

# Environmental Governance Urban: Public Participation and Sustainable Development

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**Abstract:** Environmental protection and management are carried out based on the principle of state responsibility, sustainability and sustainability, harmony and balance, integration, benefits, prudence, justice, ecoregion, biodiversity, participatory, local wisdom, good governance, and regional autonomy. The purpose of the research is to find out how much influence obtained between the variables of participation in sustainable development and indicators on these variables in environmental management in urban areas. The study was conducted in Makassar City in 2017-2018 with questionnaires and interviews as instruments to obtain primary data. The number of samples used was 200 respondents. With variables consisting of participation and sustainable development, then the indicator includes of (1) Thought Contribution; (2) Contributions of Funds; (3) Energy Contributions and (4) Contributions of Facilities for participation variables and (1) Culture - Ecology Interface; (2) Culture - Economy Interface; and (3) Economy - Ecology Interface for sustainable development. The analysis used is Confirmatory Factor Analysis (CFA) and to manage primary data with CFA, the help of IBM AMOS 23 Software used. The results of the study show that community participation in the development of business entities and waste banks is to encourage public involvement to the lowest level. To support environmental sustainability at the local level this, form of participation. From such things that make a significant influence between community participation in the development of environmental sustainability.

**Keywords:** Confirmatory Factor Analysis (CFA), Good Governance, Urban Governance, Environmental Administration.

## 1. Introduction

The development of science and technology and the rapid growth of the industry at that time certainly had a good influence on the positive and negative impacts [1]. The positive effect is an increase in quality and a more complex quality of life characterized by human pleasures and dreams that become easier to manifest in their daily lives. However, the negative impact of the industrial revolution must certainly be more vigilant to avoid any damage in the existing environment, both the environment and social environment. In its development, the environment and social environment should always be considered so as not to bring about various types of disasters [2]. For this reason, responsibility from all elements of the community is needed to maintain the

environment and social environment so that a better perspective on the environment can be created [3].

Humans are the key to change in the environment because the various policies and human behavior that they do can influence the survival of all beings in an environment [4]. Therefore, the environment also produces an impact on humans, because there is a balanced reciprocal relationship between humans and the environment [5].

The context of urban development, which is the independent authority of the city government, the actualization of the concept of good urban governance over public policy challenged when confronted with the magnitude of the aspects of authority possessed by regional governments from the spirit of regional autonomy [6]. The ability of the city government to

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mediate and translate the various aspirations of urban communities that are environmentally sound with forwarding thinking should be part of efforts to avoid various disasters that might occur. The resources of the government apparatus must be able to realize the professionalism of the bureaucracy in a mechanism, an institutional coordination system that is efficient, effective and fair (equity) [7].

In this connection, the future challenges that must be faced are directing concepts, strategies, and development programs to be able to provide a good and healthy environment, which is served by a modern public sector management system — the latest public sector management based on good governance. Based on facts in recent years has revealed the failure of the government (government failure), so there is a new approach that balances the role and influence of the parties in the governance of public affairs [8].

Often the concept of development is not determined based on its progressive value. For this reason, there is a great need for efforts to focus on achieving the idea of good governance as a prerequisite for achieving sustainable use of natural and environmental resources [9]. In this case, good governance can be placed as a basis for effective environmental management and based on environmental law. Realization of a clever concept of governance "good governance" is a prerequisite for obtaining enough balance between environment and development [10].

Research Koivisto and Marketta [11], about factors that influence environmental behavior, is responsible for the public service sector, finding that there is a direct influence of environmental knowledge in public policy making by the government in efforts to serve the public. In other studies, it appears that the potential for conflict of interest and overlapping decision-making in the system of public accountability between sectors and other stakeholders in the management and utilization of the area is an obstacle in efforts to preserve the environment.

Research conducted by Paavola [12], found that environmental governance is best understood as the formation, reaffirmation or change of institutions to resolve conflicts over environmental resources. Institutions or institutions that are directly appointed by the government as an extension of environmental management are more effective in solving social justice in community life.

## **2. Literature Review**

### **2.1. Sustainable Development**

International Union for Conservation of Nature [13], defines to be sustainable development, implementation of development must consider environmental, social and economic factors based on living resources and think the

long-term and short-term benefits or losses of an alternative action.

