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How Do Local Governments Interpret International Norms on Sustainable Development in Circular Economy Practices?

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Abstract: As a program that can support a healthy economy, CE has an essential role in changing the face of cities. CE is considered to have a close relationship with the SDGs, SDG 12 Responsible Consumption and Production. The application of CE in different cities also allows the emergence of various policy models, each of which seeks to answer the city's unique challenges. This research seeks to map the state-of-the-art of CE, SDG 12, and cities. The research method used for the mapping is a systematic literature review using Mendeley's website as a database. This research finds that CE and SDGs are correlated through the norms of sustainable development but that the relationship between CE and sustainable development is itself a tool-and-target relationship. In addition, through best practices from 6 cities that have implemented CE, three types of determinants can be identified that can drive the transition to CE, multi-actor symbiosis, restoration and preservation of public spaces, and internalization of CE cultural values. Makassar City has much potential through Sustainable Development-based policies such as "Five Star TPA" and "*Lorong* Garden".

Keywords: Circular Economy; International Norms; Makassar; Sustainable Development

1. INTRODUCTION

Circular Economy (CE) is a new concept that discusses how to promote a restorative economic system (Becque et al., 2016). The CE model has enormous potential to solve environmental problems that occur because of increased consumption with limited available resources, both at the individual, city, and global levels (de Jesus et al., 2016). At the city level, the critical concept of CE, the closed loop economy, an economic system that adopts the principle of a circular supply chain in business and industry, has developed into a concept known as a circular city (Williams, 2019).

CE has a close relationship with the Sustainable Development Goals (SDGs), the Goal 12 for Responsible Consumption and Production (Schroeder, Anggraeni and Weber, 2019), difficulties are still found in tracking how city governments have designed policies to support the implementation of SDG 12 policies (Kalmykova, Rosado and Patrício, 2016; Dawkins et al., 2019). Changing consumption patterns in cities requires linking and strengthening activities in the sharing economy and sustainable consumption. Reflecting on the role of city governments in regulating sustainable consumption and sharing cities, it can be found that cities have many options for regulating local consumption, but still need strong consideration and consideration that cities do not go further than their mandate and role that should be. Since cities have limited budgets, cities need to give priority. Cities also need to show that local initiatives from the private sector and voluntarism can still be protected because often, their initiatives are blocked by ambitious projects run by city governments (Mont et al., 2019).

Because the concept of CE is still new, some experts have made designs for implementing CE that differ from one another based on the city they are researching. For example, Ribić, Voća and Ilakovac (2017) offer a solid waste management system that is integral and follows a strict waste management hierarchy by emphasizing an increased level of waste separation, which can be adopted by the Croatian City of Zagreb. As another example, Salguero-Puerta et al. (2019) offers CE indicators through the zero-waste program by the University of Lome, with a focus on composting, biogas as energy, and reuse of plastic bottles and their sales. Gravagnuolo, Angrisano, and Girard (2019) also offer a framework that highlights the reuse of cultural heritage as an important strategy in implementing CE in eight European cities: Amsterdam, Rotterdam, London, Antwerp, Hamburg, Marseille, Lisbon, and Porto. These examples illustrate that the CE implementation model is still in the development stage, with no agreed model.

Implementing CE with the principles of SDG 12 in cities is inseparable from various obstacles. There are five major barriers to implementing CE, financial, institutional, policy and regulatory, technology and knowledge, and social (Russell, Gianoli and Grafakos, 2020). Another obstacle is that policymakers often depend on powerful stakeholders to execute CE in their cities (Prendeville, Cherim and Bocken, 2018). In the case studies in Melbourne and Malmö, there are three obstacles to implementing CE principles, a lack of knowledge at the community level about the CE model, competing interests between cities, and misinterpretation (Bolger and Doyon, 2019).

The benefits of implementing CE at the policy level have been mixed. In Europe, implementing CE as waste prevention, eco-design, and reuse has helped companies there to save up to 600 billion Euros from company annual expenditure, equivalent to 8% of annual turnover, while also reducing total house gas emissions. glass annual as much as 2-4%. Furthermore, CE can provide the benefits of reducing pressure on the environment, increasing the security of raw material supplies, increasing competition, stimulating innovation, stimulating economic growth and creating jobs - 580,000 jobs have been opened in Europe through CE. Consumers will also receive more durable and innovative products that will improve their quality of life and savings in the long term (European Parliament, 2015).

