

# Community-Based Eco-Friendly Village Governance in Purwosari, Surakarta, Indonesia

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**Abstract.** Urban villages are an important entity and the need of urban people spatially and socially, but some of them are not eco-friendly. This research analyses the Community-based Eco-friendly Village Governance in Purwosari, Surakarta, Indonesia using Schweitzer's Life-Centered Theory of Environment. In this case study research, data and information were obtained through observation, documentation, in-depth interview and Focus Group Discussion with Purwosari villagers, Living Environment Service Office of Surakarta City, and an NGO caring about environment. Following source triangulation, data was analyzed using an interactive model. Result shows the active participation of Purwosari villagers in planning, training, facilitation, follow-up, and evaluation on environment management to reduce environment pollution and damage to achieve eco-friendly residence jointly. They manage, use, and process used plastics into useful products with economic value to surrounding environment such as bag, wallet, tissue box, frame, multifunctional basket, sandal, and glass. They make yard a hydroponic farmland with diverse plants like chili, tomato, and sprout. They connect drainage system from one house to another with concentrated channel model ending up in a river. Systemic participative collaborative attempts are taken by Purwosari villagers to anticipate flood and environment pollution to achieve liveable village.

## 1 Introduction

Village is a unit of communities having territorial borders and authorized to govern and to administer government, local people interest based on the members of community's initiative, with origin right, and traditional right recognized and respected in the Republic of Indonesia's government system. The Republic of Indonesia's Law Number 6 of 2014 about Village states that Village have some authorities related to the Implementation of Village Government; the Implementation of Village Government; the Village Society Building; and Villagers Empowerment. Village is authorized to regulate the implementation of government aiming to give its people prosperity. Considering the village's authority, the village needs development and empowerment in the attempt of improving the existence of independent village. It is expected to prevent the village from being viewed as left-behind area according to the criterion of less-developed village in Article 2 of the Republic of Indonesia's Presidential Regulation Number 63 of 2020 about the Assignment of Less-Developed Region

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in 2020-2024 including, that is inadequate infrastructures; but village should be a region with high bargaining value or selling price to other governmental organizations. It is confirmed with the presence of various types of tourist village as the form of village potency development.

The attempt of developing village requires adequate number of village government institution apparatuses and people with sense of belonging to the village to promote their village. What is really needed by the village is assistance from many cross-sector elements, particularly central and regional governments as the sector fields for village government. In addition, collaboration with stakeholders is also desirable in the village developing attempt [1]. Village is the form of government with smallest territory. The establishment of village represents the performance of democracy because people can play active role directly in village development [2].

The life centered theory poses four basic ethical principles. Human beings are the members of life community existing on this earth; earth is an organic system in which human beings and other creatures are interrelated and interdependent; all creatures are united by a common purpose, for the sake of goodness and overall integrity and decline human being's superiority to other creatures [3]. Talking about village means speaking of around 72,944 villages extending from Sabang to Merauke, including suburban areas or remote districts, the existence of which is viewed as slum, less-developed, and backward [4]. This is embedded in the powerlessness including low health and education degree, unemployment, poverty rate in community, and other negative things characterizing the village.

Purwosari Village is one of villages located in Laweyan Sub District area, Surakarta City. Purwosari has a strategic location as it is the industrial destination and settlement buffering Surakarta City. The fairly complex problem faced by Purwosari villagers is particularly related to environment management. It is due to the resource of Purwosari village, including the non-centralized domestic waste disposal and uncontrolled processing. Considering this problem, it is very regrettable that the resource existing is not utilized optimally, leading to the utilization of village's asset running less optimally. This research aims to study community-based eco-friendly village governance in Purwosari, Surakarta, Indonesia.

## 2 Method

The method used in this research was qualitative method with case study approach. The data sources were 1 Head of Purwosari Neighborhood Unit, 5 Purwosari villagers, 1 Living Environment Service Office of Surakarta City and 1 *Peduli Lingkungan* (Environmental Care) NGO. The sampling technique used was purposive sampling technique, while data collection was conducted through observation, interview, and documentation. Data validity was carried out using data source triangulation and the data was analysed using an interactive model of analysis [5,6].

## 3 Result and Discussion

Pollution, waste disposal, and environmental damage are serious problems, most of which are caused by household. Surakarta City as one of regions caring about environment develop a program called *kampung ramah lingkungan* (environment-friendly village), containing the attempts of solving waste problems [7]. Some activities or approaches have been taken to solve environmental problems in Purwosari (Table 1).

