ENVIRONMENTAL made PROTECTION in Germany

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ASSESSMENT REPORT

The Circular Economy Ecosystem in the MENA Region

Covering Algeria, Egypt, Jordan, Lebanon, Morocco, Tunisia, Palestinian Territories

This report has been commissioned by the GIZ global project supporting the "Export Initiative Environmental Protection", which contributes to solving key environmental problems on behalf of the German Federal Ministry for the Environment and Consumer Protection (BMUV). The initiative aims to export know-how available in Germany and support sustainable development worldwide.

It includes topics such as poor waste management, air and water pollution or supporting infrastructures for sustainable urban development. Partner countries are Jordan, India, Thailand, Malaysia, Indonesia, Egypt and Ukraine.

Project measures focus on building up technical and institutional know-how as well as laying the groundwork for the introduction and use of environmental and climate protection technologies "Made in Germany".

LIST OF ABBREVIATIONS

ACSAD	Arab Center for the Studies of Arid Zones and Dry Lands
ACTED	Agency for Technical Cooperation and Development
AFR	Alternative fuels and substitute existing raw materials
AOAD	Arab Organization for Agricultural Development
BMUV	Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
BSO	Business Support Organisation
CC	Climate Change
CDW	Construction and Demolition Waste
CE	Circular Economy
CEDARE	Centre for Environment and Development for the Arab Region and Europe
CNTPP	Centre National des Technologies de Production plus Propre
COP27	27th Conference of the Parties to the United Nations Framework Convention on Climate Change
CSO	Civil Society Organisations
CTF	Clear Technology Fund
DWATS	Decentralized Wastewater System
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EPR	Extended Producer Responsibility
EU	European Union
GCC	Gulf Cooperation Council
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gases
GIZ	Deutsche Gesellschaft für internationale Zusammenarbeit
ICT	Information & Communication Technology
IDB	Islamic Development Bank
LIBNOR	Lebanese Standards Institution
MENA	Middle East and North Africa
MoE	Ministry of Environment
NDC	Nationally Determined Contributions
NEEAP	National Energy Efficiency Action Plans
SDG	Sustainable Development Goals
UN	United Nations
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
WB	World Bank
WMRA	Waste Management Regulatory Authority

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Executive Summary

Global economic development trends and the increasing concerns around their derived consequences exacerbating the impacts of climate change require major transformations in the way we do business. Circular Economy (CE) is considered an innovative way of adapting business activities and thus enabling the mitigation of the global economy's impact on the environment and society. This assessment gives an overview on the current CE ecosystem and legal frameworks in seven countries in the MENA region (Algeria, Egypt, Jordan, Morocco, Tunisia, Lebanon, West Bank & Gaza), and provides recommendations for the creation of specific and well targeted programs in the region to help accelerate a circular growth. The adoption of CE principles in the target region can help promote more sustainable production and consumption patterns, reduce waste and pollution, conserve natural resources and create economic opportunities. Through the implementation of circular practices, countries in the MENA can not only reduce their environmental impact but also improve their economic and social well-being.

The context through which CE is understood and implemented in the MENA is far limited to that of its EU definition and application. In the EU, CE frameworks prioritize waste reduction activities following the waste hierarchy principles. As such, interventions at the design stage of a product or service are deemed as more effective and favourable whereas activities such as waste incineration for energy and landfilling are considered 'less desirable' activities. This is also reflected in regulation around the topic in the EU with fines imposed on member countries resisting the adoption of desirable waste prevention and management activities. In the MENA, CE related activities are primarily focused on waste management with the main activities concentrated in waste collection, waste disposal in landfills/dumping and sorting of waste. The use of renewable energy along with water resource management are also prioritised and enable growth of CE in the region. Considering the underlying issues faced by many of the countries in this study including economic crisis, political instability, corruption and heavy felt impacts of climate change with water scarcity being at the forefront, the three CE priority areas (waste management, renewable energy, water resource management) make sense as countries in the region are undergoing an explorative phase regarding CE.

The assessment also includes findings on the CE ecosystem actors in the MENA across the aspects of government, access to finance, research, human capital, and business support.

- The governments in the seven countries have developed national waste management strategies however their enforcement and implementation are limited, hindering their effectiveness. Some countries, such as Morocco, have established strong regulatory frameworks and have set dedicated government agencies to support the transition to a circular economy, while others, such as Algeria, Lebanon, West Bank and Gaza face challenges due to ongoing political instability and weak governance structures.
- Access to finance is driven mostly by donors with domestic funding opportunities for CE being scarce in most of the countries. On the other hand, Egypt and Morocco appear to have established more solid financing mechanisms. International funds tend to favour larger heavily infrastructural projects in renewable energy production such as solar parks or via the development of wastewater treatment plants while financing for SMEs is much more difficult.
- Research around CE topics in the MENA region is limited and restricted to specific sectors for each country, with Morocco and Tunisia being more active.

The majority of available literature is provided by international organizations rather than domestic research institutions and lacks content on topics such as circular design or innovation.

- More efforts are needed to increase the capacity of human capital in the region and spread awareness on the benefits and practices of CE. In terms of capacity development, very few educational opportunities were identified within the region, aside from business support organisations assisting entrepreneurs engaging in CE activities. The involvement of informal participants largely made up of vulnerable populations in the studied countries was identified as extremely important in the execution of CE enabling activities such as waste sorting, collection, and the repair of primarily electronic and electrical waste. However, the high risks associated with undertaking this non-regulated activity and the lack of coordination with the formal waste sector participants in each country limits their effectiveness and threatens the health of its informal participants.
- Business support organisations (BSOs) and civil society organisations are instrumental for enabling circular economy initiatives in local communities as they have been identified as more effective than the public sector at times. The private sector in the studied countries is still hesitant to take up circular economy activities. However, some progress has been noticed with the aid of the BSOs.

The recommendations suggested in this assessment were formulated taking into consideration the distinct characteristics of the region and its constraints, such as the bottlenecks in implementing and enforcing solutions by local governments. The provision of recommendations is broken down per ecosystem aspect.

GOVERNMENT

- Close legal and regulatory gaps to strengthen the framework for environmental protection and sustainability, including waste management and circular economy.
- Enhance international cooperation and engage in peer-learning.
- Enable transparent information sharing and constant stakeholder engagement when drafting strategies.
- Develop an advocacy strategy for the adoption of CE regulations and strategies by targeting local and national authorities.
- Provide support for the development of government financial incentives to businesses for the adoption of CE practices.
- Incorporate circularity in public procurement to catalyse a transition toward circularity in local markets and supply chains.
- Impose governmental interventions such as an Extended Producer Responsibility (EPR) system to incentivise waste reduction, reuse and recycling over disposal.
- Explore measures to facilitate the effectiveness of law enforcement and to ensure compliance with CE regulations.

ACCESS TO FINANCE

- Develop specific technical criteria for an objective and speedy assessment of potential project candidates for financing or funding by donors, local financing institutions or private investors.
- Gradually adopt sustainable financial instruments established within the EU Sustainable Finance framework as well as the Taxonomy regulation in the regional context to accelerate CE growth.
- Explore different mechanisms to allow access to funds domestically for CE businesses via variable financing mechanisms.
- Build the capacity and knowledge of support organisations and CE businesses to explore alternative sources of funding, particularly on sustainable financing mechanisms.

HUMAN CAPITAL

- Identify innovative ways to capitalise from the informal participants activities' scale-up and enabling of a collaboration mechanism between them and the formal participants, especially in the waste sector.
- Integrate the concepts of circularity at different levels of formal and informal education.
- Leverage the skills and capacities of youth by developing CE programs that capture their interest and attention.

BUSINESS SUPPORT

- Provide programs with funding terms tied with planning for transformation activities around CE in order to create an additional incentive for business to transition.
- Prioritise business support services providing capacity building in CE for existing businesses and thus helping them upskill their staff and adapt their existing practices.
- Capitalise on existing local initiatives by providing them with the financial and business support needed (access to funds, markets, know-how, etc.) to grow them into successful models.
- Encourage and build partnership and collaboration between different stakeholders in order to join efforts and maximise the efficiency of interventions.
- Proactively gather CE supporting data and develop relevant cases to influence national strategies and programs.

The economic, political, and social struggles in the MENA countries often push them to put CE on hold. However, the prioritization of CE in these countries and the work towards its systemic integration can lead to several positive externalities cascading back to I) the government who already struggles with limited resources and their allocation, II) the economy which will make way for new engagement opportunities and revenue streams and III) the society who will benefit from decreased exposure to health risks (associated with current industrial activities and waste practices) and increased well-being.

Introduction

CONTEXT OVERVIEW

This assessment comes to serve as a diagnostic for seven countries in the MENA region (Algeria, Egypt, Jordan, Lebanon, Morocco, Tunisia, West Bank & Gaza) and their approach to CE. It highlights the key actors engaged with CE activities and explores each country's momentum for a CE transition. This report could serve as a tool to inform programmes and provide targeted support services to the countries included in the assessment.

With Climate Change (CC) at the forefront of global discussions and COP27 recently executed in Egypt, the world appears to be undergoing rapid transition efforts to minimise climate change effects and prevent irreversible damage from happening to the planet. Now more than ever, the effects of climate change worldwide are considered to affect not just the environment but also human lives as well as the global economy. Egypt, the host of COP27 is suffering from elevated temperatures, water scarcity and droughts which are causing a wave of climate migrants fleeing the country in search of cooler climates to live[1]. Global economy stakeholders are now realising that to be resilient while thriving, they need to assess their environmental performance and seriously consider climate risk when making new investments. It therefore comes as no surprise that the European Union (EU) has produced comprehensive legislations following the Paris Agreement and the EU Green Deal, covering a broad range of sectors. These include a Circular Economy (CE) Action Plan which introduces legislative and non-legislative measures targeting areas where action at the EU level brings real added value. Measures introduced by the **EU Circular Economy action plan**[2] aim to:

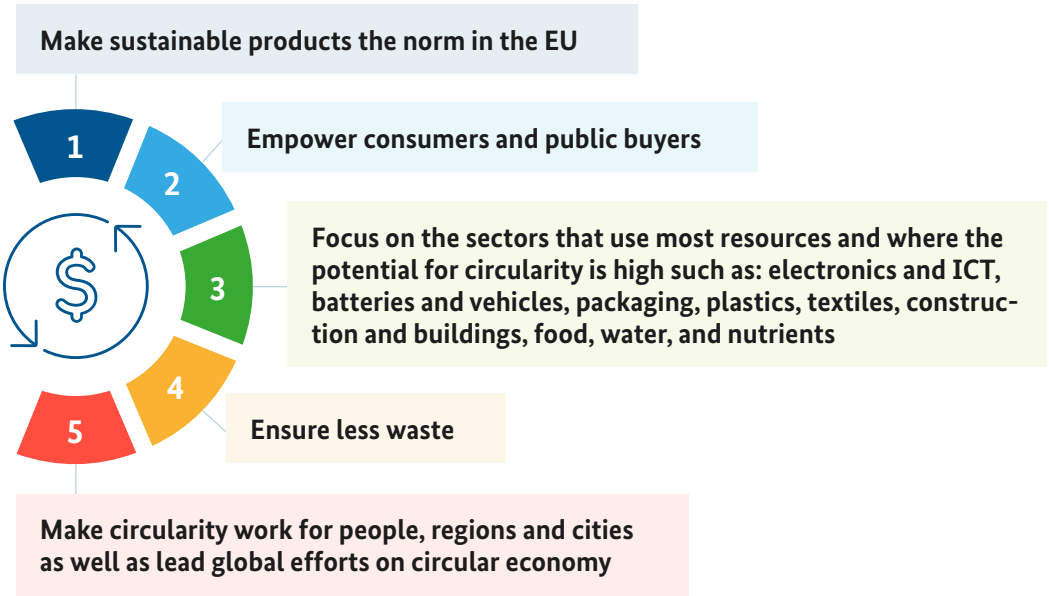


Figure 1: EU Circular Economy Action Plan measures' objectives.

1 Wodon, Quentin. Climate Change and Migration in the MENA Region.

2 EC. 'Circular Economy Action Plan'.

With companies now having to assess their impact, it is vividly apparent that the traditional linear business model (take-make-use-dispose) is very damaging to the environment. At the current production trajectory, it is estimated that by 2050, the world's consumption will require the equivalent resources of three planets[3]. As such, moving away from the linear model and transitioning to a regenerative growth model is fundamental to maintain resource consumption within planetary boundaries. In a circular economy, the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimised.

Waste management and resource depletion are particularly issues felt in MENA region. Over the past decade, the region has suffered continued instability driven by geopolitical, intra-religious conflicts, natural resource availability and stalled economic and governance reforms which resulted in political, institutional, and economic fragmentation. High unemployment (particularly for youth), costly and ineffective public services and energy subsidies, plummeting currency valuations for many countries in MENA including Lebanon, and Covid-19 are only some of the current issues affecting the region[4]. Additionally, the effect of climate change acts as a conflict multiplier in the region.

MENA has a history of deprioritising the adaptation of sustainable practices and CE by classifying these as non-urgent or non-essential in times of severe economic crisis. A study by Acted[5] has created a business case as to why the current rapid economic decline in MENA has surfaced numerous unique opportunities for promoting CE and circular resource management which could have catalytic effects in economic recovery. The implementation of circular approaches has the potential to stimulate job creation, increase value extraction, increase productivity, reduce government expenditures, and improve accessibility of public services in the region.

PROJECT OVERVIEW

OBJECTIVES

The aim of this report is to assess the CE ecosystem in the MENA region, specifically in Algeria, Egypt, Jordan, Lebanon, Morocco, Tunisia, West Bank & Gaza. It should provide guidance to sustainability experts on the state of CE in the region and help them better understand the existing situation, the active stakeholders and their roles, programs, and their aspired impact.

To achieve the above aim, the following objective were derived:

- To establish an overview of the state of circular economy in the target countries (key actors-public, private, non-governmental- and type of engagements and partnerships).
- To map the main governmental and non-governmental stakeholders engaged and analyse their main roles, contribution modes of funding/ financing, and support networks.

3 EC. 'Circular Economy'.

4 ISPI. "Post-Pandemic Economic Recovery in the Mena: Challenges for the Year Ahead"

5 ACTED. 'Can a "Circular Economy" Help Bring the MENA Region Out of Crisis?'

- To develop key findings concerning the different countries, relevant economic and societal sectors, and available networks of support.
- To present the main legal and regulatory frameworks
- To outline local demand and recommend interventions to GIZ.

METHODOLOGY

The report was developed following the desk study method. Secondary data was gathered from a broad range of documents such as policy briefs, research papers, country reports, scientific journals, and other relevant literatures. Laws and regulations in the seven MENA countries enabling a CE growth were also assessed as part of this study. The analysis of this information helped to develop an overview of the CE environment, the most important actors, the affected economic and societal sectors as well as the existing networks enabling CE activities. After mapping all target countries, recommendations were provided to help better tailor future interventions in the region.

LIMITATIONS

Certain limitations were encountered while developing this report, as it relies solely on desktop analysis and review of secondary material, and hence might,

- lack elements and/or stakeholders that could have been identified if primary data collection were to be executed and,
- lack accuracy due to:
    - most data available being qualitative; quantitative information in some cases was hard to find,
    - potential presence of bias in some of the literature reviewed,
    - access to information was challenging with publicly available sources and accurate data being limited in the selected countries,
    - legal acts are not complemented by any detailed analysis of their respective provisions,
    - only include rudimentary statements on the effectiveness of such legal acts and does not provide any credible information on respective enforcement practice, except where we could quote respective academic statements that confirm our initial findings,
    - no credible information on how effectively the presented legislation is implemented by the competent authorities and if there have been any important court decisions where circular economy aspects have been at stake,
    - no reflection on any enforcement practice by civil and administrative courts in the respective countries,
    - no insights are provided on any given or potential conflicts with regard to the application of the presented laws in practice and,
    - the team did not consider the particularities of the different legal systems in place in the seven countries.

Overview of Circular Economy in the MENA

CONCEPTS OF CIRCULAR ECONOMY AND OVERVIEW OF REGIONAL APPROACHES

CONCEPT OF CIRCULAR ECONOMY

According to the EU, CE is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible[6]. Similarly, the Ellen Macarthur Foundation[7], complements the EU's definition and defines CE as based on 3 principles, driven by design to:

I. **Eliminate waste and pollution**

II. **Circulate products and materials (at their highest value)**

III. **Regenerate nature**

According to the Macarthur Foundation, CE is underpinned by a transition to renewable energy and materials. It emphasizes the need to decouple economic activity from the consumption of finite resources by shifting away from the linear business model (take – make – waste) towards more circular business models (reduce – reuse – recycle). This transition represents a systemic shift that will build long-term resilience, generate business and economic opportunities, and provide environmental and social benefits. Both these concepts were used as a reference and guide for the assessment of CE in the MENA region and more specifically, the countries within context.

REGIONAL APPROACH AND CONCEPT OF CIRCULAR ECONOMY

MENA's interpretation of CE is mostly limited on actions seeking to mitigate the impact of existing activities rather than adapting to diminish the impact from being created in the first place. Their primary areas of focus include:

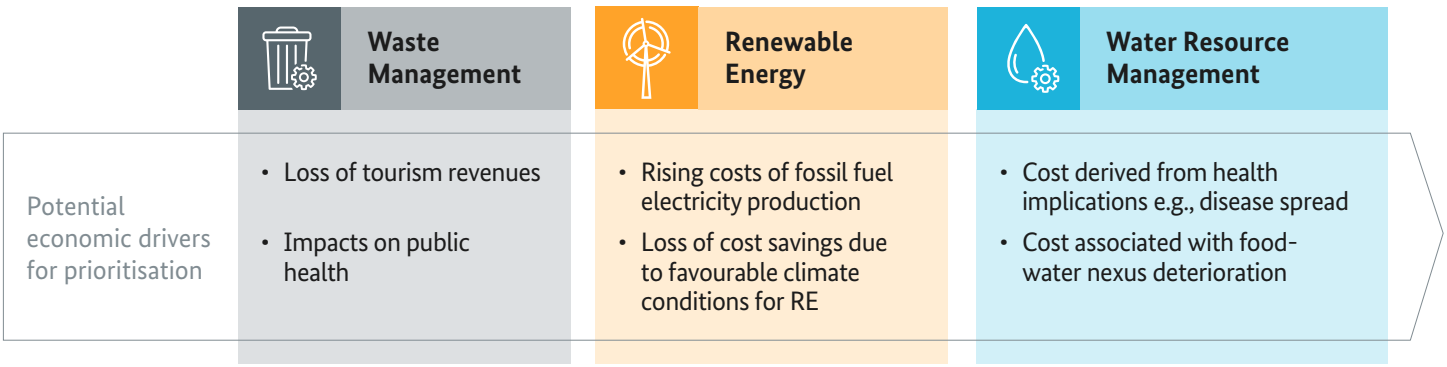


Figure 2: CE identified priority areas with potential economic drivers.

6 European Parliament News. "Circular Economy: Definition, Importance and Benefits".

7 Ellen Macarthur Foundation. "Circular Economy Glossary".

Secondary focus areas further outlined in the country zoom-in section include coastal management, green entrepreneurship and circular innovation and design.

The association of CE with **waste management activities** is not uncommon and is also the case for the MENA where CE is translated to activities around the disposal, recovery and recycling of materials. Public (incl. municipal) waste services in the region are generally limited and fail to meet service demand and effectively collect and properly dispose waste produced in the target countries' municipalities. In contrary, the informal sector made up by informal waste collectors is being very active in waste management engaging in activities such as sorting, material recovery and even repair so that they can sell them and make a living. The informality of the 'desired' aspects of this sector leaves a whole market of waste valorisation unproperly utilised in the region. As far as policy is concerned, all countries have drafted waste management action plans, and some are further along than others in their implementation, although it appears the majority struggles with enforcement and some struggle to come into agreement on a legislative framework.

