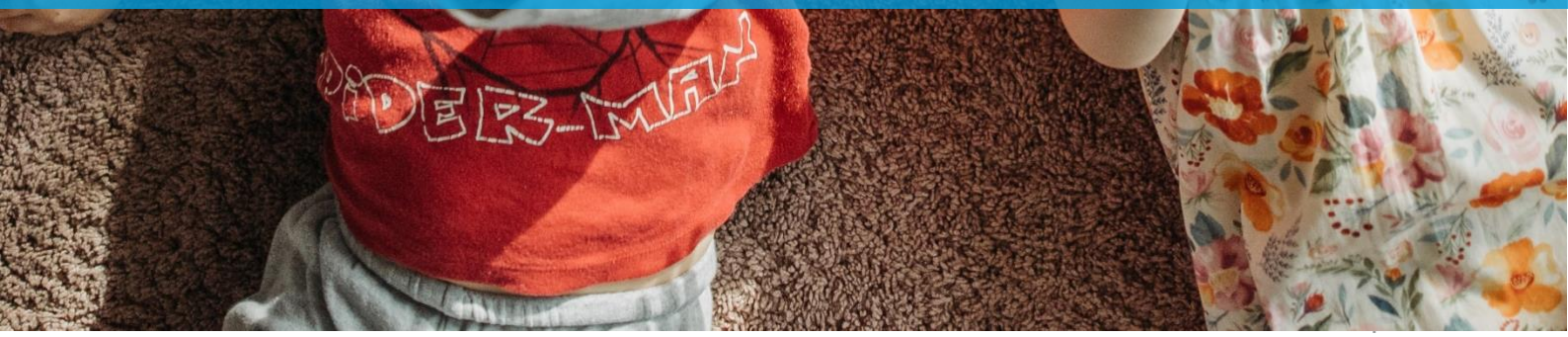
UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

SUSTAINABLE DEVELOPMENT GOALS

Global consultations on circular economy 2022-2023

Written statements from international organizations



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I. AFRY Management Consulting

Global consultations on circular economy

2022Case: Finland

Summary by Nani Pajunen, AFRY Management Consulting

The annual World Circular Economy Forum (WCEF) presents the world's leading circular economy solutions with business leaders, policymakers and experts participating from around the world.

WCEF is a global initiative of Finland and the Finnish Innovation Fund Sitra. The first Forum, WCEF2017, identified key elements of a circular economy and showcased solutions and learnings from around the world, bringing together 1,500 people from more than 100 countries.

At WCEF2018, more than one 1,000 circular economy experts discussed creating a true circular economy by 2050. WCEF2019 emphasised the next era of the circular economy and scaling up the transition, with more than 2,200 participants.

As the world adjusted to the impacts of COVID-19, in 2020 WCEFOnline presented the circular solutions to rebooting the world's economy and opened its doors to more than 4,200 participantsthrough its new online format. In 2021, there were two big events. WCEF+Climate focused on thecrucial role of a circular economy in achieving climate neutrality. The main event WCEF2021 in Toronto, Canada focused on seizing circular opportunities, reaching over 26,000 participants from134 countries.

WCEF2022 is from Africa to the World, hosted in the Global South for the first time. WCEF2022 willbe held in Kigali, Rwanda and online. African Studios will live-broadcast the main event in several cities across Africa and facilitate discussions around circularity, while offering participants the opportunity to exhibit their solutions and take tours to local circular economy facilities. Studios canalso be organised around the Globe.

Circular economy as a business

The list of most interesting companies in the circular economy 2.1 shows you what operating a business in Finland's circular economy means in practice. With this list of 41 pioneering companies,Sitra wants to encourage Finnish companies to develop smart business in the circular economy.

Circular economy business models for the manufacturing industry. Circular Economy Playbook.

The circular economy is every business's business. The companies are at the forefront of seeking new growth from sustainability and the business models of a circular economy. At the Circular Economy Centre, there is circular economy competences and knowhow how to turn sustainabilityand circular economy into profitable business.

Circular economy roadmaps

Finland was the first country in the world to prepare a national road map to a circular economy in 2016, under the leadership of Sitra. Just like the first road map, the updated version published in March 2019 also includes descriptions of the essential circular economy measures to which Finnishstakeholders have already committed themselves. There are measures under way in

state administration, towns and cities, business life and the everyday lives of Finnish people.

