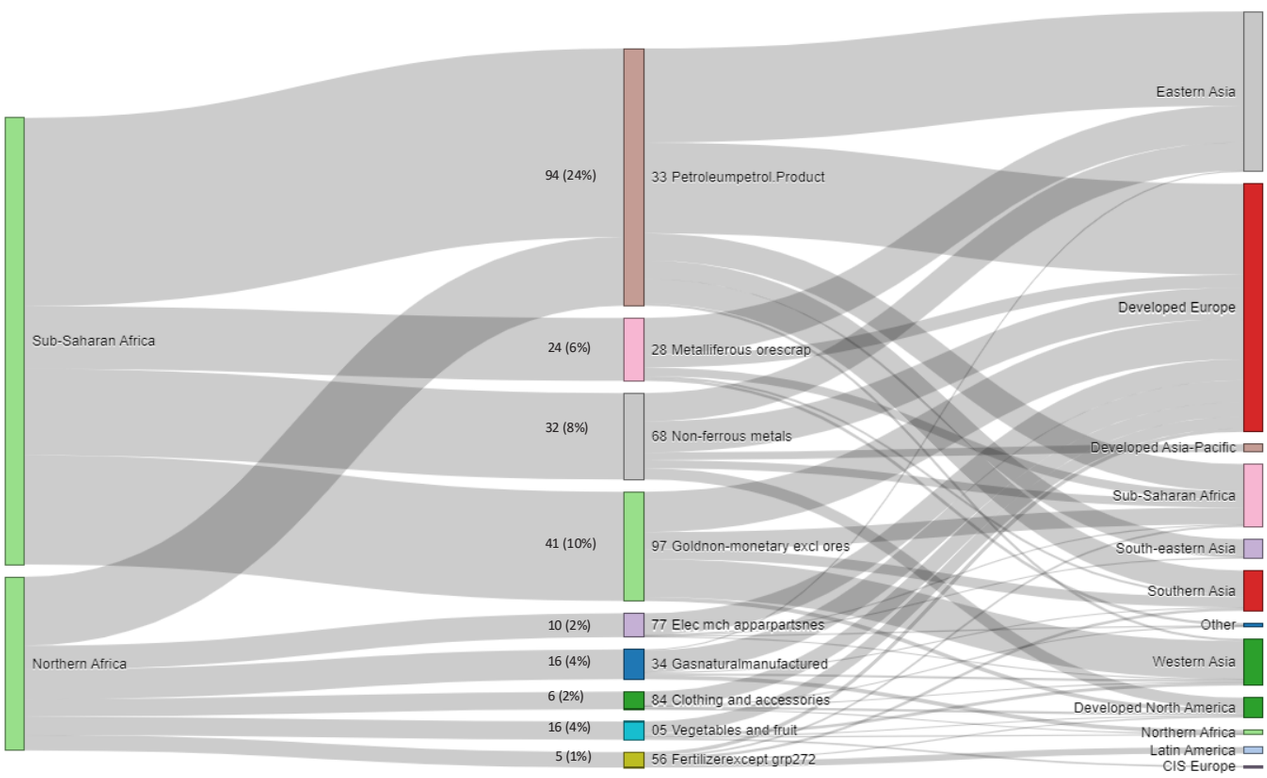
Materials/products imported and exported to Africa (origins/ destinations)

Exports

Africa's exports are dominated by extracted materials and agricultural commodities. The largest export category is made of petroleum oils and products which are mostly exported to East Asia and Europe[196]. The 2nd largest export is gold, mostly coming from Sub-Saharan Africa and exported to Western Asia and Europe. The next largest exports are non-ferrous metals and metalliferous ores which can be copper, silver, and iron, for example. They are also exported to Eastern Asia and Europe mainly. Agriculture is also a key export sector, especially vegetables, fruits, tea and cocoa. A large share of these commodities is also exported to Europe. Vegetables and fruits are exported from Northern Africa while coffee, tea and cocoa are exported from Sub-Saharan Africa.

Other major exports are road vehicles, mostly buses which are sent to Europe, clothing and accessories produced by Northern Africa and sent to Europe as well, and fertilisers also produced in Northern Africa and exported in large parts to South America. These major flows are represented in Figure A-3. In terms of exports, there is a potential to get more value out of these sectors while decreasing their pressure on the environment through a circular economy.

Figure A-3 Main export flows of the African continent in 2020 in billions of USD (exporter -> commodity -> destination)



Source: UN Comtrade (2023) Trade Data

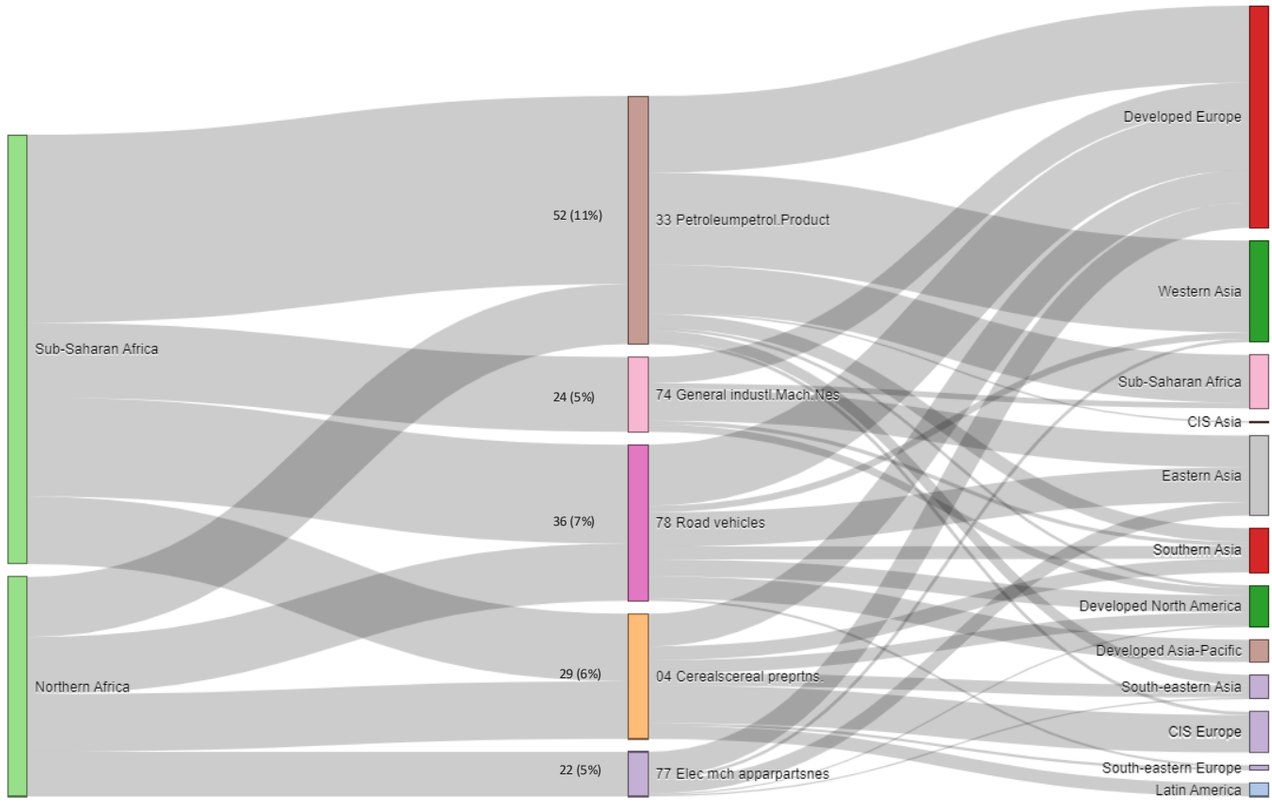
Note: The percentage in brackets represents the share of total exports

Imports

Africa is largely dependent on the import of manufactured goods which explains its negative trade balance accounting for -108 billion USD in 2022[197]. The imports of the African continent highlight the commodities that affect its independence. Just as it is its largest export, petroleum products are also its largest import. While a lot of this import comes from within the region, a larger share comes from Western Asia and Europe. Its second import is road vehicles. Africa is also highly dependent on cereals imports which has affected its food security in recent times due to supply chain interruptions during Covid-19 and the war in Ukraine. It is also highly dependent in terms of its supply of general industrial machinery and electrical machinery apparatus on imports from Europe and Eastern Asia. This dependence might slow the industrial transformation of the continent. The flows described above are illustrated in Figure A-4.

In order to decrease its dependence on imports, the continent needs to scale the production and recovery, life extension and repair activities of imported goods.

Figure A-4 Main import flows of the African continent in billions of USD in 2020 (importer <- commodity <- origin)



Source: UN Comtrade (2023) Trade Data

Note: The percentage in brackets represents the share of total imports.

[197] UN Comtrade (2023) Trade Data

Intra-African trade flows

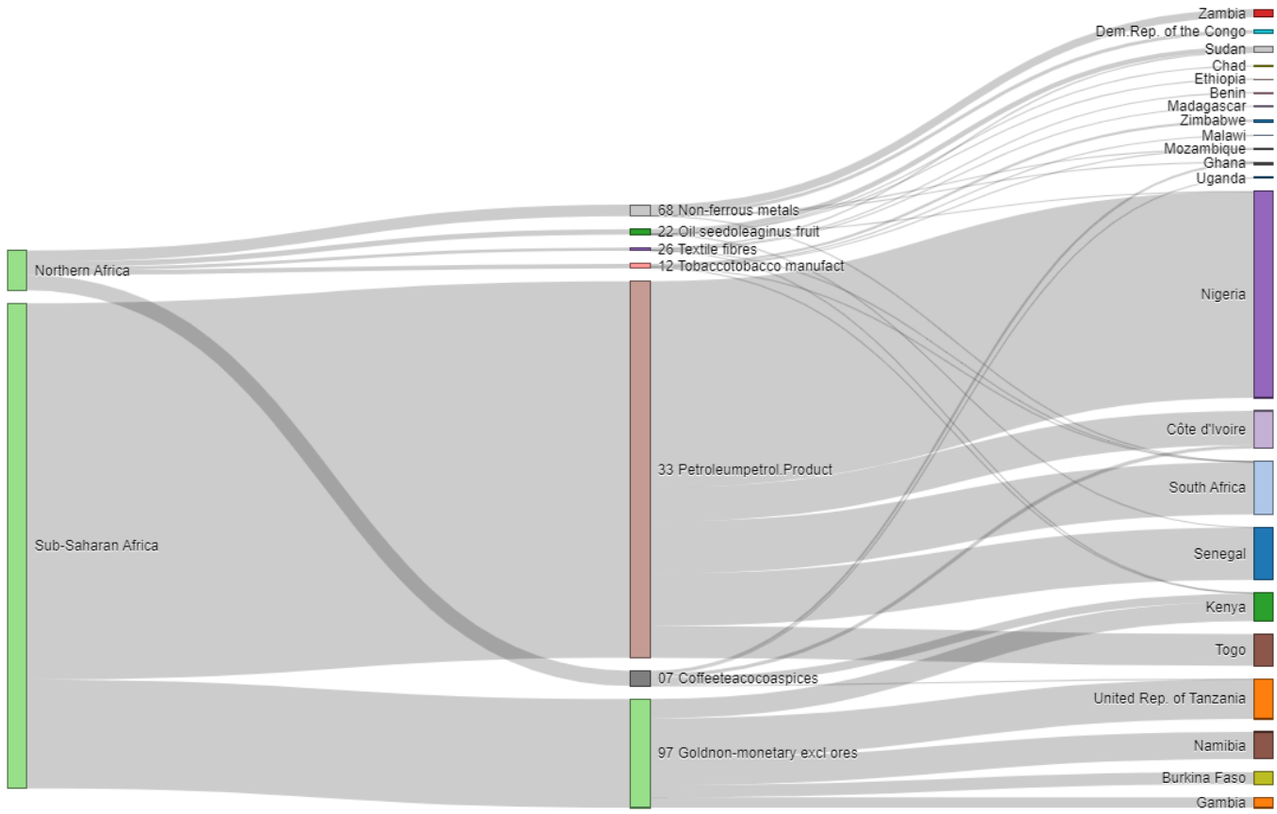
Key agricultural and manufactured commodities are traded within Africa although intra-African trade represents only 14.4% of the total African exports. This will increase with the African Continental Free Trade Area, which is expected to boost intra-African by about 33% and cut its trade imbalance in half.[198]

UN Comtrade, the main source for trade-related data, separates Africa into two regions: Northern Africa and Sub-Saharan Africa.

Sub-Saharan African countries mostly export petroleum products to other Sub-Saharan African countries. Major exports include: petroleum oils and products, gold, coffee, tea, cocoa, non-ferrous metals (e.g. copper), oil seeds and oleaginous fruits, textile fibres and tobacco. These trade flows can be observed in Figure A-5 below.

In order to decrease its dependence on imports, the continent needs to scale the production and recovery, life extension and repair activities of imported goods.

Figure A-5 Origin of intra-African exports from Sub-Saharan Africa (importer <- commodity <- exporter)



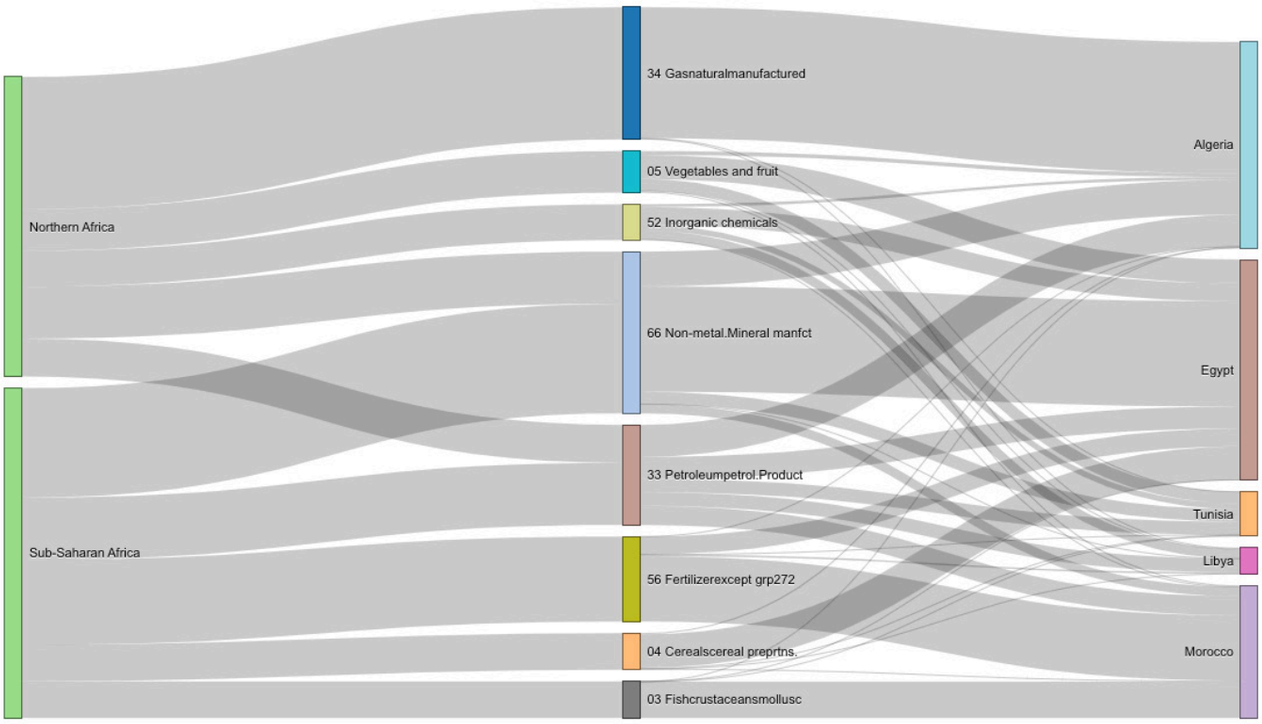
Source: UN Comtrade (2023) Trade Data

While Sub-Saharan African countries export much more within their region, Northern African countries export also a lot of commodities to Sub-Saharan Africa. The major exports within the Northern African region are Natural Gas and Petroleum products. Intra-Northern Africa exchanges also include textiles yarn fabric and plastic in primary form and vegetables and fruits. Exports from Northern Africa to Sub-Saharan Africa consist of very varied commodities among which are fertilisers, fish and crustaceans, iron and steel, textile yarn fabric, electrical machinery apparatus, and petroleum products. Some of these flows can be observed in Figure A-6 below.

[198] UN (2023) Africa's free trade on track, more efforts needed

While Sub-Saharan African countries export much more within their region, Northern African countries export also a lot of commodities to Sub-Saharan Africa. The major exports within the Northern African region are Natural Gas and Petroleum products. Intra-Northern Africa exchanges also include textiles yarn fabric and plastic in primary form and vegetables and fruits. Exports from Northern Africa to Sub-Saharan Africa consist of very varied commodities among which are fertilisers, fish and crustaceans, iron and steel, textile yarn fabric, electrical machinery apparatus, and petroleum products. Some of these flows can be observed in Figure A-6 below.

Figure A-6 Origin of intra-African exports from Northern Africa (importer <- commodity <- exporter)



Source: UN Comtrade (2023) Trade Data

To facilitate the transition to a circular economy of the value chain of these commodities, collaboration between the countries involved in those exchanges will need to be enhanced.

Waste imports from the EU

At the international level, trade has not been disaggregated into waste commodities. However, it has been done by Eurostat for EU countries, which is taken as a basis for the analysis of waste trade flows to Africa.

The top 5 waste export destinations from the EU in 2020 were Egypt, Morocco, Tunisia, Cameroon, and Ghana as shown in the Table below. Egypt and Morocco make up half of the imports of waste from the EU on the African continent.[199]

Table A-1 Total waste imported from the EU for top 5 importers

Receiving country	Waste in tons	Main exporting country
Egypt	1,091,765	Belgium
Morocco	463,210	France
Tunisia	117,813	Italy
Cameroon	76,913	Belgium
Ghana	69,517	Poland

Source: Own table based on Eurostat (2023) Trade in waste by type of material and partner

Egypt and Morocco are major destinations for metal waste. 99% of the exports of Egypt were from metal waste mostly coming from Belgium and Morocco more than 200,000 tons were also metal waste with a large share coming from France. However, Morocco is involved in the import of various waste streams since it received more than 10,000 tons of glass waste, organic waste and textiles waste and 158,000 tons of rubber waste.

Tunisia, Cameroon and Ghana mostly import textile waste from the EU. Officially, they received around 106,000 tons, 72,000 tons and 44,000 tons of textile waste in 2020, respectively. Ghana also imported around 8,000 tons of metal waste and just short of 13,000 tons of rubber waste. The top 5 importers of textile waste from the EU are shown in Table 3-5 with the main exporting country.

Table A-2 Imports of textiles waste from the EU for top 5 importers

Receiving country	Waste in tons	Main exporting country
Tunisia	105,690	Italy
Cameroon	71,662	Belgium
Togo	55,978	Netherlands
Ghana	43,950	Poland
Guinea	30,194	Italy

Source: Own table based on Eurostat (2023) Trade in waste by type of material and partner

Plastic waste is another waste stream of interest in this Circular Economy Action Plan. The top 5 importers of plastic waste from the EU in Africa are Morocco, Egypt, Ghana, Angola and Kenya. However, the exports in tons are much lower than for textiles, as illustrated in Table 3-6. Spain is the major exporter of plastic waste for the top 5 receiving countries. Plastic waste exports to Africa from the EU are rather low or not fully recorded but Morocco receives about 1/3 of all exports to Africa. Morocco is also the main receiver of rubber and organic waste from the EU in Africa.

Table A-3 Imports of plastic waste from the EU for top 5 importers

Receiving country	Waste in tons	Main exporting country
Morocco	3,299	Spain
Egypt	1,753	Spain
Ghana	1,575	Spain
Angola	1,363	Spain
Kenya	506	Spain

Source: Own table based on Eurostat (2023) Trade in waste by type of material and partner

[199] Eurostat (2023) Trade in waste by type of material and partner

[200] Eurostat (2023) Trade in waste by type of material and partner

[201] Ibid.

By observing the exporting countries from the EU, it can be recognised some privileged trade partnerships in terms of specific waste streams between countries. Except for Spain's plastic waste, the exporting country is usually not the same across receiving countries in Africa.

The largest exported waste stream from Europe to Africa are metals, textiles and rubber among the categories addressed by Eurostat that are listed in Table 3-6. While metals are mostly exported to Egypt and Morocco, and rubber to Morocco, textiles are exported in large quantities to many different countries (it is exported in quantities superior to 10 thousand tons to more than 14 countries of which 10 are located in West Africa). [202]

Table A-4 Imports of waste by Africa from the EU by waste stream

Waste stream	Total waste imported in tons
Textiles	590,017
Paper and cardboard	11,858
Plastic	9,475
Glass	19,831
Organic	15,962
Mineral	12,736
Metal	1,327,703
Rubber	279,524
Wood	809
Not specified	11,112
Total	2,279,033

Source: Own calculations and table based on Eurostat (2023) Trade in waste by type of material and partner

In addition to these material waste streams, Africa is also involved in equipment waste streams such as electrical and electronic appliances, automobiles, etc. Estimations have shown that around 550,000 tons of e-waste and used electronics could be shipped each year to Africa (especially Nigeria) from the rest of the world, however, this number could be higher when accounting for illegal shipping. Furthermore, more than 1.8 million tons of End-of-Life Vehicles are sent to Africa as well from the rest of the World. The top 5 receiving countries are Nigeria, Libya, Kenya, Ethiopia, and Ghana.

In comparison, Europe imports little waste from Africa, only around 350,000 tons of waste. The top 5 exporters of waste from Africa to the EU in 2020 were Morocco, Tunisia, South Africa, Liberia and Egypt. These countries' top export to the EU is metal waste except for Liberia for which the top share of export is "not specified". However, Morocco exports more than 5,000 tons of textiles waste and minerals waste, Tunisia exports more than 2,000 tons of plastic waste and 10,000 tons of textiles waste, and South Africa exports around 11,000 tons of minerals waste to Europe.

[202] Ibid.

[203] Baldé et al. (2022) Global Transboundary E-waste Flows Monitor 2022

[204] Own calculations by Eurostat (2023) Trade in waste by type of material and partner.