Waste management appears to have been prioritised in the MENA due to the high monetary and social costs associated with inaction around this sector. For instance, one economic cost of inadequate waste management in the MENA region is the impact on tourism. Inadequate waste management leading to pollution and degradation of MENA's natural landscapes, deter tourists and reduce revenues from tourism in the countries with high reliance on the sector such as Egypt, Tunisia and Morocco. Another reason for this sector's prioritisation in the MENA could be the impact on human health. Inadequate waste management can lead to the spread of diseases, which can result in increased healthcare costs, loss in productivity and the deterioration of the wellbeing of MENA's populations, especially the vulnerable ones.

Increasing renewables contribution in the target countries' energy mix is another regional approach to CE. Large solar panel developments are carried out in the countries included in the assessment with Egypt and Morocco leading amongst the target countries and Jordan slowly increasing its take-up for renewable energy production in efforts to cope with rapidly increasing population numbers from refugee inflows. The rest of the target countries are soon to follow having already laid down strategies for increasing the renewable energy contribution to their countries' energy mix but still have a long way to go to match the production of the aforementioned countries. However, energy subsidies still given in some of the target countries such as Egypt, hinder efforts for sustainable development and signal conflicting national strategies. A shift to renewable energy production, as highlighted above, is critical in underpinning CE especially in the MENA region where waste material recovery and recycling potential is very high and is currently hampered by increasing energy costs.

Potential reasoning for prioritising renewable energy in the MENA includes the clear and established funding mechanisms which favour MENA's climate especially for solar energy production through photovoltaic panels. A strong case for this is the largest solar power plant in the world which is established in Morocco. In addition, the increasing costs associated with both producing and consuming electricity using fossil fuels, not just in the MENA but worldwide, also contribute to the prioritisation of this sector. For countries like Lebanon and the West Bank & Gaza, the difficulty with domestic energy security and daily power cuts, is also an important factor pushing towards renewable energy utilization.

Water resource management is another interpretation of CE in the MENA region who is plagued by droughts and water scarcity. Efforts have been made in most countries within scope for the treatment of wastewater and its reuse in the agricultural sector in particular. This has been prioritised because agriculture is a large contributor to the countries' national economy by employing people in the rural areas of the target countries. Additionally, it contributes to food security which is a real threat in the target countries especially the West Bank & Gaza and also by utilizing treated water for irrigation, freshwater reservoirs can be used for drinking, health and sanitation. Efforts have not always been very successful due to several reasons including failure of coordination and cooperation between stakeholders, failure to meet required water quality standards for treated effluent as well as illegal irrigation activities which not only compromise the environment but also pose a threat on human health.

Water resource management is of high priority in the Middle East and North Africa region, as several countries within this study, including Egypt and Jordan, are considered among the most water-stressed in the world. In addition, the remaining countries are also considered water-scarce. Given the fundamental importance of water across most economic sectors, such as agriculture, manufacturing, healthcare, and domestic use, it is not surprising that water resource management is a critical issue. However, the high costs associated with water treatment, coupled with increasing energy costs, hinder water reuse, and contribute to poor water quality and distribution. This creates opportunities for the spread of infectious diseases, which imposes high costs for dealing with such crises.

Despite the noticeable economic costs implied from inaction in the three main priority areas through literature, no actual figures or studies were identified quantifying the extend these had on the MENA countries' economic development.

Overall, the MENA region seems to be lacking in CE initiatives around material circularity targeted on closing the loop by focusing on the full lifecycle of products and services.

According to a study by Nygaard Uhrenholt et al.[8] an explorative maturity is interpreted by the demonstration of projects and pilots initiated across different functions in the system to prove the value of the circular economy and to test organisational capabilities. The region's maturity level could be described as explorative regarding Circular Economy principles. With a few exceptions, the majority of initiatives and research carried out is around the mitigation of existing practices in the aforementioned focus are along with others such as coastal management and energy efficiency. Concepts such as green entrepreneurship and circular design are still at very early stages in the target countries and have negligent impact when compared to primary focus areas mentioned above. The facilitation of SwitchMed to the target countries' National Action Plans for Sustainable Consumption and Production (SCP-NAP) was helpful in moving towards material circularity accompanied by responsible consumer behaviour encouraging waste minimization. Nevertheless, the awareness with regards to the CE is increasing and as such, there is a potential for the youth to take an active part in adaptation and incorporation activities for CE in the design stage of products and services.

8 Nygaard Uhrenholt, Jonas, et al. 'Maturity Model as a Driver for Circular Economy Transformation'.

OVERVIEW OF THE CIRCULAR ECONOMY ECOSYSTEM

A lack of circularity to economic development in the target countries in the MENA region could be hindering their growth potential, particularly given their resource scarcity. A CE approach could address the region's current struggles with basic waste management issues, including solid waste and pollution. It could also respond to the growing need for resource optimisation by tackling the region's scarcity in natural resources and high dependency on imported materials. A dual opportunity therefore presents itself in applying circularity in the region; an opportunity for financial gain (by capitalising on resources otherwise left unutilized) as well as reducing the respective country's environmental footprint. Both of these objectives are of prime importance, especially in the post-coronavirus pandemic (COVID-19) era which negatively affected the overall MENA region's economies.

Detailed below is a break-down of the key aspects (Government, Access to Finance, Research, Human Capital, Business Support) of the CE ecosystem in the target countries. More information can be found in the individual country zoom-in section that follows.

GOVERNMENT

Given the interpretation of CE as linked to the waste management sector in the target countries, the respective governments are automatically put to the spotlight considering they are those responsible for the majority of waste service provision.

Government in the countries included in the assessment acknowledge the impact inaction around waste management causes and have taken steps to develop strategies and action plans, the adoption and implementation of which has been challenging.

There is a strong link between CE and integrated waste management. The governments of the seven countries in our peer group have acknowledge the relevance of avoiding the growing amount of waste by reusing and recycling exploited products. Moreover, the uncontrolled dumping of waste in landfills, a common practice in all countries, is commonly recognised as constituting a serious threat to the health of citizens. A decade ago, governments started realising the multiple business opportunities in the scope of collecting, sorting and recycling waste, as well as the valuable energy that can be produced out of these materials which would help in reducing public spending on energy. More importantly, from political and social standpoints, there are many incentives for green business and job creation, a major concern in all MENA countries, that remain untapped. In addressing this situation and the environmental, social and economic needs, all the seven countries have developed national waste management strategies. Furthermore, many of these national strategies resulted in the adoption of specific laws and regulations, with detailed provisions on handling different types of waste. A growing number of these legislations, in particular those adopted in recent years, already include multiple aspects of the circular economy. Unfortunately, the target countries struggle to properly enforce their waste management strategies leaving large sums of waste uncollected and dumped at illegal dumpsites. Despite the government's role in waste management, recycling rates remain very low, and the majority of

such activities takes place informally by refugees and other vulnerable groups of people. The inability of governments and municipalities to service the majority of residential and industrial waste generated creates a large problem with pollution and potentially hazardous waste congesting landfills or illegal dumpsites.

ACCESS TO FINANCE

Due to the conflict affecting countries within the region, it is harder for some countries such as Palestine or Lebanon, to obtain single country funding/financing than others.

Financing for conflict-stricken countries from donor organisations will focus on stabilisation and the provision of basic water provision for health and sanitation purposes rather than scaling-up circular economy which is not deemed a priority for countries in this state of affairs. For instance, in Lebanon loans and financial support from domestic financing institutions aimed at start-ups and SMEs have been suspended until further notice since 2019 following the country's economic crisis coupled with Covid-19. Green entrepreneurs in Lebanon can now only obtain funding through other means such as national or international private investors, business accelerators, etc.

Regional funding or financing of projects is not uncommon in the region with a few already underway.

For instance, a climate finance study is taking place for the private sector at scale through partner financial institutions (PFIs) across 10 countries including Egypt, Jordan, Morocco and Tunisia. ENI CBC MED also has a range of ongoing projects engaging multiple countries within scope, such as the SIRCLES project (Palestine, Jordan, Lebanon, Tunisia), CEOMED (Jordan, Tunisia), MED4WASTE (Tunisia, Lebanon, Jordan), INVESTMED (Tunisia, Lebanon, Egypt) and many others.

Projects funded in the target countries (except West Bank & Gaza) revolve mostly around water resource management (incl. wastewater treatment), energy efficiency and renewable energy.

Individual renewable energy projects, such as solar parks development in the region, have the highest chance of access to Finance. This is said, considering EBRD's preference for such projects along with other funding mechanisms such as the Green Climate Fund and the Clean Technology Fund.

Financing criteria for 'softer', non-infrastructural CE projects are not always available and hence make their understanding and ultimately financing/ funding much harder than 'black or white' large renewable energy developments or wastewater treatment plans.

Despite the various means identified for climate related project funding and financing, there is still many ways to go for circular economy related projects. Currently, large donor organisations such as the World Bank and EBRD show a preference for funding on larger infrastructural developments around renewable energy production and wastewater treatment plants. Local business incubators and accelerators within each country have a more active role in supporting green

entrepreneurs and small projects. Information regarding sustainable finance including green bonds, green loans etc. should be communicated to business owners who should be encouraged to take up any such opportunities. Financing institutions should also procure advice in the development of financial green products to help facilitate the green transition in their countries.

RESEARCH

Academic stakeholders and research initiatives around CE are appear most active in Morocco and Egypt amongst the countries within scope and include studies performed by higher education institutions in Egypt as well as abroad.

The research areas of focus include strategies for efficient water resource management, sustainable crop production, wastewater treatment and reuse, sustainable fish farming, smart irrigation systems for agriculture, plastics mapping, and circular design among others.

Research activity in the rest of the countries within scope is much more limited and focuses on the subjects of water resource management, sustainable textiles, sustainable finance and waste management.

Despite the several ongoing projects for circular economy in the region, there seems to be a gap with the local awareness of people in the researched countries. For instance, in Egypt research carried out around circular economy and its implementation in the country does not translate to the locals' awareness about circular economy concepts and how they can be implemented. This is noticeable throughout the countries included in the assessment with overall technical skill capacity and awareness around circular economy being low.

SwitchMed, an initiative funded by the EU is active in all countries within scope and in collaboration with various organisations has executed a range of research projects for individual countries as well as regional ones. SwitchMed is the most active advocate for CE in the Southern Mediterranean and its aim is to change the way goods and services are produced and consumed via the provision of tools and services directed to the private sector, support for an enabling policy environment and the facilitation of information exchange between partners and key stakeholders. It is also important to mention that SwitchMed had an integral role in the drafting of the Sustainable Consumption and Production National Action Plans (SCP-NAP) of all countries within scope.

HUMAN CAPITAL

Formal education programs and courses on CE are scarcely available in the target countries.

The vast majority of capacity building of knowledge and skills in the target countries is carried out either in the form of short course provided by local and regional organisations through international support programs (such as Switchmed and the Switchers). For the three countries located in Africa i.e., Tunisia, Morocco and Egypt, there are also short training courses being provided around CE by the ACEN Foundation.

The informal waste collectors are considered a large key player in the waste management sector engaging in CE enabling activities.

With no formal training, people working in the informal waste sector are involved with waste sorting and recovery of valuable materials especially from e-waste. Material sorted or recovered is either sold for recycling or repaired and resold as 2nd hand item. These sectors are particularly large in Lebanon and Egypt as well as the rest of the target countries and despite not having any formal training, they have a huge impact on the waste management sector.

High literacy rates in Jordan are not translated into a skilled CE workforce due to low interest in this field.

The fast-growing tertiary sector in Jordan matched by the increasing literacy rates amongst youth and young adults appears to be solely focused on the technology sector. The technology sector is where most of the funding and private investing takes place currently in Jordan so young employees have an incentive to direct their careers towards that path. Therefore, CE interest seems minimal, since it is not seen as a high economic priority when compared to sectors such as technology. The difficulty to link CE within economic priorities and agendas including those of the technology sector along with awareness building campaigns related to CE application further hinders workforce attraction for this sector.

BUSINESS SUPPORT

The private sector in the countries included in the assessment remains weak in the take up of circular initiatives as a result of the general business environment and the lack of governmental commitments to CE.

According to a report by the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB) and the World Bank (WB), four different constraints have been identified as holding the region's private sector back from flourishing. These were, the general business environment; firm finance and financial constraints; employment in the private sector; and competitiveness, with a focus on trade, innovation, and management practices. More specifically these obstacles were further broken down into the below points:

- Political instability;
- Corruption;
- Management practices lagging behind best practices in comparable countries;
- Political connections and informality undermining fair competition;
- Businesses less capable of exploiting the benefits of trade, innovation and digitisation;
- Few firms in the region investing in their workers;
- Difficult access to finance and low investment rates;
- Prohibitive market regulatory barriers.

Firms with political connections extract relative gains from their privileged positions. But the leveraging of influence also has the indirect effect of forcing competing firms to compensate with other means of political access. The region's large informal sector also weighs heavily on established firms. Competition from informal economic activity results in lower growth expectations and consequently lower probability of accessing finance, as evidenced by fewer loan applications. This is particularly felt in the waste management sector of the countries within scope with the majority of activities taking place outside municipal waste services.

The private sector's role is imperative in identifying focus areas for CE and it should become more proactive in highlighting them as such. However, this is not currently enabled by the respective governments which need to provide clear signals on their commitment towards a CE transition, as well as opening the doors for a continuous dialogue with the private sector. A good example for this would be Jordan's EPR.

Business support organisations and Civil Society Organisations (CSOs) can be instrumental in promoting the circular economy in local communities and, in some cases, can be more effective than public sector actions.

Lebanon is a good example in this regard. Through a variety of actions such as advocacy campaigns and local training programs (e.g. on repairing and reuse), CSOs can help shift local consumers to become advocates and participants of CE. The cultural transformation of a broad set of actors concerned about the management of common resources could also prove crucial in transitioning the current economic models towards circularity.

One of the most important stakeholders for providing business support is the Switchers organisation which has local representatives in all target countries.

The Switchers organisation is part of the Switchers Support Programme, an initiative which has a goal to contribute to the UN's 2030 Sustainable Development Agenda and its Sustainable Development Goals (SDGs). They have regional offices in each of the countries within scope and they provide business support services to private sector entrepreneurs that wish to build companies using green/circular business models.

Lebanon seems to be further along in the provision of business support for circular economy activities compared to the rest of the countries within scope. Through SwitchMed and the development of the "EcoSwitch Coalition", a partnership between more than 20 support organisations, they are very active in supporting green start-ups that wish to utilise circular practices.

KEY STAKEHOLDERS AND AVAILABLE PROGRAMS

A mapping exercise took place in an effort to identify the key actors and programs promoting CE in the countries within scope. Stakeholders identified were classified within the typology specified below:

- Support Programs
- Donor Organisations
- Business Support Organisations
- Networks
- Financing Institutions
- Government
- Academic and Research Institutions

All stakeholders active in the countries within scope, participate in programs and projects across a broad range of CE adjacent activities and sectors primarily target at impact mitigation. In other words, involvement by stakeholders is focused on mitigating the effects existing sectors and activities have in each country within scope. Each country's most material issues, as these were prioritised by the respective institutions with the aid of research (e.g., Acted, Trinomics, Adelphi etc.) are target for mitigation actions. Some stakeholders are country specific, and some others are operating across a combination of countries within scope if not the entire region i.e., MENA. The table below shows a list of important stakeholders and programs active in all countries within scope.

DONOR ORGANISATIONS

I EUROPEAN UNION

The European Commission adopted an action plan since 2015 with the aim of driving Europe's transition towards a circular economy, enhance global competitiveness, promote sustainable economic growth, and facilitate the creation of new employment opportunities.[9] The action plan acknowledges that reaching a circular economy in the EU cannot be attained without the involvement of neighbouring countries to achieve the EU and common objectives. As such, the EU developed frameworks to establish and enable cross-border co-operations on environmental issues in the Mediterranean on the policy, strategy and program levels.

II EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT (EBRD)

The EBRD[10] has recently become active in assisting private sector firms, industry associations, municipalities and governments under its Green Economy Transition (GET) approach for 2021 — 2025. CE is a fundamental programming theme of EBRD's GET approach along with other enabling themes such as renewable energy, energy and resource efficiency, climate resilience and just transition. In the countries within scope applicable programs by EBRD include:

- Green Cities
- Finance and Technology Transfer Centre for Climate Change (FINTECC)
- Green Economy Financing Facilities (GEFFs)

It should be noted that at present EBRD's programme Near Zero Waste is currently only active in Turkey.

III EUROPEAN INVESTMENT BANK (EIB)

The EU bank[11] is supportive to a circular economy transition and supports the public and private sector by providing support on three mutually reinforcing activity clusters: awareness raising, advice support and finance. Their projects, thus far, are focused on circular design and production, circular use and life extension, circular value recovery and circular support across all lifecycle stages. However, there are not many projects currently utilising EIB funding in the MENA region.

9 European Commission. 'Closing the loop - An EU action plan for the Circular Economy'. 2015

10 EBRD. 'The Green Economy Transition's Programmes and Themes'

11 EIB. 'EIB in the Circular Economy'

IV ISLAMIC DEVELOPMENT BANK

The Islamic Development Bank (IDB) via their Environmental and Social Policy Framework are funding a series of programmes in the region included in the assessment. More specifically, the Environmental and Social Performance Standard on Resource Efficiency and Pollution Prevention (Standard 3) recognizes the concept and emerging practice of the circular economy and resource recovery and is thus active primarily in solar energy projects, water resource management and sustainable cities (Egypt, Morocco, Jordan). Although much information on the specific projects within the target countries was scarce, significant sums have been pledged in helping the MENA region achieve a green transition[12].

V WORLD BANK

The World bank has recently developed the Middle East and North Africa Climate Roadmap for 2021 – 2025 outlining a series of priority areas and programs they will be supporting in the coming years to help the region enhance its climate resilience and transition to a green economy. The roadmap includes increased investments to be used toward climate-smart projects and policy reform, as well as private sector financing. Their priority areas are focused on climate-smart agriculture and efficient resource management (e.g. Morocco's technology take up in farming to increase resource use efficiency). Other priority areas include renewable energy with massive solar panel project undertaken in Egypt and Morocco, as well as wastewater treatment and reuse along with the regeneration of coastal environments. Sustainable financing is another important focus area for the World Bank who aims to enable the countries included in the assessment to increase green entrepreneurship (e.g. Egypt's issue of their first sovereign green bond, Tunisia's microfinance for green projects, etc.)[13].

12 Adam, Alvaro. 'Circular Economy: Now or Never'.

13 World Bank. 'Home-Middle East and North Africa'.

SUPPORT PROGRAMS AND COMPETITIONS

I ENI CBC MED

ENI CBC Med[14] is the largest Cross-Border Cooperation (CBC) initiative which finances cooperation projects for a more competitive, innovative, inclusive and sustainable Mediterranean area. They engage in numerous cross-country projects with countries within the region included in the assessment being part of them such as the below:

- AQUACYCLE: Towards Sustainable Treatment and Reuse of Wastewater (in Greece, Spain, Malta, **Lebanon, Tunisia**)
- CEOMED: Employing circular economy approach for OFMSW management (in Spain, Italy, Greece, **Jordan, Tunisia**)
- MED4WASTE: Mediterranean Dialogue for Waste Management Governance (in Spain, Greece, **Tunisia, Lebanon, Jordan,** Italy)
- GIMED: Green Impact MED Project - Positive Investments for Positive Impacts (in Spain, **Lebanon, Palestine, Tunisia, Egypt,** Italy)
- INVESTMED: Supporting innovative sustainable start-ups with an ultimate goal of increasing economic opportunities and jobs for young people and women (in **Tunisia, Lebanon,** and **Egypt**) and many others.
- RESET (RESults Enabling Transitions): mapping, synthesising and mainstreaming sustainable, green and circular business support achievements in the MED region, for replication and policy making (in Spain, Italy, **Lebanon, Palestine, Tunisia**).
- RE-MED: applying innovation for the development of circular economy and sustainability in construction in the Mediterranean (in France, Italy, **Tunisia, Lebanon**)

INITIATED BY

- European Union

SUPPORTED BY

- European Neighbourhood Instrument (ENI)

14 Home – ENI CBC MED

II SWITCHMED

SwitchMed[15] is an initiative aiming to achieve circular economy in the southern Mediterranean. Their efforts are concentrated around redesigning the way goods and services are produced in the countries within scope. The initiative is currently undergoing its second phase which capitalising on the results of the first phase, has the following objectives:

1. Direct support to the private sector;
2. Creation of an enabling policy environment;
3. And Coordination, networking and communication.

