

## Strengthening Community-Based Capacity through Eco-settlement Concept in Kelurahan

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### Abstract

A Semarang City Plan 2021 was prepared to ensure that the planning for Semarang will strike a balance between physical, economic, social and environmental development. There is crucial significance in meeting needs of the people that are vital for the development of Semarang city because it reflects upon an inclusive society for the Semarang city. Therefore, understanding the environmental, economic and social aspects of *Kelurahan* or district is considered a practical perspective to build the collaborative partnership among the stakeholders. This paper aims to identify strengths environmentally friendly based on the role of institutions and community character. Green techniques implemented in these communities will be analyzed while using eco-settlement as illustrative examples. After that, interviews that conducted in the visited communities will be analyzed while making use of communities of practice approach. There are some environmental issues in many *kelurahan* in Semarang. In the factual issues, garbage is one of the fundamental problems of the area, followed by the landscape. In the case of perception of environmental problems, people have different thinking on the problem. The policy tools can divide into two components: community-based eco-settlement and strengthen the capacity for institutional development. Community-based eco-settlement incorporates promotion of environmental conservation and strengthening the sense of community among the residents. On the other hand, increasing the capacity for institutional includes enhancing the capacity of the local community and collaboration between the local communities.

Keywords: eco-village, *kelurahan*, community-based, local institution

### 1. Introduction

The linkages between human life and the environment, it is worth noting that we have a very limited understanding of particular fact related to the response of ecosystem. Most ecosystems are composed of structural elements, with varying degrees of complexity. The elements act together to create a whole that is greater than the sum of the parts (Daly and Farley 2004). The complex and uncertain ecosystems tend to create serious environmental situations to make a living in case the environment becomes fragile. Therefore, it is important to promote an adaptive capacity to adjust the ecological-social-economic system in response to actual or expected environmental crises. The adaptation to environmental problems requires the recognition of multiple stimuli including cultural, economic, institutional forces. Integrating these aspects is an important key to achieving sustainable development in harmony with the ecological functions sustainable settlement. On this account, understanding the development needs or visions for each stakeholder (especially at community level) is a must to assess the current development situation and would require integration from a policy perspective with due

consideration to environmental sustainability to enable a pathway towards a win-win situation. These factors will provide a good guideline for policy makers and resource actors to focus on the need to put into practice environmental management and make collaborations with other stakeholders to achieve sustainable development.

Given the said considerations, this paper aims to look into the various facets of sustainable eco-development in a local community called *Kelurahan* in Indonesia cities would attempt to come up with policy recommendations that could serve as a guide to decision makers in sustainable eco-development or sustainable eco-settlement. The method used in the study Embodiments of the Village Green namely quantitative research methods. Quantitative research methods are methods to test certain theories by examining the relationship between the variables. These variables are measured by the instruments of research so that data consisting of the numbers can analyze by statistical procedures (Creswell 2013).

Today, *Kelurahan* remains a unique enclave of still generally low-rise structures with a strong Indonesian flavor of remarkable yet

relaxed life. Much discussion continues on its future, with those arguing for and trying to profit from huge city development. The overall in-charge of the area in RW, which is community organization or a village council with elected community leader. RW has a special autonomy status in the local government. RW organizes community activities, management, negotiate with government and so on. The purpose of RW is as follows: (1) to take part in the administration and (2) to enable them to reap some of the advantages of the present prosperity. This area and the community have a long history and many *kelurahan* remains until today.

## 2. The Ecovillage Concept

One of the concepts of urban settlements that were intended to pay attention to the above issues and highly relevant to the condition of the town in Indonesia today are Eco-village approach that is a green-settlement approach to the tropics area. Eco-village approaching define as a settlement with the concept of harmonization of social, economic, and ecological to build sustainable tropical ecosystems. An Eco-village concept can play a role in ecosystem sustainability through the design and planning of settlements by using space wisely, such as maintaining green space to maximize ecological function. This concept wants to achieve sustainable urban settlements through the planning and design of urban green infrastructure, urban ecology in green lifestyles and green urban infrastructure systems integration. The term green is used to show more cares and attentions to the environment. Also, the definition of the Eco-village is a full-featured settlement in which human activities integrate with nature in ways that promote healthy human development and can successfully continue into the future (Gilman 1991). The concept of Eco-village also will not work if it does not support the excellent achievement of the four aspects of the ecological, economic, social, and institutional.