Participation according to Heckmann & Huneryager [14], is a mental and emotional involvement in group situations that encourage them to contribute to group goals and share their shared responsibilities.

Sustainable development oriented to the three pillars of objectives namely economic, social, and ecological [15]. The first pillar is economic development oriented to growth, stability, and efficiency. The second pillar is social development that aims to alleviate poverty, recognition of identity and community empowerment while the third pillar is the development of an environment that oriented towards environmental improvements such as environmental sanitation, cleaner and lower emissions industries, and the preservation of natural resources.

Ordóñez & Duinker [16], states that sustainable development is the first of a capacity in maintaining ecological, social and economic stability in the transformation of biosphere services to humans, both fulfilling and optimizing the needs of the present and future generations, the three persistence of the system needed and desired (socio-political or natural) in unlimited time, the four integration from the ethical, economic, social and environmental aspects coherently so that the generation of humans and other living beings.

Meanwhile, the Food and Agriculture Organization (FAO) [17], means sustainable development is the preservation and management of natural resources aimed at ensuring the sustainability of the needs of present and future generations. Conservation development such as land, water, plants, and genetic resources does not cause environmental degradation, uses appropriate technology and is socially and economically acceptable.

The view of sustainable development is put forward by Moffatt, Hanley, & Wilson [18], that sustainable development is an important part that must integrate the components of resources, namely the economic component, components of social culture and environmental components in a harmonious and balanced manner. The harmonious and balanced use of resource components is intended to optimize the use of resources at present without reducing the opportunities and fulfillment of future generations' lives.

This sustainability concept contains at least two dimensions, namely the time dimension because sustainability is nothing but what will happen in the future and the dimensions of interaction between economic systems and natural resource systems and the environment [19]. Pezzey [20], looking at sustainability aspects from different sides. He sees that sustainability has a static and dynamic understanding.

### **2.2. Participation**

According to Zimmerman [21], real participation is participation that results in empowerment, namely

participation which is a goal in the democratic process. Originating from the community and managed by the community. Pelling [22], identifying that participation is a struggle for the concept of ideology which results in various competing meanings and applications. The result is a variety of views on how participation is defined, who expected to be involved, what is expected to achieve, and how to implement [23].

Furthermore, Oakley [24], provides an understanding of the concept of participation by grouping it into three main terms, namely participation as a contribution, participation as an organization, and participation as empowerment.

The importance of participation is expressed by Conyers [25], as follows: first, community participation is a tool to obtain information about the conditions, needs, and attitudes of local communities, which without the presence of development programs and projects will fail; second, that the community will trust the project or development program more if they feel they are involved in the preparation and planning process because they will know the ins and outs of the project and will have a sense of ownership of the project; third, that it is a democratic right if people are involved in the development of their society.

With the theoretical foundation of Oakley [24], a conceptual definition of community participation formulated by direct involvement of the community in handling environmental hygiene issues which include community contributions, community organizing and community empowerment in handling environmental hygiene problems.

Angell [26], states that many factors influence participation that grows in society. Factors that influence a person's tendency to participate, namely age, gender, education, occupation and income and the length of stay in an area.

### 3. Research Methods

#### 3.1. Type and Research Approach

This research is a deductive study with a scientific approach that uses theoretical structures to form hypotheses, and then uses facts or empirical data to test hypotheses to get conclusions [27].

Quantitative research approach is a research approach that primarily uses the post-positivist paradigm in developing science (such as thinking about cause and effect, reduction of head variables, hypotheses, and specific questions, using measurement and observation, and testing theory), using research strategies such as experiments and surveys that require statistical data [28].

#### 3.2. Research Study

Makassar City designated as the location in this study. The city chose with the consideration that, the condition of the city is a very strategic city as a growth pole in Eastern Indonesia. Makassar is the only metropolitan city in the region, with the complexity of problems related to urban environmental governance. Research time is approximately five months from September 2017 to January 2018.

#### 3.3. Variable Latent and Construct

The theory put forward by Friend [29], environmentally sustainable development in this study was measured using indicators: (1) Culture - Ecology Interface; (2) Culture - Economy Interface; and (3) Economy - Ecology Interface.

With the theoretical foundation of Oakley [24], community participation in this study is measured using indicators: (1) Thought Contribution; (2) Contributions of Funds; (3) Energy Contributions and (4) Contributions of Facilities.