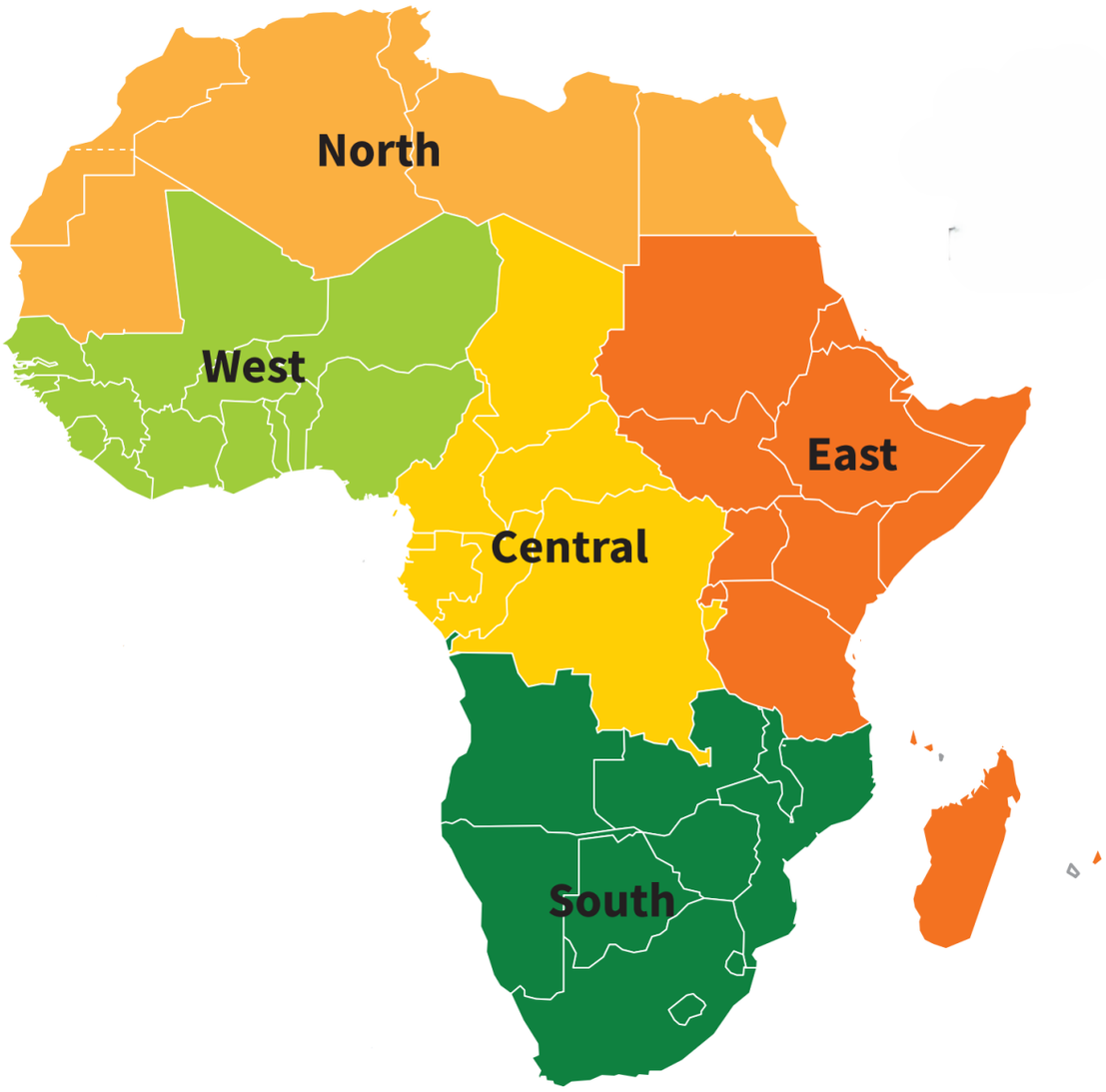
[205] Eurostat (2023) Trade in waste by type of material and partner

ANNEX B – OVERVIEW OF THE REGIONS

As per the African Union Commission definition, the African Member State countries are clustered into five regions, i.e. East, South, West, Central and North Africa as illustrated in Figure B.1. t

Each region has its characteristics in terms of geographic conditions as well as socio-economic and political factors that form an individual profile which has to be considered when applying the circular economy. While the Sub-Saharan African regions show many similarities, North Africa stands out as the most developed regarding infrastructural development, human development, and waste and resource management. The following sections introduce each region. These are summaries of our regional analyses.

Figure B-1 Five African regions, as per AUC definition



Source: OECD (2017) The six regions of the African Union

East Africa

Table B-1 Summary table of key data points for East Africa

Data points	Values
Countries	Comoros, Djibouti, Ethiopia, Eritrea, Kenya, Mad-agascar, Mauritius, Rwanda, Seychelles, Somalia, South Sudan, Sudan, Tanzania and Uganda
Total population	405,534,535
HDI	0.572
Median age [years]	22
Orga Unemployment rate [% of total workforce] Youth unemployment rate [% of total youth workforce]	12% 55%
Youth literacy rate [% of total youth]	
GDP growth of last 5 years [%] Total GDP [in billion USD] GDP per capita [USD] Sectorial GDP contribution (where accessible)	10.71 389 3,194 Service
Total GHG emissions [Mtons of CO2e] Total GHG emissions per sector [Mtons of CO2e]	717.36 Energy (717.36); Transportation (38.96); Manufacturing (18.99); Agriculture (401.85); Industrial Processes (15.36); Waste (24.78);
RECs	EAC, IGAD, COMESA, IOC*
Waste generation [kg per capita per year] Waste composition [% of waste generated] Recycling rate [% of waste generated] Landfilling rate [% of waste generated]	210.52 Organic (60%); plastic (7%); glass (4%); paper & cardboard (7%); metal (2%) Other (14%) 56
Collection rate [% of waste generated	74.15
Access to basic drinking services [% of total population] Access to sanitation [% of total population]	61.4% 33
Access to electricity [% of total population]	56.97
Top 5 main import products (2020) [206] Top 5 main export products (2020)[207]	1: Petroleum products; 2: Road vehicles; 3: Cereals, cereals preparations; 4: Iron and steel; 5: Medicinal, pharmaceutical products; 1: Gold, non-monetary excluding ores; 2: Coffee, tea, cocoa, spices; 3: Petroleum oils and products; 4: Oil see, oleaginous fruit, 5: Live animals
CE-related initiatives of RECs	1. EAC put an indirect ban on imported second-hand clothes. 2. Regional Bioeconomy Strategy, launched in 2020. (EAC) 3. Restriction of the Polythene Materials. (EAC)

***Not a REC officially recognised by the AU but it represents island states of the region.**

Note: All the values are averages except if written "total". The data is extracted from the regional analyses unless stated otherwise

East Africa is ranked as the 4th region in terms of total GDP in Africa and is the second most populated region in Africa with more than 406 million inhabitants. The East African population is the youngest worldwide with a median age of 22[208] and 45% of the people are under the age of 15 years, while 28% are aged between 15-24 years[209]. Unfortunately, this young population is faced with the significant challenge of high unemployment rates which are at an average of 55%. These figures are linked to and threaten improvements of the Human Development Index which is currently at an average of 0.572. Despite these challenges, the economy of the region is fast-growing, with an average GDP growth of 10.71% over the last 5 years. The economy of the region is mostly driven by Ethiopia and Kenya which together represent more than half of the GDP of the region[210].

[208] Own calculations based on data from the CIA's World Factbook.
[209] International Republican Institute (2019): East Africa's Future Hinges on Youth Participation in the Political Process
[210] Ibid.

The economy of the East African region is dominated by the service sector, which represents 52% of the regional GDP. The agriculture, forestry and fishing sectors contribute about 21%[211] to the regional GDP and employ about 53% of the workforce.[212] Some other sectors, such as tourism (as part of services) and textiles (as part of industry), have a large economic importance in specific countries. The textiles and fashion sector is well developed in Seychelles and Djibouti where its contribution to the national GDP is 13% and 14.3%, respectively. Also in Kenya, Ethiopia and Uganda, textiles count as the top 10 traded goods.[213] The tourism sector[214] has a strong importance in countries, such as Seychelles, Djibouti, and Mauritius.

The agricultural sector is the highest emitter of GHG within the region, recording around 402 Mtons of CO2e in 2019, which represented more than half of the total emissions (including land use change and forestry) of the region.[215] Mismanagement within other sectors, such as the waste or textiles sectors, also has a significant impact on the environment and settlements (local level) by polluting the soil, rivers and the marine environment. This is particularly an issue in countries with largely populated coastal areas, such as Kenya, Somalia, Djibouti, Eritrea, and Tanzania and for island nations, such as Comoros, Mauritius, Seychelles, and Madagascar. Other countries like Somalia, Kenya, Sudan, South Sudan, Ethiopia andTanzania also face severe vulnerability to floods which is exacerbated due to mismanagement of waste. An average of 211 kg of municipal solid waste (MSW) per capita per year[216] is generated in the Eastern Africa region. The management of this waste generated is still ineffective, despite the existence of waste management strategies in different countries in the region. The gaps exist in source separation, collection and recovery of waste.The challenges relate mainly to the provision of proper infrastructure, the inclusion of and cooperation with the informal sector as well as tailored regulations that are implementable and enforceable.

Considering the following four characteristics of (1) a growing regional economy, (2) holding the youngest population on the whole continent, (3) a comparatively low HDI and (4) pollution and natural habitat degradation through mismanaged waste and the generation of GHG emission of some economic sectors, the East African region holds the opportunity to steer its population into a positive direction. It is essential to base the transition on integrating circular economy principles into daily life, policy and business — with the accompanied potential to improve health and wellbeing, and create jobs, thereby tackling the unemployment challenge occurring in the region.

The circular economy can support tackling challenges around access to water, sanitation, energy and electricity. Through strategies, such as reusing wastewater and valorising organic waste, biogas can be produced and turned into electricity. In countries within the region such as South Sudan and Djibouti where access to electricity is relatively low, this is an important strategy to be implemented. This can work on both small and large scales, providing rural communities with essential services. At the same time, water treatment solutions in coastal countries like Kenya can lower the demand for fresh water, through the provision of grey water that can be used for purposes, such as cleaning or flushing. The implementation of upstream solutions such as repair and reuse and the implementation of regenerative strategies is important to the development of the economic development of the region within planetary boundaries. This is particularly important for countries like Ethiopia and Kenya, where the agriculture sector contributes significantly to the economy; and the other countries in the region which are driven by industry and service sectors. Currently, only one country (Rwanda) in the region has a circular economy action plan tackling four priority sectors. Having a vision and goals for the country as well as the region as a whole is important to focus efforts and investment into the adequate next steps.

Hoever, an important prerequisite to the circular economy transition is harmonised regulation within and across countries in the region as well as governmental leadership and collaboration. Yet, this is not given enough attention, especially in countries that face severe crises, such as Sudan or Somalia. On the other hand, the RECs in East Africa have taken great initiative to spur the circular economy. Examples are the Regional Bioeconomy Strategy or the Regional Polythene Materials Control Bill (2017) of the EAC. Furthermore, the presence of a decent stakeholder ecosystem composed of private sector and business initiatives, international organisations, academia, governmental and inter-governmental organisations as well as international, regional and domestic institutions providing technical and financial support, partially compensates the instable governance for now.

[211] Own calculations based on World Bank Open Data.
[212] Ibid.
[213] Data extracted from the National Statistical Office websites.
[214] The contribution to GDP (value added) of hotels and restaurants is sometimes considered as a proxy for tourism here, as the contribution of the tourism sector to GDP is not consistently calculated.
[215] Own calculations based on Climate Watch Data.
[216] Own calculations based on data from What A Waste Global Database of the World Bank from 2018 and data collected in Country Snapshots.

Southern Africa

Table B-2 Summary table of key data points for Southern Africa

Data points	Values
Countries	Angola, Botswana, Lesotho, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe, Malawi.
Total population	189,921,791
HDI	0.411
Median age [years]	20
Unemployment rate [% of total workforce] Youth unemployment rate [% of total youth workforce]	14.850 26.75
Youth literacy rate [% of total youth population]	89.1
GDP growth of last 5 years [%] Total GDP [in billion USD] GDP per capita [USD] Main sectorial GDP contribution (where accessible)	4.88 602.51 2,978.66 Service (53%)
Total GHG emissions [Mtons of CO2e] Total GHG emissions per sector [Mtons of CO2e]	1104.66 Agriculture: 121.58, Industrial Processes: 34.39, Energy: 581.22; Waste: 39.62, Transportation: 82.07, Manufacturing/Construction: 50.63 (24.78);
RECs	EAC, IGAD, COMESA, IOC*
Waste generation [kg per capita per year] Waste composition [% of waste generated] Recycling rate [% of waste generated] Landfilling rate [% of waste generated] Collection rate [% of waste generated]	146 Organic waste: 37, Plastics: 14, Paper and cardboard: 13; Metal: 7 and Glass: 5 n/a n/a
Access to electricity [% of total population]	52.94
Top 5 main import products (2020) [217] Top 5 main export products (2020)[218]	1: Petroleum products and oils; 2: Road vehicles; 3: General industrial machinery nes; 4: Specific transactions not classified; 5: Electrical machinery apparatus, parts nes 1: Non-ferrous metals; 2: Petroleum oils and products; 3: Metalliferous ore, scrap; 4: Road vehicles; 5: Gold, non-monetary excluding ores
CE-related initiatives of RECs	1. SADC green Economy strategy 2. The Blue Economy Strategy (SADC) 3. The SADC industrialization strategy 4. Implementation of Circular Economy regulations in the SADC region

Note: All the values are averages except if written "total". The data is extracted from the regional analyses unless stated otherwise

The South African region is the third largest within the African continent in terms of GDP and is dominated by South Africa. The economy of the region is dominated by mining, transport, energy, manufacturing, tourism and agriculture. Compared with the East African region, the GDP of the region grows at a relatively slow pace. While countries like Malawi have maintained a high GDP growth rate, other countries like Lesotho, Angola and Namibia have seen their GDP shrink by an average of 6.6% and 6% respectively between 2017 and 2021.[219] The growth contraction is reflective of COVID-19 precautionary mitigation measures which have hampered economic activity, coupled with low external demand which has adversely impacted the mining and manufacturing industries.

The South African region is the most polluted on the African continent, with an average total emission

[217] UN Comtrade (2023) Trade Data
[218] Ibid.
[219] Own calculations based on World Bank Open Data.
[220] Own calculations based on Climate Watch Data

including land-use change and forestry (LUCF) of 1,104.66 Mt CO2 in 2019 [220]. While encouraging progress is being made in environmental management in the region, climate change impacts, land degradation, deforestation, loss of biodiversity, pollution, inadequate access to clean water and sanitation services, and poor urban conditions continue to threaten the environment.

The key socio-economic and environmental trends in the region include: (1) a growing interest to diversify economies from dominant extractive industries to the manufacturing of value-added intermediate goods and capital goods, (2) increasing levels of intra-regional trade by promoting regional value chains, (3) rapid rate of urbanization coupled with youth unemployment, (4) rich in Natural resources but low levels of access to water and energy, (5) low level of agricultural productivity with over 30% post-harvest losses in the region as a whole, and (6) high pollution due to lack of sufficient waste management and the generation of GHG emissions of some economic sectors. The region has a comparative advantage in mainstreaming circular economy principles to achieve sustainable development. A circular economy can help develop business models and systems that can create jobs, and ensure economic prosperity and social well-being.

The southern Africa region is endowed with natural capital, however, the increasing adverse impact of climate change and lack of sufficient Infrastructure are threatening the region with water scarcity. Circular solutions can help to regenerate water resources, especially groundwater, wetlands and transboundary water bodies. Increasing municipal waste and sewerage infrastructure and treatment plants to recycle and reuse can reduce the pressure of extracting groundwater. Given the increasing industrialization rate of the region introducing Industrial symbiosis can support water management.

Designing regional food systems and climate-smart agricultural practices in line with the circular economy principle can boost food security as well as create job opportunities as the agricultural sector is among the highest employers in the region. The generalisation of best practices, like the use of organic fertilizer and optimizing the use of agriculture inputs like agrochemicals using digital technology, can be the added value of adopting a circular economy in the region.

The region has good potential for developing renewable energy sources. The circular economy can support the expansion of access to affordable clean energy and electricity. It can serve as an enabler to unlock potentials across all sectors and levels of society from improving clean cooking fuels, to reducing wasteful energy subsidies to curbing deadly air pollution and GHG emissions. Ensuring the productive use of the generated energy will further support the manufacturing sector and agriculture sector (use of solar power irrigation pumps, running agro-processing facilities etc.).

With regards to waste management, valorisation and optimization, the existing waste management system of most Southern African countries is underdeveloped. It lacks the capacity (both regulatory and infrastructure capacities) to optimize collection, handling, transportation, disposal and end-of-life life treatment of especially hazardous waste streams. Segregation at the source is not practised, which makes it difficult to retain value from the waste streams. Setting up waste treatment facilities can create an organized system where secondary raw materials can be retained for recycling, re-purposing and reuse e.g. E-waste. It can create business and job opportunities. Integrating circular economy into the existing waste management strategies and regulations, e.g. EPR schemes, in South Africa, can play a key role in designing production patterns and waste management along the value chain. These circular models, in the long run, will foster innovation, which can eliminate and or reduce waste generation as well as promote reuse, repair remanufacturing, and recycling approaches.

Leveraging the active role of RECs like the Southern African Development Community (SADC) in the region, to mobilize resources in terms of shaping a common vision among member states, harmonizing regulations, and facilitating intra-trade liberalization can facilitate the circular economy transition in the region. Existing examples include SADC green Economy strategy, the Blue Economy Strategy, and the SADC industrialization strategy. These can help identify areas of collaboration for partnership, identify the competitive advantages of each country (e.g. there is a disparity in the level of industrialization and economic inequality in the region), and attract investment by engaging the private and development partners since the collective effect will ensure economies of scale.

The well-developed stakeholder ecosystem is composed of the public sector (designing CE-related policies and regulations), academia and think tanks (conducting sector-specific research justifying the pros and cons of circular economy transitions in the region), private sector and business initiatives both at startup phases and SMEs level, especially in the recycling sector), the implementation of programs by development partner together with local institutions, the establishment of investment funds by local financial institutions are among the positive promising trends for a just equitable and inclusive circular economy in the southern Africa region.

Central Africa

Table B-3 Summary table of key data points for Central Africa

Data points	Values
Countries	Burundi, Cameroon, Central Africa Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome-and-Principe
Total population	168,315,411
HDI	0.530
Median age [years]	19
Unemployment rate [% of total workforce] Youth unemployment rate [% of total youth workforce]	10 12
Youth literacy rate [% of total youth population]	78.6
GDP growth of last 5 years [%] Total GDP [in billion USD] GDP per capita [USD] Main sectorial GDP contribution (where accessible)	3.7 164 2,712 Mining 18%, Agriculture 13% and Textiles 6%
Total GHG emissions [Mtons of CO2e] Total GHG emissions per sector [Mtons of CO2e]	1030 Land-use Change and Forestry: 731, Agriculture: 136, Industrial Processes: 67, Energy: 64 Waste: 27, Transportation: 9, Manufacturing/Construction: 4
Most pressing pollution factors	Air pollution through waste burning and water pollu-tion from plastic waste.
RECs	ECCAS, COMESA (DRC and Burundi), EAC (Burundi), CEN-SAD (Chad and CAR), SADC (DRC), IOC* (Sao Tome-and-Principe) and CEMAC** (Gabon, Cameroon, CAR, Chad, the Republic of the Congo and Equatorial Guinea
Waste generation [kg per capita per year] Waste composition [% of waste generated] Recycling rate [% of waste generated] Landfilling rate [% of waste generated] Collection rate [% of waste generated]	173 Organic waste: 66%, Plastics: 9%, Paper and cardboard: 7%, Metal: 3% and Glass: 2% 10.5 (only data for Cameroon, Congo and the DRC) 80 62
Access to electricity [% of total population]	60
Top 5 main import products (2020)[221] Top 5 main export products (2020) [222]	1: Petroleum oils and products; 2: Miscellaneous manufactured goods nes 3: Road vehicles, 4: Cereals, cereal preparations 5: General industry machinery nes 1: Petroleum oils and products, 2: Non-ferrous metals (e.g. copper), 3: Inorganic chemicals 4: Metalliferous ore, scrap and 5: Cork and wood
CE-related initiatives of RECs	CEMAC and ECCAS implemented a restriction on the Polythene Materials.

Note: All the values are averages except if written "total". The data is extracted from the regional analyses unless stated otherwise

The Central African region has (1) a growing regional economy, an average of 3.7% of growth for countries in the last 5 years, (2) a strong industrial sector that contributes to 22% of the GDP of nations on average, (3) the youngest population on the whole continent with West Africa at a median age of 19 years, (4) high unemployment rates averaging 10% and (5) large issues with mismanaged waste and the generation of GHG emission of some economic sectors, such as its extraction and mining sector and the agricultural sector. Indeed, as indicated in Table B-3 agriculture is the second polluter in the region behind land-use change and forestry. Land-use change is mostly caused by the conversion of forests to farms and mines. Energy is the fourth largest emitter in the region, mostly due to the extraction of oil which is the top export in the region as shown in Table B-3.

Due to these factors, the application of circular economy principles into the daily life of its citizens,

[221] UN Comtrade (2023) Trade data

[222] Ibid.

in policy and the industry in the region represents a unique opportunity for Central Africa to achieve its economic development without degrading its environment. This transition to a circular economy will lead to job creation, thereby tackling the massive unemployment challenge of the region. The circular economy requires innovation and Central Africa can count on its young population to bring this out-of-the-box mindset. The circular economy can limit the environmental impact of its strongest economic sectors such as mining and agri-food.

However, the region is confronted with barriers that could slow this transition. Five out of the nine countries of Central Africa are dealing with political instability which may hamper the ability to advance and enforce new laws on the circular economy. Furthermore, all the countries depend on the extraction sector which brings the risk of slowing down their circularity efforts. At the same time, the mining sector holds great opportunities to integrate circular principles to optimise its operation and reduce its impacts. However, it is good to keep in mind that it is not their population that mostly consumes what they extract.

The region is faced also with issues of access to basic drinking water services as less than half of the population has access to these services (see Table B-3) and electricity access since around 60% of the population has this access on average. The circular economy applied to the mining sector, agri-food sector, water sector, plastics and waste sector can help achieve better access to such essential services. Reducing waste and especially plastics in water streams through a circular plastics economy can reduce pollution of water streams which then can be used for drinking. There is also a need to stop the pollution of streams from waste chemicals from mining. The use of regenerative practices in farming and the replacement of chemical fertilisers with organic fertilisers can reduce the pressure on water sources. Finally, organic waste from the agri-food sector can be used to create energy and transformed into electricity at anaerobic biogas plants reducing the gap in access to electricity in the region. The digestate from this anaerobic fermentation can also be used as fertiliser

As can be observed in Table B-3, more than half of the waste generated is not collected and most of what is not collected is either discarded in open dumps which releases GHG emissions or burned which also releases GHG but generates air pollution as well. Even the waste collected is mostly not valorised since most of it ends up in landfills. Recycling rates are likely to be low even if data is scarce. In Cameroon and DRC, the recycling rates are 0.4% and 4.9%. The high landfilling rates can lead to large leakage of problematic waste such as plastics in the environment, urban areas and streams. It increases the risk of floods and creates unsanitary conditions. In the CAR, Chad, Equatorial Guinea and Congo, more than 5% of the population is at risk of plastic-aggravated floods. The unmanaged plastic exacerbates the impact of floods in the region and leads to sanitation issues (see access to sanitation rate in Table B-3). Separation mechanisms (incl. separation at source) need to be implemented while the collection and valorisation require scaling. There are no action plans in terms of waste management and the circular economy in the region although Chad and Cameroon have expressed their interest to develop one. These are essential to determine the priorities of a country in terms of its transition to a circular economy. Finally, there is a critical lack of data on waste management in the region which absolutely needs to be addressed for these action plans to be based on facts and the progress towards goals to be monitored.

