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Key Takeaways

Mainstreaming Circular Economy for Transformative and Sustainable Change

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INTRODUCTION

The era of endless consumption has given way to a linear economic pattern, where the economic cycle is confined to the extraction-consumption-disposal process. Our dependence on linear economic patterns has had massive negative impacts in environmental and economic aspects. The circular economy concept exists as an antidote to the linear economic pattern by rejecting the business-as-usual approach in handling economic development and environmental protection. In simple terms, circular economy can be interpreted as an economic model that aims to extend the life cycle of products, raw materials and resources. The fundamental variables in the circular economy concept can be summarised into five main principles: reduce, rethink, reuse, repair and recycle (van Buren et al., 2016).

Circular economy is not a new concept in Indonesia. Through a policy paper, Bappenas in partnership with the Royal Danish Embassy and UNDP has demonstrated the urgency of implementing circular economy in Indonesia. Bappenas demonstrates that implementing circular economy will not only help in achieving SDGs and transforming the economy, it will also create real impact on five main sectors: food and beverages, textiles, construction, wholesale & retail trade, and electrical equipment and electronics. The study projects that implementing a circular economy will have a significant positive impact. The implementation of the circular economy concept has the potential to increase Indonesia's Gross Domestic Income (GDP) by Rp. 593-638 T, open up 4.4 million green jobs, 75% of which are for female workers, and reduce greenhouse gas emissions amounting to 126 million tons (Bappenas, 2021). Therefore, mainstreaming the circular economy concept in state governance is crucial in creating a meeting point between economic development and environmental sustainability. In practice, the development of the Indonesian Capital City (IKN) has adopted various circular economy principles. This city, which is predicted to be the "city of the future", is built on an environmentally sustainable development principle. Through this spirit, it is hoped that IKN can become a city that reflects the principles of "sustainable, healthy, productive, efficient, innovative and environmentally friendly" (LCCI Communications, 2022).

On the other hand, circular economy implementation in Indonesia still faces various challenges. First, the implementation of circular economy is still dominated by a top-down approach. Circular economy policies are generally passed down from the government to the community level, or seen as a global knowledge which is then adapted to a local approach. As a result, circular economy policies are not formed by community's knowledge regarding the everyday practice of circular economy. Apart from that, discussions about circular economy between the government, academics, communities, business practitioners and youth remain largely divided. These two factors – minimal community participation and limited space for discussion regarding the circular economy – make implementing circular economy sustainably and comprehensively more challenging. Second, public awareness regarding the circular economy concept is still limited to changing individual attitudes, leadership and energy conservation (Nurdiana et al., 2019; Awalín et al., 2022). Even though the aforementioned concepts are important, a narrow understanding of these aspects will obscure the urgency of internalising the circular economy concept in the production process (Yuana et al., 2024).

Based on this background, this workshop is a strategic momentum to mainstream the circular economy concept. The meeting of academics, practitioners, youth and government parties in this workshop can accelerate the formation of circular economy practices based on collaboration. This means that circular economy practices are no longer top-down, but are the result of co-formation and co-production between actors. Collaboration between actors is also expected to expand the reach of the implementation of the circular economy so as not only to be incorporated in national-level strategic state projects such as IKN, but also at the level of everyday life. The forms of collaboration and roles between actors in this workshop are summarised as follows:

MULTI-ACTOR COLLABORATION

GOVERNMENT

DIRECTOR OF THE ENVIRONMENT, BAPPENAS
PRIYANTO ROHMATULLAH, S.E., M.A.

REAL STEPS TOWARDS CIRCULAR ECONOMY IN INDONESIA?

- The urgency of implementing circular economy is not only apparent in how there is a high potential of environmental degradation if the current “business as usual” economic system is maintained. Seen through an economic lens, the current economic system also creates the potential of a Gross Domestic Income (GDI) loss of 544 trillion from 2020 to 2024.
- Bappenas have identified five sectors in Indonesia that have the greatest potential if circular economy is implemented in those fields, namely the food and beverage sector, construction, electronics, textiles, and retail in the form of plastic packaging. If circular economy is implemented in these five sectors, the potential for reducing CO2 emissions goes up to 11-15% by 2030.
- At the government level, there are regulations that serve as a reference for implementing circular economy principles, including: 1) the 2030 Sustainable Development Agenda which is translated into the 2020-2024 RPJMN document, and 2) the Paris Agreement which is translated to Law no. 16 of 2016 concerning the Paris Agreement on the United Nations Framework Convention on Climate Change.
- Additionally, several policies have actively encouraged the implementation of circular economy. Those regulations are 1) The Green Industry Standards in Law no. 3 of 2014, 2) Regulation no. P.75/MENLHK/SETJEN/KUM.1/10/2019 concerning the Roadmap for Waste Reduction by Producers, as well as 3) Green Building Policy stated in PUPR Ministerial Decree No. 9 of 2021 concerning the Guidelines for Implementing Sustainable Construction and No. 21 of 2021 concerning Green Building Performance Assessment.