Each country has a profile within the SwitchMed website highlighting all currently active and completed projects along with useful links to relevant stakeholder sites.

FUNDED BY

- European Union

SUPPORTED BY

- United Nations Industrial Development Organisation (UNIDO)
- United Nations Environment Programme (UNEP)/Mediterranean Action Plan (MAP) regional Activity Centre (RAC) for Sustainable Consumption and Production (SCP) known as MedWaves
- United Nations Environment Programme (UNEP);
- Directorate-General for Neighbourhood and Enlargement (DG NEAR).

15 SwitchMed.eu

III CLEAN TECHNOLOGY FUND

The Clean Technology Fund (CTF), under the Climate Investment Funds (CIF) framework, promotes scaled-up financing for demonstration, deployment and transfer of low-carbon technologies with significant potential for long-term greenhouse gas emissions savings implementation in renewable energy, energy efficiency, and clean transport in emerging market middle-income and developing economies. The CTF is at the forefront of financing promising renewable energy technologies, such as concentrated solar power (CSP) including to countries within scope such as Egypt, Jordan, Morocco and Tunisia[16].

FUNDED BY

- Countries such as: Australia, Canada, France, Germany, Japan, Spain, Sweden, United Kingdom and United States

CHANNELED BY

- African Development Bank,
- Asian Development Bank,
- EBRD,
- Inter-American Development Bank,
- and World Bank Group.

IV GREEN CLIMATE FUND

The Green Climate Fund (GCF) established in alignment of the Paris Agreement is the world's largest climate fund, mandated to support developing countries raise and realise their Nationally Determined Contributions (NDC) ambitions towards low-emissions, climate-resilient pathways. Most funds channelled in the region included in the assessment are in Egypt and Morocco who receive the vast majority of funding followed by Jordan, Lebanon and Tunisia. Unfortunately, the West Bank and Gaza do not receive any funding from GCF due to the ongoing conflict taking place in the country. Funded programs include but are not limited to renewable energy, energy efficiency, climate adaptation, sustainable financing and sustainable agriculture[17].

INITIATED BY

- United Nations Framework Convention on Climate Change (UNFCC)

FUNDED BY

- 49 countries/regions/cities including Australia, France, Canada, Germany and many others.

16 CIF. 'MIDDLE EAST and NORTH AFRICA'

17 Watson, Charlene, and Liane Schalatek. 'Climate Finance Regional Briefing: Middle East and North Africa'

V THE SWITCHERS ORGANISATION AND PROGRAMME

The Switchers organisation belongs to the Switchers Support Programme which is an initiative aimed at creating and enhancing sustainable businesses and contribute to the UN's 2030 Agenda for Sustainable Development and its SDGs[18].

In the target countries, Switchers have set up National Partnerships gathered under a common community of practices Business Support Organisations which targets sustainable entrepreneurs and companies[19]. Their main targets are businesses implementing or wanting to implement innovative ecological and social solutions that contribute to a switch to sustainable and fair consumption and production models.

INITIATED BY

- UN Environment MAP Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC)

SUPPORTED BY

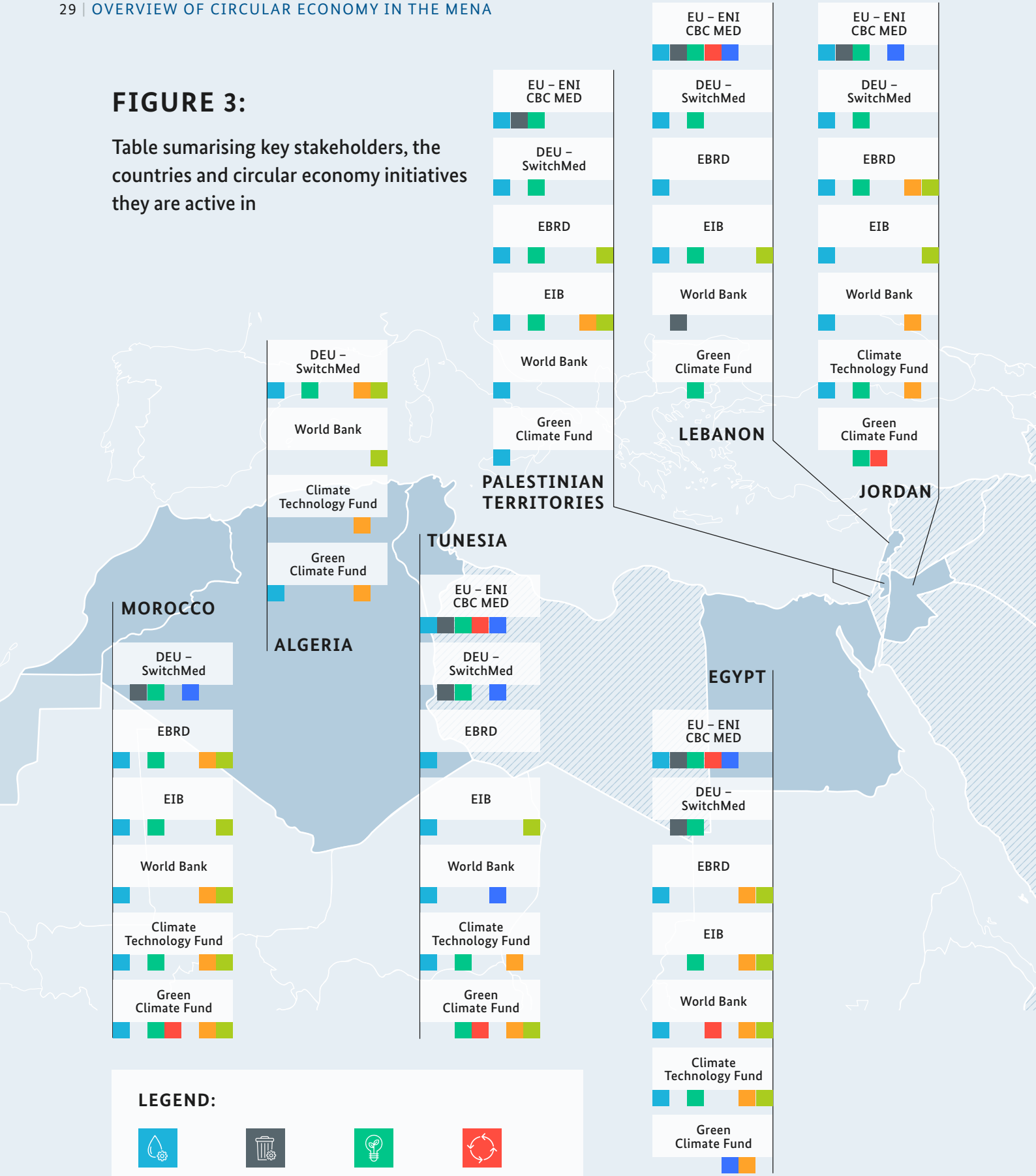
- European Union through the SwitchMed programme and ENI CBC Med;
- Government of Catalonia through the Waste Agency of Catalonia;
- UN Environment MAP;
- Organisation for Security and Co-operation in Europe;
- and the Union for the Mediterranean.

18 The Switchers.org

19 Switchers representatives in the countries within scope: Jordan (Business Development Centre), Lebanon (Fondation Diane), Morocco (Centre des Très Petites Entreprises Solidaires), West Bank & Gaza (Palestine Center for Continuing Education – Birzeit University), Tunisia (Centre International des Technologies de l'Environnement de Tunis (CITET), Egypt (CEDARE).

FIGURE 3:

Table sumarising key stakeholders, the countries and circular economy initiatives they are active in

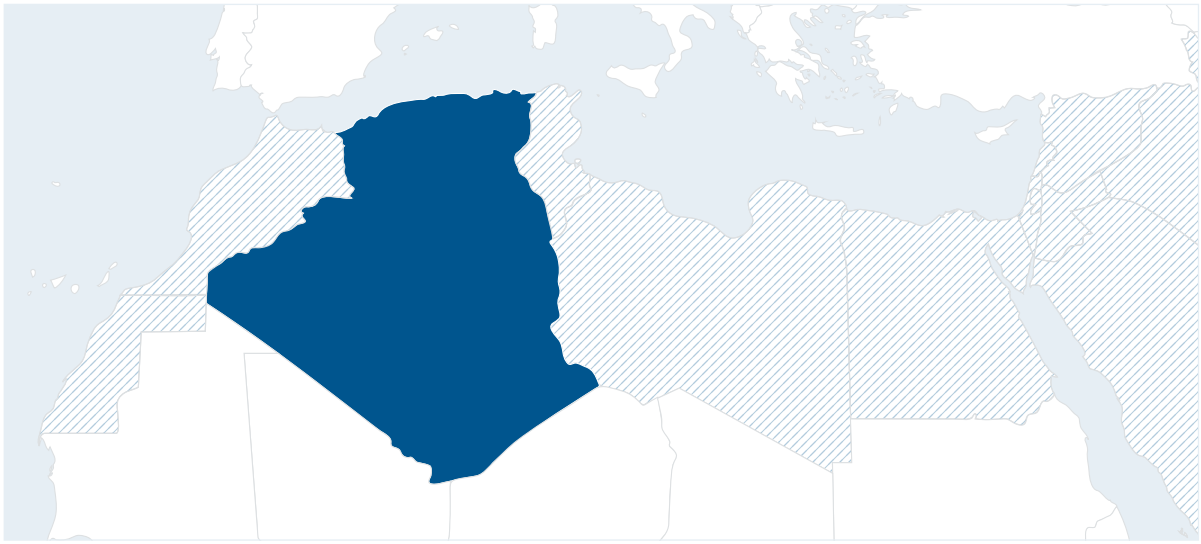


LEGEND:

- Water Resource Efficiency
- Waste Management
- Green Entrepreneurship
- Circular Innovation or Design
- Coastal Management
- Renewable Energy
- Energy Efficiency

Note: SwitchMed activities in all countries within scope for green entrepreneurship and innovation as well as capacity building in CE are facilitated via the Switchers programme.

Country Zoom-in



ALGERIA

OVERVIEW

CE in Algeria is well documented and established within national laws and regulations, which makes the country stand out amongst the ones within scope. Waste management, with a specific focus on household waste, along with renewable energy solutions are the two core areas of focus around CE in the country with fewer enabling activities in the field of sustainable textiles, organic cosmetics, resource efficiency, sustainable tourism and agriculture. Enforcement of the laws and regulations remains a challenge despite efforts made by the Algerian government to ensure it and the political significance that treating and recycling urban waste carries.

CE in Algeria can be considered as being in its early stages with the overall lack of awareness and understanding of the circular economy concept among the general public and businesses. Research and capacity building around the topic is restricted to stand-alone subjects such as water resource management rather than the holistic approach to the CE concept. The limited funding both domestically and internationally for SME's could also be regarded as a barrier of growth for CE in Algeria as it restricts technical capacity building to engage in CE practices within businesses. The majority of funding in Algeria as seen in Figure 3 is channelled from international organizations towards water resource efficiency, renewable energy and water resource efficiency. Some financing support is provided only via SwitchMed for circular SMEs, specifically the Switchers initiative.

KEY TRENDS AND FINDINGS

Algeria has been showing progress in its circular economy momentum, with a focus on developing sustainable waste management practices and renewable energy solutions.

CE efforts also span out to sustainable textiles and clothing, organic cosmetics and cleaning, resource efficiency, sustainable tourism, and sustainable food and agriculture. Despite progress along these sectors, Algerian authorities struggle with

finding ways to adopt the broader concept of CE as an integrated socio-economic system which can derive positive effects on the country's green transition[20]. Some of their restraints to doing so include the lack of effective enforcement of environmental laws and regulations, which results in low recycling rates and minimal recovery channels for waste. Landfilling remains the primary way of eliminating household waste, and the recycling industry is not well developed. Another challenge is the limited availability of financing for circular economy projects and the lack of awareness and knowledge about circular economy principles and practices among key stakeholders.

The Algerian authorities have made efforts to confront some of the drawbacks affecting the growth of CE by focusing on strengthening the legal framework and governance around it.

Waste management is of great political importance in Algeria, and the government is currently planning to strengthen the legal framework, including the ban of single-use plastic, to address it. However, although discussions around these options have been going on for years no progress on its implementation has been observed, perhaps due to the fact that there are no alternatives present in the market[21].

The Algerian MoE has also implemented a set of measures in the first half of 2021 across different levels as part of its roadmap objectives looking to prioritise the environment and quality of life for its citizens. These multi-level measures were target at the optimisation of waste management, repair management measures for existing practices mitigation and lastly measures for the control, surveillance and prevention of pollution sources.

Their efforts are facilitated by the set-up of their National Waste Agency (NWA) and 'Eco Jem', a public system for the recovery and valorisation of packaging waste. Eco Jem's procedures of establishment, organisation, operation and financing fall under the supervision of the NWA. Reinforced with national legislation this public system obliges the generators and / or holders of packaging waste to either:

- self-evaluate and recover packaging waste themselves out of their own expenses,
- transpose the recovery of their packaging waste to other approved companies or,
- join Eco Jem and benefit from state support in packaging waste recovery.

The NWA, ordered by the MoE is also working to improve the quality of data available for waste management and as such is conducting a national study for the quantitative assessment of household waste. Despite varying household waste generation rates in different parts of the country, the overall amount of household waste treated was 45% in 2020 according to the NWA, most of which was composed of cardboard and plastic[22].

20 BENAMRAOUI, F. and BERRACHED BERBAR, W.

21 The Switchers Algiers, 'Algeria Resource Efficiency and Sustainable Waste Management'

22 Agence Nationale Des Déchets

Algeria has established a governance system with main powers for developing the circular economy under the supervision of two government bodies — the Ministry of Environment and Renewable Energies, and the Ministry of Industry and Mines.

In practice, the enforcement of environmental laws is assigned to various national agencies with specific responsibilities placed under the control of these two ministries. More recently, the principle of a "rational use of natural resources" has been included in the new Constitution of 2020. Currently, the Algerian government plans to further strengthen the existing legal framework by adopting, among others, rules on the ban of single plastic, in particular plastic bags[23].

However, Algeria seems to struggle with an effective application of its legal framework and institutional setup.

When compared to the other countries in the MENA region, today Algeria has a relatively well-developed environmental legislation with comprehensive rules on specific circular economy aspects. Yet, the country seems to struggle with an effective application of its legal framework and institutional setup. According to GIZ, landfilling continues to be the main way of eliminating household waste in Algeria. Despite the laws and public agencies in place, the recycling rate is very low and recovery channels are still minimal[24]. Due to public dissatisfaction with urban waste management, the subject of treatment and recycling of waste is of great political importance in Algeria[25].

Centre National des Technologies de Production plus Propre (CNTPP) is the local BSO partner organisation of the Switchers initiative in Algeria providing support services to green entrepreneurs.

CNTPP services provide enabling services primarily for waste management, sustainable textiles and clothing, organic cosmetics and cleaning, resource efficiency and sustainable waste management, sustainable tourism and sustainable food and agriculture sectors. CNTPP has also signed a framework cooperation agreement with 'Sonatrach', the state-owned oil and gas company in Algeria for the enhancement of their environmental and technological efforts[26, 27].

RELEVANT LAWS AND REGULATIONS ENABLING CIRCULAR ECONOMY

The main laws and regulations defining the general legal framework of circular economy in Algeria include:

23 Agence Nationale des Déchets, Report « Regard Croisé dur les Plastiques à l'usage Unique », 2019/2020, at www.and.dz

24 In 2004, the Algerian government launched a national take-back, recycling and recovery system packaging waste called ECO-JEM. However, it seems that its objectives have not been achieved, for various reasons.

25 www.giz.de/de/downloads/giz2018-DE-Portfolio-Algerien.pdf

26 The Switchers – Algeria Archives

27 Petroleum Africa

Constitution of the People's Democratic Republic of Algeria (2020)[28] — stating in the preamble that "the people remain concerned with environmental degradation and the negative effects of climate change, and they are eager to ensure protection of the natural environment and the rational use of natural resources in order to preserve them for future generations."

- **Environmental Law (2003)**[29] — the law introduced basic concepts of environmental protection in the context of sustainable development and introduced the "polluter-pays"-principle, replacing Algeria's first law on environmental protection of 1983[30].
- **Law on Management, Control and Elimination of Waste (2001)**[31] — the law establishes and outlines basic principles for managing and eliminating waste in Algeria. It is accompanied by a number of executive decrees on its application to specific topics, including:
    - on preventing, reducing the production and harmfulness of waste at origin
    - on collecting, sorting, the transport and handling of waste
    - on Recycling of Waste
    - on eco-rational treatment of waste
    - on the sensibilisation of citizens on the risks that waste presents to health and environment, and measures to mitigate those risks
- **Law on Preventing Major Risks by Municipalities (2004)**[32] — the law outlines the responsibility of Algerian municipalities to prevent citizens from major risks in the context of a sustainable development.
- **Executive Decree on the Creation, Organisation and Financing of the Public Packaging Waste Processing System (2004)**[33]
- **Regulation on Packaging Waste (2002)**[34]

RELEVANT NATIONAL STRATEGIES AND ACTION PLANS

The below series of national adaptation and sectoral strategies were developed on a range of matters which aim to facilitate the transition to a CE. The list below summarises some of the main strategies identified in Algeria:

- National Strategy for Integrated Waste Management (SNGID 2035)[35]
- Stratégie Nationale pour l'Économie Bleue 2035 (SNEB, 2021)[36]
- Sustainable Consumption and Production National Action Plan (SCP-NAP)[37]

28 Algeria_2020.pdf (constituteproject.org)

29 Loi nr. 03-10 du 19.07.2003

30 Loi nr. 83-03 du 05.02.1983.

31 Loi nr. 01-19 du 12.12.2001

32 Loi nr. 04-20 du 25.12.2004

33 Décret exécutif du 19.07.2004 fixant les modalités de création, d'organisation, de fonctionnement et de financement du système de reprise et de valorisation des déchets d'emballages.

34 Décret exécutif du 11.11.2002 Relatif aux déchets d'emballages.

35 Stratégie Nationale de la Gestion Intégrée et de la Valorisation des Déchets à l'Horizon 2035, Déchets - Ministère de l'environnement

36 mpeche.gov.dz/fr/wp-content/uploads/2022/05/STRATEGIE-NATIONALE-POUR-LECONOMIE-BLEUE-ALGERIE-SNEB-2030.pdf

37 www.unep.org/resources/report/sustainable-consumption-and-production-national-action-plan-algeria

- National Action Plan for the Environment and Sustainable Development (PNAEDD, 2015)
- National Climate Plan (2013)
- Renewable Energy and Energy Efficiency Development Plan (2011)
- National Environmental Strategy (SNE, 2001 – 2011)
- Plan National de Gestion des Déchets Spéciaux (PNAGDES)

MAIN ECONOMIC SECTORS ENGAGING IN CE PRACTICES

Aside initiatives around waste management, which are predominantly initiated by the Algerian state, resource efficiency and more specifically, energy transition to renewable energy along with energy efficiency is another area of strategic focus for the country.

