

Accelerating circularity in the Arab region



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Transition from linear to circular economy in the Arab region is dictated by resource scarcity, depleting environment, food insecurity, growing vulnerabilities and development challenges associated with climate change impacts.

The circular economy holds particular promise for achieving multiple Sustainable Development Goals (SDGs) in the Arab region, including SDGs:



Certain sectors are increasingly transitioning towards circular practices, but often on a pilot scale. However, only few countries have a strategic vision with set targets for the transition.

Except for a few countries, the institutions, capacities, finance, and governance mechanisms needed for a circular economy are often limited if not lacking.

A circular economy could offer unprecedented and largely unexplored opportunities for regional economic integration.

The benefits of the transition to a circular economy will remain limited unless it is done with a view to making Arab societies sustainable and equitable, endowed with healthy ecosystems and sustainable critical resources.

The case for a circular economy

Do we need a circular economy in the Arab region?

Circular **economy** is a systemic approach to accelerate the achievement of Sustainable Development Goals (SDGs) while addressing three major development challenges facing the Arab region, resource scarcity and depletion, climate change impacts, pollution and biodiversity loss. Including circular processes and solutions can reduce greenhouse gas (GHG) emissions, help societies in adapting to future climatic changes, clean up oceans from plastic waste, decrease the deadly air pollution in cities, and increase water availability. Circularity supports diversifying economies, creating more job opportunities, and advancing access in society.

Currently, Arab economies mostly rely on a strong link between economic growth and unsustainable resource use. The use of natural resources, either finite or renewable, is often done in the unsustainable manner of take, make and dispose. This is the very definition of a linear economy. This has led to extensive environmental degradation and depletion of these resources, which pose a severe threat to the well-being of humans and all ecosystems on earth.

The Arab region faces increasing challenges regarding natural resources. An accelerating trend has been noted in both the Material Footprint and the Domestic Material Consumption per capita in the Arab region. This implies a change of lifestyles connected with a rapid increase in the consumption of raw biomass, fossil fuels and minerals. The extraction, processing, and waste related to the increased material use in the region are worrisome since they add to the environmental degradation and further strain the already scarce resources and fragile ecosystems.

There is an urgent need to shift from extractive to regenerative, resilient economies and practices. Since the adoption of the 2030 Agenda for Sustainable Development and the Paris Agreement, Arab States have steadily expressed ambitions to shift to more environmentally sustainable economies. National visions and strategies for sustainable development, nationally determined contributions (NDCs), voluntary national reviews (VNRs),

Global estimates for 2019



50%

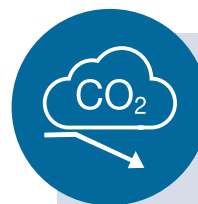
of GHG emissions and

90%

of biodiversity loss



are due to the unsustainable extraction, processing and use of natural resources¹



50%

of the emission reduction needed to meet the Paris Agreement,

7.5 billion

tons CO² equivalents, could be reached by integrating circular solutions^{2*}



*Through shared ownership of transportation vehicles, chemical leasing, recovery of nutrients in agriculture, and improved materials in the construction sector

and other development policy documents increasingly reflect a willingness to achieve a shift from linearity to circularity. The pace of transition is differential yet growing as several countries make gradual progress to circularity with clearly defined targets

set for 2030. Recent crises, such as the COVID-19 pandemic, the financial crisis, increased global conflicts and environmental distress highlighted the need to accelerate both awareness and action towards a systemic change.

To rescue the global environment – and humanity’s future – we must transform the accounting systems that reward pollution and waste. We must place true value on the environment and go beyond Gross Domestic Product as a measure of human progress and well-being. Let us not forget that when we destroy a forest, we are creating GDP. When we overfish, we are creating GDP. GDP is not a way to measure richness in the present situation in the world. Instead, we must shift to a circular and regenerative economy.

UN-Secretary General remarks to Stockholm +50 International meeting on June 2nd, 2022



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77,000
new jobs and a gain of

32 billion

dollars for the economy by 2030, through adopting a circular waste management in the Kingdom of Saudi Arabia³



Circular economy promotes a holistic transformation of society, achieving environmental equality, social equity, and economic prosperity, with a paradigm shift in consumption and production patterns. It is much more than the transition of singular sectors through increased efficiency in technology or material flows through recycling already produced waste. Emerging evidence from some Arab States is showing that a circular economy can facilitate increased regional cooperation, create a host of new jobs and sources of wealth, improving the capacity to address the region’s systemic challenges of food security, water scarcity, pollution, loss of biodiversity, ecosystem degradation, and climate-related insecurities.