Regional road map to a circular economy, case City of Turku. Towns and cities can motivate and encourage companies, communities and inhabitants operating in their areas to transfer to a circular economy by aligning their public procurement processes with the principles of the circular economy.
At the same time, the circular economy supports the strengthening of regional competitiveness andthe well-being of local residents, attracts new inhabitants and helps municipalities reach their carbon neutrality goals.

Circular economy education

In order to create a circular economy society, we need a new kind of expertise, co-operation between silos, development of the operating environment and a general change in attitudes and operating methods. Professionals, experts and decision-makers, both now and in the future, will playa decisive role in building a new future. Education plays an important role in developing experts.

In Finland, between the years 2017-2019, we co-operated with all levels of education to ensure that circular economy thinking reaches as many Finns as possible. From the year 2019, there has been different kind of circular economy courses in all levels of the Finnish School system, to offer the toolswhich can be used to build a sustainable future and new business. Read more about this work.

How to make the circular economy part of the national education system – Tips from Finland.

Decoupling environmental issues from economic growth

Sitra commissioned this study to investigate whether and under what assumptions and policy measures the decoupling of CO2 emissions from economic growth could occur at a sufficient rate forCO2 emissions to decline to net zero by 2050.

Decoupling natural resources from economic growth – is it possible? According to a Sitra-funded report, ambitious emission reductions and economic growth can be achieved simultaneously. Caneconomic growth and the overconsumption of natural resources also be decoupled? Read more about this theme from this article.

Biodiversity loss and Circular economy

How the circular economy can serve as a tool for addressing biodiversity loss. Tackling root causesreport, published May 202

II. Global Green Growth Institute

Global Consultations on Circular Economy

Statement on interventions by
Ankit Bhatt (Asia-Pacific regional preparatory meeting) and
Jerome Fakhry (Africa regional preparatory meeting),
Global Green Growth Institute

Dear Chair, distinguished delegates,

We would like to express our thanks to United Nations Industrial Development Organization (UNIDO) for inviting the Global Green Growth Institute (GGGI) for participation in the regional preparatory meetings and the global consultations on Circular Economy.

The Global Green Growth Institute (GGGI) is a treaty-based international, inter-governmental organization dedicated to supporting and promoting strong, inclusive and sustainable economic growth in developing countries and emerging economies. We have operations in 44 member countries including in Africa and Asia Pacific. GGGI's operations are focused on supporting governments transition to model of economic growth that is environmentally sustainable and circular. There is a growing consensus that adoption of circular economy approaches is one of the essential steps to tackle climate change. GGGI works with cities, industries and the agriculture sector in scaling up adoption of various pathways that increase circularity in the processes and services. Based on our ongoing engagements we would like to highlight the following aspects, that in our individual opinions, are key to achieving a more circular future:

A. Need to significantly scale up and mainstream existing circular economy pathways and solutions

Managing and reducing waste is central to circularity. Scaling up of waste to resource pathways is an essential step to achieve circularity. Massive scale up of models, technologies and pathways that have been successful is urgently required. In general, technologies, models and business cases to cater to majority of waste streams exist, a concerted effort is required to mainstream these solutions. Steps in this direction could include: Some such models that need to be scaled up include:

- Mainstreaming of organic waste to Biogas / BioCNG or compost applications. (e.g. In most of the African and Asian cities, organic waste is almost 50% of the total municipal waste collections).
- Regulations managing plastic consumption and formalization of plastic recycling value chains coupled with massive investments in recycling and secondary markets.
- Establishing recycling infrastructure and value chains for battery and e-waste. Managing e-waste is a challenge that needs to be urgently addressed, especially when e-mobility is increasingly being adopted.
- Energy and water efficiency measures in manufacturing and agro-processing sectors.

B. Ensuring an enabling environment for CE to be scaled up

Adopting CE pathways require sustained political and institutional will. Some of the steps towards ensuring appropriate enabling environment could include:

- Promotion and facilitation of Institutional collaborations within the country and across the region.
- Strategic and sustained efforts by countries focusing on high priority sectors. This would include Crowding in assistance from various sources, developing integrated CE pathway strategies etc.
- Adapting CE pathways needs to be inclusive and consultative. Transition to circularity form current linear processes would bring about fundamental structural changes to the

way economy is organized. This change needs to be managed to ensure that it is inclusive of all sectors of the economy to best extent possible.
- Setting up comprehensive extended producer responsibility mechanisms
- Countries set more ambitious CE targets in NDCs.
- Lastly, access to finance for SMEs involved in recycling and secondary markets is a barrier that needs to be addressed. Project de-risking measures and balanced concessions / contracts and transparent procurement processes can go a long way in mobilizing finances for the sector.