MED TEST I, an EU funded project for resource efficiency ran by SwitchMed in Algeria which finished in 2018, showed promising results in resource efficiency and ultimately cost reduction in the production of 12 food and beverage companies in the country. Aside energy savings, water and other raw material savings were achieved in the process of the project implementation. As a result, MED TEST II which is newer version of this project is now being expanded until 2023, where resource efficient production scale-up will be sought after for additional sectors, industries and regions in Algeria[38].

Aside from the MED TEST projects, energy efficiency and renewable energy transition are one of the three strategic focus areas of Algeria's National Environmental Plan and Sustainable Development Plan which lay out a set of reformatory measures to enable such a transition[39].

In contrast with the rest of the countries within scope, a few technical skill building courses were identified for Algeria along with academic research undertaken in both Algeria and abroad focused primarily on water resource efficiency.

As part of the EU Water and Environment Support (WES) project, in cooperation with Algeria's MoE and Renewable resources along with the National Conservatory of Environmental Training (CNFE) a pilot university training of trainers was carried out on the subject of green entrepreneurship and CE in Algeria[40].

Algeria also conducted a series of workshops organised by the United Nations Economic and Social Commission for Western Asia (ESCWA) and other partner organisations with the subject "Increasing Watershed Resilience to Climate Change: Implementing the 2030 Agenda for Water Efficiency in Algeria". This series of workshops provided valuable capacity building to key stakeholders of the state and experts[41].

38 SwitchMed. "Sustainable Industries in Algeria."

39 SwitchMed Algeria, SCP-NAPs monitoring and implementation

40 Papadogeorgaki, Lisa. "Closing Event of the WES Activity on the Pilot University Training on Green Entrepreneurship and Circular Economy in Algeria."

41 ESCWA. "Implementing the 2030 Agenda for Water Efficiency in Algeria."

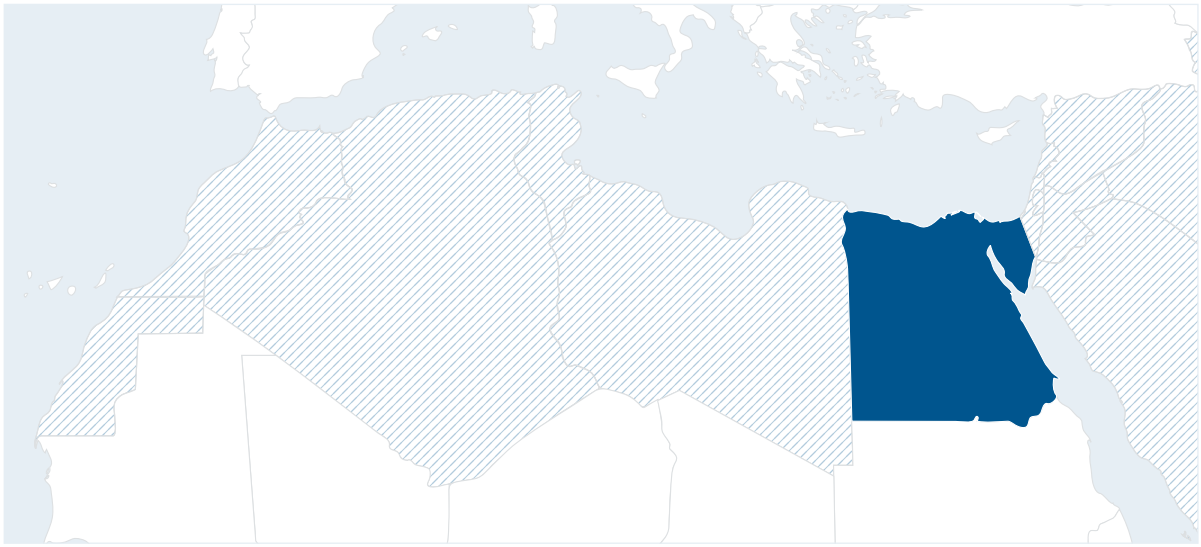
KEY STAKEHOLDERS MAPPING

The table below indicates the main sectors that CE initiatives are tackling in the country as well as the main active stakeholders[42].

FOCUS AREAS			
 **Waste Management** (focus on cardboard, plastic)	 **Energy transition and energy efficiency**	 **Renewable Energy**	 **Water resource management**

STAKEHOLDER TYPE	KEY STAKEHOLDERS
Government and public institutions	Ministry of Environment and Renewable Energies, Ministry of Industry and Mines, National Waste Agency, Centre international des conferences CIC Abdelatif Rahal, National Renewable Energy Company (SHAEMS), National Agency for the Promotion and Rationalisation of Energy Use (APRUE), Institute of Renewable Energy (IAER)
Donors	EU, IDF, UNIDO
Support Programs	SwitchMed, Global Green Growth Institute, Economic and Social Commission for Western Asia (ESCWA), African Circular Economy Network, ACSAD, AOAD
BSOs	The National Centre for Cleaner Production Technologies “CNTPP”
Academic and Research	UNIDO, Friedrich-Ebert-Stiftung
Financing Institutions	World Bank, EIB, CTF, GCF

42 Disclaimer: The stakeholders do not constitute an exhaustive list as the mapping was limited to online research only.



EGYPT

OVERVIEW

The Egyptian government has shown commitment to promoting circular economy principles via various policies and initiatives aimed at reducing waste, increasing resource efficiency, and promoting sustainable consumption and production. For example, the government has implemented a ban on single-use plastic bags, which is an important step towards reducing plastic waste and promoting more sustainable practices. Waste Management and water resource efficiency are the two priority areas that have been active in Egypt the longest, with activities such as recycling of waste, water reuse and desalination. Informal waste collectors play a very crucial role in the overall waste management in the country, but poses some risks given the unregulated nature of this activity. CE initiatives are starting to pick up in other economic sectors such as the use of recycled materials in the production process of textiles or in the construction sector. However, these initiatives are still in their early stages.

Access to finance is a significant challenge for circular economy projects in Egypt, despite a few existing opportunities. The African Development Bank[43] has launched the Circular Economy Investment Fund, which provides financial support to innovative circular economy projects in Africa, including Egypt. Additionally, in terms of domestic funding, the Ministry of Trade and Industry has established the Small and Medium Enterprises Development Agency (MSMEDA) in 2018, which provides financial support and business development services to small and medium-sized enterprises, including those in the circular economy sector. It is worth mentioning that no actual cases of funded enterprises could be recovered from secondary research.

Overall, there is still a long way to go to fully implement a circular economy in Egypt. The country is still lacking sufficient waste management infrastructure, while circular product design and innovation is still at early stages.

43 AFDB 2022, 'African Development Bank launch of dedicated trust for circular economy'

KEY TRENDS AND FINDINGS

According to the Circularity Gap report 2021 Egypt was identified as one of the six 'Grow' countries which means the country is identified as a manufacturing hub, owning 47% of global emissions and 51% of global resource extraction.[44]

This means, Egypt belongs to a group of countries which should prioritise sustainable agriculture, mainstreaming resource efficient and low carbon construction materials, switch to renewable energy, establish waste management infrastructure for material recycling particularly for construction and demolition waste[45]. Egypt also hosted the Climate Implementation Summit COP27 in Sharm El-Sheikh and has listed out its vision and mission on Climate related ambitions it would like to achieve. Being a heavily industrialised country, Egypt energy demand skyrocketed causing electricity shortages from 2012. As a response, the government engaged in actions such as halving the electricity supply for specific energy-intensive sectors (such as) cement and also attempted to diversify the energy mix via the creation of the Benban Solar Park which is currently the fourth largest photovoltaic power plant in the world[46].

In 2020, the Waste Management Law provided a legal basis for the adoption of regulatory measures to limit single-use plastic bags in Egypt.

Egypt along with Morocco, have received the largest amounts of financing for renewable energy developments by donors.

The new Waste Management Law for the use of plastic bags established (I) various technical criteria to manufacture, import or export plastic bags (II) various criteria for the sale, circulation, storage, free distribution, or disposal of plastic bags that may take place and (III) financial and other forms of economic incentives to encourage innovation for safe, environmentally friendly alternatives for single-use plastic bags[47]. However, this Law is not fully enforced to date, despite several announcements by respective government bodies in the last two years[48]. Yet, first bans on plastic bags have been recently implemented by local authorities, most prominently in Sharm El Sheik in November 2022 in the context of the city hosting the COP27[49].

The Waste Management Regulatory Authority (WMRA) is supposed to play an important role in further developing Egypt's waste management sector.

44 PACE: "Circularity Gap Report 2021".

45 Alternative Policy Solutions. "Background Paper: Egypt's Circular Economy: Challenges and Opportunities in Textiles, Plastics and Cement".

46 MoE, EEAA. "Egypt's First Biennial Update Report to the UNFCC".

47 Waste Management Law no. 202-2020, Article 27.

48 https://www.egypttoday.com/Article/1/100156/How-does-Egypt-get-rid-of-single-use-plastic-bag

49 https://www.arabnews.com/node/2186071/middle-east The drive to ban single-use plastics started two years earlier when, in June 2019, as in Egypt's Red Sea Governorate prohibited the single-use of plastic bags, plastic cutlery used in restaurants, coffee shops, supermarkets, groceries, butchers, fisheries, and pharmacies, and during safari and boat trips.

For this purpose, the WMRA has been granted competencies, among others, in the scope of preparing and reviewing proposals to develop and update legislation, laws, regulations, standards and technical rules that regulate the method of integrated waste management. Finally, it is also worth to be noted that the Egyptian government already receives important support for enhancing its waste management system from various international donors, including the Japanese Cooperation (JICA) and, GIZ that is providing further technical support under National Solid Waste Management Program since 2022[50].

Green entrepreneurship in Egypt is being facilitated via a partnership with CEDARE[51], the local partner of the Switchers programme.

They offer business support services though a range of programs around water resources, land resources, knowledge management, sustainable growth and environmental governance. They also provide a series of educational e-learn to increase the knowledge capacity of participants around sustainable businesses and circular business models. Although, more education and training programs to develop the necessary skills and knowledge for CE are needed, the Egyptian Network for Integrated Development (ENID) was also identified as an organization helping SMEs adopt circular business models and integrate circular practices in their operations[52].

RELEVANT LAWS AND REGULATIONS ENABLING CIRCULAR ECONOMY

The main laws and regulations defining the general legal framework of circular economy in Egypt include:

- **Constitution of the Arab Republic of Egypt (2014)** – the Constitution grants the rights to clean water and a sound, healthy environment, and the protection of environment is stated as a national duty. According to the Constitution: "The State shall take necessary measures to protect and ensure not to harm the environment; ensure a rational use of natural resources so as to achieve sustainable development; and guarantee the right of future generations thereto"[53].
- **Waste Management Law (2020)**[54] – The law seeks to (I) develop an integrated management of municipal, industrial, agricultural, demolition and construction waste as well as their safe disposal; (II) reduce waste generation; (III) promote reuse; (IV) work to ensure the recycling, treatment and final disposal of waste; and (V) manage waste in a way that reduces damage to public health and the environment.
- **Environment Law (1994)**[55] – The law aims at protecting the environment (land, air and water) from pollution, and establishing the Environmental Affairs Agency (EEAA) for this purpose. The law does not include any provisions on circular economy (avoid, reuse or recycle).

50 The Programme (2022-2026) is co-funded by the EU, https://www.giz.de/en/worldwide/22230.html.

51 http://www.cedare.int/?fbclid=IwAR2ZySjUZEMm5Qmz8L-pf9oJrNv6fsCa1LrSytxkuIzqHQsxIqgnvX8e8Fk

52 UNDP: Egypt Network for Integrated Development (ENID)

53 Constitution of 18.02.2014, Article 46.

54 Law no. 202-2020, at https://faolex.fao.org/docs/pdf/egy199134.pdf (in Arabic).

55 Law no. 04-1994, at: https://faolex.fao.org/docs/pdf/egy4984E.pdf

RELEVANT NATIONAL STRATEGIES AND ACTION PLANS

The below series of national adaptation and sectoral strategies were developed on a range of matters which aim to facilitate the transition to a CE. The list below summarises some of the main strategies identified in Egypt:

- National Action Plan for Sustainable Consumption and Production (SCP-NAP)
- Egypt Vision 2030 (Egypt's Sustainable Development Strategy)
- Low-Carbon Roadmap for the Egyptian Cement Industry
- National Solid Waste Management Programme (NSWMP)[56]

MAIN ECONOMIC SECTORS ENGAGING IN CE PRACTICES

Estimates for Egypt's waste management sector suggest municipal solid waste is often mixed with industrial waste which could potentially be hazardous.

Waste management is a burden Egypt faces with data being scarce to find for individual waste streams in the country which is a common theme amongst the target countries. Out of all waste produced in Egypt, only 60% is being collected and from that more than 80% is being dumped in open air sites allowing a negligible amount of just 2.5% of it to be recycled[57, 58]. The Zabbaleen are known as the informal waste pickers of Egypt who collect recyclables and who are subject to a range of occupational hazards due to the unregulated nature of their work including contracting diseases such as Hepatitis C from disposed needles[59].

Water scarcity is a real threat for Egypt with the UN having predicted it will reach a state of "absolute water crisis" by 2025[60].

With large amounts of industrial wastewater being produced, a large portion of companies (estimated 50%)[61] avoid treatment and discharge their effluents into the public network. Aside from the environmental consequences this has, such as water body contamination, there is a huge opportunity for reusing treated wastewater being left unutilised. With just 40% of the treated wastewater undergoing secondary treatment, its potential use for irrigation purposes is being hindered due to quality implications[62].

56 https://nswmp.net/

57 Sweepnet. "Country Report on the Solid Waste Management in EGYPT".

58 Egyptian Ministry of Environment. "State of the Environment 2017 Arab Republic of Egypt Summary for Policymakers".

59 Badr, Hazem. "Garbage Recycling in Egypt: Trading Health for Livelihood".

60 Wahaab, Rifaat Abdel. "Wastewater Reuse Code in Egypt".

61 Monayeri, El, et al. "Industrial Wastewater Treatment Systems in Egypt: Difficulties and Proposed Solutions".

62 Soulie, Michael. "REVIEW AND ANALYSIS OF STATUS OF IMPLEMENTATION OF WASTEWATER STRATEGIES AND/OR ACTION PLANS; NATIONAL REPORT EGYPT".

As part of the low-carbon roadmap for the Egyptian cement sector, Egypt has committed, among others, to reduce the sector's average clinker content by 80% by 2030[63] considering it accounts for more than half of the cement sector's emissions[64].

Egypt has also committed to increase the use of alternative fuels and substitute existing raw materials (AFR) by an 8% average rate of which 50% will be derived from biomass such as agricultural waste, Refuse derived fuel (RDF) and tire derived fuel[65]. There is a positive appetite for this transition in the country not just for the costly coal operating licenses but also considering AFR substitution targets are managed by multinational conglomerates who are also receiving pressure to lower their emissions. Cemex, a cement plant in Assiut had a AFR rate of 23% in 2010 which is expected to be much higher now due to their agricultural waste utilisation from their own farm[66]. Aside from these commitments, the Roadmap also has objectives for improved energy efficiency and increase in capacity utilisation.

Egypt's circularity initiatives around plastics are quite a few which complement the national legislation and contribute to the MoE's strategy for plastic bottles recycling and single-use plastics consumption reduction.

One of these initiatives is UNIDO's (supported by the Japan International Cooperation Agency) 3-year project launched in 2020 as part of its 'Programme for Country Partnership (PCP) for Egypt' and has an aim to support circular plastics manufacturing[67, 68]. Other initiatives include the Plastic Technology Centre (PTC) which provides support to plastic stakeholders for achieving sustainable development, the Nestle Egypt's digital incentive Dorna Initiative which looks to encourage plastic waste collection for recycling and PepsiCo Egypt's 'Recycle for tomorrow' initiative which also looks to maximise plastic recycling[69, 70]. Aside from the standalone initiative around plastics circularity in 2021, the Egyptian Charter of Recycling Plastic Waste was launched by the MSEA with the aim to coordinate efforts and showcase the country's commitment to the updated Waste Management Law[71]. Additionally, Egypt is currently working on reducing plastic consumption through a national strategy that aims to eliminate the negative impact of plastic on health, the environment, the economy, and society. The country aims to cut the consumption of plastic bags to 100 bags per person by 2025 and 50 bags per person by 2030.

63 MoE, EEAA. "Egypt's First Biennial Update Report to the UNFCC".

64 Lehne, Johanna, and Felix Preston. "Making Concrete Change: Innovation in Low-carbon Cement and Concrete".

65 Alternative Policy Solutions. "Background Paper: Egypt's Circular Economy: Challenges and Opportunities in Textiles, Plastics and Cement".

66 Cemnet. "Cemex Sets New Records of Alternative Fuels Usage".

67 Magoum, Inès. "EGYPT: JICA Allocates $3.57 Million for Single-use Plastics Management".

68 PCP UNIDO. "Programme for Country Partnership Egypt".

69 Nestlé. "Nestlé Egypt Launched Its Initiative, DORNA Which Aims to Boost the Recycling of Plastic Packaging Material in Attempt to Preserve the Environment".

70 Daily News Egypt. "PepsiCo Egypt Launches "Recycle for Tomorrow" Platform for Waste Management".

71 Al Iraqi, Reham. "Environment Minister: An Egyptian Pact for Plastic Waste to Create a Circular Economy and Benefit From Its Value".

In the textiles market, Egypt is popular for its Egyptian cotton products, and they have already grasped the emerging trends in the market which is why several circular projects are ongoing in the country.

SwitchMed is running the MED TEST III project which repurposes cotton waste as an input in in the production of cotton yarns. Additionally, UNIDO in association with the ZDHC Foundation are looking to develop local capacities and a roadmap for safer chemical compliance to further enhance recyclability and prolonging cotton waste's lifetime[72]. The Egyptian Cotton project is another initiative looking to minimise the imports of short-staple fibres by substituting them locally via cotton-textile waste recycling[73].

72 SwitchMed. "MED TEST III Promoting Circular Value Chains for a Greener and More Competitive Textile Industry in Egypt".

73 Circle Economy and United Nations Industrial Development Organisation. "RE.ACT: Environmental and Economic Assessment Of Post-industrial Cotton Waste Recycling - Insights - Circle Economy".

KEY STAKEHOLDERS MAPPING

The table below indicates the main sectors that CE initiatives are tackling in the country as well as the main active stakeholders[74].

FOCUS AREAS			
 **Water resource management** (focus on treatment of wastewater)	 **Waste Management** (focus on textiles, plastics, CDW)	 **Renewable Energy** (focus on manufacturing sector)	 **Energy efficiency** (focus on manufacturing sector)

STAKEHOLDER TYPE	KEY STAKEHOLDERS
Government and public institutions	Ministry of Trade and Industry (MoTI), Ministry of Planning and Economic Development (MoPED), Egyptian Environmental Affairs Agency (EEAA), Egyptian National Cleaner Production Centre (ENCPC), Industrial Development Authority (ICA), Environmental Compliance Office (ECO) of the Federation of Egyptian Industries (FEI), Egyptian Electric Utility & Consumer Protection Regulatory Agency (EgyptERA), Holding Company of Water and Wastewater (HCWW). International Modernisation Centre (IMC), Egyptian Organisation for Standardisation and Quality (EOS), Waste Management Regulatory Authority (WMRA)
Donors	EU, IDF, UNIDO, UNDP
Support Programs	SwitchMed, GIMED, INVESTMED
BSOs	National Climate Change Council (NGCCC), Egypt Network for Integrated Development (ENID)
Academic and Research	UNIDO, ENI CBC MED
Financing Institutions	World Bank, EIB, CTF, GCF, African Development Bank, Ministry of Trade and Industry (MSMEDA)[75]

74 Disclaimer: The stakeholders do not constitute an exhaustive list as the mapping was limited to online research only.

75 Egyptian Ministry of Trade and Industry https://www.msmeda.org.eg/MSMEDA/environment

JORDAN

OVERVIEW

Jordan has taken some important steps towards implementing a circular economy. The Jordanian government has launched several initiatives to encourage sustainable practices in various sectors, including a program to promote the use of renewable energy, as well as a national strategy to promote green growth. In addition, the government has established a regulatory framework for waste management and implemented initiatives to reduce waste generation and promote recycling. These efforts are supported by private sector initiatives, with companies implementing waste reduction and recycling programs. Additionally, Jordan's EPR is the most comprehensive one in the region and could be used as a case study for the rest of the countries assessed in this study. The top priority areas of CE in Jordan, aside from waste management, include water resource management and the development of water reuse practices to cope with increasing water stress in the country, renewable energy and sustainable agriculture.