The CE concept has also developed in Indonesia. Bappenas has published Indonesia's development direction to achieve CE by the end of 2018, emphasizing that CE has been included in four policies in Indonesia; (1) Green RPJMN 2020-2024, (2) Low carbon development in Indonesia, (3) Sustainable Development Goals (SDGs), point 12, and (4) Indonesian Vision 2045 (Rudiyanto, 2018). The application of CE has also been implemented in the city of Makassar through the Makassar Green and Clean program in 2008, which was later innovated into the Waste Bank and Tangkasakirong program since the introduction of the CE concept. With a population of 1.7 million people, Makassar City is now facing a complicated waste problem. Approximately 900 tons of waste are dumped in the Final Disposal Site (TPA) in Tamangapa Antang every day, and according to the City Government, this volume has exceeded the tamping capacity of the Makassar TPA (Yusran, 2019). This phenomenon makes Makassar need a breakthrough related to waste management. The Makassar Garbage Bank Program has been implemented since 2015 to deal with the waste problem in Makassar City and to provide the community with an understanding of waste sorting and processing (Ministry of Industry, 2019). Such programs show that there has been a step forward in the piloting of CE implementation in Makassar city. Considering the situation above, this study finds one concept in the study of International Relations: the potential for CE through its correlation with SDG 12 as an international norm. Through these discussions, this study also examines the determinants of CE implementation and the potential for its application in Makassar City.

2. LITERATURE REVIEW

Circular Economy can be defined as an economic model that is “regenerative by design”, meaning that it is deliberately manipulated by humans to recover value from products, product parts, and materials that have been deemed worthless. The focus is on how to create a “close-the-loop” material life system by making all things considered waste a resource for a new productive cycle. The increase relevant to the productivity of this economic system is expected to apply the CE model to a linear production-consumption pattern, through reuse and extension of the material and product life cycle (Gravagnuolo, Angrisano and Girard, 2019). There are three principles in CE, namely (1) maintaining and increasing natural capital, (2) optimizing land resources, and (3) strengthening system effectiveness (Michelini). The conceptualization of CE has been widely researched over the past decade, with over 100 definitions in the literature (Kirchherr, Reike and Hekkert, 2017 in Gravagnuolo, Angrisano and Girard, 2019), so that CE can potentially be said to be a "new sustainability paradigm" (Geissdoerfer et al. ., 2017). In another definition, de Jesus et al. (2016) proposed a scale of CE implementation that departs from the microscale (individual or company level), meso (industrial district or entire urban system), to macro (national policy).

Through the VOSviewer application, mapping is carried out to find state-of-the-art from the topics CE, City, and SDG 12 (see Figure 4); then, the results are classified into two items, namely CE with SDG 12 Principles and City Transition to CE. This mapping (see Table 1) shows that the literature review on CE with SDG 12 principles is still a derivative of waste management, with the first group being measurement techniques using indicators, life cycle assessment, material flow analysis, resource efficiency, and resource recovery and the second group are the main elements and achievements of CE and SDG 12 such as recycling, reuse, sustainability, sustainable development, and zero waste. In the City Transition to CE item, city elements that are most transformed into CE are presented, namely built environment, business, circular city, industrial ecology, industrial symbiosis, policy, urban metabolism, urban mining, and waste management.

Mapping is also carried out on articles that discuss the CE implementation process through best practices. Of the 27 articles that were deemed worthy of analysis, 6 were found that specifically provided success stories of CE implementation. First, De Medici, Riganti and Viola (2018) show that the cooperation built between universities, local governments, and cultural heritage entrepreneurship can play a role in restoring public spaces that were previously neglected. Second, Kampelmann (2020) says that the urban wood movement in the United States, Canada, and several European countries has helped to determine the differentiation of business models among entrepreneurs by filling gaps in the wood value chain.