Green economy, bio-economy and circular economy are economic concepts encouraging an adaptation or transformation towards sustainability. They have different aims and focuses but are still often used interchangeably. Green economy usually focuses on energy efficiency and environmental conservation, while bio-economy is used to focus on bio-based materials and in the development of rural policies. A holistic circular economy focuses on all sectors to develop resource efficiency, nature-based solutions, new sustainable societal practices, and profitable economic business models based on circularity, aiming at a change in development trajectory. It is a systemic transformation of values, behaviors, and priorities spanning through the whole society and in need of a high interdependency between all sectors and people.

Designing a circular system

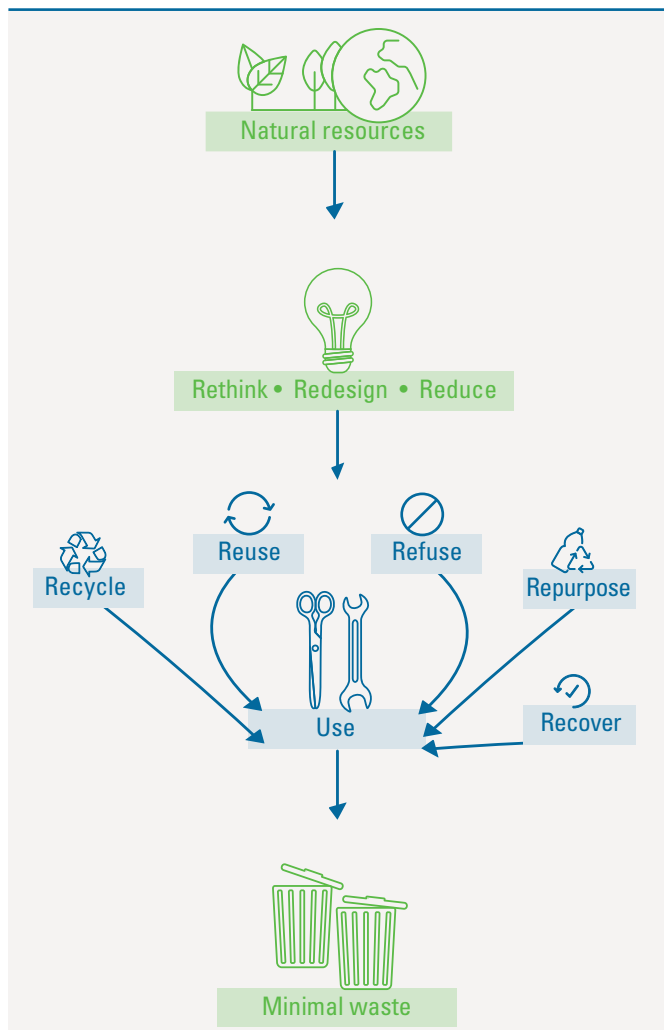
How can circularity be designed for our societies?

A circular economy is a sustainable economic system, meaning that by incorporating circular processes a new system built on circular solutions can be created where natural resources are used again and again in our economy. The design of this system needs to incorporate all circular processes depending on sector, infrastructure, material, and societal acceptance.

To guide the development towards a circular economy, a circular model can be used to visualize the processes that can be integrated. The model (figure 1) is based on overarching design changes (Rethink, Redesign and

Reduce), and short (Refuse, Reuse, and Repurpose) and long (Recycle and Recover) loops, where short loops are the most resource-efficient and should be prioritized when possible.

Figure 1. A model of circularity built on the design changes (Rethink, Redesign, Reduce), short loops (Refuse, Reuse, Repurpose) and long loops (Recycle, Recover).



Source: Model developed by authors.



Working definition of circular economy

Circular economy is a cross-sectoral approach to development where systems are designed to favour solutions that upgrade ecosystems and keep the value of resources within the system for as long as possible. Renewable and finite resource management is guided by the circular model which includes restorative and regenerative processes, based on a sequence of: rethink, redesign, reduce, refuse, reuse, repurpose, recycle, and recover, to achieve sustainable use of natural resources while advancing environmental resilience, social equity, and economic prosperity.