We look forward to the discussions during the global consultations.

Best Regards.

III. United Nations Economic and Social Commission for Western Asia

ESCWA statement

ESCWA welcomes the efforts of UNIDO and its Secretariat for facilitating the consultations on circular economy, and acting as a conduit for sharing best practices and principles from a range stakeholders from around the world.

The Arab region is large and diverse and shares a rich geography known for its natural resource wealth as well as its climate vulnerability. The region is abundant with extractive resources, mainly in the form of fossil fuels but also phosphates, ammonia and aluminium. High economic and population growth over the past three decades has resulted in rapid growth in demand, including for energy. Increasingly, the focus has been on responsible consumption and production, energy conservation and diversification.

Circular economy principles are still at the early stages of development, although dedicated strategies and plans have been emerging in Arab countries that, among others, include sustainable consumption and production (SCP) and green growth. Moreover, awareness of the topic and its issues is rising, and there is broad recognition that recycling and reuse need to be further developed.

Challenges

- Lack of well-developed markets for various types of waste, lack of policies aimed at making landfill a less attractive option, limited extended producer responsibility and eco-design provisions
- CE policy remains largely limited within the scope of waste management despite recent advancement in technologies, facilities, market regulatory solutions, and infrastructure
    - Need for more targeted regulations focusing on specific waste streams or value chains
- Lack of financial resources and the necessary enabling environment
- Lack of data availability coupled with weaknesses in data gathering and analysis to feed thedecision-making process

- Slow technology transfer into the Arab region
- Limited regional cooperation and experience sharing

The development of the Circular Carbon Economy (CCE) (based on the 4R's: Reduce, Reuse, Recycle and Remove) as an integrated approach for carbon management is gaining traction in several countries in the region to support the transition to sustainable energy systems and respond to climate Goals.

The CCE framework is directly relevant for countries in the Arab region as countries look to extend the longevity of their natural resources to foster economic development through a transition towards sustainable systems. Transforming raw materials into usable consumer or industrial products typically involves different processing and value-addition steps. Many of these steps are being re-engineered according to circular economic principles of materials recovery and reuse at the end of the product life cycle.

Alternative sources of clean energy including renewable energy, sustainable hydrogen and nuclear can be used across the value chain from power generation to heavy duty transport to industry, reducing dependence on fossil fuels and in turn curbing carbon emissions. Additionally, carbon capture and utilisation (and storage) can be incorporated to reuse/recycle/remove carbon through various technologies, several of which are still in their infancy and will require further development.

Circular economy in the Arab region

- **Tunisia –** In an effort to address resource scarcity and the general shift toward eco-friendly energies, the development of bio-fuel from agro-forestry waste has been touted as an alternative to firewood, which many consider to be a major contributor to deforestation and forest degradation.
- **Egypt –** Development of affordable housing (necessary for alleviating homelessness) by building with Compressed Earthen Blocks (CEBs) is becoming more popular due to their low cost and abundance of materials.
- **UAE –** Establishment of the Al Reyadah CCUS project, the world's first fully commercial carbon dioxide (CO_2) facility for the iron and steel industry with a capacity to capture 800,000 tonnes of CO_2.
- **Saudi Arabia -** Established a National Circular Carbon Economy Programme and a National Waste strategy.

ESCWA's work on CE

1. Strategic Framework for Kuwait
    - ESCWA identified four main pillars towards sustainable energy systems using circularprinciples and the Circular Carbon Economy (CCE) framework as a guiding principle for shaping Kuwait's sustainable energy pathways
    - A roadmap and action plan were produced for Kuwait alongside the strategic framework policy report – the roadmap included detailed pathways by sector in orderto accelerate a just, inclusive and sustainable transition in the country
2. ESCWA supports regional activities on Sustainable Consumption and Production (SCP) in collaboration with the League of Arab States. This includes:
    - Showcasing best practices
    - Reviewing progress and exchanging views onneeds and priorities as well as promotingthe adoption of green technologies

- Providing technical knowledge
- Assessing SCP in the region by keeping abreast of progress, trends and challenges
- Generating knowledge on policies based on evidence and information