Another need in the region is the harmonisation of policies. Most countries in the region have a ban on plastic bags but these bans are not harmonised at the regional level. The CEMAC has highlighted the need for harmonisation of policies related to hazardous waste but this is yet to happen. Moreover, harmonisation is also essential for other waste streams. The likes of CEMAC and ECCAS can be inspired by initiatives such as the one of EAC which developed a Bill on Polythene Materials. The Central African governments understand the gravity of the waste management issue and are supported by international organisations and financial institutions to tackle it. However, there is less support specifically for circular economy and almost no support targeted at the few circular businesses that are located in the region. Some of these businesses such as Namé Recycling are well established. Namé Recycling company is involved in the collection, sorting and recycling of PET, High-Density Polyethylene (HDPE) and Low-Density Polyethylene (LDPE) plastics in Gabon and Cameroon. Other private initiatives are less established but very promising such as Closed Loop System Ventures in Cameroon, which transforms organic waste into a natural fertilise EcoTech in the DRC which transforms plastic waste into paving tiles and Bleaglea, also located in Cameroon, which transforms metal scrubs and aluminium waste into cooking stoves and ovens. These particular need support to be scaled up in several parts of the country and the region.

West Africa

Table B-4 Summary table of key data points for West Africa

Data points	Values
Countries	Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo
Total population	413,923,960
HDI	0.509
Median age [years]	19
Unemployment rate [% of total workforce] Youth unemployment rate [% of total youth workforce]	4 12
Adult literacy rate [% of total population]	55
GDP growth of last 5 years [%] Total GDP [in billion USD] GDP per capita [USD] Main sectorial GDP contribution (where accessible)	3.96 724.17 1,247 Agriculture (28%); Hotels & restaurants (10%); Mobility & transportation (7%); Telecommunication (6.9%); Mining (5%)
Total GHG emissions [Mtons of CO2e] Total GHG emissions per sector [Mtons of CO2e]	729.82 Energy (266.68); Agriculture (248.62); Land use change and forestry (119.50); Industrial Processes (44.27); Waste (38.99) (24.78);
Most pressing pollution factors	Pollution from poor waste management, energy sources, agricultural practices
RECs	ECOWAS, West African Economic and Monetary Union*, IOC** (Cabo Verde and Guinea Bissau)
Waste generation [kg per capita per year] Waste composition [% of waste generated] Recycling rate [% of waste generated] Landfilling rate [% of waste generated] Collection rate [% of waste generated]	159 Organic (40%); plastic (7.91%); glass (2.53); paper & cardboard (6.33); metal (2.12%) 10% (data from Ghana) 80 – 90 43.5% (Cote d'Ivoire, Ghana, Togo and Mali)
Access to basic drinking services [% of total population] Access to sanitation [% of total population]	70 33
Access to electricity [% of total population]	50
Top 5 main import products (2020) [223] Top 5 main export products (2020) [224]	1: Petroleum oils and products; 2: Miscellaneous manufactured goods nes 3: Road vehicles, 4: Cereals, cereal preparations 5: General industry machinery nes 1: Petroleum oils and products, 2: Non-ferrous metals (e.g. copper), 3: Inorganic chemicals 4: Metalliferous ore, scrap and 5: Cork and wood
CE-related initiatives of RECs	ECOWAS Regional Climate Strategy and Action Plan (2022 – 2030)

Note: All the values are averages except if written "total". The data is extracted from the regional analyses unless stated otherwise

[223] ECOWAS (2023) Trade Statistics

[22] ECOWAS (2023) Trade Statistics

The West African region (1) represents around 5% of the world's population; (2) has the second largest economy on the continent; (3) has a relatively low HDI; and (4) faces challenges around water and energy access and food security liked to pollution and decline in environmental resources. Although the region is not a major emitter of GHG, further growth within the population and industrial development will contribute to the increase in emissions from the region. Energy, which is the sector with the highest emissions is also a significant challenge within the region, with only about half the population with access to electricity. In rural areas, this is estimated to be around 8%, and in some cases, as low as 1%.[225]

Further degradation of land and water sources by activities in the agriculture, mining and energy sectors can be mitigated through circular practices that are aimed at reducing pollution and regenerating nature, thus reducing the health burden. The young and growing population can potentially benefit from the development of green jobs. This is an important element to further improve the HDI and overall economy of the region. Although there are many potentials for the development of a circular economy within the region, the challenges around inadequate infrastructure and differences between the sizes and capacities within the region persist.

The economy of the region is largely dependent on the agriculture sector, with significant employment provided by the sector. The sector faces challenges around water sources for irrigation and land degradation from unsustainable agricultural practices. The use of chemical fertilisers and other unsustainable practices also contribute to the tripartite challenges of food, water and health. The agriculture sector can benefit from the implementation of a circular economy to improve soil health, efficiently produce food for the region and export and limit the pollution from the sector. Furthermore, the organic waste generated by the sector which contributes to the high GHG emissions can be harnessed and valorised. The application and valorisation of organic waste can contribute to energy production, thereby increasing access to clean energy and at the same time, decreasing environmental pollution and degradation. The long-term impact is the regeneration of natural ecosystems and the mitigation of food insecurity.

The region still faces a general waste management challenge. Although the waste management policy landscape may be considered to be relatively developed, challenges persist due to infrastructural deficiencies, inadequate regulation and lack of awareness. The collection and recycling rates are low (where data is available), and waste sorting is uncommon, implying low valorisation of waste collected. Furthermore, waste collected end up at landfills the majority of the time, contributing to leaching into the environment and the resultant land and water pollution. For uncollected waste, these are poorly disposed of in the environment, also contributing to pollution. Poor sanitation and improper waste management practices such as open incineration, littering and dumping are major causes of health problems, notably malaria and cholera.

The waste sector which is one of the five highest emitters within the region consists of high organic matter content, which is underutilized. Increasing plastic content in municipal solid waste also contributes to sanitation and health issues as these clog drainages and waterways and often end up in the environment. Adequate planning and management of the sector are hindered by the lack of data.

For several countries in West Africa, there is limited information on key indicators that could support policy planning and inform infrastructural development. This general lack of data within the region affects the quality of actions and solutions proposed and implemented.The availability of current and reliable data will drive the development of an approach to address the most pressing challenges efficiently. Additionally, the region could benefit from better coordination, collaboration and alignment of policies. This is especially true to support trade and encourage development across all countries within the region.

[225] ECOWAS (2022) ECOWAS Regional Climate Strategy and Action Plan (2022 – 2030)

North Africa

Table B-5 Summary table of key data points for North Africa

Data points	Values
Countries	Algeria, Morocco, Tunisia, Egypt, Libya
Total population	153440147
HDI	0.5
Median age [years]	28.8
Unemployment rate [% of total workforce] Youth unemployment rate [% of total youth workforce]	13.3 32.04
Youth literacy rate [% of total youth population]	92.4
GDP growth of last 5 years [%] Total GDP [in billion USD] GDP per capita [USD] Main sectorial GDP contribution (where accessible)	11.93 799.56 3747.10 Services 53%
Total GHG emissions [Mtons of CO2e] Total GHG emissions per sector [Mtons of CO2e]	889.84 Energy (707.23); Transportation (146.24); Manufacturing (69.46); Agriculture (67.58); Industrial Processes (48.07); Waste (57.53)
Most pressing pollution factors	n/a
RECs	MENA, AMU, CEDARE
Waste generation [kg per capita per year] Waste composition [% of waste generated] Recycling rate [% of waste generated] Landfilling rate [% of waste generated] Collection rate [% of waste generated]	266.54 Organic (62%); plastic (10%); glass (2%); paper & cardboard (9%); metal (23%); other (10%) n/a n/a n/a
Access to basic drinking services [% of total population] Access to sanitation [% of total population]	96.34 92.01
Access to electricity [% of total population]	93.9
Top 5 main import products (2020) [223] Top 5 main export products (2020) [224]	1: Road vehicles; 2: Petroleum products and oils; 3: Cereals, cereal preparations; 4: Electrical machinery apparatus, parts, nes; 5: General industrial machinery nes 1:Petroleum oils and products; 2: Natural gas, manufactured; 3: Electrical machinery apparatus, parts, nes; 4: Vegetables and fruit; 5: Clothing and accessories
CE-related initiatives of RECs	SwitchMed initiative

Note: All the values are averages except if written "total". The data is extracted from the regional analyses unless stated otherwise

North Africa is the continent's leading region. This is because:

- it has the highest GDP per capita on the continent and represents the continent's largest economy. Its GDP grew by an average of 11.93% between 2017 and 2021.

- The region has the oldest population on the continent, with an average age of 28.8 years. It also has the fewest inhabitants on the continent, with a total population of 153,440,147.

- With an average of 0.722, North Africa is the region with the highest Human Development Index on the continent.

However, the region is the most polluting region in terms of municipal solid waste (MSW) production. On average, it produces more than 9 million tonnes of solid waste per year, with a per capita production of 266 kg per year. In terms of air pollution, it is the third most polluted region on the continent, with average total emissions, including land-use change and forestry, of 889 million tonnes of CO2 in 2019. The sector that emits the most GHG is the energy sector, with CO2 production of 707.23 million tonnes in 2019. It is followed by the transport sector with an output of 146.24 million tonnes in 2019. Manufacturing, agriculture, waste and industrial processes follow in order, with respective pollution values of 69.46 million tonnes, 67.58 million tonnes, 57.53 million tonnes and 48.07 million tonnes. The average unemployment rate for the overall population in the North African region is 13.3%, making it the second region with the highest unemployment rate on the continent, after Southern Africa.

The North African region is dependent on the mining sector. For most of the countries in the region, the economy is based on oil exploitation. In the region, we find major producers, such as Algeria, Libya and Egypt. However, this sector is highly polluting, both for the soil and in terms of CO2 production. Agriculture also contributes to soil pollution in the region. The sector plays a major role in soil pollution, as the use of pesticides and other fertilisers is harmful to the soil. Pesticides account for 19.6% of soil pollution in the region.

The population of North Africa does not face many issues in terms of access to basic infrastructure, in contrast to the other regions. The rate of access to electricity, water and basic sanitation is for all above 90%. In North Africa, the amount of recycled garbage is very little. However, the region continues to have the largest percentage of garbage that is recycled on the continent, despite its low recycling activity. The collection of unsorted trash, when recyclables are mixed with organic waste, is used to excuse the low recovery rates. Sorting through the garbage after collection is challenging due to the mix of materials and related contaminations. As a result, a significant amount of garbage that could be recycled ends up in landfills and dumps. Since the 1990s, waste management policies and legislation have been formed across all of Northern Africa. Algeria, Egypt, Tunisia, and Morocco each have their own national waste management plans. In all of the nations in the area, there are specific laws and regulations governing waste management and recycling. Only Tunisia has some product-specific rules. Nevertheless, much of Northern Africa still lacks sector-specific policies, such as those for e-waste, textiles, or plastics.

The majority of circular economy initiatives focus on creating national action plans for sustainable development. This was motivated by the SwitchMed initiative, which as part of its portfolio to assist the policy environment sponsored the preparation of Sustainable Consumption and Production Action Plans in Algeria, Egypt, Tunisia, and Morocco. The initiative also attempts to lessen the environmental impact of industry and consumer activity while assisting in the establishment of good employment and greener economic possibilities. Several private initiatives have been launched to contribute to the development of the circular economy in the region. An industrial company in Algeria named Cevital has embraced circular economy measures including lowering packaging waste and improving sustainable raw material procurement. The Coca-Cola Company unveiled its World Without Waste vision in Morocco in 2018, setting the audacious aim of collecting and recycling 100% of all packaging by 2030, or the equivalent of a bottle or can for every product sold.

ANNEX B – METHODOLOGY FOR SECTOR PRIORITISATION

For this study, the most important economic sectors identified for Africa are agri-food and fisheries, plastics and packaging, construction, electronics, and textiles. To complete this list of sectors, it was chosen to include sectors that are rather cross-cutting such as water, waste, transport, mining, energy, transport and mobility, as well as tourism since this sector is growing rapidly in Africa.

In the following, the scope of the sectors is briefly summarised:

- ***Waste:*** the waste sector encompasses all activities that are related to enabling a circular economy in the subsequent vertical sectors (except water). This includes the collection, sorting, management, recycling and proper end-of-life treatment of municipal and industrial waste.

- ***Water:*** the water sector covers all activities that relate to the withdrawal (incl. water resource management), use of water, as well as the management and treatment of wastewater.

- ***Plastics and packaging:*** the plastics and packaging sector encompasses all activities linked to the design, production, use and disposal of plastics, as well as the packaging from the most important types of material, including paper, glass, plastics and alternative plant-based materials.

- ***Transport and mobility:*** the transport and mobility sector covers all activities linked to the production of transport means, their management and use as well as the treatment of broken and unusable vehicles and their components.

- ***Agri-food and fisheries:*** the agri-food and fisheries sector relates to all activities that are linked to the production and commercialisation of food as well as the management of the organic waste that it creates throughout its value chain.

- ***Electronics:*** the electronics sector involves all activities related to the production of information and telecommunication technologies and other electronic products and systems, as well as their use and end-of-life management and treatment.

- ***Construction:*** the built environment sector covers all activities that are linked to the design, and construction of infrastructures and buildings, their use and the end-of-life of the materials used for the construction.

- ***Tourism:*** the tourism sector encompasses all activities that are done to serve tourists. This especially includes gastronomy and hospitality as well as retail or the production of waste in certain material streams, such as plastic packaging.

- ***Textiles:*** the textiles sector includes all activities from the production of yarns made from sustainable, regenerative and/or secondary materials, the manufacturing of fabrics, to the design of textiles and fashion items avoiding hard-to-recycle blends, the repair and reuse of items up to innovative recycling processes of textiles waste.

- ***Energy:*** the energy sector covers all the activities related to the expansion of renewable energies as well as the production of alternative energy sources, such as biogas, from the anaerobic digestion of organic solid and liquid waste.

- ***Mining:*** the mining sector corresponds to all activities related to the extraction, processing and recovery of minerals.

Please note that agri-food and fisheries, electronics, construction, tourism, and textiles are understood as vertical sectors. Water, waste, transport and mobility, plastics and packaging, mining, and energy are horizontal sectors due to their cross-cutting nature playing an essential role in the vertical sectors and some of the other horizontal sectors.

Based on our findings (desk research, inputs from national experts as well as data of our previous works), a prioritisation matrix has been developed as a means to determine which sector should be

prioritised in each region. This prioritisation matrix addresses three separate elements, the economic importance of a sector, its circular economy potential and its environmental impact:

- The economic importance is determined by observing the contribution to GDP of the sector, its contribution to employment and its importance in the informal economy since the informal economy employs nearly 83% of the workforce on average in Africa.[226]
- The circular economy potential is derived from the alignment with policies, the number of circular economy businesses, the level of trade flows, and the share of the waste composition.
- The alignment with policies indicator analyses how much the sector is covered by the circular economy or circular economy-related policies.
- Finally, the environmental impact is determined through the GHG emissions of the sector and the air, soil and water pollution associated with it.

The rationale for each criterion of the prioritisation matrix can be found below.

Table C-1 Description of prioritisation criteria

Economic importanc	Contribution to GDP	Statistics from international sources or national statistical offices that inform about the GDP contribution of a certain sector.
	Contribution to Em-ployment	Employment data on the sectors shall inform about how much of the working force is contributing to and is dependent on a certain sector.
	Importance in the infor-mal economy	The informal sector often contributes significantly to the functioning of a certain sector which is not represented in official data. This indicator will refer to studies or qualitative information.
CE potential	Alignment with policies	Describes the presence of an enabling framework for enhancing cir-cular economy in a certain sector (based on existing policies and their enforcement) as well as the governmental will (qualitative). When going ahead with a certain sector, there should be a minimum of polit-ical alignment.
		Includes the number of businesses operating in the CE space relative to the total population.
	Number of CE busi-nesses	Corresponds the share of the total waste generated (often limited to MSW), representing the opportunity to reduce and valorise.
Environmental impacts	Share of waste compo-sition	Where available, this includes the relative and absolute GHG emis-sions released by a certain sector mostly during extraction of neces-sary raw materials or production.
	GHG emissions	Where available, this refers to pollution aspects occurring through improper waste disposal.

The prioritisation matrix encompasses a ranking exercise. An explanation of the ranking for each criterion can be found below.

Table C-2 Ranking legend: GDP contribution

Rank	Description
1	Low average contribution to GDP, under-performing in comparison to other sectors; not a sector that the region depends upon.
2	Medium average contribution GDP; average range compared to other sectors; important but not the cornerstone of the region's economy
3	Exceptionally high average contribution GDP, clearly over-performing to other sectors; key for eco-nomic development of the region

Table C-3 Ranking legend: employment contribution

Rank	Description
1	Low average contribution to employment in comparison to other sectors
2	Medium average contribution compared to other sectors
3	Exceptionally high average contribution

Table C-4 Ranking legend: importance in the informal economy

Rank	Description
1	Low contribution to the informal economy
2	Medium contribution to the informal economy
3	Exceptionally high contribution to the informal economy

Table C-5 Ranking legend: policy alignment

Rank	Description
1	Zero or only very few policies referring to the circular economy or waste management
2	Some existing waste management and circular economy policies but still not widespread and/or have weak implementation/realisation
3	Many circular economy or waste management policies and/or medium-good level of implementation

Table C-6 Ranking legend: number of companies

Rank	Description
1	Zero or only very few waste/circular businesses are involved in the sector
2	Some existing waste management/circular businesses in the sector but not widespread across this sector
3	Many circular economy or waste management compared to other sectors

Table C-8 Ranking legend: share of waste composition

Rank	Description
1	Low share of the waste composition compared to other sectors
2	Medium share of the waste composition compared to other sectors
3	High share of the waste composition compared to other sectors

Table C-9 Ranking legend: climate impact

Rank	Description
1	Low share of total GHG emissions compared to other sectors
2	Medium share of total GHG emissions compared to other sectors
3	High share of total GHG emissions compared to other sectors

Table C-9 Ranking legend: pollution impact

Rank	Description
1	Low potential to reduce air, water and soil pollution impacts through CE opportunities
2	Medium potential to reduce air, water and soil pollution impacts through CE opportunities
3	High potential to reduce air, water and soil pollution impacts through CE opportunities

An example of a prioritisation matrix was developed for East Africa which can be found in Table C-10 below. Based on this assessment, it was concluded that mining was not a priority sector in East Africa because of its low economic importance in the region. However, tourism was deemed a priority sector in the region because of its economic importance and because of the lack of policy alignment around this sector.

Table C-10 Prioritisation Matrix

		Sectors										
		Water	Waste	Agri-food & fisheries	Construc-tion	Textiles	Transport and mobility	Electro nics	Tourism	Plastics & Packag ing	Energy	Mining
Electronic importance	Contribution to GDP	1	2	3	1	2	2	1	3	2	3	1
	Contribution to Employment	1	2	3	1	1	1	1	1	2	2	1
	Importance in informal economy	1	3	3	3	3	2	2	2	3	1	1
Electronic importance	Alignment with policies	1	3	1	1	1	2	2	1	3	2	1
	Number of CE businesses	2	3	2	2	2	3	3	1	3	2	1
	Share of waste composition	/	/	3	1	1	2	1	/	3	1	1
Electronic impacts	GHG emissions	NA	2	3	2	2	3	2	1	2	3	1
	Pollution of air, soil and water bodies	2	3	3	1	3	3	3	2	3	3	2
Final rank		1.33	2.43	2.63	1.5	1.88	2.25	1.88	1.58	2.63	2.43	1.28

Finally, below you can find a justification for the rankings given in the case of East Africa.

Table C-11 Justification of the rankings

Sector	Criteria	Rank	Justifications and summary of relevant findings
Water	GDP contribution	1	There is not enough data on the contribution to GDP of the water sector but it is expected to be rather low.
	Employment contribution	1	There is not enough data on the employment contribution of the water sector but it is expected to be rather low as well.
	Importance in informal econ-omy	1	Companies working with water management and wastewater are mostly formal because of the machinery needed.
	Policy alignment	**1**	There are only 4 water policies related to the circular economy in the region.
	Number of companies	2	There are at least 9 circular businesses in the region working in the water sector.
	Share of waste composition	/	There is no data to assess the share of waste composition associated with wastewater
	Climate impact	NA	NA
	Pollution impact	2	The release of non-treated wastewater into the environment can lead to high levels of pollution, especially for wastewater coming from heavy industries such as chemicals producers, mining companies, cement manufacturers…
Waste	GDP contribution	2	There is rarely any measurement of the contribution of the waste sector to the GDP but it is likely to be quite important as it is a very cross-cutting sector.
	Employment contribution	2	There is not enough data on the employment contribution of the waste sector in the region. However, it is clear that it employs a lot of informal workers.
	Importance in informal econ-omy	3	The waste sector is an important sector for informal workers such as collectors and waste pickers who work in landfills for example.
	Policy alignment	3	Almost all countries in East Africa have waste management strategies and all of them have waste-related laws or policies. And quite a few of them have strategies or laws on waste with aspects of the circular economy. 58 policies and laws on waste have been identified in the region.
	Number of companies	3	74 businesses work on waste management and aspects of the circular economy in East Africa. This is the sector where most businesses were identified as many companies in the region focus on waste collection, management and recycling.
	Share of waste composition	/	Not relevant for this sector.
	Climate impact	2	The waste sector leads to a significant level of emissions but much lower than sectors such as the agri-food sector or the transport sector.
	Pollution impact	3	Many waste types when they leak into the environment can create significant damage to water streams, soils and air. The mishandling of waste through burning for example can lead to air pollution with health impacts on populations located near the site where it is burnt.
Agri-Food And Fisheries	GDP contribution	3	The agri-food sector contributes to 21% of the GDP of countries of the region on average. It is thus one of the highest contributing sectors to GDP on average in the region.
	Employment contribution	3	The agri-food sector is the highest contributor to employment in the countries of the region on average, with around 50% of the workforce.
	Importance in informal econ-omy	3	Workers on farms are mostly informal workers in East Africa.
	Policy alignment	1	Only 2 national policies related to agriculture and the circular economy have been identified in the region. However, the EAC has developed a bioeconomy strategy for its members.
	Number of companies	2	11 circular businesses were identified in the food and agriculture sector.
	Share of waste composition	3	Organic waste represents around 59% of the municipal solid waste composition on average in East Africa which is the highest waste composition share.
	Climate impact	3	The agriculture sector is the sector with the highest emissions among all the sectors in East Africa.
	Pollution impact	3	The use of chemical fertilisers in agriculture which is common in Africa leads to pollution and degradation of the soil, as well as water bodies due to leakage of those chemicals. The circular economy by promoting the use of organic fertilisers and in general regenerative agricultural practices decreases the degradation of the soils.