Adapted from several definitions available in the literature.

The model guiding the development consists of 8Rs that span the following phases; Design changes: **Rethink** business models to include used resources or a sharing of resources; **Redesign** products to last longer and be recyclable, and systems to be regenerative; and **Reduce** resources used in the design, production, manufacturing and during any circular processes. Short loops: **Refuse**

products or services that are above sufficiency levels and environmentally harmful; **Reuse** resources until they are not fulfilling their original purpose; and **Repurpose** products, components, and materials outside their original purpose. Long loops: **Recycle** materials or components through physical or chemical processes, and **Recover** energy or nutrients from used resources.

In a circular economy, processes that are at the base of the hierarchical pyramid (figure 2) need to be prioritized, since they are generally the most resource-efficient. Below are examples of circular solutions connected to these processes.

Rethinking ownership over products to reach a paradigm shift towards a sharing economy, limiting the resources needed but still fulfilling people's needs and wants.

For example: extended public transport networks, common working spaces and borrowing products which are not used often or during a short time such as books, toys, and clothes for special occasions.

Redesign products and production streams so they become environmentally friendly. For example, products with reduced toxicity, used materials, and increased durability, including reused or recycled components/materials.

Refuse products that are above sufficiency levels, and/or are environmentally unsustainable. For example: refuse to buy things that are not needed, or make more sustainable choices by saying no to single-use

plastics, environmentally degrading food, fast fashion, or products that cannot be recycled.

Reuse and Repurpose products, components, and materials again and again, until their quality is too low. For example: by finding new useful areas for food not fulfilling beauty standards, buying 'pre-loved' products, and reusing construction materials when building new constructions.

Recycle and recover when other processes are not available or when the resource has gone through several loops of other circular processes. For example, by recycling single-use plastic, recovering energy through incineration of products that do not fulfill the requirements to be recycled, and the energy and nutrients from organic waste through biogas and fertilizer production.

Figure 2. Hierarchical pyramid of the circular model



Source: Figure developed by authors.



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Circular economy potential for the Arab region

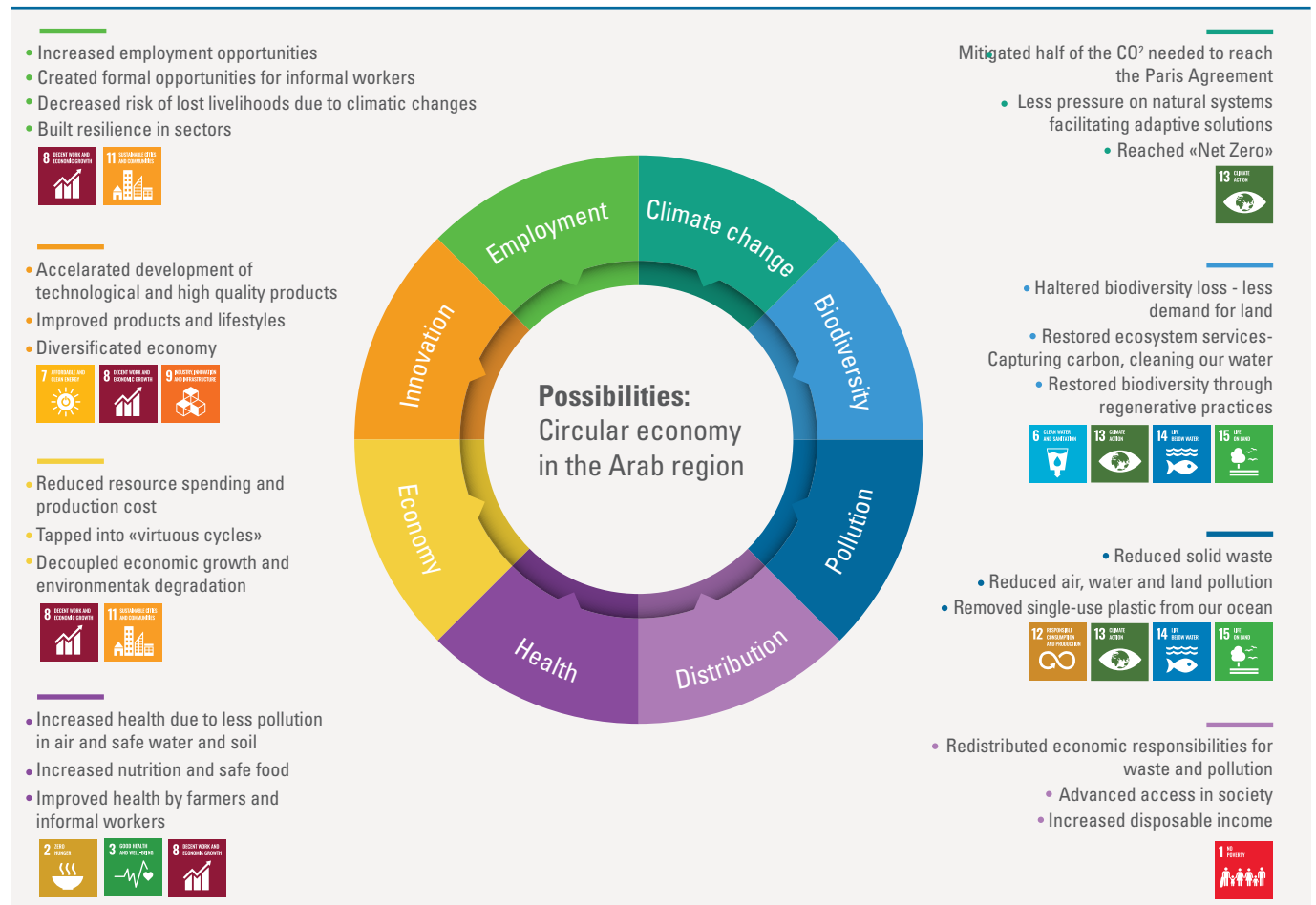
Which SDGs may be accelerated through an increased circularity of resources?