3. Build member state capacities in the area of green technology for transformation into circular agriculture
    - Integration of "green" technologies in agriculture to improve food production, buildresilience and enhance food security
    - Value chain - transforming inputs to outputs and outputs to inputs
    - Recycling wastewater for agricultural use
    - Reducing and reusing lost and wasted food

The role of SME's and gender

ESCWA would like to highlight the important role of SMEs as innovators and a vehicle to propel technologies to new heights and uses. In the extractive industries, unwanted by-products such as produced water and H_2S have already been used to make more sustainable and commercially viable products. Governments have a critical role to play in reorienting their policies to focus on the creation of SMEs that specifically target industries and commercialise by-products, as part of a circular economy. Given the heterogeneity of the Arab region, there is a range of collective knowledge and experience that remains underutilised.

On the other hand, financial resources are not always available and proper instruments are needed in many countries to enable the private sector. Governments can play a critical role as enablers and facilitators through the financing of training for local staff, green incentive schemes and providing guarantees to make projects more bankable.

Moreover, throughout these interventions, there is a need to recognise the critical roles of women and women-led cooperatives that are increasing the skills and knowledge of women who are alreadyengaged in activities. There is strong evidence highlighting that women are better represented in renewables and particularly in solar compared with conventional oil and gas, though employment rates, particularly in managerial positions, continue to lag economy-wide rates, signifying the need toclose the gender gap to accelerate a just and inclusive circular economy transition.

Recommendations and next steps

Building on ESCWA's work on CE, we recommend that CE will need to be mainstreamed into countries' NDCs and build on international experiences to integrate CE into governments' economic policies and frameworks. Crucially, regulatory laws and legislation are needed to establish and facilitate the implementations of CE and prevent natural resource waste. Lastly, public awareness should be increased through media outreach and education to accelerate the shift towards environmentally friendly policies within the context of CE.

ESCWA will continue to build on its existing work on CE and looks forwards to contributing to the efforts of UNIDO.

IV. United Nations Educational, Scientific and Cultural Organization

UNESCO and Circular Economy

The UNESCO Man and the Biosphere (MAB) Programme

Launched in 1971, the Man and the Biosphere Programme (MAB) is pioneering intergovernmental platform for science-based management and research on combined nature conservation and responsible use of natural resources. The concept of biosphere reserve emerged from this framework, designed to function as open-air laboratories for experimenting with environmental policy, monitoring best practices and sharing information. The dual objective of nature conservation and sustainable development is achieved by the designation of three geographic areas interrelated with mutually reinforcing roles, namely the core area, the buffer zone and the transition zone. The World Network of Biosphere Reserves (WNBR) is currently formed by 738 sites in 134 Member States all over the world, including 22 transboundary sites.

Today, biosphere reserves are representative of the full diversity of landscapes worldwide and constitute a privileged network of case studies in implementing sustainability. As such, they have become ideal innovation hubs for ecosystem services and biodiversity conservation, education for sustainable development, green as well as circular economies and investment in nature-based solutions. Accordingly, as model regions, biosphere reserves have put further emphasis on a participative and multi-stakeholder approach to management by involving civil society, Indigenous and local communities, young people and the private sector, as well as by expanding into Open Science.

A few examples of circular economy initiatives:

- UNESCO's Man and the Biosphere (MAB) programme and Louis Vuitton Moët Hennessy (LVMH) are working together to reconcile conservation of biodiversity with its sustainable use by implementing sustainable development respectful of local cultural contexts. One of their joint initiatives, the Amazon programme, is addressing the direct and indirect drivers of deforestation in the Amazonian region within 8 biosphere reserves located in Bolivia (Pilón-Lajas and Beni Biosphere Reserves), Ecuador (Yasuní, Sumaco and Podocarpus-El Condor Biosphere Reserves), Brazil (Central Amazon Biosphere Reserve) and Peru (Manu and Oxapampa-Ashaninka-Yanesha Biosphere Reserves). The programme is based on participatory and inclusive approaches, combining scientific, local and indigenous knowledge and is implemented by the biosphere reserve teams with support from the MAB national committees, UNESCO offices and a scientific committee led by Eduardo S. Brondizio, professor at Indiana University (USA) and co-chair of the IPBES Global Assessment Report on Biodiversity and Ecosystem Services. An **initiative in the Yasuní biosphere reserve (Ecuador)** seeks to empower youth from Limoncocha, a Kichwa community of about 600 people in which plastic pollution has become a recurring problem. The project will value a local association collecting and recycling plastic to improve their infrastructure, thus enhancing circular economy and reducing environmental impacts in the biosphere reserve while creating income and strengthening technical and marketing capacities for young Kichwa people.
- UNESCO MAB launched in April 2021 the **Trash Hack Campaign: Education for Sustainable Development** with IberoMAB Youth in the framework of CILAC, aimed to bring together various actions carried out in the Biosphere Reserves of the IberoMAB Network in relation to environmental education and waste management. The Trash Hack Campaign invites the citizens worldwide to take action and promote initiatives to reduce plastic consumption and promote its recycling, in order to prevent soil and water pollution. In the framework of this initiative, information is being shared on initiatives carried out in Latin American Biosphere Reserves that include the participation of young people and are related to Environmental