Sector	Criteria	Rank	Justifications and summary of relevant findings
Construction	GDP contribution	1	The construction sector as a rather low contribution to the GDP on average in the region but it is growing.
	Employment contribution	1	In the same way, since it is a rather small economic sector, thus employ-ment contribution is also quite low but growing as well.
	Importance in informal econ-omy	3	Construction workers are mostly informal workers in East Africa.
	Policy alignment	**1**	Only 2 countries in the region have policies applying to the construction sector which are related to the circular economy.
	Number of companies	2	2 companies that apply circular principles to the construction sector have been identified through our research.
	Share of waste composition	1	The share of construction waste in the waste composition is expected to be low today but growing with the expansion of the sector.
	Climate impact	2	The current climate impact of construction is rather low but as the sector is expanding it can be expected that its climate impacts will increase as well. This impact can be limited through circular economy principles which will support the reuse and recovery of construction materials.
	Pollution impact	1	The current pollution impacts of construction are rather low but as the sector is expanding it can be expected that they will increase in the same way as the climate impact. The construction of infrastructures and buildings in-volves the use of chemicals that can pollute the soils and water bodies. The construction requires large amounts of materials. The extraction practices for these materials can pollute soils and water streams.
Textiles	GDP contribution	2	The textiles sector contributes on average to 13% of the GDP in countries of the region. However, textiles is a rather informal sector which means data is not available for every country but it also means that the contribution to GDP might not capture all the activities of the sector.
	Employment contribution	1	The textiles sector contributes to 4% of formal employment on average in the region. However, a large part of workers in the textiles sector in East Africa are informal workers and are not accounted for in the statistics.
	Importance in informal econ-omy	3	Repair of clothes is mostly done in an informal setting in East Africa.
	Policy alignment	1	Only 1 policy on fashion and textiles, as a part of the new EPR legislation in Kenya, has been developed in the region.
	Number of companies	2	9 companies that apply circular economy principles to the fashion and tex-tiles sector were identified in the region. Furthermore, it is expected that there are many informal businesses working in repair activities which are not captured.
	Share of waste composition	1	It is expected that textiles are a small share of the municipal waste compo-sition of East African residents. However, large flows of textiles which mostly end up as waste are exported to specific countries in East Africa.
	Climate impact	2	Globally, fashion and textiles have a large and increasing climate impact. There is no data on its impact in East Africa, but as the sector is growing, it is expected that its climate impact will also grow.
	Pollution impact	3	Many waste types when they leak into the environment can create signifi-cant damage to water streams, soils and air. The mishandling of waste through burning for example can lead to air pollution with health impacts on populations located near the site where it is burnt.
Transport and mobility	GDP contribution	2	The transport and mobility sector is a significant contributor to GDP in East African countries with a contribution of around 11% on average. However, it contributes much less than other sectors such as agriculture.
	Employment contribution	1	Employment in the transport and mobility sector is rather low at around 2.3%. However, this data is not available for many countries.
	Importance in informal econ-omy	2	Workers on farms are mostly informal workers in East Africa.
	Policy alignment	2	Several countries in East Africa have bans on imports of used vehicles.
	Number of companies	3	Reuse and repairs of cars and other means of transport is common practice in East Africa but it is mostly done in an informal setting.
	Share of waste composition	2	Reuse and repair of cars and other means of transport is common practice in East Africa, meaning that not many of them and their materials are wast-ed. However, many used vehicles are exported from the EU to specific countries in the region such as Kenya, Ethiopia, Tanzania and Mauritius where more than 250,000 used vehicles are exported every year.
	Climate impact	3	The transport and mobility sector is the 3rd most polluting sector in Africa.
	Pollution impact	3	Most Africans use cars or motorbikes to move around. These vehicles, which are mostly thermic in Africa, are leading to high levels of air pollution in cities, especially cities which are congested such as Nairobi, Addis Aba-ba…

Sector	Criteria	Rank	Justifications and summary of relevant findings
Electronics	GDP contribution	1	Data is mostly lacking on the contribution of ICT and electronics to GDP in the region but the data available indicate a rather low contribution (2.6%).
	Employment contribution	1	There is a lack of data on the contribution of this sector to employment.
	Importance in informal econ-omy	2	The repair of electronic items is an important activity in East Africa and is mostly done by informal workers. The rest of the sector is expected to be dominated by formal actors.
	Policy alignment	**2**	9 policies related to supporting the application of circular economy principles to electronics are in place in East Africa. Most of these are EPR legislations.
	Number of companies	3	In the ICT and electronics sector, 11 companies were identified as applying circular economy principles. However, it is expected that many more companies are informal, especially working with repairs and are not covered in this number.
	Share of waste composition	1	The share of electronic waste is expected to be rather low but growing.
	Climate impact	1	There is no data on the emissions linked to this sector but these are expected to be rather low.
	Pollution impact	3	Some of the components used in EEE are highly hazardous and can cause intoxication and pollution if not managed properly.
Tourism	GDP contribution	3	Tourism is an essential economic sector for several countries in East Afri-ca. Hotels and restaurant was used as a proxy since the contribution to GDP of tourism was not calculated in most countries. The contribution to GDP of the hotels and restaurants sector was 15% on average in the region.
	Employment contribution	1	There is not enough data on the contribution to employment of this sector but this data indicates rather low levels (2.2%).
	Importance in informal econ-omy	2	It is expected that there are a significant number of workers in this industry. However, probably not as many informal workers as in the waste management sector for example.
	Policy alignment	1	Only 2 policies related to tourism and the circular economy have been identified.
	Number of companies	1	Companies involved in tourism might have an interest in the circular economy, however, this is usually their first priority.
	Share of waste composition	/	Not relevant since it is cross-cutting and not linked to a specific waste stream.
	Climate impact	1	It is not clear what are the emissions linked to the tourism sector.
	Pollution impact	2	The tourism sector can lead to the costly pollution of natural reserves with different types of waste especially plastic waste if tourists are allowed to access those reserves.
Plastics & Packaging	GDP contribution	2	There is no indication of the contribution of the plastics and packaging sector. However, it is expected to have a significant contribution even though it is probably not as high as the agriculture sector.
	Employment contribution	2	There is no indication of the contribution of the plastics and packaging sector to formal employment. However, it is expected to have a significant contribution even though it is probably not as high as the agriculture sector.
	Importance in informal econ-omy	3	It is expected that a high number of informal workers are involved in the plastics sector, especially at the end-of-life stage and in the collection process.
	Policy alignment	3	25 policies related to plastics and packaging and the circular economy have been identified. This is a sector well covered by policies.
	Number of companies	3	26 companies were identified as applying circular economy principles to the plastics and packaging sector. However, many informal businesses are involved in this sector, thus it is expected that the real number of businesses would be much higher.
	Share of waste composition	3	Reuse and repair of cars and other means of transport is common practice in East Africa, meaning that not many of them and their materials are wast-ed. However, many used vehicles are exported from the EU to specific countries in the region such as Kenya, Ethiopia, Tanzania and Mauritius where more than 250,000 used vehicles are exported every year.
	Climate impact	2	The impacts of the plastics and packaging sector on climate have not been measured in East Africa. However, since most plastics are made from fossil fuels today, the impacts should be significant.
	Pollution impact	3	Plastic waste generated contributes significantly to pollutants in water bodies with an impact on marine life. This has been observed through the presence of microplastics in water and aquatic life. Plastic waste also contrib-utes to clogging of water channels, causing floods and resulting in public health crises. It can therefore be inferred that improvement in access to safe and improved water sources will reduce plastic waste generated.

Sector	Criteria	Rank	Justifications and summary of relevant findings
Energy	GDP contribution	3	There is no data on the GDP contribution of the energy sector in East Africa. However, petroleum products are the 3rd largest export in East Africa.
	Employment contribution	2	The energy sector is not a very labour-intensive sector. Therefore, it is expected to have a medium employment contribution although data is lacking
	Importance in informal econ-omy	1	The energy sector consists mainly of formal jobs.
	Policy alignment	**2**	Many policies and strategies related to renewable energy have been developed in East Africa but most of these do not cover the full width of a circular economy for the energy sector.
	Number of companies	2	At least three businesses were identified that applied circular economy aspects to the energy sector. However, much more businesses are involved in the renewable energy sector in East Africa.
	Share of waste composition	1	The energy sector produces a low amount of waste today but will produce much more in the future when renewable equipment reaches their end of life.
	Climate impact	3	The energy sector is the 2nd most polluting sector in East Africa with around 16% of total annual emissions in the region.
	Pollution impact	2	East Africa relies heavily on biofuels as a source of energy. Risks of air pollution from the combustion of wood can be high without strict standards.
Mining	GDP contribution	1	The mining sector does not have a major economic contribution to the GDP of East African countries on average (3.6%).
	Employment contribution	1	The mining sector does not contribute highly to employment in East African countries with an average of 0.8% of total employment.
	Importance in informal econ-omy	1	Since it does not have a high GDP contribution, its importance in the informal economy is probably not as high as in other regions.
	Policy alignment	1	The East African countries do not have any policies on circular economy in mining.
	Number of companies	1	No businesses involved in a circular economy for mining were identified.
	Share of waste composition	1	There is no indication of the share of mining products in the waste composition but it is assumed to be rather low because of its low economic importance.
	Climate impact	1	There is no indication of the GHG emissions in the mining sector in East Africa. However, it is assumed to be rather low because of its low economic importance.
	Pollution impact	2	Although it has mining activities are low in East Africa, the mining sector is very polluting sector, especially through the release of chemicals into the environment.

A similar approach as the one employed here for sector prioritisation can be taken by Member States when developing their own national circular economy action plans.

ANNEX D – ADDITIONAL INFORMATION ON THE WASTE MANAGEMENT SECTOR IN AFRICA

Waste generation

In 2019, the continent generated almost 21.5 million tonnes of municipal solid waste (MSW). However, the African continent generates the least municipal solid waste when compared with the rest of the world. North Africa generates the most MSW on the continent, having produced more than 9 million tonnes of MSW in 2018. It is the only region on the continent that produces more than 4 million tonnes. On its own, it generates more MSW than East Africa, Central Africa and West Africa combined. Conversely, Central Africa generates the least MSW in Africa, with a production of 2.5 million tonnes of MSW in 2018.

Waste composition

In terms of waste composition, organic waste is the most constituents in municipal solid waste. In North Africa, this represents 62% of the total waste generated. In the other regions, organic waste compositions vary between 30 and 60% - East (60%); West (40%); Central (66%); and Southern Africa (37%). In South Africa, the second largest fraction making most of the waste share is metal (16.9%), implying metal recycling potential in the country. Similarly, 60% of the waste produced in Mozambique is organic waste, making it the largest producer of organic waste in the region thus displaying potential for the development of organic waste processing facilities.

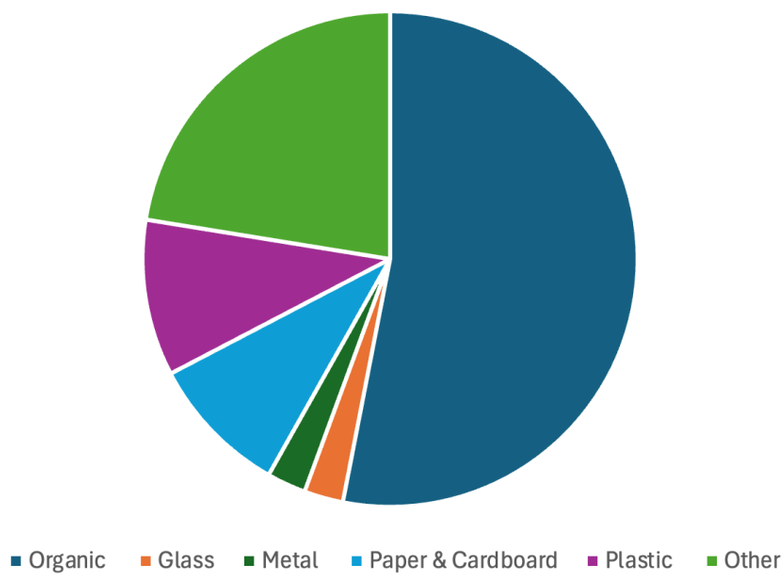
The average waste composition in Africa is illustrated in Figure 2-10.

Plastic waste is a problematic waste stream since the quantity of plastic debris that leaked into the ocean on the coast of West Africa was estimated to be around 400,000 tons in 2010 in the region. It was forecast that it would increase to around 1,200,000 in 2025 in a business-as-usual scenario.

Waste valorisation

Waste valorisation is low and Africa and needs to be increased. However, more data needs to be collected to understand why it is so low. Some of the waste data available on waste recycling and collection is presented in Table 3-7. It is accompanied by governmental targets. The need for targets associated with the data is required for monitoring policy interventions in waste management.

Figure 0-1 Average waste composition in Africa, 2018 [%]



Source: Own calculations based on data from What A Waste Global Database of the World Bank from 2018 and data

Table D-0-1 Overview of waste recovery rates for a few countries in Africa

Country	Collection rate	Target collection rate	Recycling rate	Political goal for recycling
Rwanda	80%	95%	10%	n/a
Senegal	55% (Formal) 80% (Informal)	95%	n/a	n/a
Morocco	85%	95%	12%	20% by 2020
South Africa	61%	95%	11%	n/a
Egypt	60% (Average)	95%	4% (20% for MWS)	80% by 2026 (MSW)
Kenya	50%	95%	10%	n/a
Ghana	44%	75%	n/a	n/a

Source: Trinomics et al. (2020) AU-Europe Collaboration on Circular Economy – country reports

Business initiatives in waste management

There is an emerging trend of business initiatives, which are getting engaged in the collection of waste as well as the valorisation of waste materials. In some cases, waste collected through small and informal initiatives is often sold to private companies for processing. In other cases, it is processed by the informal sector and directly sold on the market. This is how many small businesses and initiatives are born in Africa, like Mr Green Africa in Kenya. They recycle waste and sell pre-processed recycling materials with a traceable social and environmental impact (fairly traded plastic) to the market. While for some waste materials, there is a clear economic opportunity underlying, as for precious metals or recyclable plastics, there is still potential to make such business models more viable and attractive, which will play an important role in tackling the waste challenge in Africa.

In addition to small and local business initiatives, more and more private (international) companies in Africa are getting involved in recycling the waste and by-products that they produce. As a result, many of them are producing products that are less polluting and can be recycled. This is done in order to limit the pollution caused by their products and their expenditure as well as for their image. One example is Coca-Cola. In 2018, the Coca-Cola Company announced its World Without Waste vision, which committed to an ambitious goal, i.e. to collect and recycle the equivalent of a bottle or can for every one they sell by 2030, reaching a 100% collection and recycling rate of all their packaging. The vision also includes ensuring all of their packaging is 100% recyclable by 2025 and that the PET bottles are made with an average of 50% recycled content.

Having diverse initiatives trying to manage, valorise and prevent waste is important to tackle the waste challenge in Africa with all its different dimensions. It is also key to stimulate collaboration among these to break a common habit of working in silos and thereby exploiting promising business synergies.

ANNEX E – THE EAC'S BIOECONOMY STRATEGY DESCRIPTION

A circular agri-food sector can be built upon bioeconomy strategies that have been developed by Member States and by the EAC for example. The EAC adopted The East African Regional Bioeconomy Strategy 2021/2022 to 2031/2032 in June 2022. The strategy aims to "enhance the transformation of economies and place innovation in bio-based products and processes at the centre, with a biobased circular economy as the organising framework". It addresses four thematic areas which are food security and sustainable agriculture, health and wellbeing, sustainable energy and bio-based industrial development and suggests several actions for these thematic areas which are considered as key for a circular agri-food sector. An overview of the thematic areas and associated solutions can be found in Table 4-1.

Table E-0-1 Thematic areas and associated circular solutions in the EAC's bioeconomy strategy

Thematic area	Circular solution
Food security and sustainable agriculture	**Biobased agricultural inputs:** To support and enhance sustainable agricultural production through the growth of bio-based agricultural inputs (e.g., biopesticides and bio-fertilizers) produced in the region.
Biobased Industrial Development	• Bio-based and biodegradable packaging materials: To develop manufacturing capabilities for standardised bio-packaging materials, together with appropriate regulatory systems and infrastructure; • Biobased construction materials: To transform the local construction industry into one that is low carbon and climate-smart, and based on locally produced renewable building materials; • Bio-based textile fibres: To achieve a more productive and sustainable textile fibre industry, complemented by the production of a range of textile fibres generated from local agro-waste materials.
Sustainable Energy	• Biomass briquettes and pellets as an alternative to charcoal and firewood: To promote initiatives in bioenergy briquette and pellet production from waste materials to substantially reduce the unsustainable use of wood fuel; • Production of biogas from organic waste: To stimulate and support the uptake of biogas technologies in the region for household and industrial use.

Source: EAC (2022) The East African Regional Bioeconomy Strategy 2021/2022 to 2031/2032

ANNEX F – CIRCULAR BEST PRACTICES FOR THE PROPOSED ACTIONS

A circular agri-food sector can be built upon bioeconomy strategies that have been developed by Member States and by the EAC for example. The EAC adopted The East African Regional Bioeconomy Strategy 2021/2022 to 2031/2032 in June 2022. The strategy aims to "enhance the transformation of economies and place innovation in bio-based products and processes at the centre, with a biobased circular economy as the organising framework". It addresses four thematic areas which are food security and sustainable agriculture, health and wellbeing, sustainable energy and bio-based industrial development and suggests several actions for these thematic areas which are considered as key for a circular agri-food sector. An overview of the thematic areas and associated solutions can be found in Table 4-1.

Water

Goal 2	Establishment and expansion of infrastructure for fresh water consumption and water sanitation, incl. recovery systems
Actors	**Member States**
Action	Member States to promote bio-latrine facilities and accompanied bio-digestion technologies suitable for water-scarce environments, e.g. in schools and remote/poor communities.
Best practice 1	The ACTUATE project is a pilot project implemented in Nigeria and Ghana by the Lancaster University. The project encourages the adoption of anaerobic digester technology in communities, thereby promoting circular principles and delivering improved sanitation.
Best practice 2	**Toilets are Producing Energy in East Africa's Largest Informal Settlement** Two bio-centers were inaugurated in Kibera, Kenya. The bio-centers are sanitary facilities consisting of toilets with separate areas for women and men. The organic waste generated by these facilities is trans-formed into biogas thanks to a "digester" (a sealed underground compartment). The gas produced pro-vides energy to a small ground-level kitchen. The facilities use a minimum amount of water - just one litre compared to five or six for standard toilets, so energy is not only produced, but water is economised.

Goal 3	Promotion of efficient water use, reuse and adequate wastewater disposal among consumers and industry
Actors	Member States
Action	Member States to launch initiatives that promote water efficiency and reuse of water, addressing con-sumers and industries as active approaches to conserve water and reduce wastewater.
Best practice 1	In 2001, the City of Windhoek, Namibia signed an agreement to improve water treatment and increase drinking water production capacity from the Goreangab dam and the Gammans wastewater treatment plant. The water is treated according to strict standards and now meets 35% of the city and its metropoli-tan area's drinking water needs, supplying nearly 400,000 people with a capacity of 21,000 m3 per day.

Waste

Goal 1	Strengthen policy and strategic frameworks on circular economy and align poli-cy related to waste management
Actors	Member States
Action	Member States to ensure that hazardous waste is treated at centralised safe sites by specialised, equipped and trained staff.
Best practice 1	In South Africa, EnviroServe provides waste management support within the automotive industry by providing services that ensure that waste from the sector is handled and treated appropriately, and ulti-mately reducing hazardous waste headed for landfills.
Action	Member States to enforce waste management regulations and policies and building capacity for enforcement agencies (enforcement capacity and understanding of the CE concept)
Best practice 1	Roadmap of Cote d'Ivoire on waste streams. 3 waste streams have been selected: plastics, or-ganic waste and waste electrical and electronic equipment.

Goal 2	Continue to invest in infrastructure provisions that enable the circulation and proper/safe treatment of waste and secondary resources
Actors	Member States
Action	Member States, in collaboration with international partners, to invest in the development of the waste collection, transfer and treatment infrastructure.
Best practice 1	The United Nations Environment Programme (UNEP) together with the Environmental Protection Agen-cy in partnership with Ghana National Cleaner Production Centre through the Switch Africa Green pro-ject in Ghana, implemented a project on electronic waste and developed the Ghana e-waste model that formed the basis for the Hazardous and Electronic Waste Control and Management Act (2016). This led the Government of Ghana to prepare for the setup of an e-waste recycling plant at Agbogbloshie
Action	RECs and Member States to design reverse logistics networks within the regions to capture value, proper disposal, remanufacturing and refurbishing activities for unused and discarded obsolete products.
Best practice 1	Glass recycling and reuse (South Africa) South Africa consumes more than 3.1 million tonnes of glass a year (representing 4.5% of all waste), two-thirds of which is reusable and can be diverted from landfills. In 2005, the Glass Recycling Company (TGRC)13 was established under a Memorandum of Under-standing with the Department of the Environment, becoming South Africa's official organisation for the promotion of glass recycling.
Best practice 2	One company recycles around 4,000 tonnes of waste paper and cardboard a month (Kenya) Kamongo Waste paper company is a Kenyan waste paper collection and processing company that operates in a fully automated fashion.

Goal 4	Strengthen and support the informal sector to increase their recognition and role in waste management and recycling activities
Actors	Member States
Action	RECs and Member States to promote and support the establishment of informal sector cooperatives, coalitions or networks on different geographic levels to reduce social marginalisation, improve economic efficiency and thus the position in the economic value chain, and enable partnerships with municipalities and other stakeholders.
Best practice 1	Borla Taxi and Tricycle Association and Kpone Waste Pickers Association in Accra, Ghana provide the necessary representation of the informal sector when engaging with local government and regulators on behalf of their members. In the Accra Metropolitan Area, over 400 Borla taxi operators are registered by the Metropolitan Assembly to monitor and regulate their activities.
Best practice 2	The Zabbaleen, or door-to-door rubbish collectors in Cairo, have been doing this for more than 80 years and today collect between 50 and 60 per cent of the city's trash. Over 50,000 trash processors, 150,000 collectors, sorters, merchants, and truck drivers make up the Zabbaleen, who reuse/recycle 80% of the material they gather. A new government-backed programme to recover packaging has been introduced in an effort to harness their skills to combat the plastic crisis while better paying for their efforts. In accordance with this plan, a reverse credit method will be employed to pay the collectors, sorters, dealers, and processors electronically for each consignment that is gathered and transferred for recycling. Through its 2020 Waste Manage-ment Law, the Ministry of Environment will also oer social protection to Egypt's informal gar-bage collectors.

Energy

Goal 1	Enhance decarbonisation and energy efficiency measures, and incentivise the incorporation of renewable energy components in industry, retail and consumers
Actors	Member States
Action	Member States, in collaboration with research institutions, to increase research and development for renewable energy technology.
Best practice 1	The Nigeria Energy Support Programme is co-funded by the German Federal Ministry for Economic Cooperation and Development and the European Union that provides key advisory services with regards to energy policy and management in Nigeria. Under this programme, the partners provide an enabling environment for renewable energy and energy investments; supports capacity development through trainings; provides market intelligence which is supported by data to improve planning; and provides a sustainable network for sustainable renewable energy access.

Goal 1	Energy and electricity generation from organic solid and liquid waste
Actors	Member States
Action	Member States, together with domestic and international funders, to invest in infrastructures and central-ised facilities that are able to maximise the generation of electricity from organic solid and liquid waste to support the clean and sustainable transition at scale.
Best practice 1	The Safisana recycling plant in Ghana was commissioned in 2017 in the Greater Accra area and is the first waste-to-energy plant in West Africa. The plant utilised organic waste from markets and faecal faecal waste from surrounding communities to generate electricity and produce organic fertilizers. The facility generates 600 MwH and 286,000kg of organic fertilizer per year.