The city built by maximizing services as capital development by utilizing its human resources (Joga 2013). Green city is a city that aims to improve the welfare of citizens and communities through integrated urban planning and management that take full advantage of the ecological system and protect for future generations. Efforts to raise public awareness and to realize the sustainability of the livelihood of the city, among other things can do in the form of embodiment of the Green City (Ministry of Public Works of the Republic of Indonesia 2011). Those involved have to determine how decisions made and how things are to do. This an important aspect as the typical high densities of Eco-village requires highly-develop social skills and careful community design (Eshtaftaki 2012).

The community named GEN accommodates the existence of the Eco-village concept. Global Eco-village Network (GEN 2005) is a global association of human and communities dedicated to sustainable living with

land restoration, and add more than taken. The vision of the Global Eco-village Network (GEN) is that all living beings are united in a community where one another and live in harmony with the earth, while it can suffice needs of the present and future generations. Eco-village can achieve by identifying, assisting, and coordinating the efforts of the community to achieve harmonization of social, spiritual, economic and ecological. According to Capra (2003), Eco-village is a human community in urban or rural areas, with emphasize on the integration of the social environment that supports the little lifestyle impact on the environment.

According to the main principles for the sustainable living that prepare by IUCN, UNEP, and WWF (1991), to be viable, social group has to respect and care for the community. UNEP Industry Environment (2003) suggested five steps strategy that could be taken to reduce environmental impact: reduce material wastage, increase usage of recycled waste, improve the efficiency of the energy, make a wiser use of the water, and increase the service life of the structures. We used these steps as a tool in my research, to evaluate if people in the selected communities are promoting sustainability.

## 3. Conditions the Community Group

The community group called '*Women Farmers' or Wanita Tani (KWT)* is a group of women who care about the environment, likes to plant owned by the study area. KWT who first established named KWT Gaya around 1990 with the background of the people who use the river banks to be more green and beautiful. Then it sometime in 2007, following in the footsteps of other RW named KWT 'Lucky' and KWT 'Asri'. The formation of this KWT with the background because people RW which had already been aware and concerned about the environment and going green in the living environment. So decided to form KWT to be better organized and more focused on greening the study area as well as promoting the importance of the 3R program early on.

Tabel 1: Local Institution Role

No.	Institutional Type	Role and Function
1	Neighborhood Association/RW	In charge of delivering the work program and facilitate the activities of village-level RW
2	Women Welfare Community/PKK RW	Empowering women to participate in the development in the rate of RW
3	(Farmers Group Association)	Farmers Group 3 Women Farmers Group (KWT) with greening activities and utilization of household waste
4	Household Association/RT	Institutional lowest level, namely RT, accommodate, facilitate activities at the neighborhood level in

No.	Institutional Type	Role and Function
5	PKK RT	charge of delivering the work program and promote the activities of <i>kelurahan</i> -level Empowering women to participate in the RW districts, there are a Posyandu activities for the elderly and toddlers as well as monitoring mosquito seeds every three months
6	KWT (Women Farmer Group)	KWT Ornamental Plants KWT orchids and Vegetables KWT Herbal Planting Women Farmers Group invites the public in their respective neighborhoods to reforest and utilize household waste

Source: Analysis of Authors, 2016

In the UKM Gallery *Krapyak Berseri*, Krapyak community should entrust wares are only charged 5% of the sale proceeds to put cash Gapoktan and utilized for building a rental gallery. The gallery is also preparing three teachers for anyone who wants to learn to make batik. Teachers also came from his *kelurahan* community and included members of KWT, which also received training from various parties. The training obtained KWT members to taught to the general public.