However, significant challenges remain for Jordan, including the need to improve waste management infrastructure and increase investment in circular economy initiatives. Additionally, collaboration between different sectors and stakeholders, such as government, businesses, and academia, is limited in Jordan which makes the implementing of CE practices more challenging. Lastly, even though Jordan has one of the highest literacy percentages in the region, it appears that the focus is limited to the engineering and technology fields. These sectors receive most of the funding and as such have seen a lot of growth over the past years as opposed to CE.

KEY TRENDS AND FINDINGS

In Jordan, similar to the rest of the countries within this assessment's scope, CE is interpreted on a limited capacity and is in this case focused on clean energy production, organic agriculture and waste management.

As such, it is evident from the country's action plans and strategies that these are the primary sectors they focus. For energy efficiency and the take up of renewable

energy sources the National Energy Efficiency Action Plan (NEEAP) was created streamlining measures across six main sectors i.e. residential, industrial, commercial, water pumping, street lighting and development & free zones (DFZC). One of the features in NEEAP is the tax exemption (sales tax and custom duties) of eco-friendly systems and equipment for renewable energy projects.

In recent years, Jordan's strengthening of its regulatory framework to cover circular economy aspects e.g. via the EPR system, and the establishment of a governance made of public authorities to oversee implementation is very optimistic.

Jordan's efforts resulted in a revised Environmental Law (2017), the establishment of an Environmental Protection Fund (2018) and, most importantly, the recent adoption of the Waste Management Framework Law (2022) which establishes the Extended Producer Responsibility (EPR) system and created the legal basis for the creation of the Supreme Steering Committee for Waste Management. Jordan's EPR is a good example for the rest of the countries in the MENA being the most comprehensive one by covering a wide range of streams including packaging waste, electronic waste, batteries, and tires. Producers and importers of these products are required to finance the collection, transport, and disposal of the waste they generate. This is done through an environmental fee that is added to the cost of the product.

Jordan's EPR program faced a number of challenges during its development and implementation that could provide valuable lessons for other countries in the region[76]. The limited awareness and understanding of EPR by many stakeholders, including producers, waste management companies, and the general public made it difficult to build support and momentum for the program. Additionally, Jordan's government had limited experience and capacity to implement a comprehensive EPR program which created challenges in designing and implementing it, as well as in monitoring and enforcing compliance. The limited resources allocated for the inspection and enforcement activities of the EPR added to the struggle with enforcing compliance. Some producers and importers initially resisted the introduction of EPR, arguing that it would increase their costs and reduce their competitiveness. This required significant effort from the government to engage with and educate these stakeholders, and to build support for the program. Jordan also faced significant challenges in developing the infrastructure needed to collect, sort, and recycle waste covered by the EPR program which led to significant investment for new waste management facilities and technology innovation to take place.

The lack of an exhaustive list of tax-exception eligible products, however, makes it harder for CE products that qualify to be granted the exception due to a lack of understanding when compared to a photovoltaic (PV) panel installation request.

76 Ahmad Al-Masri, Ahmad Al-Khasawneh, Nidal Al-Khatee, 2020, "Extended Producer Responsibility: A Case Study on the Implementation of Jordan's EPR Program for Packaging Waste".

The Sustainable Consumption and Production National Strategy and Action Plan (SCP-NAP) 2016 – 2025 of Jordan is also implemented and is focused on measures around the sectors of Agriculture/ Food Production, transport and waste management. Most recently, the adoption of the Green Growth National Action Plan 2021 – 2025 (GG-NAP) is looking to support Jordan's economic growth objectives through the sectors of energy, water, transport, agriculture and tourism via a combination of preparatory and demonstration actions coupled with policy and institutional reform actions.

Regarding green entrepreneurship, there seems to be a misalignment between Jordan's highly skilled workforce (97.9% literacy rate) made up of a large number of scientists and engineers and the lack of expertise focusing on CE.

This perhaps highlights the lack of appropriate education and awareness on CE, considering that initiatives adjacent to it, such as organic farming, are undertaken under the pretence of healthy living rather than environmental conscience. Similarly, although Jordan's appetite for youth entrepreneurship has been increasing over the last decade, it is primarily focused on the IT sector which is also where the government and incubator/ accelerator focus is concentrated on.

Since there is minimal recognition of green and circular economy entrepreneurs and businesses yet it is an obstacle that such initiatives do not fall under the umbrella of the National Entrepreneurship Policy framework prepared by the Jordanian Ministry of Digital Economy and Entrepreneurship as a starting point for an inclusive entrepreneurship policy and legislative dialogue.

The Jordan Business Development Centre is a non-profit organization which provides support to entrepreneurs and startups in the circular economy sector in Jordan[77]. However, there is still a need for more support to enable circular economy businesses to grow and scale across the country.

According to the country report by SwitchMed in 2020[78], aside from the lack of circular economy awareness another thing holding back the promotion and implementation of green transition programs could be the stakeholder's conflict over ownership and/or the lack of it as it well.

Jordan seems to lack of monitoring, evaluation and reporting scheme for circular economy programs and other green initiatives, while stakeholder conflict and ownership may be one of the main obstacles in promoting and implementing green and circular economy programs. Like in most other countries of the peer group, there seems also a lack of awareness around circular economy that may limit projects to clean energy production, growing organic fruits and vegetables production as well as solid waste management initiatives.

77 Business Development Centre https://bdc.org.jo/

78 Karam, Antoine. 'Jordan Country Profile'.

RELEVANT LAWS AND REGULATIONS ENABLING CIRCULAR ECONOMY

There is only a limited number of laws and regulations defining the general legal framework of circular economy in Jordan, including:

- **Waste Management Framework Law (2022)**[79] – The law aims at reducing the amount of packaging waste generated by companies and promoting the development of a sustainable recovery system built around recyclability. It defines the activities included in the waste management, such as waste minimisation, reuse, sorting at source, collection, transport, sorting, storage, recovery, recycling, treatment and final disposal, and waste treatment installations closure and after-closed phase. The law sets out the measures to be taken to reduce pollution and limit its harmfulness to the environment, public health and sustainable development, as well as basic principles to be adopted in waste management – prevention; precautionary principle; principle of Extended Producer Responsibility (EPR)[80]; polluter pays principle; and proximity principle.
- **Environmental Protection Fund Law (2018)**[81] – This Law aims at establishing a fund for environmental protection issued under some provisions of the Environmental Protection Law to (I) encourage any activity improving the environmental protection and conservation; (II) enhance any development initiatives aimed at exemplary use of environmental factors and natural resource in order to achieve a sustainable development; (III) disseminate an environmental awareness, including the use of environment-friendly manufacturing techniques; (IV) help sectors with national priorities to respect environmental compliance; and (V) strengthen cooperation and information exchange with local, regional and international organisations in relation to environmental respect.
- **Law on Environment Protection (2017)**[82] – The law and related regulations aim at protecting the environment providing that the Ministry of Environment as the responsible authority, together with the related parties, shall develop the policies and prepare the plans and programs, work on forecasting climate change identifying the involved sectors, follow the implementation of international environmental and agreements, protect the biodiversity identifying areas that need special attention, protect water sources, issue environmental permits for activities that have a strong impact on the environment, establish the principles governing use and circulation of hazardous substances, gather environmental information and establish a national environmental database, and prepare emergency and disaster management plans. With specific relevance for the circular economy, the law deals also with permits for facilities; harmful substances and rules for their entry, import, storage, circulation and use; management of hazardous waste; management of liquid and solid waste; and the establishment of an environmental protection fund.

79 Law nr. 16 of 2020.

80 Article 7(c) of the Waste Management Framework Law.

81 Law nr. 18 of 2018.

82 Law nr. 06 of 2017.

- **Regulation on Non-hazardous solid waste management system issued in accordance with Article 31 of the Waste management Framework Law no. 16 of 2020**[83]

RELEVANT NATIONAL STRATEGIES AND ACTION PLANS

The below series of national adaptation and sectoral strategies were developed on a range of matters which aim to facilitate the transition to a CE. The list below summarises some of the main strategies identified in Jordan:

- Green Growth National Action Plan 2021–2025 (2020)[84]
- Energy Sector Green Growth National Action Plan (GG-NAP) 2020-2030 (2020)
- National Climate Change Strategy (2013 – 2020)
- National Financial Inclusion Strategy (NFS) 2018 – 2020 (2018)
- National Energy Efficiency Action Plan (NEEAP) 2018-2020 (2017)
- Sustainable Consumption and Production National Strategy and Action Plan (SCP-NAP) (2016)
- National Water Strategy (2016)

MAIN ECONOMIC SECTORS ENGAGING IN CIRCULAR ECONOMY PRACTICES

The current situation for the priority sectors in Jordan beginning with energy is that, over the last decade the country's significant growth is reflected on the increased energy demand with a 70% increase in installed capacity of the combined cycle and a 10% renewable energy contribution to the energy mix.

The increase of renewables in the energy mix followed the implementation of multiple utility scale solar panels and wind turbines with the country hoping to increase their share to 35% by 2023.

Jordan's waste sector is not performing adequately with the majority of waste not being treated and being landfilled instead.

Disposal means along with waste management enforcement regimes are considered weak leading to the 10% contribution to GHG emissions resulting from landfilled waste. The 7% recycling rate in Jordan is also lower from the 10% average recycling rate in the greater GCC region. The amount of solid waste reaching 19 landfills in Jordan has increased to about 1.662 million tons annually, despite the existence of legislations that regulate this process[85]. According to a report on the Jordanian experience in the field of solid waste management[86], Jordan collects more than 95% of its waste[87], yet the untapped energy in solid waste is estimated at 4% of Jordan's oil consumption.

83 Regulation nr. 44 of 2022.

84 http://www.moenv.gov.jo/ebv4.0/root_storage/ar/eb_list_page/20022_jordan_waste_v02_rc_web.pdf

85 F. ATYYAT, 2020, https://ps.boell.org/en/2020/09/29/jordan-governmental-measures-are-limited-solid-waste-albeit-shy-initiatives-sorting-and

86 See Environment and Development Magazine, issue of May 2020.

87 According to the same report, the Arab world collects on average no more than 50 percent of its waste.

Several large projects are currently underway, some in participation with other countries in the region under the funding of the EU such as the CEOMED project which also takes place in Tunisia as well as Jordan. The waste flow rate varies from 10 to 12 tons per day in the open markets located in Amman and this project is hoping to target it by treating the organic fraction of the waste produced from fruits and vegetables using anaerobic digestion and using the digestate created as an input i.e., fertilizer in the farms that provide the fresh produce to the Amman wholesale markets[88]. Additionally, as part of the MED TEST III project by UNIDO, the adoption of Resource Efficient and Cleaner Production (RECP) methodologies in the chemical and food industries of Jordan is promoted.

Water resources in Jordan are under great stress deeming the country one of the most water scarce countries in the world.

A combination of low naturally occurring water reserves, increasing frequency of droughts, overconsumption of water, distribution inefficiency and climate change causing a 20% reduction in annual precipitation have all contributed to the country's problem and have caused multiple water shortages over the last decades. To tackle the country's water scarcity, wastewater treatments are utilised to an extend in efforts to increase water supply in the region.

The National Adaptation Plan (NAP) emphasised the expansion of Decentralised Wastewater Treatment Systems (DWATS) as one of the prioritised adaptation measures for the water sector.

Wastewater recycling can reduce the gap between demand and supply of water in Jordan by as much as 48%[89]. In terms of public health, the cost of inadequate disposal of wastewater and groundwater contamination that can be avoided by DWATS. Economic benefits can accrue from increased farm productivity - stemming from increased water availability - and lower costs from reduced fertiliser use and cleaning of cesspits. One of the principal institutional barriers for sustainable DWATS in Jordan is the unavailability of sustainable finance models. Several models that de-risk investment in DWATS and lower borrowing rates exist and have been applied globally, and include a combination of grants, public funds, guarantees, and credit facilities. Other financial barriers to DWATS adoption include high capital costs and low revenue streams, additional infrastructure costs, low credit availability for smallholder farmers, high interest rates, and questions around willingness to pay[90].

88 ENI CBC Med. 'CEOMED, Employing Circular Economy Approach for OFMSW Management Within the Mediterranean Countries'.

89 GGGI. 'Jordan Green Growth National Action Plans 2021-2025: Water Sector'.

90 UN Jordan. 'Policy Brief Decentralized Wastewater Treatment Systems (DWATS) as a Climate Change Adaptation Option for Agriculture in Jordan'.

KEY STAKEHOLDERS MAPPING

The table below indicates the main sectors that CE initiatives are tackling in the country as well as the main active stakeholders[91].

FOCUS AREAS		
 **Waste Management** (various sectors)	 **Water resource management** (household, agricultural irrigation)	 **Renewable Energy**

STAKEHOLDER TYPE	KEY STAKEHOLDERS
Government and public institutions	Ministry of Environment, Ministry of Water and Irrigation, Jordan Renewable Energy and Energy Efficiency Fund (JREEEF), Business Development Centre, Greater Amman Municipality (GAM), Amman Chamber of Industry (ACI), Supreme Steering Committee for Waste Management
Donors	UNIDO, German Federal Ministry for Economic Cooperation and Development (BMZ), GIZ, EBRD, EU, IDF
Support Programs	Switchmed, ENI CBC MED
BSOs	Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC), Global Green Growth Institute (GGGI), Adelphi, ACTED, Jordan Business Development Centre (BDC)
Academic and Research	UNIDO, Jordan University of Science and Technology, University of Jordan, Royal Scientific Society
Financing Institutions	Royal Scientific Society (RSS)

91 Disclaimer: The stakeholders do not constitute an exhaustive list as the mapping was limited to online research only.

LEBANON

OVERVIEW

Lebanon is a country facing several challenges in implementing a CE. The country itself has a weak waste management infrastructure and offers limited investment in circular economy initiatives. The political instability and economic challenges faced by Lebanon have also hindered progress towards a more sustainable economy affecting the inflow of finance from international organizations for CE developments. Previously available domestic funding options have also been halted due to the ongoing economic crisis in the country. Even though some regulations and strategies enabling CE have been developed by the Lebanese government, their enforcement is difficult and currently lacks political will due to other urgent matters in need of immediate action. CE initiatives in Lebanon are primarily aimed at waste management including recycling programs while interest is emerging for renewable energy, water resource management and sustainable agriculture. The private sector in Lebanon appears promising for CE growth with support provided by various organizations to a growing number of SMEs willing to adopt circular business plans and practices. Overall, CE in Lebanon appears to have a very slow growth primarily motivated by private sector initiatives with the support of international programs from donor countries rather than domestic actors.

KEY TRENDS AND FINDINGS

Having adopted only two laws on environmental protection and waste management to date, Lebanon suffers from a lack of a clear legal framework and incentives to support or promote CE.

According to stakeholders in circular economy, bureaucracy, slow and unclear public procedures hold back reforms and new policies from being developed, implemented and enforced[92]. A major step in introducing circular economy was made with the adoption, in 2018, of the Integrated Solid Waste Management Law. The Law envisages the promotion of projects relating to integrated solid waste management, especially recycling, reuse and energy recovery in a sound and effective manner.

92 SwitchMed Country Profile Lebanon, August 2020, https://switchmed.eu/wp-content/uploads/2021/02/Country-Profile-Lebanon.pdf

An Integrated Solid Waste Management (ISWM) Roadmap 2019-2030 exists which lays down the path for achieving a broad range of objectives and although it was a step in the right direction for Lebanon, it seems to have stayed idle ever since with the Ministry of Environment (MoE) trying to prepare the legal framework for its implementation.

At industry level, green entrepreneurship in Lebanon is being promoted and facilitated primarily via the EcoSwitch Coalition, which is a network of organisations, funded by Switchmed, that provide support programs to eco-entrepreneurs in the country.

Lebanon is one of the most active of the target countries when it comes to green entrepreneurship with multiple business support organisation offering services around circular business models, sharing information and facilitating their growth. A series of projects in the ENI CBC MED further aid in the enhancement of eco-innovation and green entrepreneurship in the country.

Lebanon is also the only target country with an established Circular Economy Hub[93].

The hub is an accessible, resourceful and multi-disciplinary environmental learning space, launched in September 2019 by EcoConsulting. They focus on the provision of services around i) sustainability, climate change & environmental knowledge, ii) CE & eco-design, iii) green buildings & sustainable neighbourhoods and, iv) eco& social entrepreneurship. To validate their educational services they offer certificates to those participating. As such, despite the various bottlenecks, projections for future jobs in various sectors[94] emerging in Lebanon from a CE transition show great potential for the country with a conservative estimation of 2, 900 new jobs emerging annually, as calculated by a study conducted by Acted Lebanon[95] using secondary data from ILO, UNDP and Banque du Liban.

RELEVANT LAWS AND REGULATIONS ENABLING CIRCULAR ECONOMY

To date, Lebanon has adopted only two laws with relevance for circular economy:

- **Law on Integrated Solid Waste Management (2018)**[96] — This Law is the basis for Lebanon's Integrated Solid Waste Management Road Map 2019-2030. It aims at establishing an integrated framework for solid waste management to preserve the environment based on the principles of sustainability, awareness and transparency. Principles of the integrated household solid waste management are (I) reduction, reuse and recycling; (II) sustainability in order to not contaminate surface water and groundwater, air, soil, flora and fauna, and harm public health; (III) proximity; (IV) precautionary; (V) prevention of uncontrolled dumping, landfilling and burning of solid waste; (VI) polluter pays principle, and (VII) decentralisation. The integrated household solid waste management consists of the following stages (1) source reduction; (2) reuse; (3) source and plant sorting; (4) recycling; (5) composting; (6) energy recovery; and

93 https://www.thecircularhub.net/news/the-circular-hub-has-launched2

94 Various sectors include: renewable energy sector (incl. manufacturing), construction sector, introduction of environmental regulations, waste management sector and agriculture.

95 Acted Lebanon. "Towards a Circular Economy in Lebanon".

96 Law no. 80 of 2018.

(7) final disposal of residual waste. Solid wastes that cannot be reused, recovered or recycled should be disposed of in an environmentally sound manner.

- **Environmental Protection Law (2002)**[97] – The law aims at promoting and supporting the use of environmentally-friendly products and services, including sustainable energy products, through the application income and customs tax reductions. Article 20 of this law lists the activities that could benefit from tax reduction and explains the process a business or taxpayer should follow to benefit from this policy.

RELEVANT NATIONAL STRATEGIES AND ACTION PLANS

The below series of national adaptation and sectoral strategies were developed on a range of matters which aim to facilitate the transition to a CE. The list below summarises some of the main strategies identified in Lebanon:

- Integrated Solid Waste Management (ISWM) Roadmap 2019-2030 (2018)
- Sustainable Consumption and Production National Strategy and Action Plan (SCP-NAP)
- Lebanon's Nationally Determined Contribution (2020, updated)[98]

MAIN ECONOMIC SECTORS ENGAGING IN CIRCULAR ECONOMY PRACTICES

Agriculture in Lebanon is a sector that has not made much progress although it has high potential for CE as well as public demand by consumers for organic/ sustainable agricultural goods.