Agri-food and fisheries

Goal 3	Promote innovations and indigenous solutions that are regenerative and valor-ise organic waste from farms, fisheries and cities
Actors	Member States
Action	Member States to promote and support the development and use of alternatives to polystyrene for fish storage and the incorporation of solar-powered cooling systems.
Best practice 1	Cold Hubs is an initiative in Nigeria that provides solar-powered cold stations for farmers. The model reduces post-harvest loss and increases farmer income.

Action	Member States to disincentivise the landfilling of organic waste through taxation when other valorisation options are available.
Best practice 1	Biochar production integrated into Cameroon's climate strategy. Cameroon has become the first country in the world to integrate the industrial production of biochar into its climate and sustainable development strategy.

Construction

Goal 2	**Promote and stimulate the use of secondary, sustainable and circular construc-tion materials.**
Actors	**Member States**
Action	Member States to impose mandatory selective demolition at demolition sites.
Best practice 1	Eco Brixs in Uganda, create value for recycled plastics to make various construction products, such as an innovative plastic-sand composite paver, which has proven to be stronger, lighter and more durable than concrete.
Best practice 2	ECOTECH is bringing to market a construction binder based on plastic waste. It manufactures self-locking, multi-coloured and multi-shaped paving stones based on recycled plastic waste.

Transport and mobility

Goal 2	**Promotion of efficient transport modes that are clean, modern and based on service rather than ownership**
Actors	**Member States**
Action	Member States, together with cities, to encourage mass public transportation using clean energy, like electric trains and vehicles as well as light mobility, such as walking and cycling, including fostering bike-sharing schemes.
Best practice 1	The East Africa region is leading the course towards a greener and more sustainable public transporta-tion system. BasiGo in Kenya has 19 EVs transporting passengers across Nairobi. A 2023 e-mobility report by Kenya Power estimates that there are more than 1,350 electric-powered vehicles on Kenyan roads, with 62% being motorcycles. E-bikes as taxis have also been piloted in Uganda as part of the African E-bike Project. Tanzania currently has at least 5,000 electric vehicles and 11 e-mobility compa-nies, while Rwanda has about 900 EVs on its roads and Uganda has nine e-mobility companies

Goal 3	**Ensure proper product and material management in relation to vehicle use, re-use and recycling and align import regulations**
Actors	**Member States**
Action	Member States to regulate the import of used vehicles to ensure that they comply with high environmen-tal and safety standards, e.g. introduce specific bans for second-hand vehicles.
Best practice 1	Within the ECOWAS sub-region, 15 countries have adopted a Vehicles Directive for Euro 4/IV equivalent emission standards, the first regionally harmonised vehicle regulation for both new and used vehicles in Africa. East African countries have proposed a harmonized Euro 4/IV equivalent emissions standard for new and used, light and heavy-duty vehicles

Packaging and plastics

Goal 2	Ensure waste management systems capable of dealing with packaging in a cir-cular way
Actors	**Member States**
Action	Member States, in collaboration with the private and informal sector, to increase the collection and man-agement of plastic waste by developing financial mechanisms, such as EPR or deposit schemes, and supporting decentralised collection systems.
Best practice 1	The Food and Beverage Recycling Alliance, FBRA was established as a voluntary Producer Responsi-bility organisation for the food and beverage sector in Nigeria. Members of the alliance include leading consumer products companies. This strategic cooperation initiates public awareness and campaign programmes and supports collection and recycling initiatives.

Electronics

Goal 1	Harmonisation, alignment and strengthening of policy in the region, regarding the regulation of handling the vast amounts of electronic waste
Actors	**Member States**
Action	Member States to develop national EPR regulations and set up Producer Responsibility Organisations (PROs) in close collaboration with the private sector while also looking at best practices.
Best practice 1	E-waste Producer Responsibility Organisation Nigeria (EPRON), which was founded in Nigeria by the makers of electrical and electronic products, is in charge of proper e-waste management and collabo-rates with both producers and consumers. Members of EPRON are required to abide by the nation's EPR Programme, and the organisation promotes end-of-life responsibility through a buyback/recovery and recycling programme for e-waste.
Action	Member States to establish product policies, e.g. on energy efficiency policies for certain electronics and combine it them with increased custom controls.
Best practice 1	Such as the SADC Business Council and Africa RISE Circular Economy (CE) and Extended Producer Responsibility (EPR) Platform where a regional EPR tool designed to revolutionise waste management and sustainable business practices within the SADC region.
Best practice 2	Egypt: Improving 3DE management using the e-Tadweer mobile application (Egypt) In Egypt, it is now forbidden to dispose of electronic waste in ordinary bins. The Egyptian government has taken this step to improve management and, above all, recycling. Improving the management of 3DE using the e-Tadweer mobile application (Egypt) In Egypt, it is now forbidden to throw electronic waste in the ordinary bin. The Egyptian government has taken this step in order to improve management and, above all, recycling

Textiles

Goal 1	Support and promote a circular textiles sector through policies on the importa-tion of second-hand textiles and incentives for circular initiatives
Actors	**Member States**
Action	Member States to incentivise the growth of circular textile and apparel industry by expanding the capacity of textile collection and recycling.
Best practice 1	Organizations like Africa Collect Textiles (ACT) in Kenya, rolls out a new model for a) collecting and redistributing used clothing in Africa in order to provide low-income communities with decent but afford-able outfits and b) building the foundation for a circular fashion industry, by preparing large quantities of sorted materials, suitable for repurposing, upcycling and recycling.

Goal 3	Reduce waste and pollution generated by the textiles and apparel sector, from local generation
Actors	Member States
Action	Member States to support local resale and repair markets through capacity capacity-building initiatives (such as training for local tailors).
Best practice 1	Product bans (textiles): Some countries, such as Rwanda, have banned the importation of used clothing to promote the local garment and textile industry.

Education and capacity development

Goal 1	Enhance learning, align understanding and build awareness through circular economy curriculum and sector training programmes
Actors	Member States
Action	Member States, with VETs, to collaborate with the informal sector and women cooperatives on tailored training courses.
Best practice 1	The African Leadership University in Rwanda is currently educating students and professionals in Africa, on the circular economy through courses, circular student ventures and creating new knowledge about the circular economy through impact-driven research.

Goal 2	Support entrepreneurship and circular employment
Actors	Member States
Action	Member States to support circular business hubs which offer capacity development for SMEs SMEs to develop bankable circular economy projects.
Best practice 1	The SwitchMed initiative aims to achieve a circular economy in North Africa (Egypt, Morocco, Tunisia, Algeria), by providing an enabling policy environment and facilitating the exchange of information among private sectors and key stakeholders. Hence support the development of circular economy entrepre-neurs.

Finance and business support

Goal 1	Improve and support the financial viability of circular businesses through new financial services/ mechanisms/instruments and alignment of standards that fit charac-teristics of circular investments
Actors	Member States
Action	Member States, together with banks and Direct Foreign Investors (DFIs), to integrate circular economy principles in their revenue/capital mobilisation strategies, establish proactive circular economy credit policies and lending procedures, and manage and disburse funding for circular economy solutions.
Best practice 1	In 2019, Acorn Holdings issued a USD 40 million five-year Climate Bonds Certified green bond. This was the first green bond to be issued in Kenya, which was also the first non-governmental in Africa to be rated by Moody's.
Action	Member States, together with banks, to develop innovative, proven financial instruments, including co-financing, blended financing and guarantee schemes for de-risking, for promising start-ups and MSMEs to scale up.
Best practice 1	The Development Bank of Southern Africa (DBSA) has a ZAR 500 million Green Fund which targets small-scale initiatives that support the transition to a green economy. Through this fund, Through this fund, DBSA provides investment funding and technical assistance. The funding is in the form of recover-able grants and debt. The latter includes mezzanine debt.

Goal 3	Advancing public financial mechanisms to create a level playing field for circular businesses
Actors	**Member States**
Action	Member States to direct a certain percentage of public project budgets to CE projects/funds to showcase the viability of and build trust towards CE businesses (public sector in the lead).
Best practice 1	In 2022, Ghana launched a 5-year tax exemption for businesses that use cocoa by-products derived from substandard cocoa beans, cocoa husks, and other cocoa waste as the main production input
Best practice 2	The Development Bank of Rwanda provides low interest rate loans to the agriculture sector. The rates are lowered even further if the project performs well.

ANNEX F – EXTERNAL FUNDING SOURCES

Table G-1 Private funds (by presence in Member State/s)

Member State	Private funding source	Description
Kenya	Equity Bank	Equity Bank has established green financing programs and products aimed at supporting businesses and initiatives that promote circular economy principles. The bank offers loans, grants, and financial resources to enter-prises involved in sustainable sectors such as renewable energy, waste management, recycling, and sustainable agriculture. By providing access to capital, Equity Bank enables these businesses to invest in circular prac-tices, innovate, and contribute to the overall development of a circular economy in Kenya.
Tanzania	CRDB Bank	
Morocco	Caisse de Dépôt et de Gestion	
South Africa	Absa Bank	Absa is one of the largest banking groups in South Africa, and they have incorporated sustainability into their business strategy. They offer green financing options and have supported projects that promote sustainable practices and the circular economy.
Nigeria	Zenith Bank	One of the biggest banks in Nigeria, Zenith Bank has grown into other West African nations. They provide funding solutions for projects that are in line with the circular economy and have incorporated sustainability into their business practices. They have backed campaigns for sustainable infra-structure, waste management, and renewable energy.

Table G-2 Regional funding sources

Regional funding source	Description
East African Development wBank (EADB)	The EADB provides financial and technical assistance to enterprises in the East African Community. It provides long-term finance with five focus areas: climate change, food security, infrastructure, regional integration, and skills development. It could support circular economy projects contributing to reductions in GHG emissions and improving food security. Its work on regional infrastructures and capacities can support the re-gional implementation of the action plan in East Africa.
West African Development Bank (BOAD)	The BOAD supports financially private and public sector projects in West Africa. Its investments are focused on infrastructure, improvement of rural livelihoods, energy generation, and climate change adaptation and mitigation. As such, it is a good place to invest in circular economy projects on energy and infrastructure in the West African region. The BOAD also offers financial assistance to SMEs.
ECOWAS Bank for Investment and Develop-ment (EBID)	The EBID is the development finance institution of the ECOWAS. It offers financial support to both public and private actors in the region. It provides finance for public infrastructure development and supports both promising SMEs and established compa-nies.

Table G-3 Continental funding sources

Continental funding source	Description
Africa Circular Economy Facility – ACEF	The ACEF is an initiative of the AfDB, the Finnish Government, SITRA and the Nor-dic Development Fund to create a 4 million euros fund to support circular develop-ment within regional member states. The fund intervention is focused mainly on institutional capacity development and private sector support through skill develop-ment.
African Development Bank - AfDB	As mentioned above, through the ACEF, the AfDB is offering institutional capacity development to governments and private sector support through skill development. However, for the implementation of this action plan, large infrastructure investments are needed for various sectors. There is therefore the potential for creating a fund within AfDB (potentially within the ACEF) dedicated to infrastructure development for the transition to a circular economy. This fund could mobilise funding from for-eign governments such as the UE, Norway, the US, Japan, and China which invest heavily in Africa's infrastructure.
African Union Development Agency (AUDA-NEPAD) Climate Change Fund	The AU-NEPAD Climate Change Fund offers financial and technical assistance to AU Member States and RECs to improve their resilience to climate change. Within its focus, it can support circular economy activities that have biodiversity and/or climate change benefits, especially in the agriculture sector.

Table G-4 Mapping of international funding sources

International funding source	Description
Table G-4 Mapping of international funding sources	The ACEF is an initiative of the AfDB, the Finnish Government, SITRA and the Nor-dic Development Fund to create a 4 million euros fund to support circular develop-ment within regional member states. The fund intervention is focused mainly on institutional capacity development and private sector support through skill develop-ment.
African Development Bank - AfDB	As mentioned above, through the ACEF, the AfDB is offering institutional capacity development to governments and private sector support through skill development. However, for the implementation of this action plan, large infrastructure investments are needed for various sectors. There is therefore the potential for creating a fund within AfDB (potentially within the ACEF) dedicated to infrastructure development for the transition to a circular economy. This fund could mobilise funding from for-eign governments such as the UE, Norway, the US, Japan, and China which invest heavily in Africa's infrastructure.
International capital markets	Green bonds are financial instruments earmarked specifically for climate and environmen-tal projects. Blue bonds are similar instruments but focused on the protection and conser-vation of marine ecosystems. These debt instruments when combined with other initia-tives can be used to incentivise investment into the circular economy. Blue bonds have been issued in Cape Verde while green bonds have been issued by the AfDB, South Africa, Morocco and Nigeria.
Development banks (ex: World Bank, IFC, IMF)	International development banks provide access to finance for large-scale infrastructural development. Concessionary loan offerings also reduce the burden of repayment on the government. With the Ghana Beyond Aid Strategy, this category of finance can be lever-aged to fund capital-intensive projects with the potential to be self-sustaining to support repayment.
UN institutions (UNEP, UNDP, and UNIDO)	For example, UNEP is the global authority for the environment providing resources for environmental programmes which makes them a viable partner to support different goals and actions of this Roadmap and Action Plan.
GIZ C40 Cities Finance Facility	The goal of the facility facilitate access to finance for climate change mitigation and resili-ence projects in cities. With funding from multiple partners, the facility bridges the gap between cities and finance and provides technical assistance that brings about bankable project proposals.
GEF Small Grants Programme	The Programme provides funding for community-based initiatives along specific themes that have been developed to align with the long-term strategic goals of the company. Funds are available for up to US $250,000 for MSMEs to leverage for growth.

EU-Africa Infrastructure Trust Fund (EU-AITF)	The EU-AITF was set up by the EU Commission and several EU member states to sup-port poverty reduction and the economic growth of African countries. It provides grants for cross-border and national infrastructure projects in energy, transport, water and ICT, as well as for renewable energy and energy efficiency projects. It could thus support the infra-structural needs for the circular transition of the energy, transport, water and electronics sectors.
Foreign direct investments (FDIs)	FDIs consist of acquiring an asset in a foreign country, resulting in the purchaser gaining immediate and direct control over the asset. FDIs could be attracted by African member states for projects requiring large CAPEX such as recycling facilities or anaerobic biodi-gesters.
Green Climate Fund	The Green Climate Fund (GCF) is a critical element of the historic Paris Agreement - is the world's largest climate fund, mandated to support developing countries raise and real-ise their Nationally Determined Contributions (NDC) ambitions towards low-emissions, climate-resilient pathways.
Adaptation Fund	The Adaptation Fund is a financial instrument under the UNFCCC and its Kyoto Protocol (KP) and has been established to finance concrete adaptation projects and programmes in developing countries. Parties to the KP, in an effort to reduce the adverse effects of climate change facing communities, countries and sectors. The Fund is financed with a share of proceeds from Clean Development Mechanism (CDM) project activities as well as through voluntary pledges of contributing governments as well as non-governmental or individual contributors. The share of proceeds from the CDM amounts to 2% of Certified Emission Reductions (CERs) issued for a CDM project activity.

ANNEX H – IMPLEMENTATION TRACKING MATRIX

Table G-1 Private funds (by presence in Member State/s)

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
					Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Water	**1**	**Strengthen policy frameworks on the continental, regional and national levels that create an enabling environment for water as a resource and sanitation**												
	1.1	AUC and RECs to develop a continental and regional guiding policy document to support member states in the design and implementation of national frameworks on how to implement and address circularity in water resource management and water sanitation	AUC, RECs	Governance and Capacity										
	1.2	Member States to revisit existing sanitation and water resource management policies and strategies to incorporate circularity and strengthen the enforcement of such frameworks	MSs	Legal										
	2	**Establishment and expansion of infrastructure and natural service provisions for freshwater consumption and water sanitation, incl. recovery systems**												

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Water	2.1	AUC to promote national water and sanitation infrastructure projects that embed circularity principles to international do-nors (active on the continental level)	AUC	Infrastructure and Finance										
	2.2	RECs to identify, document and promote regional case studies and best practices for water and sanitation infrastructure, including smart technologies	RECs	Infrastructure and Finance										
	2.3	Member States to promote circular technologies suitable for water-scarce environments, e.g. in schools and remote/poor communities	MSs	Infrastructure and Finance										
	2.4	Member States to identify better water harvesting technologies and water storage infrastructure, including indigenous water harvesting technologies and management practices to address water availability for water-scarce regions	MSs	Infrastructure and Finance										
	3	Promotion of efficient water use, reuse and adequate wastewater disposal among consumers and industry												
	3.1	Member States to launch initiatives that promote water and resource efficiency and reuse of water, addressing consumers and industries as active approaches to conserve water and reduce wastewater	MSs	Governance and Capacity										
	3.2	Member States to increase enforcement (and enforcement capacity) of existing resource-efficient and cleaner production standards (including wastewater treatment and disposal) in the manufacturing sector, and promote concepts like Industrial Symbiosis	MSs	Governance and Capacity										
	3.3	RECs to promote smart water management systems that can improve strategic water usage monitoring systems and stor-age protocols, by integrating digital technologies with tradition-al technologies to monitor water quality, water quantity, effi-cient irrigation, leak detection, pressure and flow, ecosystems, floods, droughts, etc.	RECs	Infrastructure and Finance										
	3.4	RECS in collaboration with Member States to formulate and strengthen policies on payments for Ecosystem Services to provide incentives and compensate individuals or communi-ties for undertaking actions that increase the provision of eco-system services, such as water purification, water use regula-tion, better-managed rangelands flood	RECs	Governance and Capacity										

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Water	**3.5**	MSs to introduce and enforce the Polluter-Pays Principle that charges penalties for inefficient water use and inappropriate wastewater disposal to lead water stewardship efforts, biodi-versity and ecosystem protection.	MSs	Legal										
Waste	**1**	**Strengthen policy and strategic frameworks on circular economy and align policy related to waste management**												
	1.1	Member States to update existing waste management poli-cies, regulations and strategies at continental, regional and national levels to include the circular economy and its princi-ples	MSs	Legal, Governance and Capacity										
	1.2	AUC to develop a strategic guidance document that includes basic elements that should be part of every national waste management strategy/plan	AUC	Legal										
	1.3	RECs to develop regional guidelines for the development of standards of waste management to improve waste collection and treatment rates	RECs	Governance and Capacity										
	1.4	Member States to embed waste separation between hazard-ous, organic (wet), and inorganic (dry) waste into regulation, where non-existent, and combining it with strong awareness-raising campaigns	MSs	Legal										
	1.5	Member States to ensure that hazardous waste is treated appropriately at centralised or decentralised sites (depending on the feasibility and acceptance of the population) by special-ised, equipped and trained staff	MSs	Governance and Capacity										
	1.6	AUC, RECs and Member States to develop incentives for adequate collection and treatment in Member States in line with the Waste Hierarchy, in priority order: reduction of waste production, reuse, material recycling and recovery, other recovery (e.g. energy recovery), environmentally-friendly disposal.	AUC, RECs, MSs	Governance and Capacity										
	1.7	Member States to apply and enforce waste management regu-lations and policies and building capacity for enforcement agencies (enforcement capacity and understanding of the CE concept)	MSs	Governance and Capacity										

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Waste	1.8	AU and RECs to develop strategies that support Member States in reaching important continental targets related to the waste sector, i.e. by 2050/2063 reducing waste by 50% and reuse waste by 50%.	AUC, RECs	Legal, Governance and Capacity										
	2	**Continue to invest in infrastructure provisions that enable the circulation and proper/ safe treatment of waste and secondary resources**												
	2.1	Member States, together with international partners, to invest in building and improving infrastructure for waste separation (at source and/or after collection)	MSs	Infrastructure and Finance										
	2.2	Member States, in collaboration with international partners, to invest in the development of the waste collection, transfer and treatment infrastructure	MSs	Infrastructure and Finance										
	2.3	Member States, with international partners, to improve and expand waste infrastructure enabling a circular economy, especially recycling facilities with a long-term strategy to reduce the percentage of waste that ends up at landfills	MSs	Infrastructure and Finance										
	2.4	Member States to ensure strict sanitary conditions protecting adjacent communities within the existing structure of land-filling	MSs	Legal, Governance and Capacity										
	2.5	Support the resource mobilisation and creation of regional recycling infrastructure (incl. logistics and facilities) for spe-cific waste streams												
	2.6	RECs and Member States to design national and regional reverse logistics networks and infrastructure to capture value, proper disposal, remanufacturing and refurbishing activities for unused and discarded obsolete products	AUC, RECs, MSs	Infrastructure and Finance										
	3	**Implementation of an efficient environmental statistics framework on waste generation and management**												

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Waste	3.1	RECs to develop targets for waste management within the regions and a monitoring and evaluation process to measure progress	RECs	Governance and Capacity										
	3.2	Member States to implement existing standards for environmental statistics and develop standards for collection and reporting in Member States where not existent	MSs	Governance and Capacity										
	3.3	Member States to invest in research for the collection of data as the basis of the development of policies and interventions	MSs	Governance and Capacity										
	3.4	AUC to develop a continental waste characterisation that can be used on the regional and national level, aligning to interna-tional standards	AUC	Governance and Capacity										
	3.5	RECs and Member States to facilitate and coordinate harmo-nised national and regional data collection	AUC, RECs, MSs	Governance and Capacity										
	3.6	AUC and RECs to use (trade) data on waste transfer within the regions and the continent at large, develop strategies to monitor trade flows and create incentives to keep the maximum value within the region	AUC, RECs	Governance and Capacity										
	4	**Strengthen and support the informal sector to increase their recognition and role in waste management and recycling activities**												
	4.1	Member States to take into account the role of the informal sector in national waste policies as well as solid waste man-agement planning, so that, for instance, the quality and pricing of valorised waste can be overseen or even standardised	MSs	Governance and Capacity										
	4.2	RECs and Member States to promote and support the estab-lishment of informal sector cooperatives, coalitions or net-works on different geographic levels to reduce social margin-alisation, improve economic efficiency and thus the position in the economic value chain, and enable partnerships with mu-nicipalities and other stakeholders	AUC, RECs, MSs	Governance and Capacity										

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Waste	4.3	RECs and Member States to increase the involvement of the informal sector into the waste management sector by licens-ing their activities in certain zones and ensuring safe working conditions for informal workers	RECs, MSs	Governance and Capacity										
	4.4	AUC, RECs and Member States to promote the formalisation of the informal sector as a long-term solution to maximise and align the opportunities for effective waste management	AUC, RECs, MSs	Governance and Capacity										
	4.5	AUC to establish an overview of existing sustainable informal sector integration models	AUC	Governance and Capacity										
	4.6	Member States to investigate the impact of the informal sector and the development of scenarios about informal sector inte-gration to identify the best integration options in the local con-text	MSs	Governance and Capacity										
Energy	1	**Enhance decarbonisation and energy efficiency measures, and incentivise the incorporation of renewa-ble energy components in industry, retail and consum-ers**												
	1.1	Member States and RECs, in collaboration with the private sector, shift manufacturing of carbon-intensive products like cement, iron and steel, and plastics to using renewable energy alternatives and increase energy efficiency (especially in energy-intense sectors, like construction, extraction or indus-try)	AUC, RECs, MSs	Infrastructure and Finance										
	1.2	Member States to maximise the utility by adopting energy service sales over product sales, e g large-scale solar panels or wind infrastructure that may serve a pool of users	MSs	Governance and Capacity										
	1.3	Member States, in collaboration with research institutions, to increase research and development for renewable energy technology	MSs	Governance and Capacity										
	1.4	Member States and RECs to develop a regional strategy on how existing energy and carbon-intensive sectors should be decarbonised in the coming years and how required industrial capacity can be built for successful implementation, based on circularity and clean energy principles	MSs	Governance and Capacity										