**Table 1.** Purwosari's Environment Management

No.	Step	Activity
1.	Planning	1. Identify environmental problems in the village
		2. Designing environmentally friendly solutions
		3. Involving the village community as the main actor
		4. Education and training to the village community about good and correct environmental management
2.	Training	1. Training on healthy and livable environment.
		2. Training and assistance in making environmentally friendly handicraft products
		3. Training and mentoring for the development of drainage systems that flow into the river stream
		4. Training on flood disaster mitigation
3.	Facilitation	1. Wastewater pipes to reduce or remove wastewater from the village
		2. Construction of water channels to the river
4.	Follow-up	Monitoring the application of training outcomes

Firstly, the approach taken is, among other, involving stakeholders including Surakarta City Government through the Living Environment Service Office, *Peduli Lingkungan* NGO, and particularly local people. It ranges from planning, training, facilitation, and follow-up, to evaluation of environment management. Stakeholders are involved in environment-related policy formulation, particularly domestic waste disposal in Purwosari village. In addition, education is also provided to Purwosari people about the urgency of healthy and liveable environment.

Policy formulation and education focus on how drainage system is implemented in centralized manner flowing directly to river stream. Such measure is taken by the government of Kelurahan Purwosari in collaboration with the Living Environment Service Office of Surakarta City. The development of infrastructure is the government's responsibility encouraged by the advice from the people as well as NGOs to release environment from flood disaster. In addition to structural step, policy formulation and infrastructural development are always environment-oriented. Liquid waste distribution system is a series of water buildings functioning to reduce or to dispose liquid waste from a region/land, either household or industrial area [8]. Distribution system usually uses closed channel system with pipes functioning to flow the liquid waste into interceptor tub to be flowed into main channel or drainage channel later.

Waste processing is an attempt of reducing or stabilizing pollutant so that the waste disposed will not harm environment and health [9]. The main objective of liquid waste processing is to reduce the content of pollutants, particularly organic compound, suspended solid, pathogenic microbe, and organic compound that can be decomposed by natural microorganism. Another objective is to reduce and to remove adverse effect of liquid waste on human health and his environment, to improve the quality of living environment through processing, disposal and or liquid waste utilization for the sake of human life and his environment [10,11].

Education is conducted comprehensively to touch cultural aspects such as the activities of reusing or recycling domestic waste into with high use value. The activity held is the training on how to recycle domestic wastes into a variety of souvenirs implemented with education, training (demonstration) and direct practice methods. The activity was running smoothly and successfully. This activity was attended by women affiliated with PKK or

Family Welfare Program of Purwosari Village, Banjarsari Sub District, Surakarta City. The activity started with education and was followed with practice of making souvenirs from domestic wastes. Souvenirs made are pencil case, bag, plastic waste-based plate, and brooch. Plastic materials employed are, among others, used beverage glass, used beverage bottle, used oil bottle, used plastic straw etc. Education is implemented by providing information on data of waste in Indonesia in general and plastic waste in Surakarta in particular. It is intended to grow an awareness of the importance of plastic waste management by means of recycling rather than burning them that can result in another problem, air pollution [12]. In addition, by sorting the waste, Purwosari people can recycle plastic wastes and change them into various environment-friendly souvenirs.

Plastic is a material difficult to decompose naturally (non-biodegradable). Burning plastic waste exerts negative effect on environment, air pollution. Waste burning produces hydrogen sulphide that can poison the environment [13]. The characteristic of plastic that is flammable can generate fire hazard, moreover, if the plastic contains chlorides that can produce dioxin (causing cancer) when it is burn at low temperature [14].

Environment damage, including water and groundwater pollution due to plastic, is inevitable. People consciousness should be grown to prevent this increasing damage. The application of Reduce, Reuse, Recycle (3R) concept can be an alternative solution to conserve environment cheaply and easily. The processing of organic wastes has been conducted widely (e.g., processing them into compost or liquid fertilizer or bioethanol [15]). Similarly, inorganic wastes such as plastic can be processed into briquette.

The 3R concept has been implemented by Purwosari villagers in Surakarta in their daily life despite less optimality. The basic priority is given to Reduce, i.e., reducing waste generation. The next is Reuse, and then Recycle or recycling the material to give it second chance. There are still 2 stages in waste processing. The first stage is Recover, i.e., to recover non-recyclable materials into energy source or environment-friendly ones to avoid it from landfill. The last stage is Disposal, i.e., to allocate the recyclable waste in landfill. In this context, every human product has intrinsic value and its existence has moral relevance [3].

## 4 Conclusion

Environmental issues are the ones attracting the policy makers and the members of society's attention, moreover, following various flood disasters and non-liveable environmental condition. Government and Purwosari villagers facilitated by *Peduli Lingkungan* NGO are attempting to change the condition of living environment by making such breakthroughs as building drainage infrastructure concentrated on Bengawan Solo River estuary and utilizing the domestic wastes that still can be processed into various usable products.

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