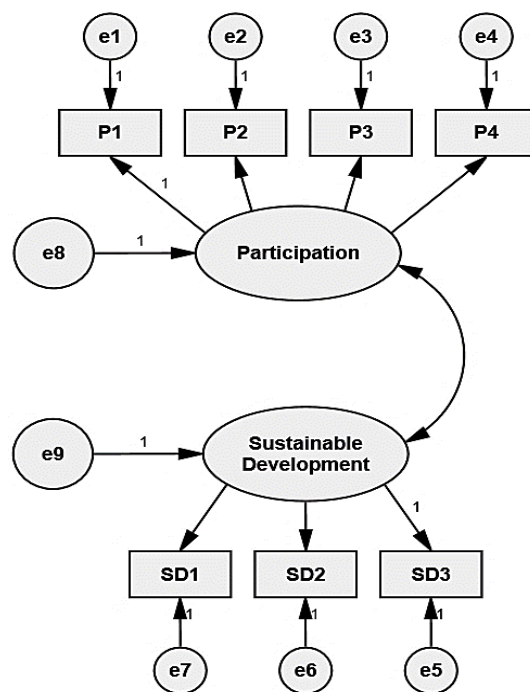


Figure 1. Research Design Confirmatory Factor Analysis (CFA)

#### 3.4. Population, Sample, and Data

The population is the subject of the research conducted. According to Creswell & Clark [30], the population is a region of generalization consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied and the conclusions drawn. The population in this study is in the form of long-resident communities in Makassar City, Makassar City Government Employees, Non-

Governmental Organizations and all related to urban environmental governance.

The ideal and representative number of samples used, according to Hoyle [31], is very dependent on the number of indicators used in all latent variables. In this study, the estimation of the Maximum Likelihood (ML) model is used with the proposed sample number of 100-200 samples as recommended [32], [33]. Of the types of population that have been known and determined, the sampling technique that is by this study is Purposive Random Sampling.

Primary data is used to capture various data and information related to the focus studied. Primary data in this study obtained from questionnaire instruments and direct interviews with interested parties.

### 3.5. Data Analysis

The analysis of this research is using Confirmatory Factor Analysis (CFA) which is part of SEM (Structural Equation Modeling) which is useful to test how measurable variables (indicators) are good at describing or representing some factors, which in the CFA factors can refer to as extracts. The extract is an immeasurable variable that requires measurable variables (indicators) to be able to describe the extract. Also, CFA is also used to test the certainty of the measurement theory. Measurement theory is used to determine how measured variables can logically and systematically describe a construct displayed in a model [31], [32].

Confirmatory Factor Analysis (CFA) according to Joreskog and Sorborn [34], was used to test unidimensional, validity and reliability of construct measurement models that cannot be measured directly. To manage primary data with Confirmatory Factor Analysis (CFA), the help of IBM AMOS 23 Software used.

## 4. Results and Discussions

### 4.1. Goodness of Fit and Loading Factor

According to Garson [35], it recommended to only report the fit model size from CMIN, RMSEA, one or more incremental fit indices (CFI, IFI, NFI, RFI, TLI), one of the parsimonious fit indices (PNFI, PCFI, PGFI) and one or more of information theory (absolute fit indices) (AIC, BIC, CAIC, BCC, ECVI, MECVI). The results of the fit model can be seen in the table as follows:

**Table 1.** Goodness of Fit (GOF) Criteria

No.	Criteria	Cut-Off Value	Result
1	CMIN/DF	< 2.000	0.698
2	GFI	> 0.900	0.959
3	RMSEA	< 0.080	0.000
4	TLI	> 0.900	1.166
5	CFI	> 0.900	1.000

No.	Criteria	Cut-Off Value	Result
6	IFI	> 0.900	1.106
7	PNFI	> 0.500	0.599
8	PCFI	> 0.500	0.732

In Table 1, the Goodness of Fit criteria show that the size of the model used is feasible or not. The explanation can see as follows:

- 1) From the analysis, the Normal Chi-Square (CMIN / DF) value of 0.698 is smaller than the recommended value of <2,000 and if <1,000 [36]–[38], it concluded that the model is very fit.
- 2) From the analysis, the value of Goodness of Fit Indices (GFI) of 0.959 is higher than the recommended value of >0.900 [34], [38], [39], so it concluded that the model is fit.
- 3) From the analysis yielding the Root Mean Square Error of Approximation (RMSEA) value of 0,000 is smaller than the recommended value of 0.080 [38], [40]–[43], it concluded that the model is fit.
- 4) From the analysis produces a value of TLI (Tucker Lewis Index) of 1.166 higher than the recommended value of >0.900 [38], [44], [45], it concluded that the model is fit.
- 5) From the analysis produces a CFI (Comparative Fit Index) value of 1,000 higher than the recommended value of >0.900 [38], [46]–[49], it concluded that the model is fit.
- 6) From the analysis yielding the Incremental Fit Index (IFI) value of 1.106 higher than the recommended value >0.900 [50], it concluded that the model is fit.
- 7) From the analysis results in a Parsimony Normed Fit Indices (PNFI) value of 0.599 higher than the recommended value of >0.500 [51], so it concluded that the model is fit.
- 8) From the analysis results in Parsimony Comprehensive Fit Indices (PCFI) values of 0.732 higher than the recommended value of >0.500 [51], so it concluded that the model is fit.

From the results obtained by the Goodness of Fit, it can conclude that the model made is feasible to use.

The loading factor describes the relationship between the research variables and the indicators. Then the best indicator on a variable is the one with the most considerable loading value because it indicates the higher relationship between the indicator and the research variable. In most references, a factor weight of 0.500 or more is considered to have enough validation to explain latent constructs [52].

**Table 2.** Estimated Construct Loading Factor

Variable	Construct	Estimate
Sustainable Development	Culture-Ecology Interface (SD1)	0.673
	Culture-Economy Interface (SD2)	0.584

Variable	Construct	Estimate
Participation	Economy-Ecology Interface (SD3)	0.312
	Thought Contribution (P1)	0.506
	Contributions of Funds (P2)	0.437
	Energy Contributions (P3)	0.678
	Contributions of Facilities (P4)	0.489

Table 2 shows that the Economy-Ecology Interface (SD3) construct, Contributions of Funds (P2), and Contributions of Facilities (P4) are less than the recommended value. Therefore, the three constructs are considered not to have strong validation to explain latent variables.

#### 4.2. Public Participation and Sustainable Development Environment

From the results of the analysis conducted, it found that participation had a significant influence on environmental sustainability. It is because, because public participation in waste management in Makassar, has been institutionalized, among others, the establishment of BULO (Auction Business Entity) and Waste Banks by communities in all sub-districts. This participatory effort is a manifestation of Law No. 20 of 2008 concerning Micro, Small and Medium Enterprises (MSMEs) and Government Regulation No. 17 of 2013 concerning the Implementation of the Law. Furthermore, through Mayor Regulation No. 65 of 2015, granting licenses for micro, small and medium enterprises is delegated from the Mayor to the District Head. BULO is a micro and small business based on the participation of local communities by developing local resources as well. The real form of BULO is urban farming that uses waste as organic fertilizer. The garbage is in the form of organic waste from food scraps and leaves from the clearing of land and roads around the location of the BULO.

At present 700 BULOs have been formed in the halls of Makassar. Most BULOs are livelihood activities that used as employment opportunities for additional family income. Some of them have started to increase as micro enterprises that are occupied and continue to grow, such as chili and vegetable businesses. In addition to the BULO, the Waste Bank as a form of citizen participation in the use of waste as an economic resource has also been proliferating. The Waste Bank in Makassar consists of the Central Waste Bank, Sectoral Waste Bank, Unit Waste Bank, and School Waste Bank.

The above is in line with the results of interviews with Ms. Lina, the Unit Waste Bank customer in Sub-district, indicating the existence of a Waste Bank to help with her household income. Within a week Ms. Lina can get an additional income of around IDR 30,000 to IDR 50,000 from the collection of recycled waste. Economic value increases again if the waste processed into recycled crafts. The waste craftsmen say that homemakers in the sub-

district fill their spare time by making craft bags, sandals, tablecloths, flower vases, lamp shades and so on from garbage. The handicrafts are sold directly at the house which is the center of their activities and through exhibitions or customer orders. In addition to providing a positive economic impact, the presence of a Waste Bank in several regions has a positive social impact. Areas that were previously prone to high crime rates turned out to be safer with declining crime rates.

