Bureaucratic role in green village innovation model at Yogyakarta, Indonesia

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Abstract. Environmental quality can be improved, especially to deal with climate change issues, if the government bureaucracy is able to perform distribution and management for urban green space. This is a crucial obligation wherein its implementation the government should develop the spirit of green bureaucracy in the long term. One of the government programs that can fulfill that obligation is green village innovation. Some bureaucracy is related to the development of this program, although until now, the Dept.of Environment is the only stakeholder that plays a role. Ideally, this program can be successful with the synergy of all stakeholders. This study will discuss the role of bureaucracy in the green village innovation model in the Yogyakarta Special Region (DIY), Indonesia. The method was performed by the qualitative approach and secondary documents analysis. The bureaucracy roles and recommendations for improving the green village innovation model bureaucracy will be explained in this journal. The bureaucratic roles of program implementation experience errors at the management level, such as an error in the technical-operational. In addition, limited resources cause uneven spread to the objects. In the end, the resources are insufficient so the results are less efficient. Therefore, repositioning the bureaucratic role to the conceptual level and doing coordination with the related parties is required.

1. Introduction
Population growth requires more energy while the use of technology raises CO₂ emissions which triggers climate change. The implementation of infrastructure development and public facilities causes a decrease in the quality of the environment. Much deforestation, coastal reclamation, exploitation of mineral resources and mining have been executed only for the benefit of economic development. Dynamic and responsive government bureaucracy will try to reduce the impact of climate change. Bureaucracy has an important role in visualizing the existence of the government in the implementation of environmental development. As the actors of work dynamics, that is agents of development [1], the bureaucracy animates systems and procedures.

Stakeholders in the bureaucratic system perform their role in accordance with the vision, mission and goals of the government. The bureaucracy role includes public development, administrative services, which also includes intergovernmental organizations play a key management role [2]. Development requires a management role so that efforts to develop environmental innovation can run smoothly. The context of this research limits the meaning of government bureaucracy, especially those that administer
the main function of environmental development. For this reason, what is meant by bureaucracy is the
environmental service office.

Green village is an innovation model in public services and development programs implemented in
the world. The Belstone village was among the pioneers of the change through its green village project
[3]. The concept of new biomass and solar cities of this village can serve as a global model for smart
eco-vilages in tropical countries [4]; developing the local capacity to empower [5] many green village
programs which carried out in Indonesia, such as handling slum villages in Malang [6]; Semarang [7];
Yogyakarta [8]. Among these areas, DIY is interesting to study, given the role of bureaucracy in green
village innovation based on the concept of cultural behavior "hamemayu hayuning bawono." In this
case, the green village development function which is carried out by the environmental service.

The green village innovation model is characterized by environmental values, changes in
environmentally friendly behavior, the realization of settlement environment arrangement, the
development of an independent system to deal with environmental problems, and the institutionalization
of sustainable environmental systems. The village can provide characteristics amid the uniformity of
most urban areas [9].

The Environmental Service is committed to the green village program. The existence of 45 green
villages becomes authentic evidence of a green village innovation model. Regencies /Cities in DIY have
developed a green village innovation model, in various ways. Some of the differences among them
include focus, aims, methods, approaches and goals. The occurrence of these variations is relatively
determined by the government bureaucracy’s role in program development. The existing institutions can
contribute to rural development [10].

The role of government bureaucracy living in determining focus, aims, methods, approaches and
goals is the starting point in innovation. The occurrence of various green villages is an interesting
phenomenon to study. Changes as the innovation results in the green village can be felt both physically
and socially. The results of these change results are an image of the green village innovation model. The
purpose of this research was to find out the bureaucracy role in forming a green village innovation model
as well as mapping out the green village innovation model.