Acted Lebanon's statistics showed that the two sole current suppliers of organic produce in the country are only meeting 30% of the demand. This is primarily due to the fact there are no legislative criteria present in Lebanon by the Ministry of Agriculture to guide farmers on how to perform organic farming with less input of non-renewable resources. The only criteria currently available are those of a certifying organisation called CCPB which is equipped to certify organic production systems. However, acting as a monopoly, they have very high fees which do not appeal to the average farmer. It is estimated that 100 million USD/ year is being lost in unused energy and nutrients in organic waste. As such, it appears an opportunity for agricultural waste produced in the value chains of variable produce to be reused in the production of processed food products something which signifies a substantial market opportunity.

Recycling of e-waste is not a widely used practice in Lebanon primarily due to lack of infrastructure and high costs associated with recycling.

Unlike most developed nations, Lebanon has no means of recycling e-waste and instead exports the recovered metals from e-waste for recycling elsewhere such as the EU or Dubai and sends recovered plastics to local recycling plants.
There are, however, very few safe e-waste dismantling operations in Lebanon with the majority of the recovery market taking place informally. This means environmental and health hazards for people involved in the informal market are maximised. Failure to recover e-waste valuable components means most of it will end up

97 Law no. 444 of 2002.

98 https://faolex.fao.org/docs/pdf/leb205977E.pdf

being burned not only causing toxic pollution but also represent a loss of economic opportunity considering the value of e-waste materials lost yearly amounts to an estimated 64 million USD. Although the country's municipal facilities see no value in safely dismantling e-waste sourced locally due to high labour costs and low economic incentives for dismantling and selling, there is great potential in utilising the informal sector for this if it were to be formally supported and accredited[99]. A study by Acted[100], highlighted the value potential from cost recovery from material value to an estimated 64 million USD from e-waste alone.

Lebanon's e-waste repair economy although small, has room for improvement considering this option should be prioritised over recycling based on the waste hierarchy.

The highest demand for second-hand items in Lebanon is for mobile phones, computers, laptops and consumer whitegoods such as TVs, fridges, washing machines etc. and agricultural harvesters. The issue holding the country back particularly for highly technical equipment such as the harvesters is the lack of skilled employees to provide repair and refurbishment services which leads to consumers opting for easier options such as complete replacement of broken parts with new (donated) machinery. The repair economy in Lebanon is mostly made up of informal micro enterprises (av. 1.8 staff) made primarily of Syrian laborers who are quite often not formally trained and are limited to repairing and refurbishing a limited range of products. Aside from the competency issues for the repair and refurbishment industry in Lebanon there are major logistic issues since organisation for collection routes is poorly organised and most products end up being left to rot in public places, nature or backyards. Aside from the visual and toxic pollution this issue caused, it also highlights yet another missed opportunity for economic benefit for the country. The highest priority item which is also the hardest one to achieve is the reduction of waste production all together. For the e-waste stream this is particularly hard to do considering the digital era we are going through, and the fact Lebanese consumers have low awareness when it comes to taking into consideration energy efficiency ratings when making their electrical and electronic equipment purchases. According to a study by UNDP in 2018 found that 76% of its responders were unaware of energy labels but when asked how important a role energy labels would play in their purchasing choices, 54% said energy labels would play an 'important' and 'very important' role with the justification circulating around the cost saving factor[101].

One of the biggest struggles for plastic recycling in Lebanon are the high energy costs required to either produce or recycle the plastics.

Considering the most commonly produced plastics in Lebanon are thermoplastics, large amounts of plastic pellets/flakes are required to be imported and then melted in high temperature furnaces so they can then be moulded to shape and form the final products. The high costs associated with this process burden producers who have a lower profitability and no motive to recycle the plastics. Plastic is one of the most efficiently recycled commodities but there are certain restrictive agents that, when present, can hinder the recycling process. One such restraint is additives such as lubricants, colorants, fillers or reinforcements placed in plastic products

99 Acted Lebanon. "Towards a Circular Economy in Lebanon".

100 Acted Lebanon. "Towards a Circular Economy in Lebanon".

101 Harajli, Hassan, and Ali Chalak. "ENERGY EFFICIENT HOME APPLIANCES Perspectives From Lebanese Consumers".

which cannot be recycled by ordinary recycling plants and instead require land-filling or a much more extensive and technical recycling process. Lebanon has currently no regulation around additives in plastics which is something that could limit the potential for plastic recycling and increase the amount of plastic waste ending up in landfills. Similar ones are bio-based contents such as 'biodegradable' or 'compostable' but since no standards for these claims exist, they tend to cause more harm than help reduce waste.

The fabric value-chain in Lebanon is one that although has no potential for recycling, due to the high cost and complexity of the process, it has great opportunity for garment repair or resale of second-hand clothing.

There are two different types of second-hand clothing markets in Lebanon. The first is a lower-end imported bulk quantity of second hand clothing from countries like Africa, Egypt, Turkey and Europe targeted for lower socio-economic groups. There is also a small market for repairing this second-hand clothing with good profit margins (30%-50%) but demand for repaired garments appears to stay low. The second one, is a high-end second-hand market focused on designer garments. Several initiatives / designers in Beirut such as "Emergency room" and "Roni Helou", further enable this market. One social enterprise in particular has managed to repurpose various textile waste (low-end and high-end) and to expand the model into various regions in Lebanon and recently in Jordan.

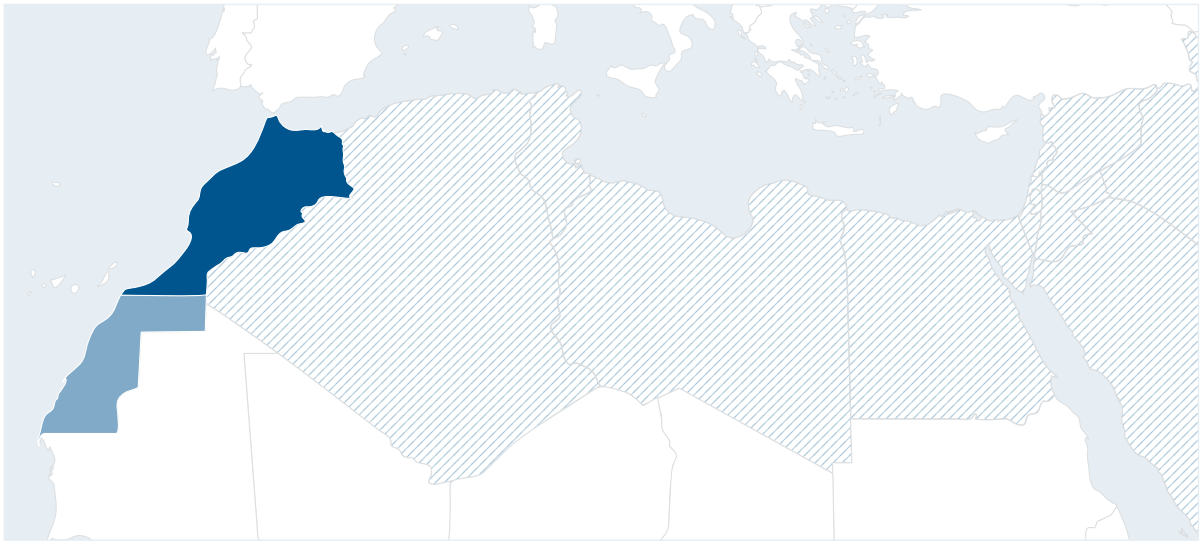
KEY STAKEHOLDERS MAPPING

The table below indicates the main sectors that CE initiatives are tackling in the country as well as the main active stakeholders[102].

FOCUS AREAS	
Water resource management (focus on agriculture)	**Waste Management** (focus on e-waste, plastics, textiles)

STAKEHOLDER TYPE	KEY STAKEHOLDERS
Government and public institutions	Ministry of Environment (MoE), MoE Ozone Unit, Ministry of Industry, Ministry of Economy and Trade, Ministry of Interior and Municipalities, Ministry of Energy and Water. Controllo e Certificazione (CCPB), LIBNOR. Lebanese Centre for Energy Conservation, Litany River Authority, National Council for the Environment
Donors	EU, World Bank
Support Programs	SwitchMed, INVESTMED, RESET, AQUACYCLE, MED4WASTE, GIMED, RE-MED
BSOs	EcoSwitch Coalition, Circular Hub, Fondation Diane, Acted Lebanon, Berytech
Academic and Research	American University of Beirut
Financing Institutions	World Bank, EIB etc.

102 Disclaimer: The stakeholders do not constitute an exhaustive list as the mapping was limited to online research only.



MOROCCO

OVERVIEW

Morocco has made significant progress towards implementing a circular economy. The Moroccan government has launched a national strategy to promote green growth and has also developed various initiatives to promote renewable energy and sustainable agriculture. The country has also implemented a regulatory framework for waste management and implemented waste reduction and recycling programs. Private sector initiatives are also emerging, with some companies implementing circular practices since funding mechanisms are available in Morocco for large developments such as solar parks. However, access to finance still remains a challenge for many circular economy projects, particularly for SMEs. Regarding technical skills and knowledge around CE, Morocco seems to be further ahead than other countries in the region. The country has established research centres and academic institutions focused on circular economy topics even though knowledge and skills in areas such as circular design and innovation still remains a challenge not just for Morocco but the entire region. Even though Morocco appears to be further ahead in CE growth compared to a lot of the countries in the region, it still has a long way to go and many challenges to tackle on its path to a CE transition.

KEY TRENDS AND FINDINGS

Morocco has one of the most advanced regulatory frameworks of relevance for CE within the countries included in the scope of this assessment.

In recent years, the country has significantly accelerated its transition towards a greener and more sustainable economy after the Arab Spring which led to the adoption of a new Constitution in 2011 that referenced the principle of environmental protection and sustainable development as basic rights of Moroccan citizens. The Constitution constitutes the basis for all laws and national plans in the scope of environmental protection and sustainability, including those on circular economy.

Despite the commitment to environmental and climate change regulatory reforms, CE remains a fairly new concept when it comes to implementation.

CE is interpreted mostly as interfering in products end-of-life stage rather than embracing the EU's first principle of CE and design out waste and pollution at the early stages of conceptualising a product or a service[103]. A set of strategies were developed as early as 2008 concerning agriculture (Green Morocco Plan) and the waste sector (National Program for the Recovery of Waste), with the most recent National Strategy for Sustainable Development 2030 concerning the management plans for water, energy, forest, agriculture, cities, transport and waste being published in 2019.

A worth mentioning effort to shift away from the end-of-life management and more on the design and waste minimisation stage, were the recommendations made by a well-reputed public institution in Morocco[104] the Economic, Social and Environmental Council (CESE). Through their recommendations CESE urged for more efforts to ensure a faster and more inclusive transition towards a circular economy with regard to sewage and household waste with their recommendations focusing on end-stage management.

Existing strategies and plans are indicating a willingness to move towards a CE, but at the same time, there are no clear and targeted sectoral strategies detailing the roles of the public and private stakeholders for doing so.

This is also showcased by the contents of the most recent strategy which although has a positive outlook towards CE, it fails to capture the essence of the concept and is rather limited to the country's conceptualisation of it as primarily associated with waste management.

The Centre des Tres Petites Entreprises Solidaires (CTPES) is the leading organisation facilitating green entrepreneurship in Morocco as the local partner of the Switchers programme.

CTPES operates as an incubator of small businesses wanting to explore sustainable or circular business models. Some of their services include the provision of a co-working space for innovation, they offer advisory services as well as research. They focus on supporting entrepreneurs who come from unserved communities in Casablanca and Mohammedia and operate in a broad range of fields including IT, carpentry, metalwork, printing, video/photography, clothing, decoration etc.

Morocco also has a few options available for capacity building and CE skills acquirement through degrees and courses provided by institutions such as the Mohammed VI Polytechnic University (UM6P), the National School of Applied Sciences (ENSA), the Hassan II University in Casablanca and others.

103 Diaco, M., et al. 'Circular Economy in the Africa-EU Cooperation - Country Report for Morocco'.

104 Conseil Économique, Social et Environnemental (www.cese.ma), Report "Intégration des principes de l'économie circulaire aux traitements des déchets ménagers et des eaux usées", 2022.

These institutions offer courses on CE including sector specific solutions, new technologies and approaches supporting a CE transition, renewable energy and other sustainability topics.

RELEVANT LAWS AND REGULATIONS ENABLING CIRCULAR ECONOMY

- **Constitution of the Kingdom of Morocco (2011)**[105] — the Constitution guarantees all citizens the right to environmental protection and sustainable development, and is the basis for all laws and national plans in the scope of environmental protection and sustainability, including circular economy.
- **Law prohibiting Plastic Bags (2015)**[106] — The law establishes a ban on the manufacturing, importing, exporting, marketing and using plastic bags, constituting a major step towards a circular economy.
- **Law on Environment and Sustainable Development (2014)**[107] — The Framework Law introduced the principle of "extended producer responsibility" and creates incentives for producers to consider environmental aspects in the conception phase of a product destinated for consumption.
- **State Budget Law (Eco-Tax) (2013)** — funds collected shall be transferred to the National Environment Fund that supports, among others, waste recycling and valorisation, to start with plastic packaging waste.
- **Law on Waste Management and Disposal (2006)**[108] — This law constitutes a reference that governs the management of waste, defines their different types, while specifying their mode of management and the level of their support[109].

RELEVANT NATIONAL STRATEGIES AND ACTION PLANS

The below series of national adaptation and sectoral strategies were developed on a range of matters which aim to facilitate the transition to a CE. The list below summarises some of the main strategies identified in Morocco:

- National Action Plan for Sustainable Consumption and Production (SCP-NAP) (2015)[110]
- Green Morocco Plan (2008)
- National Program for Household Waste (2021)
- Strategy Generation Green 2020-2030 (2020)
- Rural Sanitation and Wastewater Reuse Program to 2030 (PNAM) (2019)
- National Water Plan (PNE) 2020-2050

105 Article 31, an English version of the Constitution can be found at: https://www.constituteproject.org/constitution/Morocco_2011.pdf

106 Loi nr. 77-15 du 07.12.2015 « portant interdiction de la fabrication, de l'importation, de l'exportation, de la commercialisation et de l'utilisation de sacs en matières plastiques ».

107 Loi nr. 99-12 du 06.03.2014 « Loi Cadre de l'Environnement et du Développement Durable »

108 Loi nr. 28-00 du 06.11.2006.

109 Article 3 of this law stipulates that, "By waste, we mean all residues resulting from an extraction process, exploitation, transformation, production, consumption, use, control or filtration, and in general, any object and material abandoned or that the holder must eliminate so as not to harm health, public sanitation and the environment". This provision was the main point of CESE's criticism as it does not include an obligation to reduce the production of waste, nor to establish of the sorting system at source.

110 https://www.greengrowthknowledge.org/project/sustainable-consumption-and-production-national-action-plan-scp-nap-morocco

- National Water Strategy (SNE) 2010-2030
- National Liquid Sanitation Program (PNA) (2006)
- National Plan Against Climate Change 2030 (2019)[111]
- National Waste Reduction and Valorisation Strategy (2019)[112]
- National Strategy for Sustainable Development 2030 (SNDD, 2017)[113]

MAIN ECONOMIC SECTORS ENGAGING IN CIRCULAR ECONOMY PRACTICES

Morocco's most impactful sectors as identified by the Africa-EU Cooperation Draft Country report for Morocco published in 2020 were: Agriculture and food production; Water and wastewater; Household waste; and Construction and demolition.

Agriculture is one of the most important sectors in Morocco. It contributes to 14% of the GDP, provides job security for more than 40% of the population, and has a positive spill over effect on other economic sectors of the country. As such, the country's economic growth rate is often correlated to that of agricultural production[114]. Even so, very little is being done, despite the large dependency on natural resources and the Green Morocco plan's development, to aid in the regeneration of the natural systems to ensure the long-term viability of the sector. More specifically, three focus areas have been identified for improvement in this sector.

High-valued crops which make up just 5% of the cultivated area absorb the vast majority of fertilizers used in the sector. This is due to the high cost of fertilizers compared to the prices of the agricultural produce. Despite this, the market share for organic fertilizers in 2019 accounted for just 0.01% according to IFASTAT even though they are cheaper, aid in closing nutrient loops and eliminate the need for mineral fertilizers as well.

It is therefore expected that the organic fertilizer and bio-pesticide market will grow exponentially in the coming years especially if synergies are created within the waste management industry and composting of the enormous amounts (4 million tons annually) of household organic waste.

It needs to be highlighted though, if a transition to organic fertilizer were to be pursued, careful consideration of the existing exporting market in Morocco for phosphate fertilizer should take place so that any barriers and challenges are identified proactively.

111 Plan Climat National à l'Horizon 2030.

112 Stratégie Nationale de Réduction et de Valorisation des Déchets https://www.logipro.ma/images/Traitement_des_deee/Rapport_de_synthese_SNRVD_FR.pdf

113 Stratégie Nationale de Développement Durable, https://www.environnement.gov.ma/fr/strategies-et-programmes/sndd?showall=1&limitstart=

114 Diaco, M., et al. 'Circular Economy in the Africa-EU Cooperation - Country Report for Morocco'.

Another priority area within agriculture is organic products since although currently the majority of Morocco's organic products are imported from Europe, there seems to be a spike in the demand for local organic produce particularly after the Covid-19 crisis.

As a response, the 'Generation Green 2020-2030' which is the new agricultural strategy of the country is devoted to the production of organic crops facilitated by the provision of 100,000 additional hectares of land for that purpose (in comparison to just 9,850 ha in 2019). Even though this number is conservative when compared to other countries' efforts such as Tunisia (380,000 ha dedicated to organic farming in 2018), it signals a shift in momentum for this industry which is also complemented by a regulated assurance requirement passed on as a bill which aims to verify organic certifications via 3rd party inspections.

The third focus area for the agricultural sector is the treatment of both its organic and inorganic waste which is what the CAM Foundation is currently trying to achieve.

Their efforts are concentrated in a project taking place in the Souss Massa region which is responsible for more than half of all the agricultural waste produced in the country. Their aim is to transform the habits of farmers in the region to circular economy by introducing them to sustainable management practices of agricultural waste.

Water resources in Morocco just like in the greater region are scarce and while demand is constantly moving upwards, the natural rate of the resource being replenished in the water cycle cannot keep up with it.

Morocco has a problem with its diminishing groundwater reserves as well as its high dependence on rain-fed agriculture, which comes at a high risk given the instability of weather systems as a consequence of climate change. Aside from the agricultural utility, Covid-19 also stressed the importance of having easily accessible clean water for health and sanitation. Consequently, a series of strategies were developed to combat water scarcity and reduce climate risk such as the Rural Sanitation and Wastewater Reuse Program to 2030 (PNAM), the National Water Plan (PNE) 2020-2050 and National Water Strategy (SNE) 2010-2030.

Water scarcity in the country has led to drastic measures such as the use of untreated wastewater for agricultural irrigation which remains a very common practice currently in Morocco, despite being illegal, considering it poses a risk for both the crops and consumers' health.

Wastewater treatment and reuse could be a means of easing the pressure of demand for water used for irrigation allowing freshwater supply to be utilised for other functions such as drinking water etc. With just 12% of treated wastewater being reused and wastewater discharge volumes expected to skyrocket to 900 million m^3 by 2030 from 48 million m^3 produced in 1960, there appears to be a great opportunity for treating and reusing the wastewater to help bridge the gap

between water demand and supply[115]. A range of programs developed such as the National Liquid Sanitation Program (PNA), National Wastewater Treatment Programs in urban and rural areas, the reuse program for treated wastewater and the Water Sector Development Strategy have helped the wastewater industry make progress in a few fields only. More specifically, among the successes are the increase in wastewater network connection rates from 70% in 2005 to 76% in 2019, an increase in the wastewater treatment rate from 8% in 2005 to 52.6% in 2019 and the construction of 79 new wastewater treatment plans. It should be noted, however, that some of the targets set might be considered over ambitious within the determined timeframes given that following their development very little has been done for the implementation of actions. This could be attributed to a range of reasons including the difficulty in developing a legal framework that all stakeholders agree to as well as defining a wastewater treatment cost producers and users will have to share.