Third, Fang et al. (2017) look at China's success story by calculating the carbon footprint reduction through the symbiosis of city industries, namely the exchange of solid waste from industry, traditional recycling, utilization of municipal solid waste, and energy symbiosis. Fourth, Pearlmutter et al. (2020) conducted a study of various case studies in implementing CE through nature-based solutions and showed that the transition to CE can be encouraged by utilizing environmentally friendly building materials such as biocomposite, building green systems that are integrated with lifestyles such as façade greening and green roofs, and building urban infrastructure by considering its role in food production and its function in responding to urban environmental challenges such as the need for water absorption through bioretention, bio-filter, and rain garden.

Fifth, Ibáñez (2019) found that circular cities can be viewed as a city framework based on grassroots community innovation by calling it everyday urbanism by re-conceptualizing waste reduction and management in various schemes. Sixth, Borghi et al. (2014) explained that the implementation in Genoa through the Liguria Circular scheme by taking advantage of the reverse trend of food waste such as encouraging food producers to be flexible in sorting the size, color

and weight of their fruit and vegetables, encouraging the construction of resource-efficient buildings, and introducing product designs that are sustainable through the development of new ideas and new technology.

3. METHODOLOGY

The method used to find the state-of-the-art from this study is a systemic literature review, which is inspired by the direction of Denyer and Tranfield (2009) by following some steps taken by Rosa et al. (2020). The relationship between CE and urban / city and CE and SDG 12 is established in the first stage. Second, the results are classified based on an innovative analytical framework. It shows how the data is collected, analyzed, and reported here. First, the search criteria for selecting articles were identified. Second, articles and other documents are classified to consider their feasibility within an analysis. Fourth, the selected documents were analyzed, considering the year of publication and method.

Search criteria were performed for data validity, and a specific database was used. The review process considered only formal literature (journal articles), focusing on titles, abstracts, and keywords. The reference database used is Mendeley's website. Only references written in English published in 2010 to 2020 were evaluated. The search bar on Mendeley's website used 8 different search strings to collect documents related to CE, urban, city, and SDGs 12. The result was found. 1390 journal articles. However, from the search results per string, we still found a lot of twin articles and articles with very unrelated titles and abstracts. Therefore, after the inclusion and exclusion processes carried out in journal articles are worthy of analysis.

4. RESULT AND DISCUSSION

The SDGs manifest international norms on sustainable development that have been affirmed by various countries. CE is strongly linked with the SDGs' points, particularly SDG 12. Therefore, CE also has the potential to develop into an international norm. Finnemore and Sikkink, (1998) argue that there is general agreement regarding the definition of norms as "a standard of behavior for actors with an identity", namely a standard of behavior that is attached to an actor entity with an inherent identity because it comes from outside expectations. About who the actor will be in a certain environment and how the actor will behave (described in more detail in Fukuyama and Katzenstein, 1997). In the international context, many of the international norms originate from domestic norms and become international through the efforts of various groups. An example is the suffering of women, which originated from demands for domestic change in various countries and became an international norm (Finnemore and Sikkink, 1998).

In the study of International Relations, norms is important to determine the achievements of a campaign or movement. Initially there were differences between the concept of ideas and norms, especially in the international relations literature. Ideas are beliefs held by individuals, while norms are intersubjective beliefs about appropriate or action. When ideas are widely accepted by various actors, they become norms, which are essentially intersubjective and are embraced by society (Axelrod, 1986). Furthermore, Axelroad (1986) explains that norms are standards of behavior defined through rights and obligations. In this sense, norms are general behavior patterns that govern an action's intention and impact.

Emerging international norms are often showed by international declarations or programs of action from international conferences. The entry of treaties into effect or the adoption of new policies by intergovernmental organizations can often indicators of norms reaching a threshold or tipping point. The widespread and rapid ratification of treaties can signal the spread and acceptance of international norms. However, not all issue areas are governed by treaties, and soft law and other policy guidelines and statements can serve as indicators of international norms (Khagram, Riker and Sikkink, 2002). In Annika Björkdahl's (2002) study, it was found that international norms could be sourced from domestic norms, which were later affirmed

in other countries. Efforts to make these norms acceptable by other parties are referred to as norm building.