2. Public bureaucracy in environmental development
The value of benefits for each program is calculated from the profits obtained minus the administrative
costs of the bureaucracy [11]. Mutually beneficial cooperation between bureaucrats and intermediaries
can also involve bureaucratic intermediary theory professionals [11]. By collaboration with these three
parties, it can improve the quality of management. An organization can perform better people
management which in the long run will also increase profits, productivity, and innovation [12].
Employee involvement is a stronger predictor for positive organizational performance [13] Performance
is the key to organizational success [14]. To achieve high performance, bureaucracy is important to
attract employees. Creating a conducive organizational climate is a strategic way to foster creativity and
high performance. A climate that supports individual activities can encourage innovation [15]

The role of the bureaucracy is a set of behaviors that are consequences of formal positions, places
and status. The level of structure describes the position, place and formal status of officials attached to
a particular role. A role is a set of behaviors according to social status both formally and informally [16].
The managerial focus is on innovation [17]. Innovation is vital to achieving success [18]. Innovation
has a positive impact [19] Innovation is defined as the improvement of existing products [20].

Green Village is one of the programs planned by the government. Bureaucracy must play an active
role starting from policy formulation, promotion, implementation to evaluation. Innovation is a
comprehensive form of environmental innovation because there is a process of environmental social
engineering as a solution to improve the quality of the housing environment which is an innovation for
slums [6]; an innovation in settlements that requires the role of actors [8].

The forms of innovation in the green village program include waste treatment with 5 R (Replace,
Reduce, Reuse, Recycle, Recovery), rainwater management, biogas, briquettes, solar, communal
WWTP, Green Open Space, Flood Control, etc. [8]; innovation in waste crafts [21]; realizing environmental balance; building conservation and sustainability; and solving the problem of climate change.

3. Bureaucratic roles in green village innovation model

Determining the vision and mission of the Office of the Environment becomes the foundation of the green village innovation. In this case, the vision is "As a reliable institution in the management of the environment to realize the culture and environmentally friendly DIY society", while the mission is "Increasing synergy and effectiveness in efforts to improve environmental quality.” The realization of goals through the 2017-2022 Regional Medium Term Development Plan is to maintain the environment and the suitability of spatial planning. The innovation model is corresponding to building green and sustainable settlements:

| Strategy 1: Environmental Quality and protection of Natural Resources | Synergy of stakeholders |
| --- | --- |
|  | Local wisdom Management of the environment |
| Strategy 2: Capacity building, concern and stakeholders participation | Stakeholder engagement |
|  | Implementation policy: local wisdom & gender equality |
|  | Hamemayu hayuning bawana and Satriya code of conduct |
| Green village program | Environmental Cadres |
|  | Bureaucratic operational role |
|  | Community & village government commitment |
| Waste management (3R) | Garbage banks, Green Open Space, Waste disposal installation, Sanitation, Conservation, The amount of Vegetation increases, Flood control, Park, Craft, Organic fertilizer, Biogas |

**Figure 1.** Bureaucratic policy-making for green village innovation model.

Source: RPJMD DIY 2017-2022

DIY has a policy of innovation related to green village programs [22]. The innovation model of the green village focuses on sustainable development. Kuncoro said that the preservation of environmental functions could be in the form of components such as abiotic, biotic, social, cultural and public health. Local wisdom becomes an important part of the green village innovation model. The philosophy "Hamemayu hayuning bawana" is one of the characteristics of DIY local wisdom that preserves the environment.

The values of environmental preservation are built into the role of the bureaucracy by internalizing the attitude of cultural behavior "Satriya/Sawiji greget sengguh oramingkuh" (focus, enthusiasm, courage and responsibility). Satriya also became the acronym for "Harmonious, Intelligent, Exemplary, Willing to Serve, Innovative, Confident, Professional." The concept of "harmony" is Satriya's cultural value which emphasizes balance, environmental, cultural, religious humanitarian.

The implementation role done should have been coordinating by nature. However, in real practice, The Department of environment performs a technical role. There are many regions which cannot be reached by the services from The Department of Environment, so the green village is uneven. There is also not much can do for monitoring and evaluation role.