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Energy	**2**	**Energy and electricity generation from alternative energy generating technologies with focus on anaerobic diges-tion**												
	2.1	Member States, together with domestic and international fun-ders, invest in infrastructures and centralised facilities that are able to maximise the generation of electricity from organic solid and liquid waste to support the clean and sustainable transition at scale	MSs	Infrastructure and Finance										
	2.2	Member States, in collaboration with universities and the private sector, to investigate and promote innovative close loop concepts where energy recovery from organic solid and liquid sources plays a key role	MSs	Governance and Capacity										
	2.3	In collaboration with universities and the private sector, inves-tigate technologies and business cases for energy recovery other than anaerobic digestion, where they represent reasona-ble transition solutions for the medium-term, to reduce the amounts of waste in a controlled manner, that are (1) not via-ble for recycling and (2) are landfilled or inadequately man-aged. (See box below for further discussion)	MSs, edu-cation institu-tions and the private sector	Governance and Capacity										
	2.4	Member States to incrementally phase out large-scale and technologically outdated incineration plants.	MSs	Infrastructure and Finance										
Agri-food and fisheries	**1**	**Develop a policy and regulatory framework toward a circular bioeconomy**												
	1.1	AUC, RECs and Member States to develop circular bioecon-omy strategies on different geographic levels	AUC, RECs, MSs	Governance and Capacity										
	1.2	Member States to revisit existing regulation and legislation in the agriculture and fishery sector and ensure the integration and specification of circular economy	MSs	Legal										

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
	1.3	Member States to issue directives to ensure fisheries' waste from fish processing is further processed or refined and not wasted	MSs	Legal										
	1.4	Member States to ensure the collection and appropriate recy-cling of fishery and agricultural equipment, with special regard to nylon fishing nets to reduce "ghost-net" problems	MSs	Governance and Capacity										
	1.5	AU, RECs and Member States to ensure that regenerative and indigenous agricultural practices are recognised and included in continental, regional and national policies.	AUC, RECs, MSs	Governance and Capacity										
	1.6	Member states to link multi-lateral instruments related to bioeconomy with national instruments to facilitate their en-forcement.	MSs	Legal										
Agri-food and fisher-ies	**2**	**Improve infrastructures and capacity in the agri-food sector**												
	2.1	AUC to document, disseminate and carry out peer-to-peer learning activities on best practices in terms of regenerative farming and in terms of policies to support such practices	AUC	Governance and Capacity										
	2.2	AUC and RECs to encourage Member States to trade agricul-tural products with each other by removing trade barriers	RECs	Governance and Capacity										
	2.3	RECs to support Member States in finding complementarities in their agricultural value chains	RECs, MSs	Governance and Capacity										
	2.4	Member States to support improvement in storage systems at markets and transport systems between the farm/fisheries and the market to prevent vast amounts of pre-consumer waste	MSs	Infrastructure and Finance										
	2.5	Member States to promote sustainable farming techniques among farmers and farmer cooperatives through awareness campaigns and workshops	MSs	Governance and Capacity										

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Agri-food and fisheries	2.6	Support farmers that adopt regenerative agricultural practices, especially practices that increase water efficiency. The sup-port could take the shape of direct subsidies for these farmers.	MSs	Governance and Capacity										
	2.7	Member States to investigate opportunities for closed-loop food systems encouraging local production and consumption while providing more independence to remote communities	MSs	Governance and Capacity										
	2.8	Member States to digitize markets to promote and optimize connectivity between producers and consumers to reduce post-harvest losses and also track the organic waste produc-tion and distribution	MSs	Governance and Capacity										
	3	**Promote innovations and indigenous solutions that are regenerative and valorise organic waste from farms, fish-eries and cities**												
	3.1	Member States to incentivise the use and production of organ-ic fertiliser and where inorganic fertilizer is inevitable, to pro-vide for sustainable use of chemical fertilizers (right fertilizer, right quantity, rightly applied and a right place)	MSs	Governance and Capacity										
	3.2	Member States to promote and incentivise the creation of decentralised anaerobic biogas plants (small-scale onsite applications) and medium-sized facilities run by farmers cooperatives, the composting of organic waste on farms and other bio innovations such as the production of organic fertilis-er from organic waste and the use of indigenous solutions	MSs	Governance and Capacity										
	3.3	Member States to support innovation in the valorisation of fish waste, such as making fish oil/powder, using fish skin for leather production, and producing micronutrients	MSs	Governance and Capacity										
	3.4	Member States to promote and support the development and use of alternatives to polystyrene for fish storage and the in-corporation of solar powered cooling systems	MSs	Governance and Capacity										

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Agri-food and fisheries	3.5	Member States to support climate-smart agriculture innova-tions and practices such as inter-cropping and agroforestry	MSs	Governance and Capacity										
	3.6	Member States to limit the production of incineration plants that release GHG emissions and can aggravate air pollution	MSs	Governance and Capacity										
	3.7	RECs phase out the practice of open burning of organic waste (implement a ban in the long-term)	RECs	Legal										
	3.8	Member States to disincentivise the landfilling of organic waste through taxation when other valorisation options are available	MSs	Governance and Capacity										
	3.9	RECs to promote regional technological transfer among coun-tries, esp. related to fish waste valorisation	RECs	Governance and Capacity										
Construction	1	**Develop policy frameworks for circular construction on the continental, regional and national levels**												
	1.1	AUC together with Member States and RECs to develop a continental construction and urbanisation strategy that shall inform regional guidance materials as well as national policies This should include a strong focus on the water, waste and energy nexus in the context of construction	AUC, RECs, MSs	Governance and Capacity										
	1.2	Member States to develop national construction visions, sourcing from regional best practices and feasibility studies	MSs	Governance and Capacity										
	1.3	Member States together with Local Governments to develop action plans for making (mega) cities smart and circular	MSs	Governance and Capacity										
	1.4	Member States to revisit and update national Building Stand-ards and Building Codes to integrate circular economy princi-ples, e.g. choice of materials based on performance and pas-sive design criteria, as well as local construction materials, like mudbricks, etc	MSs	Legal										

Sector	No	Goals and actions	Stake holders	Theme of Action	Short-term (1 - 2 years)		Medium-term (3 - 5 years			Long-term (6-10)				
Construction	**1.5**	RECs to provide technical assistance in Green and Circular Building certification	RECs	Governance and Capacity										
	1.6	Member States to develop Public Green and Circular Pro-curement policies to drive the demand for circular and sus-tainable building materials and components	MSs	Legal										
	2	Promote and stimulate the use of secondary, sustainable and circular construction materials												
	2.1	AUC to develop a guidance document of how the market can be steered towards secondary and sustainable construction materials	AUC	Governance and Capacity										
	2.2	Member States to promote modular buildings which facilitate repairs and the recovery of materials during decommissioning	MSs	Governance and Capacity										
	2.3	Member States to identify innovations that promote the use of waste materials in construction or the reuse of construction materials or the recovery of other waste materials, such as plastic waste or copper tailings, that can be used as input for construction products	MSs	Governance and Capacity										
	2.4	Member States to investigate higher taxation of unsustainable construction materials for large-scale construction projects from local and foreign investors	MSs	Governance and Capacity										
	2.5	AUC to establish an online marketplace for exchanging con-struction waste materials and secondary raw materials from construction waste	AUC	Governance and Capacity										
	2.6	Member States to impose mandatory selective demolition at demolition sites	MSs	Governance and Capacity										
Trans port and mobility	**1**	**Build strong policy frameworks on the continental, re-gional and national levels that embed circularity in the transport and mobility sector**												

Transport and mobility	**1.1**	AUC to develop a guiding policy document on the continental level that fosters inter-regional and international cooperation on transport and logistics to effectively link countries within and beyond their region with each other	AUC	Governance and Capacity										
	1.2	AUC to establish a continental strategy for efficient, modern and clean transport modes development that promotes public transport, mobility as a service and circularity through the promotion of efficient, durable and repairable vehicles	AUC	Governance and Capacity										
	1.3	AUC to develop golden rules for infrastructure development so that Member States use the best available techniques, models and circularity principles in terms of durability, modality and resource efficiency of infrastructure	AUC	Governance and Capacity										
	1.4	AUC and RECs to ensure that Member States align their existing transport and infrastructure development strategies with circular economy, environmental standards and interna-tional conventions to protect nature	AUC	Governance and Capacity										
	1.5	AUC to connect international donors (active on the continental level) with national transport and mobility agencies and pro-jects to reinforce coordinated development in line with circu-larity principles	AUC	Governance and Capacity										
	1.6	AUC and RECs to enable land-locked countries to access sea ports with dedicated agreements	AUC, RECs	Governance and Capacity										
	2	**Promotion of efficient transport modes that are clean, modern and based on service rather than ownership**												
	2.1	AUC to encourage sharing schemes over individual car own-erships, e.g. service model via carsharing and carpooling rather than ownership to render mobility more accessible and to reduce congestion in cities	AUC	Governance and Capacity										

	2.2	Member States, together with cities, to encourage mass public transportation using clean energy, like electric trains, vehicles as well as light mobility, such as walking and cycling, includ-ing fostering bike-sharing schemes	MSs	Governance and Capacity										
	2.3	Member States to decentralise and/or digitise essential mo-bility services to optimise the movement of people	MSs	Infrastructure and Finance										
	2.4	AUC to enable stronger mobilisation of stakeholders in the battery value chains, allowing the shift from being an exporting raw resources provider to become a key actor in battery re-generation, production and recycling	AUC	Governance and Capacity										
	2.5	Member States to promote investment for setting up public recharging infrastructures and access to alternative energy solutions like off-grid solar charging, vehicle-to-grid applica-tions and backup power	MSs	Infrastructure and Finance										
	2.6	AUC shall invest in Research and Development with a focus on technology transfer and collaboration with international partners to develop a robust electric vehicle industry in Africa	AUC	Governance and Capacity										
	3	**Ensure proper product and material management in relation to vehicle use, reuse and recycling and align import regulation**												
	3.1	Member States to regulate the import of used vehicles to en-sure that they comply with high environmental and safety standards, e g introduce specific bans for second-hand vehi-cles	MSs	Legal										
	3.2	AUC, RECs and Member States to reinforce circular econo-my policies related to vehicles and notably promote repair and producer responsibilities, access to spare parts and enable a longer lifetime of vehicles	MSs	Governance and Capacity										
	3.3	RECs and Member States to promote the re-processing (to remove impurities) and reuse of vehicle oils and lubricants and campaigning against the burning of these substances	RECs, MSs	Governance and Capacity										

	3.4	Member States to dedicate special economic zones to serve as manufacturing hubs for EVs, spare parts and maintenance	MSs	Governance and Capacity										
	3.5	Member States to continue the expansion of EPR policies to cover tyres and vehicles put on the market, both new and second-hand items, in order to finance proper take-back schemes, recycling and disposal of vehicles	MSs	Governance and Capacity										
Pack-aging and plastics	**1**	**Strengthen the development of policy initiatives to phase out plastic pollution**												
	1.1	AUC to develop a continental guidance document that assists Member States and RECs on the phase-out of single-use plastic materials as well as problematic plastics	AUC	Governance and Capacity										
	1.2	AUC to promote best practices (incl. public-private collabora-tion) and run continental-wide awareness raising campaigns about the importance of action and participation in tackling plastic pollution in the public sector	AUC	Governance and Capacity										
	1.3	AUC to introduce a continental ban on plastic waste imports as worldwide flagship initiative	AUC	Legal										
	1.4	Member States to set up recycling and reuse targets to stimu-late the development of concrete measures and accountability aligned with international initiatives and agreement	MSs	Governance and Capacity										
	1.5	AUC to harmonise and align policies at the continental level on product policy and EPR regulations, especially for plastic materials, as well as standards on the treatment of packaging materials within the region	AUC	Legal										
	1.6	AUC to support Member States to effectively engage in the Intergovernmental Negotiating Committee (INC) to develop an international legally binding instrument on plastic pollution	MSs, AUC	Governance and Capacity										
Pack-aging and plastics	**1.7**	AUC to develop a plastics action plan in line with the position of the African group at the Global Plastic Pollution Treaty ne-gotiations and with the current efforts of Member States	AUC	Governance and Capacity										

	1.8	Member States to set up national task forces to ensure the enforcement of plastic product bans	MSs	Governance and Capacity										
	2	**Ensure waste management systems capable of dealing with packaging in a circular way**												
	2.1	Member States, in collaboration with the private and informal sector, to increase the collection and management of plastic waste by developing financial mechanisms, such as EPR or deposit schemes, and supporting decentralised collection systems	MSs	Governance and Capacity										
	2.2	Member States to introduce the separate collection of plastics and packaging with funding from EPR schemes or collection fees	MSs	Governance and Capacity										
	2.3	Member States to discuss in regional working groups how the existing waste management system can be made fit for circu-lar packaging	MSs	Governance and Capacity										
	2.4	AUC to establish a framework/ guidance for characterising different circular packaging materials/alternatives (e.g. dis-tinction between biobased, biodegradable and compostable) and explaining proper use/application and treatment tech-niques	AUC	Governance and Capacity										
	2.5	Member States to promote research and development for alternative packaging materials sourced locally	MSs	Governance and Capacity										
	2.6	RECs to invest in regional plastics recycling capacity		Infrastructure and Finance										
	3	**Enable new business models for the production, delivery and use of products that would minimise the use of packaging**												
	3.1	RECs to develop regional start-up policies and acts that can help unlock the potential of entrepreneurs and start-ups work-ing on circular solutions for plastics and packaging to estab-lish, and support their growth (incubation centres and business accelerators)	RECs	Governance and Capacity										
	3.2	Member States to develop policies to leverage and scale up reusable packaging systems combined with options to refill and purchase in bulk	MSs	Governance and Capacity										

Packaging and plastics	**3.3**	Member States to foster economies of scale and market pene-tration of reusable packaging systems by, for example, ena-bling companies to share the same packaging and/or the same logistics and washing lines	MSs	Governance and Capacity										
	3.4	Member States to integrate the informal sector in policies related to the collection and treatment of plastic waste, espe-cially on aspects related to capacity building and safe working conditions	MSs	Governance and Capacity										
	3.5	RECs and Member States to restrict the use of single-use packaging formats for specific applications (e.g. monodose, vegetable and fruit wrappers), and support sales in bulk, in particular when reusable products or systems can be intro-duced or when consumer goods can be handled safely without packaging	RECs, MSs	Legal Governance and Capacity										
Electronics	**1**	**Harmonisation, alignment and strengthening of policy in the region, regarding the regulation of handling the vast amounts of electronic waste**												
	1.1	Member States to develop national EPR regulations and set up Producer Responsibility Organisations (PROs) in close col-laboration with the private sector while also looking at best practices	MSs	Governance and Capacity										
	1.2	Member States to develop e-waste management strategies and guidelines for each country, based on knowledge ex-change on good practices	MSs	Governance and Capacity										
	1.3	AUC to promote and support the alignment of electronic and e-waste related regulations across the region to facilitate the operation of regional recycling hubs	AUC	Governance and Capacity										
	1.4	Member States to establish product policies, e.g. on energy efficiency policies for certain electronics and combine it with increased custom controls	MSs	Governance and Capacity										
	2	**Improve the infrastructure to manage e-waste and strengthen recycling hubs**												

Electronics	**2.1**	Member States, together with local governments, to offer training and capacity building to informal workers on appropri-ate collection and safe treatment of e-waste	MSs	Governance and Capacity										
	2.2	Member States, together with international donors, to invest in collection and transport/ transfer infrastructure of e-waste	MSs, inter national donors	Infrastructure and Finance										
	2.3	Member States, together with international donors and the private sector, to invest in the development of regional e-waste recycling facilities to treat the waste that cannot be treated nationally	MSs, inter national donors	Infrastructure and Finance										
	3	**Strengthen and scale existing repair, reuse and refur-bishment initiatives for electronic products**												
	3.1	Member States, together with domestic banks, to support business initiatives involved in the repair and material recov-ery of electrical and electronic equipment	MSs	Governance and Capacity										
	3.2	AUC and RECs to identify and promote repair, reuse and refurbishment initiatives of electrical and electronic equipment to showcase local and indigenous innovation, and their viability	AUC, RECs	Governance and Capacity										
	3.3	Member States, in collaboration with informal sector associa-tions (e.g. GAIA, WIEGO), to support informal repair, reuse and refurbishment initiatives of electrical and electronic equipment and help their formalisation where welcomed	MSs	Governance and Capacity										
	3.4	RECs and Member States to promote collaborations between academia, the private sector and repair, reuse and refurbish-ment initiatives of electrical and electronic equipment to stra-tegically embed circularity in existing business models, sourcing from original and local knowledge	RECs, MSs	Governance and Capacity										
	3.5	Member States to develop or expand national incubator pro-grammes where small-scale initiatives can receive targeted business support and advice for scaling their operations	MSs											

Textiles	**1**	**Support and promote a circular textiles sector through policies on the importation of second-hand textiles and incentives for circular initiatives**												
	1.1	RECs and Member States to develop regulations (where non-existent) on the importation of second-hand textiles on danger-ous and poor-quality products, as well as products for which the demand is already met locally; the regulation should be better enforced in the regions where it already exists	RECs, MSs	Legal										
	1.2	AUC to categorise second-hand textiles to facilitate custom checks	AUC	Governance and Capacity										
	1.3	Member States to provide technical and financial assistance to existing circular textile and apparel initiatives	MSs	Governance and Capacity										
	1.4	Member States to incentivise the growth of circular textile and apparel industry by expanding the capacity of textile collection and recycling	MSs	Infrastructure and Finance										
	2	**Strengthen the production of raw materials and improve capacity for processing**												
	2.1	Member States to conduct training and awareness-raising activities for farmers on sustainable cultivation of fibres	MSs	Governance and Capacity										
	2.2	Member States and RECs to subsidise the local production and processing of sustainable textile raw materials	RECs, MSs	Infrastructure and Finance										
	2.3	AUC to encourage consumer behaviours through awareness-arising initiatives that promote reuse, e.g. buying from second-hand clothing platforms and shops which actively contribute to a circular fashion in Africa	AUC	Governance and Capacity										
	2.4	RECs and Member States to promote the implementation of resource efficient methods in the processing of fibres and textiles	RECs, MSs	Governance and Capacity										

Textiles	**2.5**	AUC and RECs to facilitate trade between countries in order to make African raw materials available in sufficient quantities for local production through the AfCFTA	AUC, RECs	Governance and Capacity										
	2.6	Member States to support the growth of local manufacturing companies by providing incentives such as special economic zones and tax breaks	MSs	Infrastructure and Finance										
	3	**Reduce waste and pollution generated by the textiles and apparel sector, from local generation**												
	3.1	RECs and Member States to develop standards and regulations on the nature of chemicals used in the manufacturing process and holding companies responsible for the waste generated by their processes	RECs, MSs	Governance and Capacity										
	3.2	Member States to increase capacity to manage textile waste locally by investments into collection, transfer and treatment infrastructure	MSs	Infrastructure and Finance										
	3.3	Member States to support local resale and repair markets through capacity-building initiatives (such as training for local tailors)	MSs	Governance and Capacity										
Tourism	**1**	**Develop a strong and interlinked policy framework for the tourism sector that reinforces circularity approaches in the overlapping sectors**												
	1.1	Member States and RECs to align existing tourism policies with circular economy principles and develop national strate-gies, where not existent yet	RECs, MSs	Governance and Capacity										
	1.2	AUC to establish a framework of cooperation in the sector providing guidance on how different stakeholder groups from different sectors (overlapping with the tourism sector) can collaborate on enhancing circularity in tourism	AUC	Governance and Capacity										
	1.3	AUC to establish a common code of conduct for mainstream-ing the circular economy approach among private and public tour and travel operators	AUC	Governance and Capacity										

Tourism	1.4	Member States to standardise hotel classifications and har-monize the professional standards of agents	MSs	Governance and Capacity										
	2	**Support the promotion of eco-tourism**												
	2.1	RECs to develop eco-tourism certification based on the utili-sation and application of circular economy principles and products for tour operators, restaurants and hotels	RECs	Governance and Capacity										
	2.2	Member States to identify best practice examples to be fea-tured across the region while also channelling financial means to them allowing them to scale	MSs	Governance and Capacity										
	2.3	Member States to ensure that eco-tourism gives recognition to local communities and involving them in cultural eco-tourism activities	MSs	Governance and Capacity										
	2.4	Member States and RECs to develop guidelines and incen-tives for hotels, restaurants and travel agencies and their sub-contractors to become more sustainable and circular	MSs	Governance and Capacity										
	2.5	Member States, together with research and educational insti-tutions, to develop educational programmes tailored to the skills and knowledge required to succeed in the eco-tourism sector	MSs	Governance and Capacity										
	2.6	Member States and private sector to support the international communication and advertisement of circular and resilient eco-tourism	MSs	Governance and Capacity										
	2.7	Develop a regional strategy for collectively promoting and marketing eco-tourism as a Single Tourist Destination, e.g. Trans-Frontier Conservation Areas (TFCAs)	RECs	Governance and Capacity										
Mining	1	**Develop a regulatory framework for the circular transi-tion of the extractive industry**												
	1.1	AUC to develop a strategic guiding document that includes basic principles that should be part of the updated regulations	AUC	Legal										

Mining	**1.2**	RECs to implement the overarching basic principles, e.g. preventing the trade of materials which have been sourced from endangered ecosystems	RECs	Governance and Capacity										
	1.3	Member States to update national regulations on mining to include aspects on the use of harmful chemicals, safe working conditions, the end-of-life of waste chemicals from the pro-cessing of minerals, water efficiency and treatment, and the disposal of wastewater in the extraction and refining process	MSs	Legal										
	1.4	AUC to mainstream circular economy in the upcoming Afri-can Green Mineral Strategy.	AUC	Legal Governance and Capacity										
	2	**Incentivise circular innovations to support the circular transition of the extractive industry**												
	2.1	RECs to support and guide the research into the development of nature-based solutions to restore degraded ecosystems	RECs	Governance and Capacity										
	2.2	Member States to pilot innovative solutions, such as materi-als-as-a-service	MSs	Governance and Capacity										
	2.3	Member States, in collaboration with industry associations, to conduct trainings and awareness-raising programmes for small-scale and artisan miners on wastewater management	MSs	Governance and Capacity										
	2.4	Member States to conduct awareness-raising campaigns on the environmental impacts of the extractive industry in coop-eration with national NGOs towards political, private and in-formal actors	MSs	Governance and Capacity										
	2.5	Member States to support circular approaches to recycle water from mining operations	MSs	Governance and Capacity										
	3	**Prioritize environmental protection and support regen-erative activities to restore degraded areas**		Governance and Capacity										
	3.1	AUC to create a framework for cooperation between the AU and the EU to ensure that European companies restore the areas they have damaged	AUC	Governance and Capacity										