Circular economy is an economy in which products and materials are kept in use, and natural systems are regenerated. It supports the acceleration of the implementation of the 2030 Agenda for Sustainable Development and achieving the Paris Agreement targets. The circular economy holds particular promise for climate action with decreased emissions of GHGs; sustainable use of water, land, and oceans; diversification of the economy with increased work opportunities; and improved lifestyles with high-quality products, advanced access to products as services, and better health.

A circular economy is directly or indirectly linked to fulfilling multiple Sustainable Development Goals (figure 3) :



Figure 3. Possibilities within a holistic circular economy in the Arab region



Source: Model developed by authors.

Bold steps in the right direction

What circularity measures have been included and what are the future ambitions?

The transition toward a circular economy is advancing at different paces in Arab States; some countries have put policies in place, others have developed a holistic vision with targets, and some are still in the early planning phase of improvements in a selected sector. Integrated solid waste management is the sector with the highest traction, with clear benefits for the environment through material recovery, reduced pollution and reduction of GHG emissions. The current inclusion of circular processes in the Arab region is mostly focused on long circular loops, such as recycle and recovery, and are thus in need of a re-focus.

All 22 Arab States acknowledge the importance of a circular economy and to increase circular processes or solutions in their development policy documents such as NDCs, national development visions and strategies, VNRs, national adaptation plans, sustainable consumption and production national action plans, and in sector-specific development plans.

In the last decade, the circular economy has increasingly gained attention in the Arab region. There is still much to do in all sectors, but several countries are building out their infrastructure, with improved recycling facilities and public transportation options, and developing new regulations that will economically facilitate a circular resource use.

In the Arab region



90–95%

of all municipal solid waste goes to landfills

and the municipal solid waste generation is increasing and have now reached

2.7 Kg/person

per day in some parts of the Arab region⁴



A total of 21 of the 22 Arab States have produced and submitted an NDC, and 20 of them include either circular processes or solutions to reach their mitigation or adaptation targets. The stated increased circularity for sustainable resource use is expressed within different sectors and by different ministries.



The entity in charge of developing the NDC is usually referred to as the Government without specifying which government entity oversees the planned measures. Few countries clearly stress the importance of circularity: Lebanon is aiming towards the goal of a green economy, described as a sustainable development model with high human development and reduced ecological impact; the United Arab Emirates has stated

that a circular economy is the goal for their waste sector; while Kuwait and Saudi Arabia are including a circular carbon economy as the strategy to reach their mitigation targets. The majority of the NDCs include parts of the circular economy in their mitigation measures and could be found targeting an array of sectors: solid waste management; energy; transport; agriculture; construction; tourism; forestry; industry; and water.

