

Research article

Social Capital Based on Local Ecological Knowledge in the Bompon Watershed Community

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Abstract.

Environmental ethics has an important position in the management and utilization of the environment; however, the paradigm of human interaction with the environment often creates gaps in ethical understanding. A range of negative impacts arise as a result of imperfect interactions between humans and the environment. Individuals and communities should focus on achieving sustainable environmental development. One such development is through social capital based on local ecological knowledge (LEK). The purpose of this study was to identify and describe a community of social capital based on LEK in accordance with the environmental ethics of the Bompon watershed community in Magelang Regency. We used qualitative descriptive methods; data were collected using interviews and observations. The results showed that social capital based on LEK in accordance with basic environmental ethics referred to experience, trust, adherence to values, regulations, and institutions in the Bompon watershed community.

Keywords: Bompon Watershed Community, environmental ethics, local ecological knowledge

1. Introduction

The position of human interaction with their environment is dynamic. As part of nature [1], humans always harmonize both with their physical environment and their social environment [2,3]. In the study of Geography, the three paradigms of human relations with nature, including the paradigm of determinism (man in nature), possibilism (man against nature), and necessarium (man and nature) [4]. The essence of the paradigm emphasizes the aspects of the human mind about the environment.

Humans and nature have a complex relationship. Biotic, abiotic, and cultural environments interact and form a dependency [5,6]. This condition can give rise to local knowledge in a society, then merge into a system of knowledge, behavior, and attitudes

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in their interactions with the environment [7,8]. Local knowledge is an integral part of human life—cognitive aspects as human controllers in acting and behaving and their interactions with the environment. In addition, social capital in a social community formed by local knowledge. Local knowledge is a cognitive element in social capital and forms local ecological knowledge about the environment [9].

Local knowledge is an integral part of human life. Cognitive aspects as human controllers in acting and behaving, and their interactions with the environment [10]. In addition, social capital in a social community forms by local knowledge [11,12]. Local knowledge is a cognitive element in social capital and forms local ecological knowledge [9].

The Bompon Watershed is one of the Bogowonto river sub-watersheds in the Magelang Regency. Upstream in the Sumbing Mountain area, the Bompon watershed flows into the Indian Ocean. The upstream watershed of Bompon has complex physical conditions [13]. Physically, the soil in the Bompon watershed comes from the early stage due to the eruption from Mount Sumbing. Conditions cause active erosion to occur frequently, both in the form of furrow erosion and gully erosion. The interaction of society with such physical conditions is a unique study to determine the relationship of LEK.

This research aims to describe and determine social capital based on local ecological knowledge in society. The subjects in this study were the people of the Bompon watershed, considering that they are an integral part of the environmental conditions of the Bompon watershed. This study focuses on identifying community ethics using social capital based on local ecological knowledge of the Bompon Watershed in Magelang Regency about the surrounding environment.

2. Method

This research is a qualitative descriptive study during Field Work Lecture activities by postgraduate students of Geography Education, Universitas Negeri Malang. The research in the Bompon River Basin (*DAS*), Wonogiri Village, Kajoran Magelang District, Central Java. The method of determining informants using snowball sampling. The techniques used to identify, select and take samples in a network or continuous chain of relationships [14]. The key informant in this research is Hanif Maskur as the head of the hamlet.

The data collection techniques using observation and interviews. The observations can effort to observe, feel and observe Environmental Ethics behavior sourced from

Local Ecological Knowledge which is strengthened by the social capital they have. Meanwhile, the interview process to get the right information from correct sources or informants. There are two types of data in this study, namely primary and secondary data. Primary data in the form of field notes and interview results. Meanwhile, secondary data is the demographic data of Wonogiri Village, Kajoran Magelang District and photo documentation.

3. Result and Discussion

Social capital is the power of society. Social capital grows in a society naturally composed of values, and norms shared in a particular community [8,15]. The social capital is relational, meaning that the role of individuals in the internalization of social values and norms is comprehensive in the social community [16]. The form of capital in society includes leadership, social relations, customs, values, norms, solidarity, and trust [17]. Social capital in environmental studies results from a causal relationship with local community knowledge, namely local ecological knowledge. Local ecological knowledge collects people's knowledge about their physical and social environment [18]. The LEK helps determine the proper decision-making on environmental problems [19]. The LEK accommodates individual knowledge in various fields of life [20].

3.1. Social Capital Based on Local Ecological Knowledge of the Bompon Sub-Watershed Community

Local wisdom has an essential meaning in the dynamics of community life. Local wisdom as an integrated cultural form occurs through a long process [8]. The local wisdom has several vital functions in social life. The local wisdom is a way to unite differences in society and bring out a common identity—the local wisdom in different regions. This difference is due to the value of local wisdom due to a long process of internalizing beliefs, behaviors, local knowledge, and community culture. The results showed five indicators of LEK found in the Bompon Sub-watershed community, including experience, trust, adherence to values, regulations, and institutions [21]. The village communities who hold local wisdom become a potential energy source from a collective community knowledge system [8].

