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Interrelationship of Food Wastage and Sustainable Development: A Review

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ABSTRACT

This paper aims to examine the interrelationship of food consumption and designing a sustainable community. Japan has achieved its economic vestige through healthy economic development and technological opportunity, resource utilization, and the well-being of the community and citizens. Related to creating a sustainable community, it requires a coordinated joined approach involving a wide range of resources and stakeholders. To attain zero food waste community, resource mobilization is needed that promotes sustainable food consumption. Resource mobilization is the process of getting resources from resource providers, using different mechanisms, to implement the organization's work for achieving the pre-determined organizational goals. Technology is much needed to come up with efficient mechanization and technologies in preventing, reducing, and reutilizing food wastes. During the design process, it is essential to understand that having the same level of understanding should be established, in terms of common current issues.

INTRODUCTION

The issue of sustainable development has become the global discourse for more than four decades. The United Nations Conference on the Human Environment (Stockholm Conference) in 1972 was the very first attempt to address the issue, followed by the appointment of the Brundtland Commission in 1983 and the release of Our Common Future (Brundtland Report, 1987). The latter laid a solid ground and concept for countries to address the issue of sustainable development.

Sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987). With the modernization and economic development of ASEAN countries, sustainable development is increasingly relevant and more important than ever to balance economic growth, environmental protection, and livability for society. Integrated waste management, which can be defined as efficient resource consumption that reduces the amount of waste produced, is a key concept for achieving sustainability.

Aligning with the global discourse on sustainable development, South East Asia countries, such as Cambodia, Indonesia, the Philippines, Singapore, and Thailand have integrated the concept of sustainable development into national policies. However, progressing towards sustainable development still poses many challenges for countries in ASEAN. The topic of sustainable community design is one of the key areas that ASEAN countries are facing.

Brundtland's report in 1987 defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (p.41). Unrestrained development is also a root cause of unsustainability (E. Conrad and L. F. Cassar, 2014). The need to rebalance the growth of the economy and the conservation of the environment is important to attain sustainable development.

Based on a wide range of knowledge and hand-on experiences from seminars, lectures, and study trips, the definition of sustainable community was interpreted and elaborated through six elements: 1) Decoupling economic development and environment, 2) Multi-stakeholder engagement

within the community, 3) Cultural preservation and revitalization, 4) Effective utilization of resources, 5) Economic revitalization, 6) Resilient community with ownership and self-sufficiency.

Decoupling economic development and environment is the stage when economic development is effectively enhanced while maintaining high environmental quality and natural resources. In terms of the food waste issue, decoupling occurs when raw materials in everyday life are effectively utilized, redistributed, and reutilization for solving the problem and promoting the sound development of society.

Multi-stakeholder engagement is the process where all relevant actors are included in the (development) process. Take for example the basic case of food waste generation at the levels of school and household, stakeholders include food handlers, parents, teachers, students, food scavengers, and the common folks. These multi-stakeholders need to hold hand in hand and work together to promote efficient food consumption for reaching a zero-waste community.

Economic vitality encapsulates the terms of healthy economic development and opportunity, resource utilization, and well-being of the community and citizens. This concept encourages small, medium, and large businesses the promotion of innovation, competitiveness, and entrepreneurial skills, which are vibrant to economic activities. Economic vitality can greatly contribute to the efficient and effective consumption of foods. Small-scaled business units doing composting food waste are an example of new economic activity for promoting economic vitality.

Culture preservation and revitalization are essential parts of communities as daily activities and practices are the reflection of culture, including eating culture. Culture can positively influence ways of shopping, cooking, eating, and storing foods. For the Japanese philosophy “Mottainai” conveys the meaning of everything has value. Applying this philosophy to food waste issues, it means that everything related to food has values and should be appreciated. This culture can be replicated, revitalized, and spread in every corner of the community, when this culture is instilled in every mind and heart will result to zero food waste.

A resilient community is the ability to anticipate risks, limit impacts, and bounce back

rapidly through survival, adaptability, evolution, and growth in the face of turbulent changes (Patel, et.al, 2017). This could be applied to food consumption. Every human being needs to adapt to changes to live harmoniously with the environment. To come up with this everyone should have a sense of responsibility and ownership for sufficient and efficient food consumption in the community.

According to the scope of the Sustainable Development Goals; SDGs (Barbier & Burgess, 2017; UNDP, 2017), the resilient community mainly addresses 6 Goals of the United Nation Sustainable Development Goals (UN-SDG) in Goal 2 Zero hunger: End hunger, achieve food security and improved nutrition and promote sustainable agriculture; Goal 3 Good health and well-being: Ensure healthy lives and promote well-being for all at all ages.

RESULTS AND DISCUSSION

Resources Mobilization

To attain zero food waste community, resource mobilization is needed that promotes sustainable food consumption. Technology is much needed to come up with efficient mechanization and technologies in preventing, reducing, and reutilizing food wastes. Financial requisite to finance the mobilization of the project and to kick start the initiative, in terms of food efficient consumption. Cultural orientation that could promote suitable food consumption, redistribute foods for those in need, and reutilize them for other purposes could benefit the whole community. Natural resources are resources that are naturally occurred, such as land, air, flora, fauna, etc. (Perman, 2003).