- To mainstream circular economy, Bappenas offers several circular economy implementation models that can be adopted by individuals and businesses. The models are:
 - **Circular inputs:** encourages businesses to actively choose to use renewable energy in the production process, choose biologically based materials, and design products that are easy to recycle.
 - **Services as Products:** taken from the sharing economy business model, this principle encourages business owners to provide excellent service so that users can get the function of an item without having to own the item.
 - **Product Life Extension:** a business model that encourages producers to create long lasting products.
 - **Resource Recovery:** a principle that encourages the use of leftover materials from every production process.
- National level obstacles and challenges found in implementing a circular economy include:
 - Conventional input materials such as plastic are still cheaper than environmentally friendly materials
 - Few consumers are interested in purchasing circular economy products that tend to have higher prices
 - The existence of vendors and producers of production raw materials who understand and apply circular economy principles is still minimal
 - Infrastructure to support the implementation of a circular economy is still minimal
- Even though Indonesia faces various challenges in implementing circular economy, it needs to be acknowledged that there are already many circular economy initiatives at the government, business and community levels. The driver of this initiative is collaboration.
- The government's role in this collaboration is as an enabler of the circular economy research and industrial ecosystem in Indonesia.

ACADEMICS

CHIEF RESEARCHER MUNDANE CIRCULAR ECONOMY
POLICY, INSTITUTE OF INTERNATIONAL STUDIES, UGM
SUCI LESTARI YUANA, MIA

CIRCULAR ECONOMY: FOR WHOM AND FROM WHERE?

- The urgency of Transforming from the Linear Economy Model into Circular Economy
 - One of the driving forces behind implementing the circular economy model is the endeavour to extend a product's lifespan. In other words, this model encourages using resources with sustainability means.
 - Implementing the circular economy has the potential to minimise carbon footprint emissions in several countries by up to 70 per cent. Moreover, the circular economy model could enhance workforce opportunity by 4 per cent. The ultimate implication of implementing the circular economy is geared towards the opportunity to reduce waste massively.
 - Comprehending the urgency of implementing the circular economy model involves two spectrums: **input** and **output**. This means that implementing the circular economy model consists of optimising the efficiency of the resources (**input**) and minimising the transformation of waste into valuable products (**output**). Hence, the sustainability of the environment, economic productivity, and social welfare could be manifested ideally.
- The Economy Circular and Sustainability: Similar but Not Exactly the Same
 - Oftentimes, the circular economy and sustainability are associated as equivalent concepts. As a result, there are ambiguities in defining the contours between both concepts regarding the practical and scientific research landscapes. Therefore, there is an urgent need to identify the similarities and differences between the concepts of the circular economy and sustainability to ensure a holistic understanding.