Reuse behavior is 63% done by the people in the study area that reuse old plastic bags because it is considered to be the simple but beneficial. Then a 25% reuse canned milk/cakes/snacks to place more like a cake, and lastly, reusing bottles to be used as a planting medium. Reduce the application of 84%, by reducing the use of plastic bags. Recycle on the implementation in the area are 3 Recycle they do is make compost, crafts of plastic waste and sell the bottles to collect waste. 55% of people selling their waste to collectors to be used again for something more useful, because they are the individuals in the study with an average age > 50 years was no longer able to process the waste or for some reason do not have the skills. Then by 28% to process the dried leaves into compost. Composting in the study area is managed by the Women Farmers Group in each RW, but some people individually make their compost and consumed. RT in RW 6 each has a barrel to make compost, so they make compost together and still to meet their needs yet to sell to the general public.

Creating crafts is also done by the people in the study area by 17%. The small percentage of process waste into crafts because it took skill to be able to process them. So in each of the study areas have some mothers who are good at processing plastic waste and sell them to the general public. Making crafts get support from their community by giving the former plastic trash, patchwork to process into a bag, cover glass, flowers and a needle. Handicraft managed by

KWT later exhibited at the Gallery of UKMs so that the waste plastic and fabric can provide benefits to the community

In addition, to routine activities such as voluntary work, there are other efforts, namely, to make the page as a park, do not throw garbage anywhere and apply the 3Rs in their homes. 61% chose utilize the garden as a park / green space because almost all people like to plant, so without any call for planting, they already have many plants in her yard. Then by 37% of people prefer to not littering, and the latter is applying the 3Rs (2%). It was not an easy thing to consistently implement the 3R, various reasons such as busyness, lack of skills, not practically become an obstacle to the public. The percentage of 2% is truly able to re-use plastic waste, leaves there be crafts and organic compost (Figure 1).

Then in 2012 the end, all KWT decided to join and form Farmers Group (Gapoktan). Based on the results of the questionnaire 75% of people stated that KWT developed relies on public awareness and by 72% of the public considers the role of the community KWT quite good because it could invite the community to green the environment and implement the 3R (Figure 2).

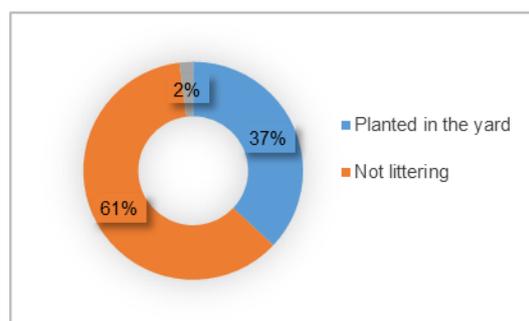


Figure 1. Community Roles

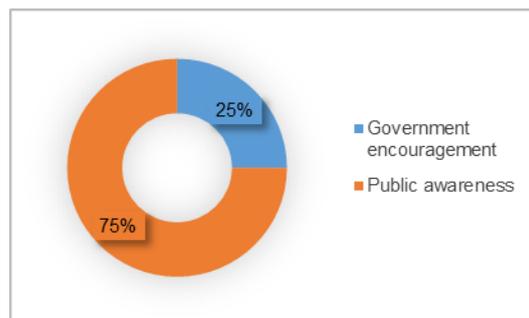


Figure 2. Background for KWT Formation

KWT activities that process waste into organic compost leaves and plastic trash into crafts made by people in the study area. In composting, the community donated given the power tool to cut the leaves requires a large force so that the fathers help operationalize these tools. Collecting the plastic waste and handed over to the KWT to be processed into handicrafts. Based on the results of the questionnaire, 57% of people contributing to the composting and 43% do not provide. As for the manufacture of handicrafts amounted to only 32% who

contributed to the production of handicrafts requires skill, tenacity, and patience.

#### 4. Analysis Assessment Sustainable Settlement

After doing the calculations scoring on each respondent, then the whole question added up to get a total score and can be seen in the total score of each respondent belonging to the category of low, middle or high. After analyzing several indicators provision of open space, it can conclude that the conditions in the form of public park green space are very less, but it does not make the people in the study area could not be greening the environment. Of limitations, they take advantage of the spaces left to be utilized optimally by planting various kinds of plants in pots or polybags (private open space). Proven provision of open space including a well that is with a percentage of 86%, green environment, and society can feel the direct benefits of crop farming craze. RTH management includes enough with a rate of 64% but has begun there although the application of the 3Rs still is things as simple as reusing plastic bags.