Education and participatory waste management, in order to promote circular economy practices in the network.

- The **Zero Plastic Working Group in the UNESCO-MAB World Network of Island and Coastal Biosphere Reserves**, launched in 2018, unites Biosphere Reserves impacted by plastic pollution in all regions of the world. This Working Group is elaborating policy frameworks related to plastic pollution in biosphere reserves including waste management, clean-ups activities, awareness raising and education and recycling activities in partnership with municipalities and the private sector. In this framework, the Isle of Man Biosphere Reserve is running with the Isle of Man Chamber of Commerce, One World Centre, University College Isle of Man and Department for Enterprise, a series of "Sustainable Man" workshops, including one dedicated to **circular economy for businesses** tailored to assist businesses to adopt more sustainable practices, important for the economy and environment.
- The Menorca Biosphere Reserve is home to a remarkable diversity of Mediterranean habitats that host endemic plant and animal species exclusive to the island, some of which are in danger of extinction. Menorca is also looking to promote sustainability and reduce its carbon footprint through renewable energy strategies, in particular by boosting electric mobility. The island has already installed 12 electric charging points for use by the island's small but growing number of electric or hybrid vehicles. The "**Menorca Smart Island: Energy and Mobility 2020"** project intends to increase electric mobility activities, **promote car-sharing services** and tackle smart mobility issues. It promotes the advantages of buying electric vehicles and investing in the infrastructure to charge them. The project also highlights concepts such as Vehicle-to-Grid (V2G) technology, which works with renewable energy sources, allowing electric cars to act as energy storage units.
- The Island of Príncipe (Sao Tomé and Principe), situated in the Gulf of Guinea, was designated a biosphere reserve in 2012 in recognition of its rich biodiversity and its leadership in the promotion of integrated eco-tourism development. The main economic activities of the island are agriculture, fishery and tourism, making the marine life and the pristine environment important, valued assets. **The campaign "No Plastic. A small gesture in our hands"** mobilized the local population to collect plastic bottles, which could then be exchanged for reusable, stainless steel "Principe Biosphere Bottles" (50 plastic bottles can be traded for one reusable bottle). Once collected, the plastic bottles are compacted and shipped to facilities where they can be recycled or disposed of accordingly. In parallel, 13 safe freshwater fountains were installed in public spaces around the island, including schools, markets and public administration buildings. Launched in 2014, the campaign has been hugely successful with over 400,000 disposable bottles collected and 7,000 Principe bottles distributed. The regional government is now working to develop legislation to tax plastic imports with the ultimate goal of declaring the island plastic free.
- The Mbaracayú Forest Biosphere Reserve in Paraguay covers approximately 300,000 hectares in the higher basin of the Jejui River. Paraguayan and Brazilian peasants, indigenous communities and urban populations make up its 30,000 inhabitants, creating a complex ethnic and cultural mosaic. Lack of electricity and hot water supply in the area led a group of students attending a local school to find a sustainable solution that draws on the region's natural resources. They designed a system of thermal solar panels for electricity and hot water, and installed generators and gravity lights fueled by biodiesel produced locally from the resin of the native Kupa'y or diesel tree (Copaifera langsdorffii). The students also installed biodigesters – containers that store organic materials for decomposition, which allow the **generation of agro-ecological fertilizers, as well as natural gas** that can be used as

fuel. The biodigesters reduce or eliminate the purchase of gas and/or the use of firewood, and increase horticultural, fruit and pasture production, as well as the sale of the fertilizer.