- When examined more deeply, the similarities of both concepts could be identified from several fundamental aspects, such as **1)** the commitments of intra- and inter-generational; **2)** the concepts integrate non-economics principles on the developmental agenda; **3)** the transformation of system/design and innovation as the core of the concepts; **4)** the realisation process requires cooperation and collaborative efforts multi-stakeholders; and **5)** regulation and incentive as the essence instrument of implementing these concepts.
- On the other hand, the differences between circular economy and sustainability focus on several variables, such as the origin of the term, its objectives, motivation, and other fundamental aspects. The circular economy concept exists because of the absolute motivation: to minimise the excessive use of resources, waste, and carbon emissions. In contrast, the sustainability concept has an open-ended motivation. In other words, the objectives of sustainability vary depending on the stakeholders involved in its realisation process.
- Mainstreaming the Circular Economy
 - At the very least, five core principles must be considered when implementing the circular economy concept: **rethinking** (avoiding the use of raw materials), **reducing** (minimisation of raw material usage), **reusing** (maximising product value), **repairing** (mending existing products instead of triggering the production process), and **recycling**.
 - Understanding the circular economy concept has become crucial to accommodate the knowledge disparity among stakeholders, such as academics, the private sector, and local communities. Therefore, the potential for co-production knowledge of the circular economy is possible.
 - The Mundane Circular Economy policy research team has carried out the agenda of mainstreaming the circular economy in various schools across Java Island. One of the outcomes of this agenda is oriented to the Circular Scholl Policy Map. This map offers the circular economy alternative policies, which the schools could implement.
 - At the very least, three stages must be passed in transforming the linear economy model to the circular economy: **1)** building niche, **2)** mainstreaming niche, and **3)** unlocking regime. Indeed, the success of mainstreaming the circular economy concept would depend on individual responses. However, the structural aspects also play crucial roles in the transformation process. Hence, unlocking a new regime centred on the circular economy requires an approach emphasising norms, policies, and incentives that uphold circular principles.

- The Role of Academics
 - Academics are key players in manifesting the transformation of the linear economy to the circular economy. They serve as a bridge between the government and society through various comprehensive circular economy knowledge products – not only confined to theoretical levels but also practical ones.
 - Academics have the potential to serve as the gateway to mainstreaming the circular economy's theoretical and practical approach through integration into curricula, collaborative interdisciplinary research development, and community engagement programmes.
 - Furthermore, academics play pivotal roles in optimising local, national, and international networks, which are strategic investments for creating cross-sectoral collaborative projects. Thus, the process of transferring knowledge and information could be executed well, opening the door to the production of reflective policies.

COMMUNITY

THE INITIATOR OF INDONESIA GREEN PRINCIPAL AWARDS
DR. JUNITA ARFANI

INDONESIA GREEN PRINCIPAL AWARD (IGPA): EFFORTS IN BUILDING THE CIRCULAR ECONOMY COMMUNITY

- Empowering the local community is one of the most strategic ways to actualise the circular economy concept. Local communities, including formal basic and secondary education institutions, are key players in transforming the linear economy model into the circular economy.
- Schools act as the agents that run the entire economic chain — producers, distributors, and consumers. Therefore, actualising the circular economy concept at the local level is crucial to ensure that the economic chain is coherent with the principle of a circular economy and supports a sustainable environment.

- The existence of the Indonesia Green Principal Award (IGPA) as an annual agenda promotes accelerating the knowledge distribution agenda on the circular economy principle. Therefore, the knowledge disparity between government and local communities could be well accommodated. The IGPA program is a strategic momentum for dissemination, facilitation, and public outreach about the circular economy concept. At least 71 schools in eight provinces in Indonesia take part in this program.
- Interestingly, every school faces unique problems and challenges in the partnerships formed under the IGPA program. This demonstrates that universalisation policies — a top-down policy-making process — are not a grand strategic approach. Therefore, a bottom-up approach must be conducted to produce contextual circular economy policies.
- At the very least, four fundamental aspects must be implemented in the process of manifesting the circular schools: **1)** knowledge co-production on the circular economy, **2)** internalisation of the circular economy concept in the curriculum design, **3)** outreach program on the circular economy, and **4)** partnership building to accommodate various initiatives and strategic missions regards to the circular schools.
- Circular schools are urgently needed because educational institutions are intergenerational investments. It means the learning process at school is continually happening, so disseminating the circular economy will effectively erode the dominant knowledge of the linear economy model. Consequently, the school's socioeconomic transformation, which reflects the circular economy principles, could be actualised.
- The role of communities, in this case the circular schools, serves as the forefront in fostering the intergenerational circular economy ecosystem. Circular economy education instilled from primary school and continuing to higher education plays a crucial role in establishing the Indonesia Emas 2024 vision with the spirit of the circular economy and sustainable development.