Local Ecological Knowledge of the Bompon watershed community developed due to their long and robust interaction with the natural environment. Results in a deep understanding of the ecological knowledge of the place where it lives. Local Ecological

Knowledge (LEK) can be essential in sustainable development that supports biodiversity, supports the use of environmental resources, and manages conservation through indigenous cultural values [22,23,24].

TABLE 1: Research Result of Bompon Watershed Community.

LEK indicator	Research result
Experience	There is a belief that nature will provide feedback according to the treatment provided by the community.
Belief	There is a trust in environmental management wisely to nature. The perspective of society in its position with the environment is side by side (man and nature) / eco-centrism.
Compliance with Values	The community upholds the values of respect, responsibility, democracy and justice in the practice of environmental use and management.
Regulation	Traditional laws or sanctions are still being enforced.
Institutions	The institutional structure is traditional (gemeinschaft) with an emphasis on mutual assistance.

Source: Akpabio, 2012

3.2. Experience

Based on local wisdom, human experience is constructed by interaction in a local community in an area. The experiences form and transfer between generations [25,26]. In addition, human-environment interactions will form good recognition between the two. Society interprets the subject through experience [27]. The experience of the community around the Bompon watershed in environmental ethics is natural and has high intrinsic value. The intrinsic value arises based on the relationship between individuals and locations [28]. This condition is reflected in the DAS-Bompon community.

The interaction of people with their environment can reconstruct experiences. The experience emerges through human interaction with the environment [29]. Community experience about environmental ethics assumes that human interaction with nature will have an impact on humans. Environmental ethics appear as positive interactions between humans and the environment [30].

3.3. Belief

Trust becomes an inseparable part of social society. Trust is a system of attachment and meaning of life in culture and originates from religion. Trust as a form of self-esteem [31], self-capacity [32], and self-regulation of a phenomenon [33]. Based on interviews in the field, the community did not know about environmental management. However,

the community believes that utilizing natural resources such as water, soil, bamboo trees, sengon trees must be sufficient. The people are aware that the nature they live in must be sustainable [34]. This is by the concept of local wisdom with an ecological perspective, where people in local wisdom have various approaches and determine the actions and decision-making [35].

The Bompon watershed community knows the natural surroundings. They have great respect for nature with the belief that it is using nature wisely and wisely. This means that the community already has good knowledge. Humans know about ecology, placing themselves in their environmental ecosystem [36].

3.4. Compliance with Values

The local wisdom values adopted by the community in the Bompon watershed are unique. Based on the interview, the community does not understand environmental management. Management on how to manage land, water, and vegetation. In reality, on the ground that the community believes that in cultivating nature, one must wisely by taking and utilizing what is sufficient. Internalizing community values within individuals emphasize the development of wise character [37].

This indicates that the people in the Bompon watershed area have environmental ethics principles. Society has put itself in humans and nature with the paradigm of eco-centrism [38]. The principles of respect, responsibility, democracy, and justice practiced by the community in their daily lives [16]. In addition, values from the community's point of view are the main characters in respecting ancestors [39]. This can be an example for other communities about how to be ethical towards nature or the environment.

3.5. Regulation

Dependence on human knowledge and understanding based on needs gives rise to a causal relationship. The purpose of the interaction between the two is to build good environmental harmony. The harmony is achieved through the regulation of actions and behavior [40]. Harmony will not be achieved without regulations within a community group [41]. This condition is reflected in the Bompon Sub-watershed community, such as the imposition of sanctions (local law) to the customary violators of the Bompon watershed community.

Based on an environmental ethics point of view, the Bompon watershed community has its own rules obeyed and binding. The local regulations have clear sanctions and

boundaries regulating their communities [42]. The regulations are indicators in the main LEK, relating to human actions and behavior with the environment and others [43].

3.6. Institutional

Values and norms in traditional institutions emerge collectively and have mutual recognition. The recognition is based on the same perceptions and goals in a community. The institutions based on social capital in traditional societies include religion, values, norms, decency, formed and regulated in various fields [44], including the environmental sector.

The people in the Bompon watershed area are traditional by maintaining local wisdom. The condition of the community is *gemeinschaft* or is still traditional, with one of the characteristics is cooperation. Infield observation, several farmers plant rice simultaneously, indicating cooperation in managing agriculture. Such a system positively impacts the community in its interactions with the environment [45].

4. Conclusion

Based on the study results, it is stated that the position of social capital based on Local Ecological Knowledge (LEK) is crucial in environmental ethics, especially for the people in the Bompon watershed area, Magelang Regency. As a basis in community ethics, LEK plays an essential role in cognitive management of environmental management and utilization. Experience, trust, adherence to values, regulations, and institutions are the primary environmental ethics of the communities in the Bompon watershed area. Individual and community factors have the same position and play an active role in environmental management. Thus, it can be concluded that social capital based on LEK has a positive impact on environmental ethics in communities in the Bompon watershed area, Magelang Regency.

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