The transition to a circular economy in the Arab region is hampered by an array of obstacles and challenges. These include the lack of diversification in the economy, limited fiscal space, low and underutilized human capacity, fossil fuel dependency, weak institutions and the lack of monitoring and data. These limitations can be overcome by appropriate policies and pilot projects exemplifying best practices and economic viability. Below is a selection of policies and projects connected to circularity that are planned or carried out in the Arab region.



Circular carbon economy is a framework to reduce greenhouse gas emissions through a circularity of carbon flows. It is tech-focused and built on the processes of reduce, reuse, recycle and remove.

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- ▶ **United Arab Emirates** developed a 'Circular Economy Policy 2021–2031', working on sustainable manufacturing, green infrastructure, sustainable transport, and sustainable food production and consumption, and monitoring the implementation.
- ▶ **Saudi Arabia** and Kuwait are working on the circular carbon economy, to reach their mitigation targets.
- ▶ **Oman's** Vision 2040 has the stated goal of ensuring a sustainable use of natural resources, achieved partly through a cross-sectoral green and circular economy, measured by indicators.
- ▶ **Lebanon** aims to achieve a circular economy in the industrial sector, including circular procurement and polluter pay principles.
- ▶ **The State of Palestine** has introduced "polluter pays" principles into the environmental law to make the companies that contribute to environmental degradation pay for the damage created.
- ▶ **Qatar** is enforcing sustainable procurements, using materials with recycled contents and a vision of a circular FIFA world cup 2022.
- ▶ **Egypt** is carrying out projects decreasing the subsidies on energy, electricity and oil; and has made significant progress involving the private sector in their solid waste management.
- ▶ **Morocco** is gradually phasing out fossil fuel subsidies, while putting forward the importance of solidarity with the most vulnerable. The Government has also created an 'Eco Tax' and banned the use of single-use plastic bags.

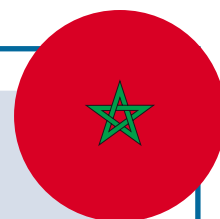
- ▶ **Yemen** will introduce tax exemptions to increase reuse and recycling, and to lower the use of virgin materials, through a certification scheme.
- ▶ **Sudan, Iraq, Bahrain, Tunisia** and **Somalia** are working on raising public awareness about circular processes and solutions.
- ▶ **Palestine, Lebanon, Jordan, Morocco, Tunisia, Egypt**, and **Algeria** have implemented circular capacity-building programmes.
- ▶ **Djibouti's** Vision 2035, Comoros NDC, and Mauritania's NDC are aiming for an integration of many circular practices in the agricultural sector, such as agroforestry.
- ▶ **Syria's** NDC refers to a circular economy, introducing circular solutions in waste, agriculture, transport and energy.
- ▶ **Libya** has drafted plans on extending their wastewater reuse and developing policies and incentives towards energy efficiency.

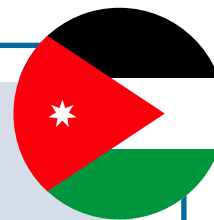
Flagship projects and best practices

Morocco: innovative solutions in agriculture is strengthening local farmers' resilience

Morocco is one of few Arab countries which has a high food self-sufficiency, and agri-food production accounts for 33 per cent of all employment. But the fertility of the land and profit in the sector is decreasing with changed market conditions and limited natural resource availability. The agriculture sector is also responsible for a considerable amount of the world's GHG emissions, partly due to inefficient use of natural resources with uncontrolled methane production from organic waste, extensive use of inputs such as fertilizers, and the use of fossil fuels in the production.

In a collaboration between the company Biodôme du Maroc and the European Union-funded Switch Med programme, a new solution for farmers in Morocco was developed to help them include circular practices to decrease their emissions and increase their profits and resilience. The solution is based on a small-scale local tank that produce biogas and fertilizer through methane production from organic waste, animal waste and wastewater. Instead of leaving the waste untreated on the farms, leaking GHGs, it is used to supplement the previous use of oil to run irrigation systems and other energy demanding systems on the farm, as well as local organic fertilizers instead of bought fertilizers. The project has also brought the possibility for the farmers to sell organic fertilizers, and for new employment opportunities as the solution is meant to be self-sustained by local farmers. The solution will be expanding to a national level and capacity-building of all relevant stakeholders to form public-private partnerships for sustainable agricultural circular solutions.