The results of this study also show that the management and presence of Waste Banks in the regions has opened new jobs. Young people who used to be unemployed and tend to cause social disturbances, now have positive activities by collecting and sorting out the garbage. Waste that can recycle, they deposit it to the Waste Bank to be assessed as savings. As a result, adolescents can help parents get income from waste (economic impact) and at the same time reduce activities that disturb the community (social impact). Community participation in the management of Waste Banks, encourages sustainability, not only in terms of the environment but also from an economic and social perspective.

The presence of a tangible form of community participation in the BULO and Waste Bank is one manifestation of governance, where the Government facilitates the institution. The community has the will and ability, then is given the opportunity to participate. It is in line with the view that community participation in the development process will be realized as a real activity when fulfilled three main factors support it, namely (1) willingness, (2) ability, and (3) opportunity for the community to participate [53]. BULO branding is socially acceptable and encourages participation. Social or moral norms and institutions can positively influence the tendency to participate [54].

BULO and Waste Bank in Makassar city are developing, among others, through the effective use of social media. The presence of the media succeeded in providing another perspective for someone to participate in the program or activity offered [55]–[57]. Media has influenced the change in the form of society. Through social media, it is possible for every citizen to express their aspirations, opinions, ideas to encourage/support the implementation of participatory development [58].

The development of the self-help unit BULO and Waste Bank Unit is also in line with the opinion [59], about the meaning of participation. The participation approach interpreted; first, as a community contribution to improve development efficiency and effectiveness in promoting processes of democratization and empowerment; second, this approach is also known as participation in the dichotomy of instruments (means) and destination (ends); and the third concept, participation is elite capture which interpreted as a situation where local officials, community leaders, NGOs, bureaucracies and other actors are directly

involved with participatory programs. The results of this study, show the three meanings in waste management in Makassar.

Community participation in waste management at the sub-district level has been institutionalized, among others, reflected in the formation of BULOs and Waste Banks. Institutionalized environmental management participation, more guarantees environmental sustainability. It is in line with Maiello research [60], which emphasizes that institutionalized public participation, through the politicized organization, significantly embodies environmental sustainability.

Brewer and Stern [61], assert that there is a close relationship between good governance and good environmental management. Good governance will influence and determine good environmental management, and good environmental management reflects the level of good governance. Without good governance, it is difficult to expect good environmental management [62]. One factor that must be faced to achieve sustainable development is how to improve environmental destruction without sacrificing the need for economic development and social justice [67].

In addition to the increase in income, and output already mentioned, the development process also deals with a series of fundamental changes to institutional, social, and administrative structures, community attitudes and often even extends to living customs, habits and belief systems in society [63].

The World Commission on Environment and Development (WCED), known as the Brundtland Commission in 1987, stated in its report that development that is environmentally sound and sustainable is a development that has present needs without reducing the ability of future generations to meet their needs [64].

Community participation in development can be interpreted as the existence of togetherness or mutual contribution to interests and shared problems that grow from the interests and concerns of individual citizens of the community itself. Participation, in this case, is the result of the social consensus of the community members on the direction of social change expected by the community [65].

In balancing the development with the quality of life of the population from an ecological point of view, the human wise attitude and behavior towards the environment need to be fostered to replace the environment-breaking mentality [66].

In principle, environmental governance is essential to investigate as part of the concern for the instrument of regional environmental governance. Research on social phenomena that occur when viewed from management discipline and public policy. As is known that environmental governance is an instrument of public policy as well as the design of public management. Good or bad environmental governance will be a record in managing the environment now and in the future.

## 5. Conclusions

Institutionalization of participation such as in the form of an Auction Business Entity (BULO) and Waste Bank encourages the process of public engagement at the sub-district level to the lower community. Politicized organizations from participation like this, support environmental sustainability at the local level. It makes a significant influence between the level of community participation in environmental sustainability.

The Environmental Administration in Indonesia is still relatively lacking; hence this discipline needs to be continually developed. Environmental Administration Development in Higher Education and Research Institutions is critical, to develop concepts and models of sustainable development, which are fit and proper with the socio-economic and socio-cultural context of countries that are developing into developed countries, such as Indonesia.

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