PRIVATE SECTOR

MANAGING DIRECTOR PT. AMANDINA SUHARJI GASALI

- Plastic recycling technology and certification through the company PT. Amandina Bumi Nusantara
 - PT. Amandina Bumi Nusantara aims to become Indonesia's largest food contact-approved recycled Polyethylene terephthalate (PET) material producer. PET takes on a semicrystalline form when stable and is resistant to impact, moisture, solvents, and alcohols. This makes it a recyclable material. The mission of PT. Amandina Bumi Nusantara is to create food-contact safe recycled material and, therefore, contribute to the circular economy by processing recycled materials into packaging.
 - The company emphasises certification and innovation, which allows for the highest-quality outcome and ensures the use and safety of the produced goods. PT Amandina Bumi Nusantara also emphasises certification, which ensures compliance with all regulations and policies for operating the plant.
 - There are nine certifications mentioned: SNI, Halal, FSSC 22000, Reach, EcoLabel, ISO 9001, GRS, SGP, and FDA. In addition to PET, the company also aims to expand into water recycling and solar panel energy.
 - PT. ABM believes the background of the issues they intend to address hinges on environmental and social concerns. The concern for the environment comes from the plastic waste and disposal prevalent in the Indonesian economy. Meanwhile, their social concern hinges on the fact that they would like to improve the lives of Indonesia's "waste pickers".
- Giving back to the community through sponsored initiatives
 - These conclusions are brought by the foundation of PT. ABM is involved with: Mahija Parahita Nusantara (MPN). MPN has PT. ABM as its partner in the recycling part of their initiative, which encompasses establishing a circular economy as a whole. They emphasise providing training and asset support, healthy competition, and improving the skills and income of the waste pickers.
 - MPN has a three-layer system for responsible collection of waste, survey, observation, and auditing, hence ensuring the quality of sorting the waste. Additionally, to support these initiatives, a four-step initiative is utilised: **1)** providing assets for productivity, **2)** improvements through practice and data collection, **3)** financial acumen through basic profitability analysis, and **4)** utilising technology & planning in operational activities.

- Along with their businesses, they also stress the importance of education and create efforts to educate and invest in a group of people dubbed the “recycling heroes.” These programmes include free health checks and donations, community donations, capacity-building opportunities, and mental health checks. They also fund schools and provide a scholarship fund for the youth.

THE YOUTH

GRAND FINALIST NATIONAL YOUTH IDEATHON- FLW/UNPAGE/UNDP **NGUPAHAN TEAM**

- A Focus on Social Entrepreneurship and Food Waste through an innovative business venture
 - Ngupahan is an application with four main features: the education feature, which compiles various streams of information regarding circular food waste; the composting bank, where users can sell to compost banks and even buy compost to collect points to use in “Berdikari Mart”; “Berdikari Mart”, where users can buy priced-down fruits and vegetables that are not eligible to be sold in retail stores but are still edible; and lastly “*Piring Berbagi*” where users can donate unwanted food that other users can buy.
 - Food waste is a prominent issue in Indonesia, so the team decided to focus on it. Food is not evenly distributed throughout the various areas of Indonesia. Ngupahan operates in Bogor and the surrounding areas.
 - Ngupahan also implements its values towards the structure of their organization, where they aim to create a “circular” structure with the application as the heart. They aim to connect all the actors and essentially remove a “middle-man” such as a retail organization. The actors specified include farmers, compost banks, and the consumers.
 - Ngupahan also attempts to be inherently linked to the community, which is outlined in their timeline where they plan on joining and organizing events to continue to spread education regarding food waste and agriculture.

CONCLUSION

Implementing the circular economy concept in Indonesia is paramount in the context of the worsening effects of climate change. As a country that continues to grow economically, Indonesia needs to ensure that environmental sustainability is maintained in the process. This workshop offers the circular economy model as an approach that can bridge the need for economic growth and the importance of maintaining environmental sustainability. In practice, successful implementation of a circular economy can only be achieved if all levels of society participate in the mainstreaming process. The main challenge in mainstreaming the circular economy concept is that the policy production pattern tends to be top-down, ignoring local views and knowledge regarding the circular economy.

By inviting actors from different backgrounds, this workshop actively participates in the process of mainstreaming the circular economy concept by highlighting circular economy initiatives that have been carried out at every level of society. The talk given by these actors shows several things. First, circular economy initiatives can develop exponentially through collaboration. Second, circular economy initiatives that incorporate local views and knowledge have the potential to develop well. Even though initiatives have developed, collaborations between government, the private sector and society still need to be maintained to protect existing circular economy initiatives and continue encouraging new seeds of innovation.