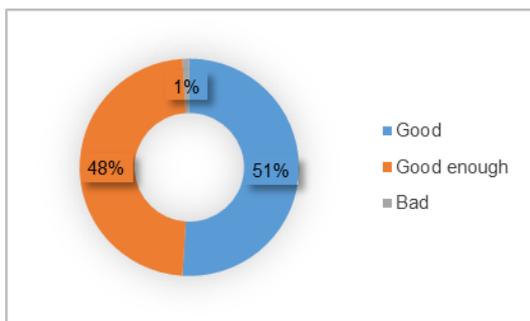


Figure 3. Analysis of Community Role

The chart above shows that the factor of public participation in making the eco-settlement is quite good because people already have the awareness to green the environment. They make the yard of the house used as green space, there is a routine to clean up the neighborhood, and there are groups who care about the environment, so KWT regarded as a pioneer for greening the environment

The relationship between the provisions of open space with the concerns of society demonstrates the value of 0.371, indicating a high value of the community's concern for environmental conservation makes them try to green the settlement environment. So is the relationship between water management to the provision of green space that shows the value of 0.159, this value indicates that the water management (quality, quantity, and continuities) which either will affect the condition of the existing green space, the plant will look fresh and green. Seen that the provision of green space has a value of 0.639, or 63.9%, which means 63.9% of variables can affect the delivery of RTH Eco-settlement. Likewise, with variable Waste Management (63.4%), public participation

(53.2%) of these three variables do not lose big in affecting conditions eco-friendly village.

Table 2: Environment-Friendly Assessment

	Component
Provision RTH	0,799
Waste management	0,796
Community Participation	0,730

Source: Analysis of Authors, 2016

Above table 2 shows the grouping variables. Here are the variables that contribute most to the Eco-settlement consists of: 1) Provision of RTH, 2) Waste Management, and 3) community participation.

#### 5. Conclusion

From the analysis, there is five (5) Environmentally Friendly settlement factor is the provision of RTH (right), the management of sanitation networks (small), the management of water supply system (enough), waste management (enough) and community participation (right). From this analysis, it can conclude that the area of research studies have successfully made the Eco-settlement with the right category, which has been successfully implementing 5 of 8 attributes and supported the Green City Development Program (P2KH). *Kelurahan* Krapyak does not have a large area of territory in the city, but the *kelurahan* Krapyak successfully contributes to realizing Semarang as the Green City.

Based on the factor analysis conducted in research conditions Sustainable Settlement, several variables have a significant influence, namely the provision of green space, waste management, and community participation. The delivery of green space that makes neighborhoods green, harmonious and beautiful as well as indirectly contributes to the availability of green space in the city of Semarang. The embodiment is expected to be a reference, an example for another *kelurahan* in Semarang who have yet to implement the concept of Sustainable as a sustainable housing solution.

Based on this above context, the sections divided into three aspects: individual, collective (community), and institutions, and are categorized into the environment, economic, and social issues. The green campaign considered as the starting point of the individual short term activity. This one of the awareness raising campaign for the local people and community. Neighborhood watching can continue on a regular basis and can be considered as the collective action to short to medium term. To institutionalize these activities needs to conduct long-term initiatives through community education program and 3R (Reduce, Reuse, and Recycle) initiatives. On the economic front, the activities should start from the revitalization of economic aspects of individual, which is considered as the short-term effort and can be strength with the

community-based economic activities through short to medium term efforts. The long run should be deemed to help the economic initiatives of individual and communities and can be strength for image up of the locality. The social activities, gardening, and craft can be good entry points at a personal level, which can start on the short term basis. This study has highlighted some instances in which eco-settlement can provide valuable lessons to urban settlements. The concept of eco-settlement does have the potential to serve as an alternative urban model as it is an efficient way of dealing with urban sustainability issues. As relatively small experimental communities, eco-settlement are in the position to explore and apply novel solutions, the necessity of which is evident in the global concern for sustainability. As the search for sustainable solutions to a settlement, problems continue, eco-settlement is in a strong position to become increasingly relevant.

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