Mining	**3.2**	Member States to implement stricter licensing regulations as well as laws and systems that mandate extracting companies (including mines, quarries and oil fields) to conduct environ-mental impact assessment, mandate the use of processes with the least environmental impact and hold extractive com-panies responsible for the impact of their activities	MSs	Governance and Capacity										
	3.3	Member States to implement regulations that protect host communities from exploitation by the extractive industries and guarantee the protection of the ecosystem within the commu-nities	MSs	Governance and Capacity										
	3.4	Member States to perform an inventory of areas previously allocated as protected areas and update based on current realities at regional and national levels and develop regional policy and regulations to protect biodiversity hotspots and ban any mining activities within these areas	MSs	Governance and Capacity										
	3.5	Member States to create funds for restoring degraded areas financed by taxation of polluters	MSs	Governance and Capacity										
Inclu-sivity	**1**	**Build an enabling environment for equal opportunities for women and youth**												
	1.1	RECs and Member States to develop evidence-based public awareness campaigns that break down stereotypes towards women, youth, PWDs and IPLCs, as well as disparities and traditional barriers that limit their participation in circular economy-related activities	RECs, MSs	Governance and Capacity										
	1.2	RECs and Member States to encourage the formation of co-operatives and coalitions focussing on women and youth as well as PWDs and IPLCs, providing access to networks and platforms to facilitate their participation in broader markets, sharing knowledge and collaborating on solutions, and ensur-ing their representation	RECs, MSs	Governance and Capacity										

	1.3	AUC together with Member States, provide financial (e.g. MSME fund) and technical support for vulnerable groups ac-tive in formal and informal circular activities (e.g. in recycling)	AUC, MSs	Governance and Capacity										
	1.4	Member States to ensure the existence of inclusive and gen-der-responsive policy frameworks and their integration into circular economy strategies and programmes, ensuring more dignified employment along entire value chains.	MSs	Governance and Capacity										
Inclu-sivity	**1.5**	Member States to ensure that employment of women, youth and vulnerable groups align with occupational health and safe-ty standards, and develop protection measures where neces-sary (e.g. exposure to hazardous materials)	MSs	Governance and Capacity										
	2	**Empower and upskill women and youth for employment in the entire value chain of the circular economy**												
	2.1	RECs to support fragile states in accessing capacity-building programmes for women, youth, PWDs and IPLCs	RECs	Governance and Capacity										
	2.2	Member States, together with the private sector and VETs, to develop building programmes related to financial intelligence and business skills, offered through incubator programmes or free/affordable training programmes at VETs	MSs	Governance and Capacity										
	2.3	Member States, in collaboration with the private sector, uni-versities and VETs, to develop sector-specific capacity-building programmes tailored to the needs of women, youth and other vulnerable groups	MSs	Governance and Capacity										
	2.4	Member States to design a Young Professional Programme focusing on research and development	MSs	Governance and Capacity										
	2.5	Member States to encourage the private sector to incorporate gender and equality in their business operations and circularity activities, providing fair and dignified employment that goes beyond less valuable tasks, low-paid and low-skilled posi-tions.	MSs	Governance and Capacity										

Trade, col-laboration and regional industrial capacity	**1**	**Develop a continental Green Deal and sustainable product framework that aims to design out waste and pollution**		Governance and Capacity										
	1.1	AUC to formulate a continental AU Green Deal that aims to harmonise and synthesise policy actions and policy adoptions	AUC	Legal Governance and Capacity										
	1.2	AUC, in collaboration with the private sector and the EU, to develop sustainable product regulation that (1) defines the quality and standards of products, e.g. related to reparability, utilisation of safe materials and recyclability, and (2) favouring circular products through respective tools and incentives	AUC, EU and private sector organisations	Governance and Capacity										
	1.3	Member States to update their existing product policies, where existent, to align to the continental sustainable product policy framework, focussing on durability and repairability.	MSs	Governance and Capacity										
	1.4	AUC to develop a continental eco-labelling scheme, based on a sustainable product framework, that can be adapted to the national level and allows operability with local eco-labels	AUC	Governance and Capacity										
	1.5	AUC and Member States, together with international knowledge partners, to investigate other incentives that can drive the mainstreaming of circular products, such as tax reductions for recycled materials	AUC, EU and knowledge partners	Governance and Capacity										
	1.6	AUC to investigate other innovative tools that could boost the circularity of products, such as the Eco-Mark Africa	AUC	Governance and Capacity										
	2	**Strengthening trade regulation and increase enforce-ment capacity**												
	2.1	The AUC together with the RECs to develop a resolution with minimum requirements for the import of waste	AUC, RECs	Legal										
	2.2	AUC to integrate circular goods such as agricultural commod-ities produced through regenerative practices in the AfCFTA	AUC											

Trade, col-laboration and regional industrial capacity	**2.3**	AUC to introduce a ban on the import of plastics waste and hazardous waste, aligned with the Basel Convention on the Control of hazardous wastes and their disposal as well as the Bamako Convention	AUC	Legal										
	2.4	Member States to establish limits and higher controls and standards at customs on the import of textiles waste and used EEE	MSs	Governance and Capacity										
	2.5	AUC, together with its international partners, to deliver training on best practices for customs and standards to Member States	AUC	Governance and Capacity										
	2.6	AUC and RECs to harmonise trade-related policies to enable the transfer of waste to these recycling with limits based on their capacities	AUC, RECs	Governance and Capacity										
	2.7	AUC to promote and advocate for sustainable trade, focusing on value creation vs. waste dumping	AUC	Governance and Capacity										
	2.8	AUC and RECs to promote the standardisation of products and materials exchanged within regions to facilitate their trade and the creation of regional markets (commoditisation) as well as to prevent monopolies, captured in the AfCTFA	AUC, RECs	Legal Governance and Capacity										
	2.9	AUC to prioritise sustainable trading practices within the AfCFTA and integrate the definition of sustainable products into the AfCFTA agreement	AUC	Legal Governance and Capacity										
	3	**Establish an integrated registry of trade (incl. materials and products) and related waste flows**												
	3.1	The AUC to support the creation of a digital platform to trace what comes into the continent and is traded within the regions, informed by improved customs (trade and material flows)	AUC	Governance and Capacity										
	3.2	Create a harmonised nomenclature to subdivide goods further than the HS codes across the continent via the AfCFTA with a special focus on waste products.	AUC	**Legal**										
	4	**Cooperation on regional industrial capacity**												

Trade, col-laboration and regional industrial capacity	**4.1**	AUC to create sector working groups to exchange best practices and policy approaches as well as explore collaboration potential on building a strong cross-country circular industry, ensuring that more value is created in Africa	AUC	Governance and Capacity										
	4.2	AUC and RECs to create working groups to exchange on how Member States could cooperate on and enhance the produc-tion and trade of certain products with a high circular economy potential, e.g. scrap	AUC, RECs	Governance and Capacity										
	4.3	Member States to establish trade and economic cooperation agreements between each other in value chains where they can complement each other to establish circular value chains	MSs	Governance and Capacity										
	4.4	RECs and Member States to start the strategic development of local production, moving from exporting to local value crea-tion, in countries where sectors and markets are ready	RECs, MSs	Infrastructure and Finance										
Education and capacity development	**1**	**Enhance learning, align understanding and build aware-ness through circular economy curriculum and sector training programmes**												
	1.1	AUC, in collaboration with existing AUC regional specialised institutions, to develop a continental harmonised curriculum for building skills and expertise on circular economy focusing on continental sectors that can drive circular transformation	AUC	Governance and Capacity										
	1.2	AUC, in collaboration with knowledge institutes, to tailor uni-versal curriculum to different stakeholder groups (businesses, investors, students, CSOs and decision-maker) and sectors	AUC	Governance and Capacity										
	1.3	RECs to develop Train the Trainer programmes to increase training capacity and quality	RECs	Governance and Capacity										

Education and capacity development	**1.4**	RECs and Member States to run awareness campaigns that contribute to increase the awareness and understanding of circular economy of the general public while also communi-cating benefits and best practices	RECs, MSs	Governance and Capacity										
	1.5	Member States, with standardisation boards and knowledge institutions, to develop internationally recognised certifications for developed training programmes	MSs	Governance and Capacity										
	1.6	Member States, with VETs, to collaborate with the informal sector and women cooperatives on tailored training courses	MSs	Governance and Capacity										
	2	**Support entrepreneurship and circular employment**												
	2.1	RECs to establish a regional innovation and entrepreneurship centre focusing on the region's circular economy potential	RECs	Governance and Capacity										
	2.1	RECs to establish a regional innovation and entrepreneurship centre focusing on the region's circular economy potential	RECs	Governance and Capacity										
	2.2	RECs to develop a regional networking platform to share knowledge and employment opportunities	RECs	Governance and Capacity										
	2.3	Member States to develop curriculum reform in selected public universities and TEVTs geared towards entrepreneurial skills and jobs for the circular economy	MSs	Governance and Capacity										
	2.4	Member States to promote collaboration and partnership be-tween industry and academic institutions for practical training	MSs	Governance and Capacity										
	2.5	Member States to provide technical assistance to equip MSMEs with the skills and documentation required to access funds designated for a circular economy, as well as skills to iterate and improve their innovations to make their business models more bankable	MSs	Governance and Capacity										

Education and capacity development	**2.6**	Member States to support circular business hubs which offer capacity development for SMEs to develop bankable circular economy projects	MSs	Governance and Capacity										
	2.6	Member States to support circular business hubs which offer capacity development for SMEs to develop bankable circular economy projects	MSs	Governance and Capacity										
	3	**Strengthen and enhance knowledge exchange and re-search related to science, technology and innovation within/across regions and stakeholder groups within countries**												
	3.1	AUC to establish a continental database/platform featuring experts, projects, best practices or communities of practice that can assist circular transformation of governments and businesses	AUC	Governance and Capacity										
	3.2	RECs to promote collaboration and partnership between in-dustry and academic institutions to stimulate research and development related to circular solutions across sectors and industries	RECs	Governance and Capacity										
	3.3	AUC to establish regional-wide or continental-wide research programmes between universities focussing on circular innovations	AUC	Governance and Capacity										
	3.4	Member States to create National Cleaner Production Centres to coordinate all sustainable production and consumption pro-gramming between government and businesses; where one exists, strengthen its capacity	MSs	Governance and Capacity										
	3.5	RECs and Member States to ensure the application of Private Sector Engagement Models to co-create solutions and market incentives to increase innovation and the adoption of circular economy practices	AUC, MSs	Governance and Capacity										
	3.6	AUC to establish a continental financing scheme to support research and development on circular economy	AUC	Governance and Capacity										
	3.7	Member States to support innovation and intellectual property rights for alternative products	MSs	Infrastructure and Finance										

	3.8	RECs and Member States, in collaboration with universities, to organize symposia and conferences focusing on applied science to present the most recent research and discuss their application	RECs, MSs	Gover-nance and Capacity										

Fi-nance and busi-ness sup-port	**1**	**Improve and support the financial viability financiability of circular businesses through new financial ser-vices/ mechanisms/instruments and alignment of stand-ards that fit characteristics of circular investments**												
	1.1	AUC and RECs to develop campaigns and advocate to banks to lower their interest rates for circular projects, incl. advice on monetary policy	AUC, RECs	Infrastruc-ture and Finance										
	1.2	Member States, together with banks, to advocate for and initi-ate the extension of investment portfolios and services of banks and investors that accommodate green and circular investments and projects	MSs	Infrastruc-ture and Finance										
	1.3	Member States, together with banks and Direct Foreign Inves-tors (DFIs), to integrate circular economy principles in their revenue/ capital mobilisation strategies, establish proactive circular economy credit policies and lending procedures, and manage and disburse funding for circular economy solutions	MSs	Infrastruc-ture and Finance										
	1.4	Member States, together with banks, to develop innovative, proven financial instruments, including co-financing, blended financing and guarantee schemes for de-risking, for promising start-ups and MSMEs to scale up	MSs	Infrastruc-ture and Finance										
	1.5	Member States to investigate and research the opportunities and feasibility of debt swaps and introduce pilots	MSs	Infrastruc-ture and Finance										
	1.6	Member States, together with banks, to establish green bonds where not existent yet	MSs	Infrastruc-ture and Finance										

Finance and business support	**1.7**	Member States, together with private sector and banks, to develop a criteria catalogue (relevant to the national context) for facilitating the identification and evaluation of CE invest-ments/projects/ business cases that banks should use in as-sessing funding applications	MSs	Infrastructure and Finance										
	1.8	Member States to work with UNCDF to integrate circular economy financing as one of its priorities to support the im-plementation of national circular economy interventions while aligning financial arrangements.	MSs	Governance and Capacity										
	1.9	AUC in collaboration with AfDB, support Member States with specific facilities at the national level (see policy of the EBRD) and to become more involved in private project financing.	AUC	Governance and Capacity										
	1.10	AUC to advocate to international climate or green funds (e.g. Adaptation Fund) for the broadening of their portfolios and amendment of criteria that match circular projects and busi-nesses, justified by the contribution that CE can provide to climate change.	AUC	Governance and Capacity										
	2	**Strengthen certification for circular economy and develop regional project portfolios to support leveraging finance within the regions**												
	2.1	AUC and RECs to support financial institutions and Member States to align with global climate finance schemes facilitating the financing of circular solutions	AUC, RECs	Infrastructure and Finance										
	2.2	Member States, together with banks, to foster collaboration amongst certification bodies across Africa to create coherent standards that are aligned with international standards such as ISO and IEC	MSs	Infrastructure and Finance										
	2.3	RECs and Member States to assist national and regional financial institutions in obtaining internationally recognized certification to access climate funds	RECs, MSs	Infrastructure and Finance										

	2.4	RECs to develop comprehensive regional investment strate-gies with a circular economy as its central focus	RECs	Gover-nance and Capacity, Infrastruc-ture and Finance										
Fi-nance and busi-ness sup-port	**2.5**	RECs to develop a regional portfolio of potential bankable and investment-ready projects to share with large financial institu-tions and international partners	RECs	Infrastruc-ture and Finance										
	2.6	AUC and RECs to identify, document, and disseminate best practices in financing circular economy initiatives from all over the continent and from other continents	AUC, RECs	Gover-nance and Capacity										
	3	Advancing public financial mechanisms to create a level playing field for circular businesses												
	3.1	Member States to promote green and circular public pro-curement strategies. This may include an initial voluntary phase which then transitions into an obligation.	MSs	Gover-nance and Capacity										
	3.2	Member States to set up green public funds to support circular businesses financed by environmental taxes	MSs	Infrastruc-ture and Finance										
	3.3	Member States to introduce tax breaks, reductions or exemp-tions for businesses transitioning to the circular economy	MSs	Gover-nance and Capacity, Infrastruc-ture and Finance										
	3.4	Member States to direct a certain percentage of public project budgets to CE projects/ funds to showcase the viability of and build trust towards CE businesses (public sector in the lead)	MSs	Infrastruc-ture and Finance										
	4	**Develop tailored business support that encourages en-trepreneurship and facilitates operations**												
	4.1	RECs and Member States to design market systems that enable economies of scale by clustering start-ups and MSMEs focusing on similar projects, waste streams through hubs and incubators	RECs, MSs	Gover-nance and Capacity										

Finance and business support	**4.2**	Member States to offer land at lower costs or for lease to circular MSMEs to decrease their CAPEX	MSs	Infrastructure and Finance										
	4.3	Member States to foster public-private partnerships to mobi-lize resources for increasing the accessibility and affordability of infrastructures, such as recycling facilities, and off-grid renewable energy installations	MSs	Governance and Capacity										
	4.4	Member States to promote collaboration between established businesses and entrepreneurs to exchange know-how related to technology and innovation	MSs	Governance and Capacity										

ANNEX I – ADDITIONAL MACRO INDICATORS TO SUPPORT GOVERNANCE AND RESOURCE MOBILIZATION

The following table presents macro-indicators to track the progress of the AUC in high-level the implementation of the Continental Action Plan.

Table I-1 Macro indicators to support the progress-tracking of governance and resource mobilisation on the AUC / ARBE level

Indicator	Target
Creation of an ARBE CE Secretariat	**1**
Number of AUC personnel recruited for the ARBE CE Secretariat	**5**
Number of experts from MSs seconded to the AUC CE Secretariat	**5**
Number of CE Regional Sector Working Groups created	**15**
Number of members of AU CE EWG	**30**
Baseline study on the level of circular economy based on the macro-indicators and to support mem-ber states in data collection	**1**
Amount of external funding raised by the AUC for the implementation of this Action Plan	**TBD**
Amount of external funding raised by the AUC for the implementation of this Action Plan	**TBD**

The following table presents macro-indicators to track the progress of the RECs in high-level the implementation of the Continental Action Plan.

Table I-2 Macro indicators to support the progress-tracking of governance and resource mobilisation on the RECs level

Indicator	Target
Number of regional action plans	**5**
Number of RECs employees trained on the CE	**21**
Number of RECs employees involved in Regional Sector Working Groups	**30**
Number of RECs employees involved in AU CE Secretariat	**7**
Amount of internal funding raised by the RECs to implement the Regional Action Plans	**TBD**
Amount of external funding raised by the RECs to implement the Regional Action Plans	**TBD**

ANNEX J – OVERVIEW OF THE M&E MICRO-INDICATORS

Sector	Number	Goals and actions	Indicators			
			Economic	Social	Environmental	Other
Water	1	Strengthen policy frameworks on the continental, regional and national levels that create an enabling environment for water as a resource and sanitation	Share of national budgets invested in water resource management and sanitation Incentives introduced to encourage development of waste collection and treatment			Guiding policy document to support member states in the design and implementation of national frameworks on how to implement and address circularity in water resource management and water sanitation by AUC and RECs Existing sanitation and water resource management policies revised to include circularity principles
	2	Establishment and expansion of infrastructure and natural service provisions for fresh water consumption and water sanitation, incl. recovery systems	Value of infrastructure projects improving water availability and sanitation financed by international donors in Africa Value of investment into improved water harvesting technologies and storage infrastructure Value of R&D investments in water infrastructure	Share of residents (%) with access to (i) wastewater treatment facilities (ii) access to basic drinking water services (iii) access to safe drinking water services (iv) access to toilet facilities Number of bio-latrine facilities per capita	Water exploitation index Water quality indices of fresh water	
	3	Promotion of efficient water use, reuse and adequate wastewater disposal among consumers and industry	Revenues generated from: (i) water supply services (ii) fines and levies on inappropriate disposal of wastewater Number of industrial symbiosis for resource-efficient and cleaner production Value added of companies operating in wastewater recycling	Policy on Payments for Ecosystem Services in relation to water (REC and member states) Share of the consumers with access to wastewater treatment facilities	Water footprint Share of wastewater reused (%) Share of wastewater properly disposed (%) Eutrophication level of lakes and rivers Freshwater withdrawal as a proportion of available freshwater resources (%)	Number of national initiatives launched to promote water efficiency and reuse National policies enacted on Payments for Ecosystem Services in relation to water

Sector	Number	Goals and actions	Indicators			
			Economic	Social	Environmental	Other
Waste	1	Strengthen policy and strategic frameworks on circular economy and align policy related to waste management	Share of national budgets invested in waste management Contribution of waste sector to GDP Revenues generated from fines and levies Cost of MSW waste i) collection, ii) disposal, iii) treatment	Creation of enforcement unit Number of enforcement officers trained on circular economy matter Share of households separating their waste (%) Perception of households on: (i) waste separation (ii) waste management Number of households with access to waste collection service Average distance travelled to waste collection/transfer points	Share of waste diverted from landfills (%) Rate of : (i) Landfilling of hazardous waste (ii) Collection of solid waste (iii) Recycling (iv) Landfilling of solid waste GHG emissions of the waste sector	Waste management policies, regulations and strategies updated AUC strategic guiding document on basic elements that should be part of every national waste management strategy/plan RECs guidelines on standards of waste management Number of countries adopting waste separation Number of sites created for the management of hazardous waste
	2	Continue to invest into infrastructure provisions that enable the circulation and proper/safe treatment of waste and secondary resources	Value of investment in waste management infrastructure by national government and international partners Number of newly constructed waste collection and transfer centres Number of newly constructed recycling facilities Number of waste transfer stations per district Average distance between households and waste collection/transfer stations Increase in number of businesses active in the waste sector related to CE (recycling, reuse, etc.)	Health levels of communities living near landfills (asthma cases, malaria cases..) Average distance between waste collection centres and transfer stations	Share of collected waste that is properly treated Share of recycled waste as a percentage of total waste generated Share of waste leaked from landfills Air quality levels around waste disposal sites	Creation of reverse logistics networks
	3	Implementation of an efficient environmental statistics framework on waste generation and management	Regional targets for waste management National environmental statistics framework on waste generation and management Continental and regional registries for waste trade flows trial symbiosis for resource-efficient and cleaner production Value added of companies operating in wastewater recycling		Continental characterisation study by AUC Regional waste registries	
	4	Strengthen and support the informal sector to increase their recognition and role in waste management and recycling activities	Value of contracts awarded to the informal sector Number of informal waste operators recognised by Metropolitan, Municipal and District Authorities for waste trade flows trial symbiosis for resource-efficient and cleaner production Value added of companies operating in wastewater recycling	Income levels of informal waste sector workers Number of informal waste workers cooperative Share of informal workers suffering from illnesses due to their work Number of CE jobs created	Share of waste diverted from the environment by informal waste sector workers	Overview of existing sustainable informal sector integration models by AUC