CDW in Morocco was identified as one of 9 priority sectors with great potential for sustainability.

Considering the fact there is no accurate way of quantifying or classifying the composition of CDW, policies and strategies aimed at its management are struggling to be developed since they will lack accuracy and will thus not be as effective. In December 2018, during a round table discussion co-organised by Lafarge Holcim Maroc and the MGBC an estimate was given on the total number of CDW at 41.9 million tons per year. No sorting of CDW takes place on site, and the materials it is made up of end up getting mixed and taken on landfill sites depending on the contracts existing since currently CDW is excluded from the household waste management services. There, CDW is separately piled and if it is of an appropriate quality there is a possibility of being reused for the development of tertiary access roads in the country.

Carpooling or ridesharing has grown in popularity in Morocco via organised Facebook groups, applications or websites.

Over the past few years and following the dwindling numbers of imported new vehicles in Morocco in 2019, a new trend enabling the transition to CE in the transportation sector emerged. People participating in the organised Facebook groups, applications or websites are either students or professionals fed up with the unpopular public transport in Morocco. They engage in creating digital communities via the aid of social networking platforms where they create groups, designate informal drivers who want to make the same journeys and share the costs. This has led to the creation of start-ups such as Pip Pip Yalah; the largest ridesharing app in Morocco hoping to help legalise ridesharing in the country and Carmine; a car sharing start-up.

115 Diaco, M., et al. 'Circular Economy in the Africa-EU Cooperation - Country Report for Morocco'.

Morocco has invested early on in renewable energy and by 2020, renewable energy contribution to its energy mix was 37.1%[116].

Morocco aims to increase the share of renewables in its total power capacity to 52% by 2030, 70% by 2040 and 80% by 2050. Morocco's new targets are against a backdrop of the progress achieved in the expansion of both wind and solar during the initial phase of energy transition, according to GlobalData. Global donors are keen with funding Morocco's large renewable energy developments as this fall in line with their own strategies for a green transition and compared to other projects, understanding around renewables such as wind and solar is at a good level and hence lowers the risk of failure.

116 Global Data (Morocco targets 80% renewable energy by 2050 with technological evolution in energy storage, green hydrogen, and decreasing energy costs, says GlobalData)

KEY STAKEHOLDERS MAPPING

The table below indicates the main sectors that CE initiatives are tackling in the country as well as the main active stakeholders[117].

FOCUS AREAS			
Water resource management (focus on agriculture)	**Waste Management** (focus on CDW and agriculture)	**Batteries and vehicles** (focus on alternative, sustainable modes of transportation)	**Renewable Energy**

STAKEHOLDER TYPE	KEY STAKEHOLDERS
Government and public institutions	Department of Environment, Minister of Interior, Minister of the Economy, Finance and Administrative Reform, Department of Water, Ministry of Energy Transition and Sustainable Development, Ministry of the National Territory Development, Habitat, Urbanism and Municipal Policies, National Office of Electricity and Drinking Water, Ministry of Industry and Trade, Coalition for the Valorisation of Waste (COVAD), Municipality of Casablanca, CESE, National Agency of the Environment (ANPE)
Donors	EU, IDF
Support Programs	SwitchMed
BSOs	Moroccan Green Building Council (MGBC), CTPES, Conféderation Générale des Entreprises Marocaines (CGEM)
Academic and Research	UNIDO, ENI CBC MED
Financing Institutions	World Bank, EIB, CTF, GCF, African Development Bank, Ministry of Trade and Industry (MSMEDA)

117 Disclaimer: The stakeholders do not constitute an exhaustive list as the mapping was limited to online research only.

TUNISIA

OVERVIEW

Tunisia has established an exhaustive regulatory framework and has dedicated a government agency to support the transition to a CE. The implementation of national strategies and regulations in Tunisia has been slow while a need for stronger political will and better coordination between different government agencies has been recognised. The most prominent economic sectors for CE development in Tunisia include the waste management sector, agriculture, tourism, the textile industry and construction. Some progress has also been noticed in these sectors but there is still a lot of room for growth. Access to finance remains a significant challenge for circular economy initiatives in Tunisia, as there is a lack of investment capital and financing mechanisms that support circular business models especially from domestic sources. Despite some educational options being available for CE capacity building in the country, general awareness and expertise levels remain low. Human capital is another area where Tunisia faces challenges, as there is a lack of skills and expertise in circular economy principles and practices. The education system needs to be updated to provide students with the necessary knowledge and skills to drive circular economy initiatives, and there is a need for training programs for current professionals. Aside from the Switchers initiative in Tunisia, business support provision for CE practice development is minimal and delays the uptake of CE practices by SMEs in the country.

KEY TRENDS AND FINDINGS

Tunisia is one of the countries that realised early on its vulnerability to the effects of climate change and as a response initiated a series of actions to proactively prepare for its upcoming effects.

Governmental actors and their respective policies/strategies appear to have an active role in CE transition, with ANGed having a crucial role. ANGed is a non-administrative public establishment in Tunisia responsible for the development of the National Strategy for Waste Management. Their objectives include the management of various types of waste, the creation of jobs around the waste management sector, encouraging the recovery of material and energy from waste and encouraging the participation of the private sector of the country in the field of waste

management. Additionally, they also work towards increasing awareness and data collection in the industry as well as improve the institutional, legal and financial management framework for waste management in Tunisia[118].

Legislative efforts in Tunisia were fragmented, uncoordinated and they were missing an overarching legislative framework binding everything such as the Environmental Law, the rest of the countries in scope have.

Various aspects related to environmental protection and sustainable development are regulated by sector specific laws which have been adopted for the agriculture[119], water[120], forestry[121] and maritime[122] sectors, and on renewable energies[123] in Tunisia. Following the adoption of the new Constitution of July 2022 in the country which included the rights to a healthy environment, climate security and water, the government started drafting an Environmental Law which has now been made public for consultation. In November 2022, a public discussion was organised to discuss the announcement of drafting a Roadmap that should highlight the legislative and institutional needs to encourage the development of the circular economy[124].

Some of the main obstacles identified as part of the discussion for the effective development of a green economic policy in Tunisia were the lack of governance, the inadequacy of the regulatory framework and a general lack of awareness.

Aside the aforementioned, there is also a lack of faith to the government's reliability for the progress towards achieving a CE.

Past scandals have hindered the government's reliability on CE. One example is the latest corruption which unfolded following the 'Italian waste scandal'[125] concerning large volumes of household waste illegally imported from Italy in Tunisia under the false pretence of it being plastic waste and meant to be sorted and re-exported for recycling abroad. Additionally, government processes often lack stakeholder engagement and transparency. This is expressed by the government not sharing information regarding pollution data or general environmental impacts affecting them. Failure to actively engage relevant stakeholders in the drafting of policies also adds to their resistance in implementation and enforcement which ultimately hinders the national strategies' effectiveness[126]. Research around CE in Tunisia predominantly conducted by the SwitchMed initiative helps combat the lack of transparency in the development of national strategies via the communication of research and other relevant information on their platforms accessible for all stakeholders.

118 Fersi, B.I. Salah, et al.

119 Loi nr. 1963-17 « portant l'encouragement de l'État au développement de l'agriculture »

120 Loi nr. 1975-16 « Code des Eaux »

121 Loi nr. 1988-20 « Code Forestier

122 Loi nr. 2009-49 « relative aux aires marines et côtières protégées

123 Loi nr. 2015-12 « relative à la production d'électricité à partir des énergies renouvelables ».

124 The event was organised on 16 November 2022 in Tunis by Megaera Challenges. It is likely that GIZ and Heinrich-Böll-Stiftung (HBS) will provide technical support in this process, in the framework of the ongoing PROTECT Program.

125 Delpuech, Aida. 'Italian Waste: The Vast Corruption Network Behind the Environmental Scandal'.

126 Houdret, Annabelle, et al. 'Access to Environmental Information: A Driver of Accountable Governance in Morocco and Tunisia?'

Although green entrepreneurship facilitated by the Switchers organisation in Tunisia is present, take up by local entrepreneurs has plenty of room to grow.

Areas of focus to further enhance the green entrepreneurship in Tunisia, with a particular focus on circular business model start-ups, requires the increase in awareness among youth not just about the concepts of CE but also to the available programs and assistance available for growth. It is important for Tunisia to actively increase their capacity of CE understanding and shift away from natural and technical systems recovery and integrate CE in the design stage of products and services. No current formal education means were identified in the country around CE concepts and their implementation. CITET[127] is the organisation leading the Switchers Support National Partnership of Tunisia project which gathers Business Support Organisations that have an appetite for promoting more efficient designs, management and implementation of business development services with the aim to support Tunisian green and circular entrepreneurs[128]. Sectors in which CITET is facilitating include the textile industry, organic waste management, wastewater treatment and reuse, eco-innovative technologies, water resource management, eco-entrepreneurship and sustainable procurement in public value chains. Aside the business support provided to entrepreneurs by CITET, the ACEN Foundation also provides short courses for youth to train in CE practices in Tunisia. The ACEN Foundation is very active in CE research in Tunisia and is looking to expand its involvement by actively looking for grants and donors interested in developing CE activities in African regions such as Tunisia[129].

RELEVANT LAWS AND REGULATIONS ENABLING CIRCULAR ECONOMY

In 2022, the adoption of the new Constitution highlighted the necessity to enhance environmental protection in Tunisia, including the creation of sound framework conditions for the development of circular economy. To date, relevant laws and regulations include:

- **Constitution of 25 July 2022**[130] – The Constitution guarantees to all citizens the right to a healthy environment and climate security[131] and the right to water[132]. Constitutionalising these two rights presents an important step in the evolution of the national legal system in the area of environmental protection, as Tunisia is the only country in the region that does not have an Environmental Law. The Constitution also stipulates the establishment of an "Authority for Sustainable Development and the Rights of Future Generations" to be consulted for draft laws relating to economic, social and environmental issues, as well as for development plans[133].
- **Draft Environmental Law (2022)**[134] – The draft Environmental Law recognises circular economy as an integral part of waste management (Article 188) and includes financing for circular economy initiatives (Article 295).

127 http://www.citet.nat.tn/portail/accueilcitet.aspx?_lg=en-US

128 SwitchMed. 'Green Entrepreneurship Programme in Tunisia'.

129 Acen Foundation

130 https://idaraty.tn/fr/publications/constitution-de-la-republique-tunisienne-version-francaise

131 Article 47.

132 Article 48.

133 Article 129.

134 www.environnement.gov.tn/images/fichiers/projet_code_environnement_fr.pdf

- **Law on Managing and Eliminating Waste (1996)**[135] - this law establishes the regulatory framework for managing and eliminating waste. It seeks to prevent and reduce the production of waste and its harmfulness, in particular by taking actions at the level of the manufacture and distribution of products; reuse, recycling and all other actions aimed at recovering reusable materials that are acknowledged as a source of energy. The law applies to: packaging waste; dumping waste in landfills; waste management and disposal; hazardous waste; export, import and transit of waste.
- **Decree on the conditions for managing used tyres (2015)**[136] – Adopted on the basis of the Law on Managing and Eliminating Waste.

RELEVANT NATIONAL STRATEGIES AND ACTION PLANS

The below series of national adaptation and sectoral strategies were developed on a range of matters which aim to facilitate the transition to a CE. The list below summarises some of the main strategies identified in Tunisia:

- Sustainable Consumption and Production National Action Plan (SCP-NAP)
- Adaptation Strategy for Agriculture and Ecosystems to Climate Change
- Strategy for Adaptation of Coastal Areas to Climate Change
- Strategy for Adaptation of the Public Health Sector to Climate Change
- Tunisian aquaculture development strategy
- National Strategy on Climate Change (2012)
- National Strategy for Waste Management
- National Green Economy Strategy (2015)
- National Strategy of Environmental Protection post 2020 (2020)
- Ten-Year Tourism Action Plan 2016-2025
- Ten-Year Agri-food Action Plan 2016-2025
- Green Entrepreneurship Programme

MAIN ECONOMIC SECTORS ENGAGING IN CIRCULAR ECONOMY PRACTICES

Considering the textile and garment industry is one of the most important in Tunisia, it is at the forefront of CE enabling activities.

UNIDO's MED TEST III[137] project is focusing on the transition of the sector's value chains to become more circular and sustainable. Through partnerships with global brands, international key-experts, local stakeholders, and actors along the Tunisian textile value chain, UNIDO works on developing an infrastructure that can valorise post-industrial and pre-consumer textile waste, and supports in developing local capacities that help eliminate the use of hazardous chemicals in the textile production[138]. A pilot project of local recycling of 2nd quality jeans into new jeans took place in Tunisia through a partnership with the Swedish denim brand

135 Loi nr. 1996-41 « relative aux déchets et au contrôle de leur gestion et de leur élimination ».

136 Décret gouvernemental nr. 2015-786, available in French at http://faolex.fao.org/docs/pdf/tun157218.pdf

137 SwitchMed4. 'MED TEST III Switch to Circular Value Chains to Boost the Competitiveness of Tunisia's Textile and Clothing Industry'.

138 SwitchMed. 'Circular Economy in Tunisia'.

Nudie Jeans. The pilot was a huge success and managed to repurpose 6,530 pairs of second quality jeans into 16,000 new pairs of jeans with a composition of 20% of recycled cotton. The pilot highlighted the efficient high-value recycling capabilities the country has. This is due to more than half of the post-industrial textile waste in Tunisia being 100% cotton or cotton-rich waste, which increases the value of the recycled product rather than downgrading it, and clearly demonstrates a strong business case for upcycling of textile waste in the country[139].

The SCP-NAP of Tunisia focused on two sectors capturing both primary and secondary production namely, the tourism and agri-food with objectives for the period 2016 – 2025.

The Agri-food action plan enables circularity by proposing the streamlining of natural resources so that damage is minimised, encouraging sustainable agricultural practices and assuring their effective implementation. Its objectives include: (I) streamlining the use of natural resources and minimising the causes of damage (pesticides and waste), (II) promoting sustainable agricultural practices and local knowledge and (III) ensuring sustainable agricultural activity.

The Tourism Action Plan from SCP-NAP is hoping its measures are effecting in ensuring the adoption of its objectives by the end of its implementation period[140]. More specifically the Tourism action plan is hoping to achieve: (I) promotion of sustainable resource management and encouragement of collective action, (II) development of sustainable waste management and recycling, (III) improvement of the quality of the options available and offering environmental certification, (IV) encouragement of an integrated social and societal approach, (V) promotion of the consumption of local and organic products and (VI) appraisal of the risk of flooding and coastal erosion.

ENI CBC MED is attempting to tackle the large amounts of organic content in municipal solid waste in Tunisia via its project 'CEOMED'.

The project which is currently underway in 5 countries of the Mediterranean including Tunisia and Jordan has the aim of employing a CE approach for the Organic Fraction of Municipal Solid Waste (OFMSW) in the countries within its scope[141]. More specifically, this project addresses waste produced from fruit and vegetable wholesale markets in the city of Sfax in Tunisia and Amman in Jordan, by treating the organic fraction of that waste via a biological process called anaerobic digestion. The digestate produced from the process will be used as fertilizer in the farms that provide fresh fruits and vegetables in those markets[142].

The Blue Economy project by UNIDO is focused on reducing the environmental impact and increasing the profitability of the aquaculture sector in Tunisia by engaging industry stakeholders and utilising eco-innovative technologies for the sector to improve resource efficiency.

139 Blumine and Reverse Resources. 'Local Recycling of 2nd Quality Jeans Into New Jeans in Tunisia a Pilot Project in Collaboration With Nudie Jeans'.

140 UN Environment Programme. 'Sustainable Consumption and Production National Action Plan'.

141 CEOMED. 'CEOMED in Tunisia Is Taking Part in Various Events on Waste Management and Circular Economy'.

142 ENI CBC Med. 'CEOMED, Employing Circular Economy Approach for OFMSW Management Within the Mediterranean Countries'.

A SwitchMed mapping study of the aquaculture value chain in Tunisia showed that despite overall good performance indicators, the Feeding Conversion Rate (FCR) in the country was too high when compared to international standards. This has implications on the farmers' profitability who probably overfeed their stocks in some cases while simultaneously risking an excess dispersion of nutrients leading to eutrophication and other negative consequences in the marine ecosystems143. This is where smart eco-technologies targeted at optimising FCR can aid in the regeneration of the natural system while maximising the farmers' profitability.

Tunisia is one of four countries including Lebanon which are part of the RE-MED project funded by ENI CBC Med hoping to cope with the uncontrollable amounts of construction and demolition waste (CDW).

Tunisia's CDW is getting out of control reaching nearly 8 million cubic meters and 70% of the rubble in the CDW accumulating in coastal cities of the country like Tunis, Sousse and Sfax[144]. The objective of the project is to facilitate the transfer of technology capable of increasing the value of recycled CDW and encourage its use in the road construction by integrating at least 30% recycled materials thus opening a new market. The project also aspires to support the Tunisian and Lebanese Ministries of Environment to change the regulatory framework so that it facilitates the use of recycled CDW in road construction as well as adopt new standards related to the treatment of CDW and their characteristics, such as the nomenclature of the waste and the standards of the tests. For Tunisia in particular, the project aims at having the Tunisia government impose, by the end of the project, construction companies to work with recycling companies and provide a 20% subsidy system for investments in the collection and recycling of CDW[145].

Advancements in wastewater treatment and reuse in Tunisia are improving and are helping the country cope with increasing water scarcity.

The successful Northern Tunis Wastewater Project[146] funded by the World Bank and co-financed with a grant from the Global Environment Facility (GEF), supported the construction of the underground channels and outfall, and of a wastewater storage basin in Tunisia. This drastically improved the quality of recycled wastewater and proved it can be used for irrigation purposes not just in agriculture but also urban spaces, allowing fresh water resource reservoirs to be utilised for other means.

143 SwitchMed. 'Blue Economy Promoting a Sustainable and Resource-efficient Aquaculture in the Mediterranean'.

144 All Africa. 'Tunisia: Circular Economy Project in Mediterranean Officially Launches'.

145 ENI CBC Med2. 'RE-MED, Application De L'innovation Pour Le Développement De L'économie Circulaire Pour Une Construction Durable En Méditerranée'.

146 World Bank Group. 'Tunisia: Recycled Wastewater Cleans up the Sea, Provides Water for Farming'.

In Tunisia, efforts undertaken, through the aid of the government, to develop an EPR system including a broad range of waste streams following Jordan's example, have remained stagnant.

The current EPR practice in Tunisia is restricted to waste management activities, particularly the collection, sorting, and recycling of packaging waste. The EPR system has been in place since 2015 and has helped to increase the collection and recycling of packaging waste. The system has also helped to create new jobs in the waste management sector and has reduced the environmental impact of packaging waste. However, there are still some challenges in implementing the system effectively, such as ensuring that waste is collected and sorted properly and that the fees collected are used to fund waste management activities. Aside from implementation challenges there could be other bottlenecks holding back the expansion of the system such as limited resources for funding, personnel, and infrastructure and the potential lack of stakeholder awareness and willingness to participate in such a system because they fail to comprehend the benefits derived from it. Lastly, Tunisia lacks regulations and policies to support the expansion of its EPR program which puts the weight on municipalities that cannot cope with needs. Since Tunisia's recent decline in political stability, with policy and administration responsibilities changed frequently, decisions and reforms have been postponed repeatedly[147].

147 DeveloPPP. 'German know-how for a draft law for Tunisian waste management'

KEY STAKEHOLDERS MAPPING

The table below indicates the main sectors that CE initiatives are tackling in the country as well as the main active stakeholders[148].