UNESCO-UNEVOC training on and Circular Economies and ESD in TVET

The increasing importance of the circular economy will have a significant impact on the shape of jobs and competencies. New points of emphasis, as confirmed in a recent study by Circle Economy, will include 'broad skills' (also called transversal skills) such as digital and green literacy and problem solving, while also building 'deep skills' more related to specific functionalities or disciplines. Non-repetitive, circular jobs will emphasize skills such as product repair and maintenance or innovating the product design process to improve longevity.

The UNESCO World Conference on Education for Sustainable Development was held from 17 to 19 May 2021. At the end of the three-day event, over 80 ministers and vice ministers and 2,800 education, training and environment stakeholders committed to taking concrete steps to transform learning for the survival of our planet by adopting the Berlin Declaration on Education for Sustainable Development (ESD). During the virtual event, UNESCO-UNEVOC hosted sessions on Green and Circular Economies and ESD in TVET. These sessions explored ways to restructure business processes in favour of the circular economy, strategies for education, training and industry to shift mindsets and nurture lifelong learning, and tools and approaches to mainstream ESD and climate education in TVET. The discussion at the conference confirmed the role of big companies and small-scale enterprises in business restructuring, as seen in the examples shared from Vaude Sports in Germany (through the use of materials recycled from post-consumer waste), Algramo in Chile (through the use of reusable packaging) and Circular Computing in UK/Middle East (through giving second life to re-manufactured laptops).

TVET has a critical role to play in the evolution of circular approaches to extend the service life of goods and close the loop. First and foremost, it must meet the demand for higher technical skills and provide crucial support for lifelong learning through upskilling as well as continuous and in-work learning. In addition, TVET needs to equip young people with the relevant entrepreneurial skills and STEM (science, technology, engineering and mathematics) competencies for green jobs in emerging sectors.

How do we teach circular skills?

Circular mindsets and skills must be addressed directly in the classroom, and this requires an investment in resources such as suitable training equipment, teacher training, resource libraries, and more. Nani Pajunen, Lead Specialist at SITRA, Finland, emphasized that the circular economy needs new kinds of skills, actions and operations. In the future, skills on repairing and maintaining will become critical.

Martin Wittau, Vice-President of the BVNG, Germany, indicated that sustainability must become a mandatory cross-over topic in vocational education and training qualifications frameworks, both in schools and in companies. This viewpoint was shared by Dina Mamdouh, Founder of the Alter Initiative, Egypt, who provided an example of architecture schools and the importance of teaching sustainability in building practices and development approaches.

The SDGs and Greening TVET

The challenges are multi-layered, and there is still a long road ahead to mainstream sustainability in TVET. As part of this process, UNESCO-UNEVOC supports TVET institutions in the development and

implementation of green strategies to transform their learning and training environments, upskill professionals in green job sectors, re-skill those affected by job losses due to the green transition and the recent COVID-19 pandemic, and seize opportunities for multi-stakeholder partnerships.

UNESCO Green Citizen Project

UNESCO has identified multiple local and international actors who are developing innovative, impactful and replicable solutions across five key themes for the fight against global warming and to preserve the environment: Ocean, Hydrology, Biodiversity, Education for Sustainable development, Indigenous knowledge. UNESCO Green Citizen Project is becoming an innovative sustainable environment education and part of circular economy initiatives by UNESCO.

The Intergovernmental Hydrological Programme

UNESCO Intergovernmental Hydrological Programme (IHP), founded in 1975 following the International Hydrological Decade (1965-1974). IHP is the only Intergovernmental Cooperation Programme of the UN System dedicated to water research and management, related education and capacity development - envisions a water secure world where people and institutions have adequate capacity and scientifically based knowledge for informed decision-making on water management and governance to attain sustainable development and to build resilient societies. IHP promotes the water sciences and an interdisciplinary and integrated approach to water management, incorporating the social and cultural dimensions of water, while also developing capacity for integrated water resources management. It addresses national, regional, and global water challenges, by supporting the development of sustainable and resilient societies

For the new ninth phase (2022-2029), the IHP will focus on five interrelated Priority Areas:

1. Scientific Research and innovation
2. Water education in the Fourth Industrial Revolution including Sustainability
3. Bridging the data-knowledge gap
4. Inclusive water management under conditions of global change
5. Water governance based on science for mitigation, adaptation, and resilience

IHP-IX will address among others the following cross-cutting thematic:

The IHP will also focus on these additional 3 Cross-cutting Areas:

1. Hydrological Systems, Rivers, Climate Risk and Water-Food-Energy Nexus
2. Groundwater and Human Settlements
3. Ecohydrology and Water Quality

Many outputs of IHP-IX are relevant to the circular economy. A few examples of circular economy initiatives related to water:

- The **principles of Ecohydrology**, as one of the main initiatives within IHP, viz. 1. Hydrological quantification of hydrological cycle and mapping the impacts; 2. Ecological identification of the potential areas for enhancement of ecosystem sustainability potential with Nature-based Solutions (NBS) and 3. Ecological Engineering - regulation of hydrological and ecological processes with implementation of Circular Economy to reduce the stress and NBS to enhance ecological potential) provide a convenient unifying framework for understanding both the scale of insults on the water-biota interplay, and for developing low-cost, nature-based solutions at the catchment

scale. These can be met by considering the complexity of human impacts and the six key Multidimensional Goals of Ecohydrology (WBSRCE - Water, Biodiversity, ecosystem Services for society, Resilience to climate change, Cultural heritage and Education).

- Putrajaya, Malaysia, one of the UNESCO Ecohydrology Demonstration Site since 2010, which planned to be a **Low Carbon Green City** by 2025. A Green City is defined as a city planned with the principles of sustainable development with programs and initiatives to preserve the environment and natural resources in the view to reducing the negative impact of human activities onto the environment. Other aspects that are often associated with the concept of green cities is management of renewable and non-renewable resources, management of waste and the reduction of the impact of greenhouse gases (GHG) such as carbon dioxide resulting from various human activities. Based on that, it is clear that green city status to be achieved in Putrajaya is not limited to physical greeneries only, but also covers other components such as minimizing negative environmental impacts and the use of resources, promoting human interaction with nature and reducing carbon emissions related to human activities. The sustainability can only be achieved fully when there is an integrated water and holistic ecosystem management taking place in that process. Hence, in collaboration with UNESCO, by using the Ecohydrology approach in managing Lake and Wetland which are located in the heart of Putrajaya, providing good water quality and green ecosystem in Putrajaya, enriching the biodiversity flora and fauna in Putrajaya, increasing value of the ecosystem services in Putrajaya, as well as enhancing adaptation and resilience to climate impact. In line with Science to Action (S2A) approach within POLICY 5 in the 2025 Putrajaya Structure Plan adopted by the Putrajaya Corporation (PPj) - the local authority in Putrajaya which provides the direction toward achieving the green city transformation of Putrajaya, hence among approaches taken by Putrajaya included **Enhancing ecology, water body and bio-diversity; Application of green technology, infrastructure and practices in city planning and management; Adopting sustainable building practices; and Establishing a model green community committed to reduction of carbon footprint**.
- Bring threats to opportunities – Jabi Lake in Abuja, Nigeria, posing threats related to water pollution in the lake and its surrounding ecosystem due to urbanization and socio-economic activities taking place in this area. Discharge of contaminants from untreated effluents and solid waste disposal causing degradation of water quality. Effect of invasive aquatic plants such as water hyacinth also flourished on the surface of the lake. The Jabi Lake clean-up exercise which has become imperative, is occasioned by the unacceptable amount of waste material, mostly plastic waste, carelessly dumped into the lake by fun seekers and communities in residences around the only lake situated within Abuja metropolis. Recently, the **threatening water hyacinth turned out to be a business opportunity** in Abuja. The local community works together with the local NGOs and supported by the local government in Abuja as well as UNESCO Category 2 Regional Centre on Integrated River Basin Management (RC-IRBM) initiated various hand craft, beautiful baskets, bottles, lampshades and even armchairs from the dried plants of water hyacinth and sell them. The utilisation of water hyacinth as a means of regulating the growth of the aquatic weed has been advocated, and treated it as a Plant with Potential, where people who know that water hyacinth has problem-solving potentials consider the plant a blessing in disguise. Though plastic waste recycling has huge potential for revenue generation, employment and engendering a sustainable environment, the potential is yet to be tapped in Nigeria.
- Some ways forward:
    - Need to promote the circular economy initiative especially for **turning the threats into opportunities**
    - Need to make community and all related stakeholders to be **part of the solutions**

- The initiative must be **adaptative to the climate** and **resilience to Impacts**, **Long term sustainable** and **Low-cost solutions**

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