Energy	**1**	Enhance decarbonisation and energy efficiency measures, and incentivise the incorporation of renewable energy components in industry, retail and consumers	Value of investments in R&D and sci-entific research on renewable energy technologies Energy self sufficiency (%)		Share of renewable energy in the energy mix of the industrial sector Inclusion of CE principles in decarbonisation strategies Contribution of energy sector to GHG emissions (%) Energy intensity of the economy (MJ/USD) Energy efficiency of freight transport (kJ/tkm) Energy efficiency of residential sector (GJ/dwelling) Energy efficiency of industry and services sector (MJ/USD)	
	2	Energy and electricity generation from alternative energy generating technologies with focus on anaerobic digestion	Value of investment in biodigesters from national governments Value of investment in biodigesters from international funders Value of R&D budget into waste-to-energy technology	Number of energy-related programs and courses including elements linked to CE and energy	Share of electricity mix generated from organic solid and liquid waste Share of organic waste diverted from landfillsindustry and services sector (MJ/USD)	
Agri-food and fisheries	**1**	Develop a policy and regulatory framework toward a circular bio-econ-omy	Value of agricultural and fisheries in-vestment into sustainable practices		GHG emissions of the agriculture sector	Circular Bioeconomy strategies developed Agricultural and fisheries policies updated with integration of CE elements Directives on fish waste
	2	Improve infrastructures and capacity in the agri-food sector	Value of trade in agricultural commodi-ties Value of investment in improved storage and transport systems Value of subsidies towards regenerative agricul-ture Share of agriculture to GDP	Number of trainings on regenera-tive agricultural practices organ-ised Number of participants to trainings on regenerative agricultural prac-tices Number of regenerative agriculture jobs created	Share of farmers having adopted regenerative practices Food loss (%) Post-harvest food loss (%) Global Food Loss Index	Number of documents on regenerative agricultural practices produced by AUC Number of documents produced by RECs on complementarities between member states
	3	Promote innovations and indigenous solutions that are regenerative and valorise organic waste from farms, fisheries and cities	Value generated from landfilling tax	Number of persons trained on new technology introduced	% of land under organic farming % of farmers using organic ferti-lisers Gross nutrient balance for agricul-tural land % of farmers adopting composting practices Number of fisheries adopting more sustainable practices Number of farmers adopting agro-forestry or inter-cropping practic-es	Number of anaerobic biogas plants Restriction on the creation of incineration plants Regional bans on the open burning of waste New technology introduced from existing markets through knowledge sharing efforts
Construction	**1**	Develop policy frameworks for circular construction on the continental, regional and national levels	Value of investment in sustainable construction	Number of green construction jobs created	GHG emissions of the construc-tion sector	Continental construction and urbanisation strategy Regional guidance on sustainable construc-tion National policy and vision on sustainable construction Action plans for Smart and Circular Cities National building standards and codes revised Public Green and Circular Procurement policies for construction
	2	Promote and stimulate the use of sec-ondary, sustainable and circular con-struction materials	Amount of construction waste materials and secondary materials internally traded Number of innovations on sustainable construction identified and supported Revenue generated from the taxation of unsustainable practices for large-scale construction project		Quantity of building materials reused Share of sustainable construction materials Quantity of construction waste landfilled	Guidance document on how to steer markets towards sustainable construction Regulation on mandatory selective demoli-tion at demolition site

Transport and mobility	**1**	Build strong policy frameworks on the continental, regional and national levels that embed circularity in the transport and mobility sector		Access to public transports	GHG emissions of the transport sector	Guiding policy document on the continental level for inter-regional and international co-operation on transport and logistics by AUC Continental strategy for efficient, modern and clean transport modes by AUC Golden rules for infrastructure development by AUC with inclusion CE principles Dedicated agreements on access to sea ports for landlocked countries
	2	Promotion of efficient transport modes that are clean, modern and based on service rather than ownership	Number of transport sharing initiatives Value of investments in light mobility infrastructure Value of investments in public trans-ports Value of investments in battery manu-facturing Value of investments into public re-charging infrastructures and access to alternative energy solutions for trans-portation Value of investments in R&D for EVs by AUC	Length of bike lanes	Share of electric vehicles	
	3	Ensure proper product and material management in relation to vehicle use, reuse and recycling and align imports regulation	Number of manufacturing hubs for EVs and fossil fuel vehicles spare parts and maintenance Number of businesses involved in repair of vehicles	Awareness campaign on the burn-ing of vehicle oils and lubricants and the potential for re-processing of such products		Revision of regulations on imports of second-hand vehicles Policy on the CE of vehicles EPR policies for vehicles and tyres
Packaging and plastics	**1**	Strengthen the development of policy initiatives to phase out plastic pollution	Share of budget allocated to address plastic pollution	Perception of policy landscape developed to address plastic pollu-tion	Quantity of plastics waste	Plastic related policies
	2	Ensure waste management systems capable to deal with packaging in a circular way	Share of budget allocated to waste management		Quantity of packaging materials averted from landfills and the environment	
	3	Enable new business models for the production, delivery and use of products that would minimise the use of packag-ing	Value of investment into new business models	Number of new businesses estab-lished		
Electronics	**1**	Harmonisation, alignment and strengthening of policy in the region, regarding the regulation of handling the vast amounts of electronic waste	Share of budget allocated to tackling electronic waste	Perception of policy on electronic waste	Quantity of electronic waste avoided	
	2	Improve the infrastructure to manage e-waste and strengthen recycling hubs	Value of infrastructure investments Value of recycling hubs	Perception of policy on electronic waste	Number of jobs created Awareness of e-waste management infrastructure and organisations	

	3	Strengthen and scale existing repair, reuse and refurbishment initiatives for electronic products	Value of investment into repair, reuse and refurbishment initiatives	Number of repair, reuse and refurbishment initiatives Number of jobs created	Quantity of electronic waste avoided	
Textiles	**1**	Support and promote a circular textiles sector through policies on importation of second-hand textiles and incentives for circular initiatives	Value of subsidies offered to circular textiles and apparel initiatives Investment in textiles collection and recycling infrastructure	Number of local tailors trained on CE principles	Quantity of textiles waste avoided	Regulation on the importation of second-hand textiles Categorisation of second-hand textiles by AUC
	2	Strengthen the production of raw mate-rials and improve capacity for pro-cessing	Value of subsidies offered to local pro-ducers of sustainable textile raw mate-rials Value of subsidises offered to local textiles manufacturing companies Quantity of textiles locally produced	Number of trainings delivered to farmers on sustainable cultivation of fibres Awareness raising campaign on second-hand clothing	Trade agreements on locally produced textile raw materials through the AfCFTA	
	3	Reduce waste and pollution generated by the textiles and apparel sector, from local generation	Value of investments into textile waste management infrastructure	Number of trainings offered to textile resellers and repairers		Standard/regulations on chemicals used in textiles manufacturing
Tourism	**1**	Develop a strong and interlinked policy framework for the tourism sector that reinforces circularity approaches in the overlapping sectorstives for circular initiatives			GHG emissions of tourism sector Waste generated by the tourism sector	Revised tourism policies and strategies that integrate CE principles Framework for collaboration of different stakeholders for a sustainable tourism sector by AUC Common code of conduct for mainstream-ing CE approaches Standards and classifications for hotels
	2	Support the promotion of eco-tourism	Value of investment on advertisements promoting a circular eco-tourism	Involvement of local communities in eco-tourism activities Number of educational programs on eco-tourism		Eco-tourism certifications List of best practices and financial instruments Regional strategy for promotion of eco-tourism Share of tourists participating in eco-tourism activities
Mining	**1**	Develop a regulatory framework for the circular transition of the extractive industry		Number of miners reporting im-proved working conditions	Pollution levels of lakes and rivers nearby mines Number of mines using more water efficient technologies	Strategic guiding document by AUC high-lighting basic principles for revised regula-tion Revised regulation on mining including CE principles Ban on trade of materials sourced from endangered ecosystems by RECs
	2	Incentivise circular innovations to sup-port the circular transition of the extrac-tive industry	Value of investment in research on nature-based solutions for the restora-tion of degraded ecosystems by RECs Value of investment in circular ap-proaches to recycle water in mines	Number of training and awareness campaigns deployed to small-scale and artisan miners on wastewater management	Km^2 of degraded areas restored	Number of materials-as-a-service system piloted

	3	Prioritize environmental protection and support regenerative activities to re-store degraded areas	Value of transfers for land restoration by EU companies Value of funds for area restoration		Km² of areas protected from ex-ploitation Km² of area restored	Regulations on stricter licensing for mining Regulations allowing communities to re-fuse the exploitation of their land Inventory of biodiversity hotspots which should be banned from exploitation
Inclusivity	**1**	Build an enabling environment for equal opportunities for women and youth	Value of dedicated investments for MSMEs run by vulnerable groups	Number of women, youth, PWDs and IPLCs participating in CE ac-tivities		Inclusive and gender responsive framework for CE activities by AUC
	2	Empower and upskill women and youth for employment in the entire value chain of the circular economy	Value of investments of RECs to sup-port the development of training pro-grammes in fragile states	Number of training programmes for CE activities targeting women, youth, PWDs and IPLCs		Young Professional Programme on CE R&D
Trade, collaboration and industrial capacity	**1**	Develop a continental Green Deal and sustainable product framework that aims to design out waste and pollution	Value of sustainable and circular prod-ucts sold within the country			AU Green Deal by AUC
	2	Strengthening trade regulation and increase enforcement capacity	Value of circular goods traded	Number of local tailors trained on CE principles		Resolution on requirements the import of waste by AUC Inclusion of circular goods in AfCFTA by AUC Ban on the import of plastic and hazardous waste by AUC Quotas and stricter controls and standards on the import of second-hand textiles and used EEE by member states Harmonisation of intra-african waste trade policies by AUC and RECs
	3	Establish an integrated registry of trade (incl. materials and products) and related waste flows				Common registry of trade with standardised HS codes (incl. waste flows)
	4	Cooperation on regional industrial capacity				Number of industrial sector working groups created .Number of regional recycling hubs Number of trade agreements established on circular value chains
Education and capacity development	**1**	Enhance learning, align understanding and build awareness through circular economy curriculum and sector train-ing programmes		Number of trainers trained on the circular economy Number of awareness campaigns organised Number of people sensitised on the CE Number ofTVETs delivered on the CE Number of women and informal workers involved in trainings		Continental curriculum on the circular economy by AUC
	2	Support entrepreneurship and circular employment		Number of circular jobs Number of circular MSMEs Number of trainings delivered to MSMEs		Regional networking platforms on circular employment by RECs

	3	Strengthen and enhance knowl-edge exchange and research related to sci-ence, technology and innovation with-in/ across regions and stakeholder groups within countries	Continental financing scheme for R&D on CE Number of Private Sector Engage-ment Models	Number of cross-border research programs on CE Number of conferences and sym-posium organ-ised on CE		Regional innovation and entrepreneurship centre
Finance and business support	**1**	Improve and sup-port the financial via-bility and financiability of circular busi-ness-es through new financial ser-vices/ mechanisms/ instruments and alignment of standards that fit charac-teristics of circular invest-ments	Value of financial contribution to circular economy initiatives Value of invest-ment portfolio in circular business Contribution of circular economy business to eco-nomic indices GVA of circular businesses Number of finance mechanisms dedicated to circular initiatives Average interest rates proposed to CE businesses Criteria catalogue to evaluate CE businesses and projects	Number of green jobs created		
	2	Strengthen certification for cir-cular economy and develop regional project portfolios to support leverag-ing finance within the regions	Value of circular businesses	Number of training and awareness campaigns deployed to small-scale and artisan miners on wastewater management		Document on best practice financial tools for the CE by AUC and RECs Number of projects includ-ed in regional portfolio Regional strategy on CE financing by RECs
	3	Advancing public financial mecha-nisms to create a level playing field for circu-lar businesses	Value of assets in green public funds Share of agricul-tural subsidies for re-gener-ative farming Share of public budget spent on CE projects			Circular public pro-curement regulation Regulation on introduc-tion of tax breaks for CE businesses
	4	Develop tailored business support that encourages entrepreneurship and facili-tate operations	Value of financial subsidies offered to circular busi-ness	Number of circular busi-ness clus-ters		

ANNEX K

List of participants to the workshops

Name	Country	Position	Ministry/Agency/ Organisation
Kentlafetse Mokokwe	Botswana	Chief Scientist	Department of Waste Management and Pollution Control
Jeanne Francine Nkunzimana	Burundi	Directrice de l'Environnement et de l'Assainissement	Ministère de l'Environnement, de l'Agricul-ture et de l'Elevage
Ndodjide Aubin	Chad	Ingénieur de Conception en Environnement et Développement Communautaire	Ministere de l'Environnement, de la Peche et du Developpement Durable
Porgo Hounly	Chad	Directeur Général de l'Environnement	Ministere de l'Environnement, de la Peche et du Developpement Durable
Barwako Houssein Kidar	Djibouti	Sous-directrice de l'économie Verte, Bleue et Circulaire	Ministère de l'Environnement et du Développement Durable
Deogracias Ikaka Nzamio	Equatorial Guinea	Director General de Aguas y Costas	Ministry of Fisheries and Environment
Deogracias Ikaka Nzamio	Equatorial Guinea	Director General de Aguas y Costas	Ministry of Fisheries and Environment
Ndumiso Magagula	Eswatini	Env Impact Inspector : Waste Management	Eswatini Environment Authority
Mbuli Melusi Jide-Jones	Eswatini	Environmental Economist	Eswatini Environment Authority
Feben Tegegne	undi	0.875	0.47
	Ethiopia	Secretary	African Union Commission
Girma Gemechu	Ethiopia	Director-General, Environmental Compliance Monitoring and Enforce-ment	Environment Commission of Ethiopia
Eric Hao	EU	Programme and Policy Officer - Climate Change, Environment, Energy	EU Delegation to the African Union
Aliyata Uthman	Ghana	Assistant Program Officer, PPME Directorate	Ministry of Environment, Science, Technology & Innovation (MESTI),
Godson Cudjoe Voado	Ghana	Ag. Director, Human Settlement Unit	Environmental Protection Agency (EPA)
Ayub Macharia	Kenya	Director Environmental Education and Awareness	Ministry of Environment, Climate Change and Forestry
Augustine K. Kenduiwo	Kenya	Deputy Director Climate Change and Focal Point Green Growth and Circu-lar Economy	Ministry of Environment, Climate Change and Forestry
Leah Wanambwa	Kenya	Senior Policy Officer	African Union Commission
Letsatsi Phinehas Lekhooa	Lesotho	Lesotho's Circular Economy Focal Point	ACEN Foundation
Abraham W. Karsuah	Liberia	Financial Analyst	Environmental Protection Agency of Libe-ria
James Pagona	Malawi	Meteorologist	Department of Climate Change and Mete-orological Services
Moonawwara Begum Outim	Mauritius	Environment Officer/ Senior Environmental Officer	Ministry of Environment, Solid Waste, Water Management and Climate Change
Navin Moorlah	Mauritius	Principal Project Officer	Ministry of Environment, Solid Waste Management and Climate Change
Samson António Faneluane Cuamba	Mozambique	Head of the Department of Waste Management	Ministry of Land and Environment

Name	Country	Position	Ministry/Agency/ Organisation
Atália Abel Nhamicola Muvelo	Mozambique	Technician of the Environmental Impact Assessment Sector	Ministry of Land and Environment
Ilona Nkandi	Namibia	Chief Economist	Ministers of Trade : Environment and International Relations
Harsen Nyambe	Namibia	Director of Sustainable Environment and Blue Economy	African Union Commission
Boukar Koura Yagana	Niger	Directrice Générale Adjointe de l'Environnement Durable	Ministère de l'environnement et de la lutte contre la désertification
Zabeirou Balkissa Hassane Fodi	Niger	Chef de Division du Suivi et Contrôle Environnementaux des Unités Industrielles	Ministère de l'Industrie et de l'Entrepre-neuriat des jeunes
Olubunmi Olusanya	Nigeria	Director, Pollution Control and Environmental Health	Federal Ministry of Environment
Usman Abdullahi Bokani	Nigeria	Director II, Pollution Control and Envi-ronmental Health	Federal Ministry of Environment
Assah Kossiwoa Lolonyo	Togo	Directrice	Développement des Petites et Moyennes Industries
Toï Pagnibam Meba	Togo	Juriste Environnementaliste, Chef de Division	Ministère de l'environnement et des Ressources Forestières
Doreen Mugyenzi Komukama	Uganda	Environment Assessment Officer	National Environment Management Au-thority
Monica Angom	Uganda	Senior Environment Inspector	National Environment Management Au-thority
Charles Akol	Ethiopia	Environmental Affairs Officer, Green and Blue Economy Section	Climate Change and Natural Resources Management Division, United Nations Economic Commission for Africa (ECA)
Esther G. Mulekwa Nkomo	Zambia	Principal Environment Research Officer	Ministry of Green Economy and Environ-ment - Environment Management Dept
Perine Kasonde	Zambia	Principal Inspector	Zambian Environmental Management Authority
Decent Ndlovu	Zimbabwe		Environmental Management Agency Zim-babwe
Amkela Sidange	Zimbabwe	Environmental Education and Publicity Manager	Environmental Management Agency Zim-babwe
Caroline Tagwireyi	Kenya	Deputy Director Climate Change and Focal Point Green Growth and Circu-lar Economy	Ministry of Environment, Climate Change and Forestry

Figure K-2 List of participants Addis Ababa workshop 4th-5th of October 2023

Name	Country	Position	Ministry/Agency/ Organisation
Chafik Kellala	Algeria	Counselor	Embassy of Algeria to the African Union
Nassim Oulmane	Algeria	Acting Director	Technology, Climate Change and Natural Resource Management Division of UNECA
Kentlafetse Mokokwe	Botswana	Chief Scientist	Department of waste management and pollu-tion control
Jeanne Francine Nkunzimana	Burundi	Directrice de l'Environnement et de l'Assainissement	Ministère de l'Environnement, de l'Agricul-ture et de l'Elevage

Figure K-2 List of participants Addis Ababa workshop 4th-5th of October 2023

Name	Country	Position	Ministry/Agency/ Organisation
Jimmy Daniel Dalemet	Central African Republic	Program Assistant	African Union Commission
Didier Gbocho Ohoueu	Cote d'Ivoire	Director of Green Economy and Corporate Social Responsibility	Ministry of Environment and Sustainable Development
Barwako Houssein Kidar	Djibouti	Directrice Nationale du Projet AMP-Programme de Minigrids pour l'Afrique	Ministère de l'Environnement et du Développement Durable
Ali-Gardé Adou Ali	Djibouti		Ministry of the Environment and Sustainable Development
Nermine Nabil Mohamed Abulata	Egypt	Advisor to the Minister of Trade and Industry, and National Coordinator for EuroMed Industrial Cooperation	Ministry of Trade and Industry
Hagar Metwali Darwish Metwali	Egypt	Environmental Engineer	Technology, Climate Change and Natural Resource Management Division of UNECA
Waste Management Regulatory Agen-cy	Ministry of Environment	Chief Scientist	Department of waste management and pollu-tion control
Ndumiso Cyprian Magagula	Eswatini	Env Impact Inspector : Waste Management	Environment Authority
Mbuli Melusi Jide-Jones	Eswatini	Environmental Economist	Eswatini Environment Authority
Girma Gemechu	Ethiopia	Director-General, Environmental Compliance Monitoring and Enforcement	Environment Commission of Ethiopia
Liya Tadesse	Ethiopia	Occupational Health and Safety Specialist	
Daher Elmi	Ethiopia	Director of Agriculture and Environment	IGAD
Eshete Dejene	Ethiopia	Program manager, IGAD Environment Programme	IGAD
Febene Tegegne	Ethiopia	Secretary	African Union Commission
Lana Zutelija	EU	Adviser to Head of Cooperation at EU Delegation to the African Union - Agricultural, Environmental and Digital Policies	EU Delegation to the African Union
Eric Hoa	EU	Programme and Policy Officer - Climate Change, Environment, Energy	EU Delegation to the African Union
Susanne Dahl	EU	Advisor on Climate Change and Green Transition	EU Delegation to the African Union
Lamin Daffeh	Gambia	Senior Labour Economist	Ministry of trade, industry, regional integra-tion, & employment independence drive
Ibrahima M.B.S. Kineth	Gambia	Directorate of Development Planning	Ministry of Finance and Economic Affairs
Oliver Tommy Boachie	Ghana	Special Advisor to the Minister	Ministry of Environment, Science, Tecnholo-gy & Innovation
Aliyata Uthman	Ghana	Assistant Program Officer, PPME Directorate	Ministry of Environment, Science, Technolo-gy & Innovation (MESTI),
Emmanuel Wafula Siakilo	Kenya	Senior Climate Change Advisor	African Union Commission
Leah Wanambwa	Kenya	Senior Policy Officer	African Union Commission

Name	Country	Position	Ministry/Agency/ Organisation
Letsatsi Phinehas Lekhooa	Lesotho	Lesotho's Circular Economy Focal Point	ACEN Foundation
Abraham Wallace Karsuah	Liberia	Financial Analyst	Environmental Protection Agency of Liberia
Lindfor Lash Henries	Liberia	The Executive Secretary to the Executive Director	Environmental Protection Agency
Hussein Milanzi	Malawi	Chief Meteorologist	Department of Climate Change and Meteoro-logical
Navin Moorlah	Mauritius	Technician of the Environmental Impact Assessment Sector	Ministry of Land and Environment
Moonawwara Outim Begum	Mauritius	Environment Officer/ Senior Environmental Officer	Ministry of Environment, Solid Waste, Water Management and Climate Change
Hafsa Lakhlifi	Morocco	Directrice par Intérim des Pro-grammes et des Réalisations	Ministère de la Transition Énergétique et du Développement Durable
Hortensia Joana Macombo Massinga	Mozambique		Ministry of Land and Environment
Fernanda Armando Gabriel Mola	Mozambique		Ministry of Land and Environment
Nekuma Frans Nghifilemona	Namibia		Ministers of Trade : Environment and Inter-national Relations
Harsen Nyambe	Namibia	Director, Sustainable Environment and Blue Economy	African Union Commission
Collins Opigo Alfred	Nigeria	Senior Chemical Engineer	Federal Ministry of Environment
Samuel Samson Ogallah	Nigeria	Senior Climate Change Advisor	African Union Commission
Yaya Barry Saykou	Senegal	Economist de l'environement, Chief de la Division Financements Innovants	Ministère de l'Environnement et du Développement durable
Lamine Mamadou Diame	Senegal	Chimiste-Environnementaliste	Ministère de l'Environnement et du Développement durable
Johnson Fredrick Kinloch	Seychelles	Director of Waste Management and Standards	Department of Environment
Kim Michelle Samy	Seychelles	Assistant Programme Development Officer	Ministry of Fisheries and Blue Econo;y
Mustapha Kemokai	Sierra Leone	Environment and Social Officer in charge of waste management	Freetown City Council, Ministry of Local Government
Beintu Titian Keifala	Sierra Leone	Principal Environment Officer, Environment Protection Agency	Ministry of Environment and Climate Change
Kgauta Sylvester Mokoena	South Africa	Chief Director of Chemicals and Waste Policy Specialist Monitoring Services	Department of Forestry Fisheries and Envi-ronment
Hombakazi Blou	South Africa	Director for Waste Minimization and Circular Economy	Department of Forestry Fisheries and Envi-ronment
Aubin Ndodjide	Tchad	Ingénieur de Conception en Environnement et Développement Communautaire	Ministere de l'environnement, de la Peche et du Developpement Durable
Toï Pagnibam Meba	Togo	Juriste Environnementaliste, Chef de Division	Ministère de l'environnement et des Ressources Forestières
Doreen Mugyenzi Komukama	Uganda	Environment Assessment Officer	National Environment Management Authority
Monica Angom	Uganda	Senior Environment Inspector	National Environment Management Authority

Charles Akol	Uganda	Environmental Affairs Officer, Green and Blue Economy Section	Technology, Climate Change and Natural Resource Management Division of UNECA
Mayando Kanyata	Zambia	Senior Environment Management Office	Ministry of Green Economy and Environment - Environment Management Dept
Patrick Thomas Tuluzawu	Zimbabwe	Economist	Ministry of Industry and Commerce
Amkela Sidange	Zimbabwe	Environmental Education and Publicity Manager	Ministry of Environment, Climate, Tourism and Hospitality Industry
Caroline Tagwireyi	Zimbabwe	Senior Climate Change Consultant	African Union Commission

Co-funded by the European Union

This Action Plan was developed with the financial support from the European Union.