Some components that are emphasized by HP, Kuncoro [23] in the bureaucracy role context in the form of implementation include physical such as public space, clean water availability, waste management, environmentally friendly technology, independent waste management institutions, cultural/traditional/institutionalized customs, regulations about waste management and participation; financing, and society independence in implementing 3R. The green village should balance the abiotic biotic components and culture, also an effort to preserve, restore or improve the quality of the settlement environment.
The effort to perform the innovation by the government has been initiated by creating environmental cadre and plot demonstrations of the green village as a pilot move. The government (2014,p.26-46) facilitates the forming of environmental cadre by providing a budget, the plot demonstration and empowerment which presented in Table 1.

| Year | Establishing environmental cadres (Rp) | Green village plot demonstration (Rp) | Green village empowerment (Rp) |
|------|----------------------------------------|--------------------------------------|--------------------------------|
| 2013 | --                                     | 1,574,015,400                        | --                             |
| 2014 | 550,000,000                            | 1,574,015,400                        | --                             |
| 2015 | --                                     | --                                   | --                             |
| 2016 | --                                     | --                                   | 23,910,000                     |
| 2017 | --                                     | --                                   | --                             |
| 2018 | --                                     | --                                   | 106,147,637                    |

Source: processed from various resources, Yogyakarta, 2019

Table 2. Bureaucratic Roles for Green Village Innovation Model in 2012-2017.

| Cities/Regencies | Existed Green Villages (%) | Waste Bank Supervision | Bureaucratic Roles | Monitoring (%) | Evaluation (%) |
|------------------|----------------------------|------------------------|--------------------|----------------|----------------|
| Yogyakarta       | 13 28.89                   | 2                      | Green Village      | 10 22.22       | 1 22.22        | 4 8.88         |
| Sleman           | 5 11.11                    | 2                      | Green Village      | 10 22.22       | 0 0            | 4 8.88         |
| Bantul           | 20 44.44                   | 2                      | Green Village      | 10 22.22       | 15 33.33       | 4 8.88         |
| Gunungkidul      | 4 8.89                     | 2                      | Green Village      | 10 22.22       | 0 0            | 4 8.88         |
| Kulon Progo      | 3 6.67                     | 1                      | Green Village      | 10 22.22       | 0 0            | 3 6.66         |
| Total            | 45 100                     | 9                      |                    | 30 66.66       | 16 35.55       | 19 42.22       |

Source: processed from various resources, Yogyakarta, 2019

The distribution of the existed green villages in DIY is 45 units, which are spread unevenly in Yogyakarta, Sleman, Bantul, Gunung Kidul and Kulon Progo. This fact illustrates the local and society initiative in determining green village innovation. The initiation of bureaucracy in green village development or plot demonstration only covers Yogyakarta, Sleman and Bantul with only 30 units in total, from entire DIY which are 45 units. The bureaucratic roles analysis of green bureaucracy in executing a green village innovation model in DIY which are:

3.1. Environmentally-friendly policy-making role

The program in the big scheme of environmental development policies that becomes the authority of the environmental service if viewed from its proportion, the program is only a fraction of the scope of environmental policy. Meanwhile, the nature of the program includes intricate indicators (Figure 1)
between DIY environmental development policies with green village programs that are related to each other.

3.2 Green Village Program Implementation Role
The role of socialization, cadre formation, plot demonstration establishment, and green village empowerment cannot be done optimally. According to budget activity and support, there is no ongoing allocation. These three roles are partial, less programmed, and inconsistent. Cadre formation only occurred once in 2014, plot demonstration formation role only occurred twice in 2013 and 2014 while empowerment role was carried out in 2016.

3.2.1 Green village program socialization. The Department of the environment as a responsible bureaucracy that is responsible for green village innovation has limited authority to conduct socialization, only 4.44%. The socialization in Yogyakarta covered all of the Rukun Warga (RW). Socialization in Gunung Kidul only covered three villages, which are Nglipar, Semoyo and Kapedal. Green village innovation in Bantul is able to grow. Sleman has innovation strength without the support of socialization by The Department of the environment of DIY. Meanwhile, Kulon Progo has less initiative in green village innovation, in fact, there were only 3 units in five years. This growth imbalance is caused by the bureaucratic role in form of socialization which is uneven and tends to be neglecting toward Kulon Progo.