Natural resources can be categorized into two renewable or non-renewable. The depletion of natural resources is considered to be a sustainable development issue (Schilling M and Chiang L., 2011). Therefore, ensuring efficient resource consumption is crucial as some resources would not be depleted and could replenish naturally. Applying this knowledge to food, it is reasonable to mention that food sources mostly come from plants and animals; therefore, resources related to food production and consumption should be efficiently consumed and should be consumed within the limit of nature.

Human capital is defined as the stock of knowledge, habits, social and personality attributes,

including creativity, embodied in the ability to perform labor to produce economic value (Kwon, 2009). She explains that knowledge was, and still is, transmitted without a formal and extensive school system.

Designing Sustainable Community in a Localized Context

Related to creating a sustainable community, it requires a coordinated joined approach involving a wide range of resources and stakeholders (Mumovic & Santomouris, 2013). During the design process, it is essential to understand that having the same level of understanding should be established, in terms of common current issues. Those issues encourage the group to think about what should be done for society to move towards a sustainable community. One of the main current issues that emerged during the group discussion was waste management in ASEAN countries. With the same understanding, waste management became a never-ending problem until now, particularly for urban areas.

In terms of waste management, an integrated system becomes a key concept for achieving sustainability in this case. Inspired by the concept of integrated waste management, promoting waste management towards sustainability can be defined as efficient resource consumption that reduces the amount of waste produced and contributes to sustainable economic development, environmental protection, and social equity. Making connections between people's perceptions of waste management within a community is a complicated matter. Thus, it is important to understand that basic factors rely on issues, such as culture, geographical matters, etc. From one city to another, different characteristics are influencing how effective sustainability programs work. For instance, between Kuala Lumpur and Bangkok, there are different cultures and perceptions regarding community sustainable design.

Background on Sustainable Development of Southeast Asia

Southeast Asian nation is often cited as an economic success story, its combined GDP per capita remains high from \$ 122 in 1967 to \$ 4,021 in 2017. The combined economic indicator obscures the important reality, over 90 million people in the region live in poverty. Socially, culturally and politically, Southeast Asia is incredibly complex (Tanoto, 2018). It is often very difficult to solve the

common problem under complex background, this hampers the common action of leaders in the region to address pressing issues.

In the Philippines alone, there are wide disparities in income and quality of life across regions and sectors in the Philippines. The number of poor people remained high (26.5 percent of the total population lives below the poverty line. While the country is abundant in terms of natural resources, social inequalities and poor access to technology in accessing resources are one of the many problems (UNDP, 2019).

The richest and most developed country in Southeast Asia, Singapore has its own success story, with no natural resources this tiny country has had to be resourceful to make living for itself. Since 1960 they worked to achieve mass education from primary to tertiary coupled with rapid technological advances, investing in their human capital make them what they are now. Change efforts have always been complicated by Southeast Asian Countries contrasting stages of development, which have required members to prioritize accordingly, Singapore cannot have the same priorities as Thailand and Indonesia (Tanoto, 2018).

Motivating Sustainable Development

Based on the Report entitled "Motivating Sustainable Consumption", methods to address sustainable behaviors can be categorized into three main approaches: individualist, systematic, and integrative paradigms (Jackson, 2005). Although this approach emphasizes cognitive factors of people, it is criticized for neglecting external contexts and societies connected to people.

For the systemic paradigm, it focuses on economic and social variables for enabling sustainable behaviors, implying that people will enroll in sustainable behaviors when there is a provision of suitable technologies, proper infrastructures, and economic incentives (see e.g., Jacobs & Bailey, 1982/3; Witmer & Geller, 1976). Although this approach acknowledges contextual factors for promoting sustainable behaviors, it is criticized for the lack of cognitive factors.

For the integrated paradigm, it considers both internal variables of people and social contexts for facilitating sustainable choices (of behaviors) (e.g., Nijhuis & Spaargaren, 2006; Spaargaren & Van Vliet, 2000). As the integrated approach emphasizes both cognitive factors of people without external

influences, this approach was chosen for in this study. Out of several models from the integrated approach, the *Six Sources of Influence Model* (Grenny et al., 2013), emphasizes cognitive factors of people, while not neglecting conducive environments for behavioral changes, motivating, engaging, and enabling them to minimize food wastes.

CONCLUSION

Attaining sustainable development is one of the most contentious issues nowadays. Many scientist debates about sustainability which compromise traditional belief. In Southeast Asian countries which believe to be the next economic giant, societal problems are embedded deeply in their social, cultural, and political beliefs that hamper their collective approach to solving complex problems.

Several problems facing Southeast Asian nation includes the annual haze in Indonesia due to forest fire and the conversion of peatland into palm oil which affect their business environment. Corruption scandal and turmoil political environment in Malaysia. The declining rice harvest in Thailand and Vietnam because of environmental degradation along the Mekong River, must prompt this country to diversify to other commodities. Grave abuses against Rohingya Muslims in Myanmar make them vulnerable to economic sanctions and the too much economic reliance of Laos with China. The low oil price affects the economy of Brunei which result to a huge budget deficit in the past year. With oil due to run out in decades to come, results to economic hardship.

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