FOCUS AREAS	
Water resource management (incl. wastewater)	**Waste Management** (active in the Agriculture, Tourism, Aquaculture, Textiles and Garments, and Construction sectors)

STAKEHOLDER TYPE	KEY STAKEHOLDERS
Government and public institutions	National Agency of Waste Management, National Agency of Environmental Protection (ANPE), Sfax Municipality, ANGed, MARHP, Local Affairs and Environment Ministry, Conseil Supérieur du Développement Durable, Commission Nationale de Développement Durable, Tunisian Observatory of the Environment and Sustainable Development (OTEDD), Association MEGARA des Villes Durables et Intelligentes
Donors	EU, GIZ, UNIDO, World Bank, GEF
Support Programs	SwitchMed, AQUACYCLE, CEOMED, Med4WASTE, GIMED, INVESTMED, RESET, RE-MED
BSOs	CITET, ACEN Foundation, BusinessMed
Academic and Research	UNIDO, ENI CBC MED, ACEN Foundation
Financing Institutions	Sustainable Investment Taskforce

148 Disclaimer: The stakeholders do not constitute an exhaustive list as the mapping was limited to online research only.

PALESTINIAN TERRITORIES: WEST BANK AND GAZA

OVERVIEW

The implementation of a CE in the West Bank and Gaza also faces significant challenges. Limited infrastructure and resources, as well as political and economic instability, hinder progress towards a CE. Amongst the rest of the countries assessed, West Bank and Gaza has the weakest regulatory framework enabling CE. However, international development agency support has allowed the launch of initiatives promoting CE practices in the country, with a focus on the agriculture sector. This includes initiatives to promote sustainable agriculture practices, improve access to markets for small farmers, and reduce food waste. Entrepreneurs in West Bank and Gaza appear to have a positive outlook on CE with many SME projects being facilitated by the Palestine Centre for Continuing Education – Birzeit University. Access to finance for CE projects is very difficult for the West Bank and Gaza with no domestic options being available and a large portion of international donors such as CTF not providing financial aid for the development of CE projects to the country due to its ongoing political crisis. Financial support provided by international donors in the West Bank and Gaza according to Figure 3 is primarily aimed at energy efficiency, water resource management, waste management and green entrepreneurship.

KEY TRENDS AND FINDINGS

Transitioning to a CE in the West Bank and Gaza is particularly difficult considering the political unrest in the region along with the insecurity of natural resources such as water and soil limiting the vision for sustainable solutions as a priority.

Despite the difficulties the country faces, Palestine was one of the first countries in the world to develop a National Action Plan for Sustainable Consumption and Production (SCP-NAP). The region's SCP-NAP focused on three priority areas around **sustainable agriculture and food production and consumption, eco-tour-**

ism, and green buildings and green public procurement of infrastructure[149]. Following the adoption of Palestine's SCP National Strategy and Action Plan 2016 – 2022 in 2015, 3 priority sectors for circular economy were identified: (I) tourism, (II) construction and (III) agriculture[150, 151]. The following year, the Environmental Quality Authority of Palestine also launched its "Cross-Sectoral Environment Strategy 2017 – 2022" focusing on 5 strategic objectives, including improving the policies and legal framework and strengthening their application. The document has been updated by the Strategy 2020 – 2023 in 202, yet the strategic objectives remain the same.

The legal framework on environmental protection and sustainable development is among the least developed of the MENA countries in the peer group and there is no proper legal framework on circular economy in Palestine.

Since 2019, a Solid Waste Management Bylaw aims at waste reduction, reuse, recycling, and composting, yet there are only few incentives to support or promote green and circular economy business. Only to some extent, green businesses can benefit from broader Palestinian policies that include measures related to the circular economy — such as tax exemptions for renewable energies. In general, circular economy initiatives struggle to register their business and to get necessary production and export permits, which results in a loss of opportunities and reduced impact. This context is amplified by slow administrative and governmental procedures, a lack of coordination between different stakeholders in circular economy at the national level, and, to make this business environment situation even more complex, by the fact that an important area of land cannot be used for agriculture or challenging construction due to the political context. Currently, a framework policy on enabling environment for green export in Palestine is currently under preparation, to hopefully include aspects of circular economy.

Despite the ongoing struggles and on-going conflict in the region there is an appetite amongst green entrepreneurs for new businesses adopting CE concepts.

Through the Palestine Center for Continuing Education — Birzeit University , the Switchers local partner, business support is provided to green entrepreneurs who are looking to create or scale-up their circular businesses. Support is provided in the form of services for design, development and acceleration of businesses and ideas of the green and circular minded entrepreneurs of the region. Despite obstacles such as the limited water supply and lack of proper waste management, more than 30 Palestinian Switcher initiatives are underway across a range of sectors including sustainable tourism, sustainable textiles and clothing, organic cleaning products and cosmetics, resource efficiency and sustainable waste management, organic food and agriculture, sustainable housing and construction and renewable energy and efficiency[152].

Funding/Financing of CE initiatives might prove harder to obtain in the West Bank & Gaza due to the ongoing conflict crisis.

149 UNEP. 'Sustainable Consumption and Production National Action Plan (SCP-NAP) in Palestine'.

150 SwitchMed Country Report Palestine

151 SwitchMed. 'Palestine Country Profile on Circular Economy'.

152 The Switchers. 'Palestine'.

The instability of the country might create too high a risk for donors wishing to invest in CE initiatives in the region. The CTF has stated it does not provide climate finance to the West Bank & Gaza due to its ongoing conflict status. Donors like EIB and World Bank prioritise funding and financing in the region around food security and water for health and sanitation purposes.

RELEVANT LAWS AND REGULATIONS ENABLING CIRCULAR ECONOMY

The regulatory framework of relevance for the circular economy in Palestine mainly consists of an important number of Bylaws and Decisions, most of which are on renewable energies, including:

- **Environmental Law (1999)**[153] – The law aims to protect the environment from pollution in all its forms, to integrate the foundations of environmental protection in economic and social development plans, and to promote sustainable development of vital resources. This law deals with climate change through its objective and general principles, the special conditions of aerobic environment and environmental impact assessment, and reference to relevant international treaties.
- **Solid waste management Bylaw (2019)**[154] – The Bylaw regulates and encourages waste reduction, reuse, recycle, and composting; delegates the private sector the role in investment of solid waste management.
- **Legislative Decree (2011)**[155] – this decree regulates the industrial sector, notably through licenses being granted by the Ministry of Economy. Article 18 stipulates that a priority is given to award additional incentives to companies that protect the environment and use renewable energy resources.
- **Law on Agriculture (2003)**[156] – This law aims at enabling the sustainable use of natural resources, the agricultural capital, and forestry and forest trees.
- **Laws and Regulations on Renewable Energies**
    - **Legal Decree No. 14 (2015)** – This decree encourages exploitation and development of renewable energy sources, and exempts from import tax all renewable energy and energy saving systems, devices, spare parts and equipment. Clean electricity producers are also granted the privileges accorded by the Palestinian Investment Promotion Law.
    - **Regulation No. 1 (2012)** – Regulation of the Palestinian Electricity Regulatory Council regarding the implementation of the Palestinian initiative for the solar energy in term of fixing the solar panel systems.
    - **Cabinet Decision No. 6 (2017)** – This Decision exempts renewable energy power plants from income tax for a period of 4 years, then giving them tax reductions for the following years.
    - **Cabinet Decision No. 7/138 (2017)** – This Decision stipulates that national transportation companies should ensure the purchase of electrical energy produced by licensed renewable energy plants.

153 Law no. 07-1999, at http://www.jscrab.ps/data/uploads/files/environmental%20law(1).pdf (in Arabic)

154 Bylaw no. 03-2019.

155 Decree no. 10/2011.

156 Law no. 02-2003.

- **Regulation No. 1 (2017)** – Regulation of the Palestinian Energy Authority regarding the organisation of on grid renewable energy projects on the roof of schools and higher education institutions.
- **Decision (2016)** – This Decision of the Ministry of Finance exempt taxes for the renewable energy supplies (batteries, solar panels, others)

RELEVANT NATIONAL STRATEGIES AND ACTION PLANS

The below series of national adaptation and sectoral strategies were developed on a range of matters which aim to facilitate the transition to a CE. The list below summarises some of the main strategies identified in West Bank & Gaza:

- National Action Plan for Sustainable Consumption and Production (SCP-NAP)
- Palestine's National Policy Agenda 2020 – 2022
- National Strategy for Solid Waste Management in the Palestinian Territory 2010 – 2014 (NSSWM, 2008)[157]
- Cross-Sectoral Environment Strategy 2020 – 2023 (2020)[158]
- National Agriculture Strategy (2016)

MAIN ECONOMIC SECTORS ENGAGING IN CIRCULAR ECONOMY PRACTICES

Historically, in the West Bank and Gaza, green practices have always existed in the agricultural sector, which is one of the biggest ones in the region, and some of those were naturally implemented as they were already embedded in the culture of the people.

To that extend, UNEP released a series of guidelines concerning the preservation of organic matter and content in soils as well as the biological control of agricultural pests to make up for the lack of legislative measures and guidelines in the region and minimise soil depletion and the use of chemical pesticides preserving the natural regeneration of the soil[159, 160].

SwitchMed's MED TEST III project helps the materialisation of West Bank & Gaza's strategy by facilitating increased energy efficiency in industrial production processes.

The project's objective is to undertake industry demonstrations along with trainings of local service providers in order to showcase the need for resource efficiency in production process across various sectors and businesses[161].

157 The NSSWM was issued by the Steering Committee formed according to the decision of the Palestinian Ministerial Cabinet No. 53 of 2008.

158 pal204351.pdf (fao.org)

159 SwitchMed. 'SwitchMed in Palestine: Guidelines to Biological Control of Agricultural Pests'.

160 SwitchMed8. 'SwitchMed in Palestine: Guidelines on Best Practices to Preserve Organic Matter and Moisture Content in Soils'.

161 SwitchMed. 'MED TEST III Progressing Resource-efficient and Competitive Industries in Palestine'.

KEY STAKEHOLDERS MAPPING

The table below indicates the main sectors that CE initiatives are tackling in the country as well as the main active stakeholders[162].

FOCUS AREAS	
Water resource management (focus on agriculture sector)	**Energy efficiency** (focus on secondary industrial sector)

STAKEHOLDER TYPE	KEY STAKEHOLDERS
Government and public institutions	Environment Quality Authority (EQA), The Ministry of National Economy, Palestinian Federation of Industry, Ministry of Agriculture, Palestinian Energy Authority
Donors	United Nations Environment Programme (UNEP), UNIDO, EU
Support Programs	Switchmed, GIMED, RESET
BSOs	
Academic and Research	Birzeid University, Palestine Polytechnic University, University of Jerusalem
Financing Institutions	Sharakat Investment Fund

162 Disclaimer: The stakeholders do not constitute an exhaustive list as the mapping was limited to online research only.

Recommendations

Based on the findings of this assessment and their subsequent analysis carried out in the Overview section, the following high-level recommendations look at potential interventions and entry points that can be leveraged by GIZ to advance the circular economy sector in the target countries. These recommendations have been devised and categorised for each respective part of the CE ecosystem.

GOVERNMENT

Close legal and regulatory gaps to strengthen the framework for environmental protection and sustainability, including waste management and circular economy.

This will help better streamline the scope of application and level or regulatory detail of legal frameworks related to CE for the countries assessed. Currently, the legal frameworks rank from rudimentary (Lebanon, Palestine), incomplete (Egypt, Tunisia), fragmented (Algeria, Jordan), to solid (Morocco). Through the gap close-up, the set-up of effective framework conditions for anchoring the circular economy and leveraging its environmental, economic and social potentials will be enabled. This could also aid to the adoption of sector or industry specific rules on waste management that would help further leverage existing opportunities.

The 'Plastic bag ban' such as that of Morocco could also be a good example although, with such regulations other vetted alternatives need to be introduced in the market to avoid other undesired substitutes from emerging and further complicating the management of new waste generated.

Enhance international cooperation and engage in peer-learning.

Ecosystem actors both public and private should seek to enhance mutual cooperation and exchange of good practices to find the right solutions so they are able to respond effectively to the growing concerns of their citizens. The existing donor programs and initiatives such as SwitchMed already provide a suitable platform and multiple fora for cooperation.

Enable transparent information sharing and constant stakeholder engagement when drafting strategies.

A CE transition requires a holistic coordinated approach. For any governmental strategy to be successful it is important to have a good common understanding of the principles of CE, good quality data, and strong stakeholder engagement between the concerned government departments, the private sector, the civil society, academia, and circular economy businesses. There is still a need to develop a clear and targeted strategies covering the country's most material sectors along with a clear distinction of the roles of the different stakeholders.

Develop an advocacy strategy for the adoption of CE regulations and strategies by targeting local and national authorities.

The advocacy strategy should look at the local context, interests and position of various ecosystem actors in order to maximise its effectiveness. Capitalising on existing trends and efforts in various sectors in each country can help promote and build momentum for the CE sector. Global trends (such as SDG and climate change

focus) in addition to national priorities and urgencies can be leveraged to push the government and the private sector to sponsor and adopt CE principles and initiatives.

Provide support for the development of government financial incentives to businesses for the adoption of CE practices.

Financial incentives, if properly designed for the context of the country to be applied in, could be an accelerator for a transition to CE (e.g. tax breaks, grants etc.). Their availability signals the government's commitment to adopting CE holistically across all sectors and enables businesses to engage in CE activities which will now appear more attractive than traditional operation methods. It is important to stress however that, any public incentive system should be carefully assessed on the local context of each country in order to avoid abuse, corruption or ineffective implementation of the incentives.

Incorporate circularity in public procurement to catalyse a transition toward circularity in local markets and supply chains.

If public procurement shows a clear preference for circular business partners, this will signal the market to become more engaged with circularity practices to keep up to date and be able to meet public procurement requirements if they wish to participate in the supply chains of public projects and initiatives. Aside the market implications, a government heavily committed to CE signals to its citizens that they should also be positive and participate in the transition to a CE.

Impose governmental interventions such as an Extended Producer Responsibility (EPR) system to incentivise waste reduction, reuse and recycling over disposal.

Basic government interventions could include imposing waste fees and other utility fees, such as water and electricity, that aim to recover costs and basic EPR policies. Such measures will help incentivise waste reduction, reuse and recycling over disposal since the latter will become more costly.

Explore measures to facilitate the effectiveness of law enforcement and to ensure compliance with CE regulations.

Most countries assessed suffered from a weak application of the existing rules, paired with strong bureaucracy and unclear administrative procedures which often demotivate business owners. Any regulation or incentive related to CE should take into account the existing law enforcement effectiveness. As such, the strengthening of law enforcement and administrative procedures should be seen as a priority for the governments of the countries assessed.

Jordan's EPR system and the regulatory framework behind it is another great regional example.

Both Egypt and Tunisia seem to be positive to such a development with both countries having drafted laws enabling the enhancement of current domestic EPR practices restricted to singular waste streams.

Morocco and Lebanon are in slightly earlier stages for EPR, enforcing targeted practices restricted to waste management for packaging and WEEE respectively.

No such practices were identified for Algeria and West Bank & Gaza.

ACCESS TO FINANCE

Develop specific technical criteria for an objective and speedy assessment of potential project candidates for financing or funding by donors, local financing institutions or private investors.

This is essential to speed up the rate at which CE projects and businesses are being developed. Since no criteria is currently available and certain projects might be too technical for financing reviewers' capacity to assess them and realise their potential for value creation. As such, they risk getting stuck in due diligence or risk getting declined. The process for solar power and wind turbines for example is much more efficient taking into consideration their long-term track record of effectiveness.

Gradually adopt sustainable financial instruments established within the EU Sustainable Finance framework as well as the Taxonomy regulation in the regional context to accelerate CE growth.

Green instruments such as green bonds and green loans are effective enablers to a green transition. Taking into consideration the Taxonomy regulation and the fact that business activities will be rated based on specified technical environmental performance criteria allows financial institution to better assess climate risk and hence be able to provide more attractive loan propositions to applicants who 'cause no harm' to the environment.

Explore different mechanisms to allow access to funds domestically for CE businesses via variable financing mechanisms.

To further speed up the rate at which CE projects and businesses are being developed, research must be carried out to identify potential funding opportunities domestically without the help of donor organisations. Potential domestic opportunities even for smaller sums of money, tailored for smaller projects will give a boost to many local struggling start-ups.

Build the capacity and knowledge of support organisations and CE businesses to explore alternative sources of funding, particularly on sustainable financing mechanisms.

Efforts and initiatives adopted to counter the challenges faced by support organisations and circular businesses and entrepreneurs in access to finance should be coupled by knowledge dissemination and skills development to tap into alternative sources of funding.

BUSINESS SUPPORT

Provide programs with funding terms tied with planning for transformation activities around CE in order to create an additional incentive for business to transition.

The use of such an incentivisation measure could help speed up businesses engagement with CE. Requesting a transformation plan as part of a programme

can activate initiatives at each business's maturity level. For instance, some businesses might opt-in for awareness training in their planning, more mature businesses might opt-in for technical capacity building in specific gap areas etc.

Prioritise business support services providing capacity building in CE for existing businesses and thus helping them upskill their staff and adapt their existing practices.

This is important so that CE transition is not approached by new business activities only but also by redesigning the existing ones. In other words, business support programs should be able to provide enterprises with innovative alternatives to help them decouple economic growth from resource use, realise the value lost from their waste disposal and find ways to repurpose their waste either for their own production process or elsewhere.

Capitalise on existing local initiatives by providing them with the financial and business support needed (access to funds, markets, know-how, etc.) to grow them into successful models.

Targeting existing businesses and informal initiatives is key to ensure the development of the sector in an organic way by leveraging the available drivers of success.

Encourage and build partnership and collaboration between different stakeholders in order to join efforts and maximise the efficiency of interventions.

Adopting collaboration mechanisms between the ecosystem actors (civil society actors, support organisations, private sector entities, informal sector actors, circular businesses) can help coordinate and avoid duplication of efforts.

Proactively gather CE supporting data and develop relevant cases to influence national strategies and programs.

Data gathering and impact identification are key to assist governments, donors, and BSOs in making informed decisions, developing strategies, and prioritising actions. As such, it would be helpful to determine which sector offers the biggest potential for waste minimisation and the regeneration of optimised materials, assets, and natural systems.

HUMAN CAPITAL

Identify innovative ways to capitalise from the informal participants scale-up and enabling of a collaboration mechanism between them and the formal participants, especially in the waste sector.

Potential capitalisation measures targeted to the informal waste and repair economies in the countries **included in the assessment** could help enable the efforts of both the government and the private sector while at the same time enhance the market by making it more competitive. Aside from the environmental and economic gains, a formalisation of the sector could also improve the livelihoods of its participants of whom a large portion are vulnerable groups of immigrants

fleeing from conflict including youth and women. Their current activities put their lives at risk daily by handling unsanitary and potentially hazardous waste materials. By educating them on repair techniques or safe dismantling of certain types of waste, the quality and range of services they offer will be scaled-up, increasing their credibility and thus demand for their products resulting in a higher income for them.

Integrate the concepts of circularity at different levels of formal and informal education.

The lack of awareness on CE concepts amongst people in the target countries should be mitigated via the provision of informed seminars in elementary schools, or other educational institutions within students' early educational years so that they can pursue CE enabling careers. Once demand starts rising, hopefully higher education institutions will pick up on the need and provide local programs for careers in the different functionalities of CE. On the other hand, CE courses should also be provided by non-academic or informal education institutions and programs to make it more accessible.

Leverage the skills and capacities of youth by developing CE programs that capture their interest and attention.

Develop awareness raising programs and events (hackathon, discussion panels, competitions etc.) that target youth populations to encourage them to actively contribute to CE initiatives. Youth engagement in CE is of particular importance considering all initiatives and efforts undertaken in the present will directly impact their future and as such they should not only be involved in the process but also develop the skillset to drive such initiatives in the future.

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