3.2.2 Green village formation/plot demonstration. The Department of the environment of DIY in five years has established 30 green village locations as a real action (66.66%). The 30 green villages were only established in three cities/regencies which are Yogyakarta, Bantul, and Sleman. The other two regencies namely Gunung Kidul and Kulon Progo do not get the plot demonstration allocation, causing underdevelopment in Gunung Kidul and Kulon Progo. The bureaucratic role of bureaucracy in plot demonstrations tended to be unfair. Only regions which are close in terms of geographic location, and which are accessible and relatively more open to the new program receive higher priority.

3.2.3 Environment-friendly program monitoring role. The monitoring is done by The Department of the environment only covered Yogyakarta and Bantul in 2012-2017. The allocation of the monitored green village is one green village in Yogyakarta and 15 green villages in Bantul. Monitoring is carried out to determine the development of green villages that have been built. Both of these regions have relatively high initiatives in motivating the formation of green villages. The bureaucratic role of bureaucracy done by The Department of the environment is more focused on areas which have more green village. The other three regencies, namely Sleman, Gunung Kidul and Kulon Progo were not targeted for monitoring.

3.2.4 Green village evaluation role. Within five years, The Department of the environment of DIY has conducted a green village evaluation. Each region has one nominee each year. In four years in a row, DIY has evaluated 19 units of green villages (42.22%), starting from 2014 until 2017. Evaluation for each village only occurs through a short visit about 3-5 hours. The evaluation result chose the three best green villages by giving awards. The means of evaluating green village is competition among green villages. The limits of this evaluation seem narrow and instant. The imperfect, rash and stumbling green village innovation process causes difficulties to survive. The spirit of the green village that will take part in the competition is increasing, however, after the competition, the enthusiasm is reduced again. The role of the bureaucracy from the evaluation is only to fulfill the requirements for competition rather than covering the requirements for evaluation as a whole.
Table 3. The evaluation of bureaucratic roles in a green village innovation model.

| Bureaucratic role indicator | Bureaucratic existed role                              | Improvement Recommendation                                      |
|-----------------------------|--------------------------------------------------------|-----------------------------------------------------------------|
| Policymaking                | Limited roles in policy process                        | Building an objective role and increasing bureaucratic capacity |
|                             | Budget limitation                                      | Green Village Program in the SDGs context                       |
|                             | Unsustainable program                                  | Coordination-supervision approach                               |
| Implementing                | Technical and operational approach execution           | Consultant with a large discretion and coordination approach    |
| Monitoring                  | Field review and operational control approach          | Coaching achievement with a large discretion                    |
| Evaluating                  | Direct assessment of achievement approach              |                                                                  |

The bureaucracy faces challenges in increasing the capacity of green village innovation to be sustainable. The sustainability of green village innovation will contribute solve the climate change problem.

4. Conclusion

The roles of the green village program innovation model in the level of The Department of Environment of DIY covers the policymaking process, socialization, the formation of environmental cadres, formation/plot demonstration, and green village empowerment. Technical activities ought only to be done by The Department of Environment in city/regency, and should be coordinated by nature. In the role implementation, the ability of coordination-supervision is the factor that should be improved. Meanwhile, in the monitoring and evaluation role, discretion and coordination are necessary for improvement. The bureaucratic role of program implementation experiences fault in management level that it is such a technical-operational and also the limited resources cause the uneven spread to the objects and the result is less efficient. The bureaucratic role in monitoring is partial and sporadic. The bureaucratic role of evaluation only motivates the green village to show up instead of developing to the next level. Continuously bureaucratic roles of the Department of environment for the green village innovation model is precious for addressing climate change.

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