In its latest development, international norms are discussed no longer merely as state power in the constitution's context and its contestation in global politics, but as shared ideas where non-state actors can involve themselves in the constitutional process and contestation (Brown and Deva, 2019). In addition, in recent research, international norms are works-in-progress, compared to the traditional understanding, which views them as static and irreversible if they have been internalized by many countries. The reason for this change in understanding is that, first, there is no norm that can cover every potential in the future, so norms can never be claimed as the final product, and second, because of the intense contestation of norms regarding definition, meaning, scope, and application. Moreover, norms often have vague concepts, allowing different actors to develop their own interpretations in understanding these norms (Shawki, 2016).

In this research, the international norms agreed upon through the SDGs declaration are the sustainable development agenda (Shawki, 2016). This research finds that the idea and implementation of CE applies to the international norms agreed upon in the SDGs (Shawki, 2016; Schroeder, Anggraeni and Weber, 2019). The principles in CE, namely principles such as 3R reduce, reuse, and recycle (Yang, Zhou and Xu, 2014), and their development up to 9R (responsibility, react, reduce, reuse, re-design, repair, recover, recycle, and rot) in the food system, (Fassio and Tecco, 2019) is a principle that is in line with the principles of sustainable development.

At the conceptual level, most experts accept the closeness between the CE concept and sustainable development (Geissdoerfer et al., 2017). However, research by Suárez-Eiroa et al., (2019) clarifies the differences between the two. In their findings, two distinct views have been clearly identified by Sauve et al. (2016). The first view is that some experts regard sustainable development as a set of initiatives implemented in a linear mindset, while CE offers solutions where sustainable development has failed to resolve. The second view considers that sustainable development and CE are coherent and interdependent disciplines, meaning that CE is a tool for achieving sustainable development. Meanwhile, Geissdoerfer et al. (2017) expand on the review from Sauve et al. (2016) and support that a clear relationship between the two concepts can be expressed through three relationships, namely (1) CE is needed by sustainable development, (2) CE is beneficial for sustainable development, and (3) CE and sustainable development have a relationship that is balanced or complementary. For Suarez-Eiroa et al. (2019), sustainable development establishes targets that need to be achieved to solve problems and their consequences, while CE is a tool to solve the causes of problems. Thus, perhaps CE as a tool serves as a complement to sustainable development and therefore, can develop into an international norm.

1. Factors: Affecting the Implementation of Circular Economy

This study also identifies determinant factors through best practices that occur in various cities. These factors include three things, namely multi-actor symbiosis, restoration and preservation of public spaces and internalization of the cultural values of CE in society. The following explains these factors. First, the multi-actor symbiosis: City governments, entrepreneurs, academics, industry players, and urban grassroots communities. Multi-actor roles need to be woven in the same synergy to transition to CE. Achieving zero waste through CE cannot be implemented solely by relying on the contribution of one actor only. Cooperation needs to be done to promote CE because it is beneficial for the economic, social and ecological dimensions. As the model from (De Medici, Riganti and Viola, 2018), the role of the city government needs to appear in its readiness to invest in knowledge and innovation, through a series of coordinated actions in order to strengthen innovation and knowledge transfer. From Kampelman (2020), the

role of entrepreneurs can be understood as actors who need to be vocal and active in finding supply chain gaps needed to support the transition process. De Medici, Riganti and Viola, (2018) also emphasize the role of academics as actors who can produce new knowledge and transfer it to the surrounding population and as cultural-based economic builders. Industry players need to prepare circular recycling schemes. Local initiatives from grassroots communities need to outsmart waste through social and technical planning, both through reducing material consumption and building perceptions in a more creative way towards a zero-waste lifestyle (Ibáñez, 2019).

Second, restoration and preservation of public spaces. Green building sites are a space to develop nature in cities that can increase biodiversity through a blue-green infrastructure component that can promote culture and social life through activities for various age groups and social groups. This development must be accompanied by a green building system and environmentally friendly materials. Borghi (2014) sharpens this analysis by emphasizing the importance of the building design stage to open up opportunities in cutting energy, waste, water and carbon affects. With the formation of strong links between actors in the construction sector, the effect on the entire supply chain can support the transition to CE (Borghi et al., 2014). Turning on public spaces can also be interpreted as using resource efficient building materials, restoring brownfields or abandoned buildings, to creating an order for the distribution flow of waste management (Ibáñez, 2019).