RECOMMENDATIONS

POLICY LEVEL

- **To form and implement circular economy regulations that are rooted in comprehensive community participation and knowledge.** The regulatory formation process should involve all levels of society to ensure inclusive representation and strong sustainability. Additionally, it is important to strengthen effective implementation and enforcement strategies to ensure regulatory compliance and success. Regulations should be designed by taking into account the principles of equality and justice, as well as providing strong support for existing circular economy initiatives and encouraging the growth of new initiatives at all levels of society.
- **Developing policies to encourage collaborative research that focuses on developing a circular economy and is interdisciplinary in nature.** Aside from relying on the development of circular economy technology, it is also essential to strengthen research that supports capacity building and community development in the context of a circular economy. This must be done by ensuring active participation from various stakeholders and paying attention to the accessibility and diffusion of research knowledge into society. Furthermore, careful monitoring and evaluation of policy implementation is required to ensure its effectiveness and necessary adjustments. At the same time, integrating social and environmental aspects must also be considered to ensure that policies support equitable social welfare and sustainable environmental preservation.
- **Policy development to encourage good practices in the circular economy industry, especially at the MSME and community level, should be accompanied by concrete efforts to facilitate access to the resources and capital needed for MSMEs and communities to implement these practices.** This includes providing affordable funding, accessibility to training and education on circular economy practices, as well as technical and consulting support to help MSMEs and communities implement innovative solutions. In addition, it is necessary to emphasize the importance of collaboration between the private sector, government and non-profit organizations in building a supportive ecosystem for a circular economy at the local level.

- **Regional governments and local communities can collaborate through various agendas**, such as campaigns, exhibitions, and competitions, to strengthen the understanding and implementation of the circular economy concept. Through these initiatives, not only is awareness of the urgency of circular economy practices created, but also a robust network amongst the government, private sector, and civil society is created. Thus, the knowledge dissemination process becomes inclusive since it can reach a wider community. Furthermore, it creates the momentum needed for transformation towards a more economically and environmentally sustainable society.

RESEARCH AND COLLABORATION LEVEL

- Government, academics, local communities, the private sector, and youth can collaborate to initiate **Circular Economy Living Labs, a platform that enables the exchange of knowledge and experiences to foster applied innovation (inovasi terapan)**. Through the Living Labs, it is hoped that an experimental environment will be created to facilitate the testing and solutions development based on the circular economy principles in everyday life practices. With cross-sector and intergenerational collaboration, Living Labs represent an ideal instrument for formulating sustainable solutions and responding to the current economic and environmental challenges.
- **Intensification of cross-disciplinary collaborative research in various business strategic sectors**, such as food and beverage products, textiles, packaging, electronics, plastics and so on, to address the economic and environment complexity challenges. This collaboration is urgently needed to exchange ideas, innovation, and holistic solutions towards the fundamental problems in the circular economy practices. By engaging with various stakeholders and pooling expertise from different fields, cross-disciplinary research can offer a robust foundation for driving the transformation towards a more sustainable and responsible economic model.

CAPACITY AND COMMUNITY BUILDING LEVEL

- **Local communities need to proactively build partnerships with other communities across geographical boundaries**, recognising that circular economy challenges know no boundaries. This is crucial to build the power of activism and solidarity in supporting the movement for holistic circular economy transformation. By collaborating across communities, opportunities are created to share knowledge, resources, and support, strengthening collective efforts towards a more sustainable and equitable future for all.
- Educational institutions, as agents of change, **need to integrate circular economy practices in the curriculum**. This can be manifested through internalizing the 9R principles in subjects, extracurricular activities, co-curricular activities, and so on. By doing this, educational institutions don't only provide theoretical knowledge on sustainability, but also mold the attitudes and skills needed to face future economic and environmental challenges. The integration of circular economy practices in the curriculum not only creates environmental awareness among students, but also encourages concrete actions to minimize waste and care for the environment.
- **An educational guidebook on the concept of circular economy** is needed as a crucial tool to reach out to various actors who have yet to comprehensively understand the concept. This guidebook not only provides a deep understanding of the basic principles of circular economy, but also provides practical guidance to apply the concept in various industrial and community contexts. Through the guidebook, it is hoped that the knowledge distribution process can be actualised in an inclusive manner, ensuring that all stakeholders, both from the public and private sectors, have equal access to information and can actively participate in the change towards a more sustainable economy.