Jordan: reuse programme is facilitating sustainable consumption patterns and creating new jobs

The new project REUSEMED is being implemented in Jordan, through a partnership between the Ministry of Local Administration and the New Deir Allaa Municipality. The project is funded by the European Union with the aim of strengthening the culture of reusing products and creating networks to facilitate this. With a focus on the reuse of compost, clothes, books, furniture, and household appliances, the project is promoting both regenerative and restorative solutions. In 2022, they organized the first reuse festival, raising the local publics' awareness on reuse and inviting them to participate in reuse activities. Other achievements include a reuse center where people can turn in old products which then are resold for a minimal price, a repair café, and a compost factory.

The project is within waste management, but instead of the usual focus on recycling and incineration of waste, the more resource efficient processes of reuse is used. The goal is to target the increasing waste production through taking care of already produced products to decrease waste and the need for new production. The project is promoting changed consumption patterns by enhancing the possibilities with used products, raising awareness of waste management, capacity building of reuse, repair, and composting practices, and creating new green jobs and solidarity. Another future goal is to involve the private sector to increase the medium- and long-term revenues of the municipality.

Accelerating circularity in the Arab region

How can the progress of circular economy be accelerated?

Transition to a circular economy is a systemic process that can be accelerated through political commitment, adequate policies, effective governance with strong institutions and adequate policies, sustainable financing mechanisms, capacity-building programmes, and a cross-sectoral engagement of all stakeholders and actors. Several aspects should be considered when starting; where is the least resistance, circular potential, and higher impact?



Get everyone on board

Creating a shared vision of a sustainable Arab region: is essential since a circular economy is dependent on strong cooperation and high interdependence among actors.

Mainstreaming circularity in all development policies in all sectors: making it a core strategy while building synergies to existing programmes and projects.

Building a roadmap by mapping the situation, identifying key stakeholders and enablers, strategically choosing transitioning sectors, and planning the actions to get there with metrics and easy-to-monitor markers of progress.



Create benefits within circular solutions

Breaking the current linear economic model, where economic profits can be achieved without taking into consideration the consequences for a shared environment and with low consideration of social equity, with new regulations and incentives encouraging circular processes, solutions and businesses.

Examples of policies are to **enforce already created laws and regulations; promote circularity through Circular Procurement Practices; put the responsibility where it belongs through Extended Producer Responsibilities; and create attractive certifications, and monetary and non-monetary incentives.**



Make circularity desirable

Raising consumer awareness: increasing acceptance and demand for circular processes and solutions, is extra important within a circular economy since circular practices often have a high 'participatory architecture'.

Making circularity the norm and create agency: increasing the attractiveness of circular solutions for both the individuals and different sectors while making sure there is a feeling of being a part of a bigger system that they can influence.



Build the needed capacity

Increasing technical capacity with a modern industrial sector and infrastructure.

Increasing human capacity through education systems and trainings focused on circular processes and solutions, and platforms to exchange knowledge and best practices.

Utilize already existing capacity in the regions' youth and women, today with a high unemployment rate.



Enhance the finance

The above-mentioned enablers require innovation in the financing mechanisms leading to increased efficiency in limited budgets, this can be achieved by enhancing the finance through **direct climate finance towards circularity; market circular solutions as profitable; creating regulations and policies guiding financial flows; stimulating public-private partnerships; and carrying out debt swap to stimulate investments towards circularity.**



Let the knowledge lead the way

To guide decision makers towards informed practices based on evidence, it is suggested to **create thorough assessments of situations to make informed decisions; prioritize research to develop best practices; fill the data gaps; and measure the progress of circularity to a Circular Economy using a pertinent index.**

Endnotes

1. International Resource Panel. (2019). Global Resources Outlook 2019: Natural Resources for the Future We Want.
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MISSION: Committed to the 2030 Agenda, ESCWA's passionate team produces innovative knowledge, fosters regional consensus and delivers transformational policy advice. Together, we work for a sustainable future for all.

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