Third, internalizing the cultural values of CE to society. CE cultural values can be understood at the level of CE as a norm. However, implementing CE needs to be moved from the grassroots, because by doing so, it can make it easier for the stakeholders above it to adjust to the needs of the community. Entrepreneurs can adjust profits by following the market-driven pattern that emerged through the internalization of CE cultural values. City governments can adjust through policies that promote a faster transition process. Therefore, at the grassroots level of practice, this cultural formation needs to bring to life practical experiences in their respective places, activate sensory learning, create projects that directly involve the community, and open coordination with other actors (Ibáñez, 2019).

2. Potential Application of CE in Makassar City

The Makassar People's Movement Policy was introduced to the public on 15 June 2014. This policy was issued based on the Mayor's Decree No. 660.2 / 1087 / Kep / V / 2014 concerning the Division of Assisted Areas of Regional Work Units. Implementing the program is aimed at encouraging the active participation of Makassar City residents to pay more attention to the aspect of cleanliness through daily practice, because the habit of disposing of waste from the Makassar community was still seen as ignoring the existing rules and sanctions (Ibsik and Khaedir, 2019). The results are as a series of subprograms that support the policy, including MABELO (Makassar Clean Lorong), MABASA (Trash Free Makassar), LONGGAR (Lorong Garden), MAJURONG (Makassar Advancing Lorong), "Me And My School Is Clean", Trash Swap Rice, Waste Bank Management, BULO (Business Entity Lorong), and Five Star TPA Process. In addition, (Regional Research and Development Agency, 2017).

Referring to the previous determinants, here are some potential CE applications that the Makassar City Government can do. First, the construction of the Five Star TPA Program. One of the Makassar City Government programs that is closely related to CE is the Five Star TPA. This program, which is planned to become a waste processing center, has the closest connection with CE principles. The reason is, this place is expected to become a central waste bank and a central waste recycling site. This place can be a hub that connects the roles of various actors in society, so that it can become a multi-actor symbiotic space. Unfortunately, from the Republika Online media in March 2016, through the little information available regarding the idea of this program, Ramdhan Pomanto said that this program was designed directly by him. According to Pomanto,

he designed a special access road for garbage collection cars that are combined with a main waste bank, a garbage power plant, and waste processing or recycling machines, such as those made from glass, plastic and paper. Unfortunately, from the media information beritakotamakassar.com on January 15, 2019, this program is still experiencing land acquisition problems, so it was not implemented until this research was carried out. In fact, this program has correctly become part of the public goods/service procurement policy with enormous potential to support CE. The government just needs to ensure that to continue this program.

Second, in the Transformation of the Lorong Garden Program, the Makassar City Government has provided hallway repair facilities, especially regarding visual and economic functions. Basically, the repair of the aisles is aimed at making the aisles productive so that people's behavior, such as unemployment, gamblers, drinkers, and scavengers, can be minimized. The implementation is by providing plants for each corridor, which is the program's target. To link it with waste management policies, LONGGAR requires planting media and fertilizers that can be produced through the recycling process of food waste. So, the application of CE for this program can be made by providing composter tools in the hallways that are the program targets (Hardianti, Wildam, and Nasrulhaq, 2017).

The LONGGAR program has a close relationship with the second determinant factor, namely, as a step to restore public spaces that are characteristic of Makassar, namely the hallway. This program needs to be connected further with other elements in restoring public spaces that cannot be eliminated, namely the green building system and the use of environmentally friendly materials integrated with the Waste Bank program. That way, the LONGGAR program can be ready to be adapted into a circular program.

5. CONCLUSION

As a program that can support a vital economy, CE has a vital role to play in relation to SDG 12 through international norms. The application of CE in different cities also allows the emergence of various policy models, each of which seeks to answer the city's unique challenges. Three types of determinants can be identified through best practices from 6 cities that have implemented CE to drive the transition to CE: multi-actor symbiosis, restoration and preservation of public spaces, and internalization of CE cultural values. Makassar City has much potential through the circular policies, including the “Five Star TPA” and “Lorong Garden.” It only takes a more substantial commitment by the Makassar City Government to promote the transition to CE through existing programs.

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